International Business Research

Editorial Board

Contents

African Tradition and Global Consumer Culture: Understanding Attachment to Traditional Dress Style in West Africa

Fatou Diop[1] & Dwight Merunka[2,3]

[1] Cheikh Anta Diop University, Senegal

[2] Aix-Marseille University (Cergam, IAE Aix-Marseille), France

[3] KEDGE Business School, France

Correspondence: Dwight Merunka, Aix-Marseille University, IAE Aix-Marseille, Clos Guiot, 13540 Puyricard, France. Tel: (33)442-280-829. E-mail: Dwight.merunka@iae-aix.com

Abstract

This article investigates the attachment of Senegalese to traditional consumption patterns and its effects on the construction of a coherent identity. In particular, we investigate loyalty to traditional dress across multiple occasions and in the face of global consumer culture dominance. To explore the multiplicity of meanings of tradition, this study relies on in-depth interviews, focus groups and a structured means-end analysis. The results reveal that loyalty to tradition enables individuals to attain social and self-identity benefits. The link of benefits sought from traditional consumption and behavior to end-goals pursued by individuals, reveals that attachment to traditional dress styles relates mainly to self-esteem and expressions of religious values, ethical values and African identity. This attachment to tradition and associated values varies according to behavioral patterns and frequency of use.

Keywords: culture, values, African identity, tradition, social change

1. Introduction

The development of exchanges and connections among people, cultures, goods and brands favour the development of a global consumer culture (Amselle, 2002). Global media, global brands, as well as the growing exchanges of people across borders, imply the development of a homogeneous consumer culture, in which consumers acquire behaviors characteristic of a 'deterritorialized global consumer culture' (Cleveland & Laroche, 2007). This global consumer culture is a 'cultural entity not associated with a single country, but rather a larger group generally recognized as international and transcending individual national cultures' (Alden, Steenkamp & Batra, 1999). People become acculturated to this global consumer culture, through a process of adopting the norms, values, skills and behaviors of a culture different than their native one (Peñaloza, 1989).

By contrast, ethnic (national) identity refers to a person's sense of belonging to an ethnic (national) group and reflects the extent to which he or she identifies with it. It influences people's thoughts and values (Alden, He & Chen, 2010; Markus & Kitayama, 1991) and determines behavior (Oswald, 1999; Stayman & Deshpandé, 1989). To varying degrees, the competing pulls of local traditional cultures and of a global consumer culture affect individual consumption behaviors, depending on how they adopt foreign or global consumption patterns, mix global behaviors with local elements or remain strongly identified with their culture of origin and resist global values.

To investigate these predictions, Africa offers an ideal setting, in that it is subject to the influences of global consumer culture but also represents a place where tradition plays an important role in society (Kleist, 2011; Logan, 2009). Thus complex interactions exist between local contexts and the developing influence of a global consumer culture. As Arnett (2002) argues, as a result of globalization, many people develop bicultural identities, "combining their local identity with an identity linked to the global culture." Various artistic activities and consumption patterns tend to reflect the traditional values embraced in Africa, which engage in a complex interplay with global content. Wilk (1995) therefore recommends that cross-cultural researchers consider the "complex interplay … rather than arguing for the primacy of one over the other."

Accordingly, we seek to understand the attachment of a West African population to traditional consumption

patterns, in face of the development of a global consumer culture. We argue that African consumers are influenced both by global and local consumer cultures. Rather than simply accepting a global consumer culture and giving up their ethnic identity and associated behaviors, consumers in Senegal account for the importance of traditional values and integrate multiple cultures. Through such integration, they alternate among cultures, depending on the social context. We attempt to identify the determinants of traditional consumption behaviors, including their associated benefits and related values (or end goals). With this identification, we can better comprehend loyalty to traditional and resistance to global consumption patterns. Remaining loyal to traditional consumption patterns in diverse occasions emerges as an important expression of both self- and group identity (Beverland & Farrelly, 2010).

In our empirical investigation, we focus on clothing consumption, a category with economic importance and strong influences stemming from both the global economy and local tradition. Fashion facilitates expressions of self-identity and enables consumers to switch from one style to another, depending on the situation. To investigate this aspect of culture and consumption, we adopt a qualitative approach with the conduct of both in-depth interviews and focus groups of Senegalese men and women who vary in their attachment to traditional dress styles. We formally uncover the links they make between the perceived benefits of wearing traditional dress, the instrumental values they wish to express and the end goals they pursue. We model these links through a means-end analysis.

In the next section, we outline the relationship between consumer goals and attachment to traditional consumer behavior through a brief literature review. After we describe the methods we used to address our research objectives, we present our findings and identify the reasons for consumers' attachment to traditional (African) dress styles. We structure these reasons according to a means-end analysis to clarify consumer goals and values. Finally, considering that values and behaviors vary across individuals, we distinguish meanings and values for frequent versus infrequent users of traditional dress styles in West Africa.

2. Theoretical Background

2.1 Tradition and Dress Styles

The concept of tradition can be ambiguous; for example, dress styles of past centuries are not considered an option. Furthermore, modern African nations comprise various ethnic groups with many different styles. As is the case for any fashion, dress styles constantly are re-invented and evolve. However, it is possible to establish an unambiguous contrast in forms, colors, patterns and cloths between traditional West African dress styles and global Westernized dress styles, from both physical and psychological perspectives.

Studying the attachment of Africans to a traditional dress style is appropriate because clothing is a strong expression of identity and enables people to express themselves in an observable way (Hamilton, 1991). It is an accessible, visible and changing indicator of individual character, identity and status. Clothing is also an expression of group identity, such that it can strengthen ethnic, religious or political recognition and belonging.

Many authors have stressed the importance of clothing in Africa as an expression of self and group behavior (Allman, 2004); it also offers the simultaneous coexistence of traditional and modern dress styles in many occasions and across consumer profiles. Wearing traditional dress may be an expression of national, regional, tribal or religious identity. In turn, wearing global (Western) dress may signal a more modern or cosmopolitan style. Western style also may be associated with literacy, education, power and a global sense of culture—or with a loss of identity, loss of control over the youth or women's loss of morality (Hopkins, 2006). Switching from modern to traditional dress may occur because 'ethnic dress helps to position an individual in time and place relationships' (Eicher, Roach-Higgins & Johnson, 1995), possibly linked to a feeling of kinship when traditional dress allows a person to look the same as significant others (Gordon, 1987) and distinguish oneself from outsiders who are not members of the cultural group.

Cleveland, Laroche & Hallab (2012) show that the adoption of European or American fashion by Lebanese consumers is linked to acculturation to global consumer culture (not to ethnic identity). The more sensitive people are to global consumer culture, the more they wear Western-style clothes, independent of their ethnic identity. In contrast, the adoption of traditional Lebanese fashion is linked negatively to acculturation and positively to ethnic identity. Therefore, the adoption of global fashion corresponds to the dominance of a global culture, whereas adoption of the local, traditional style corresponds to a cultural strategy of separation and resistance to global culture.

Although prior research has suggested little integration of two cultures (Berry, 1997), in which case people would adopt both fashion styles, depending on the occasion or social context, observations in West Africa

indicate that many consumers wear both Western and traditional dress. On certain occasions, a traditional style may reflect cultural integration rather than cultural resistance, such that old and new cultures and structures co-exist through mutual adaptations. Gusfield (1967) cites a series of cultural fallacies and argues that 'the old is not necessarily replaced by the new. The acceptance of a new product, a new religion, a new mode of decision-making does not necessarily lead to the disappearance of the older form. New forms may only increase the range of alternatives. Both magic and medicine can exist side by side, used alternatively by the same people.' He further suggests that "tradition and modernity are frequently mutually reinforcing, rather than systems in conflict" (Gusfield, 1967).

2.2 Dress Code and Consumer Goals

Belk (1988) famously posited that consumption activities help consumers define their sense of who they are, by extending and strengthening their sense of self, expressing their self-identity and asserting their individuality (R. E. Kleine, S. Kleine & Kernan, 1993). This reasoning clearly applies to the choice of dress, for which many options exist in the market (Auty & Elliot, 1998; O'Cass & McEwen, 2004). Furthermore, the choice of dress serves a social purpose and may reflect ties to various groups, such as family, community, cultural groups or religious groups (Escalas & Bettman, 2005).

In a related sense, people buy (and wear) products for what they mean; these meanings in turn define a self-concept (Levy, 1959). Therefore, consumers express themselves through their choices, particularly of visible goods such as clothing. Meaning also accrues through the use of a product by a reference group, because that usage implies values held by the group. Group membership (e.g., ethnic, religious, sports, social) thereby helps determine brand usage and product choice (Bearden & Etzel, 1982). Consumers buy products consistent with their in-group values or expectations, but they reject meanings and brands associated with an out-group with which they do not want to share meaning (Escalas & Bettman, 2005). For example, if a Senegalese considers her- or himself an intellectual and fellow intellectuals wear global dress styles in an international conference, she or he likely uses a similar dress style to indicate her or his belonging to this group. However, if this conference were held in Senegal and the in-group reference became Senegalese or African intellectuals, the same person might wear traditional dress.

Literature pertaining to the meaning of brands and brand-consumer relationships might help clarify the meaning of dress styles and consumer relationships with traditional attire too. That is, brands are vehicles for expressing self-meanings, and according to a comprehensive study of brand meanings by Strizhakova, Robin and Linda (2008), consumers purchase brands for reasons of quality, personal identity (self-identity, group-identity and status), personal values (values, interests and concerns of consumers) and traditions (grouping family and national traditions). With the exception of quality, which is specific to a brand and not a category (e.g., traditional dress might vary in quality), we expect these brand meanings to apply to the choice of traditional dress.

A final theoretical consideration pertains to religion and religiosity. Religion designates a particular faith (e.g., Christianity, Islam) and directs a person's life in accordance with religious role expectations (Weaver & Agle, 2002). Religiosity instead is 'the degree to which beliefs in specific religious values and ideals are held and practiced by an individual' (Swinyard, Kau & Phua, 2001). In Senegal, Islam has been active since the 11th century, more than 90% of the population is Muslim and religiosity is vivid (Diagne, 1992); therefore, we expect consumer behavior in general and choice of dress style in particular to be affected by both religion and religiosity. The Senegalese maraboutic model (Note 1) is present in public life, and icons of affiliation with the Sufi order and a maraboutic guide are common (Villalón, 1999).

3. Method

To investigate culture and consumption linked to an attachment to traditional dress styles in Western Africa, we conducted our investigations in Dakar, the capital of Senegal. Home to 2.5 million inhabitants (21% of the Senegalese population), Dakar accounts for 80% of the economic activity of the country and is the centre of tourism. Government and international agencies and the headquarters of major national and international companies are situated in Dakar (Fall, 2008). Thus inhabitants are well exposed to global consumer culture. Yet across genders, income levels, education levels and ages, eight out of ten Senegalese in Dakar wear traditional dress at least once a week (Thiof magazine, 2009).

We conducted two studies, one using in-depth interviews with ten Senegalese consumers to uncover their behaviors, meanings and values associated with traditional dressing and one involving two focus groups, designed to link benefits and meanings to end-goals through the use of a laddering technique.

3.1 Study 1: Meanings and Values

To investigate behaviors, meanings and values associated with traditional dressing styles, we conducted ten in-depth interviews. A recruiting agency located the informants and guaranteed a diverse sample in terms of age, gender, income and educational background, to ensure we had a rich range of experiences linked to dressing. One author conducted all of the semi-structured depth interviews (Table 1).

Table 1. Interview participants

Informant	Gender	Age	Family status	Educational Background	Occupation	Religion	Wearing traditional dress (days per week)
Amadou	Male	36	Married	PhD	Professor	Muslim	1
Maguette	Female	59	Married	MD	Doctor	Muslim	3
Codou	Female	34	Married	Primary	Housewife	Muslim	5
Babacar	Male	41	Married	Primary	Shoemaker	Muslim	6
Aminata	Female	57	Married	Middle school	Secretary	Muslim	7
Héléne	Female	38	Married	Master	Assistant	Christian	2
Seynabou	Female	41	Divorced	Master	Assistant	Muslim	3
Paul	Male	21	Single	High school	Security guard	Christian	1
Malick	Male	39	Married	Primary	Salesman	Muslim	2
Angèle	Female	26	Single	Primary	Cleaning lady	Christian	7

Interviews conducted at 22–23–24.03.2012.

The interviews lasted between one and two hours and took place at the informants' homes, which helped them access experiences, behaviors and meanings associated with traditional dress styles. To begin the interviews, the author who conducted them provided a description of behaviors linked to wearing traditional and global dress styles. Informants then were to elaborate on and provide explanations about the circumstances, occasions, reasons and personal relevance for wearing traditional dress. All the interviews were recorded and transcribed, and both authors analyzed the resulting transcripts. We identified occasions, benefits and motivations linked to wearing traditional dress and their relationship to any expressed attachments to traditional dress style. Next, we content analyzed the interviews to understand the meanings of dress styles and the values associated with these meanings.

Sall Amadou, Professor at University Cheikh Anta Diop, Dakar

Amadou is a 36-year-old man who has been married for 10 years. He is a Muslim and the father of a 4-year-old child. After obtaining his doctoral degree in England, he began working as a consultant and teaching at the university, which requires him to travel widely. Amadou is a genuine African intellectual. He wears traditional dress once a week, on Fridays. He was brought up in a religious family and attended Koranic school until the age of 6 years. He married a Christian woman who subsequently converted to Islam. Amadou associates the wearing of traditional dress with religion. He is concerned about the views of those around him, regarding his faith in Islam, so he advertises that faith by wearing traditional dress:

Despite the prevalence of Western culture, I am attached to my local culture. I wear Western dress when I go to work. That way, I feel freer in my movements. I also dress like that when travelling. Nevertheless on Fridays I wear traditional dress, for Muslim prayers. I want to be seen as a good Muslim, a religious man who fulfils his duties as a good Muslim.

The importance attached to traditional dress also is tied up with the image he wants to create of himself as an older, responsible person. He seeks the respect of others, to conform with group values, as well as to depict himself as a model husband:

When I wear traditional dress, people think I'm older than I am. When I wear Western dress, I always feel younger. I have to wear traditional dress at festive social occasions such as marriages, funerals and baptisms. I also wear it on religious holidays such as the Muslim New Year, the end of Ramadan and Eid El-Kebir As I'm married, I have to dress this way for some family occasions if I want to earn respect.

Ndiaye Maguette, Doctor, Dakar

A 59-year-old married woman and mother of four children (two at university and two in secondary schools), Maguette is a gynecologist in Dakar. She is Muslim and was born in a family of modest means. She loves wearing traditional dress on Fridays, not to go to the mosque but to assert her cultural identity of an African woman unashamed to advertise her beauty and class. She wears traditional dress at least three days a week. Her husband, a civil servant who is proud of his wife's professional success, joins with her in a modern partnership. In this sense, Maguette blends global and local cultures. She associates the wearing of traditional dress with her marital status and age. This modest form of dress respects others and asserts her role as a good mother; it also can attract other's attention and help her assert her identity as an African woman:

When I take part in seminars, I prefer to wear traditional clothes as they accentuate my femininity. They make me feel more confident and enhance my social status. I also wear traditional clothes for family occasions and when my husband invites his friends at home. As a mother, I have to convey the image of a true African woman who has not lost touch with her roots and traditional values, despite her intellectual level. My clothes and behavior convey the image of a responsible mother, who understands the important role played by women in the African Muslim society. Even at dinner parties, I wear traditional clothes to hide my curves and to accentuate the unique beauty of the African woman. I am respected by others as a married woman of a certain age. Traditional dress confers a sense of responsibility and uprightness on those who wear it. I also need to know that I can still attract and be admired by people other than my husband.

Furthermore, she insists on high quality traditional dress, which enables Maguette to express her professional and social success, as well as her membership in Senegal's social elite:

When I wear traditional dress, I attach a great deal of importance to the quality of the fabric. It's a sign of social success. Given my social status, I have to be very choosy about the kind of traditional clothes I wear.

Samb Codou, Housewife, Dakar

Codou, a 34-year-old married mother of three small children, left primary school after a few years of study. Her husband is a mechanic, and Codou works to meet the needs of her young children, selling fabric and fashion accessories. Although she prefers to wear modern dress, especially on evenings out with her girlfriends, she wears traditional dress five days a week. She does so not only as a reflection of her religious and traditional beliefs but also to signal her membership in an ethnic group and respect for others. Finally, Codou has an economic rationale: She can make her own traditional clothes and those for her children.

I wear traditional clothes when I am with my in-laws or have guests. We often visit religious leaders and on such occasions my husband insists that I wear traditional dress, which he says is more decent. When I accompany my husband on pilgrimages to holy places, I wear traditional dress because that brings me closer to God and my religion. When I was pregnant, I wore traditional dress to cover my belly and protect me from others looking at me. Covering certain parts of my body (such as my belly or my head) protects me against evil spirits and djinns with evil powers. Wearing a headscarf, for example, protects me against headaches. In our society, miscarriages are believed to be linked to evil spirits who have taken possession of your body….

I belong to a family from the Lebou tribe whose family tradition is to wear a "pagne"(Note 2)when receiving guests at home. It's a symbol of decency and respect for guests. What's more, wearing traditional dress is cheaper. I can clothe myself or my children by buying inexpensive fabrics and making clothes to suit my tastes.

Ndiaye Babacar, Shoemaker, Dakar

A cobbler with a primary school certificate, Babacar is a 41-year-old polygamous married man, with seven children. He dropped out of school to work to help his farmer parents; both his wives sell food. All his children are receiving educations, and the two eldest are in secondary school. As a devout Muslim from the Mourid brotherhood, Babacar has a religious mentor and regularly takes part in religious events. Before getting married, he often wore Western dress, but since his marriage, he wears traditional dress at least six days a week. It allows him to assert his sense of group identity, whether as part of a religious group or a group of sports fans. Traditional dress also protects him from evil spells:

I wear traditional dress to go to work or to visit family or friends. I only wear Western dress on Sundays when I

am not working and stay home with my family. I prefer traditional dress because it's better suited to the local climate. I feel more at ease and I find it natural within my religious environment. For my wedding, my parents advised me to wear traditional dress with no underwear and not to approach my wife before the wedding night. The purpose of this was to prevent malevolent people casting a spell which could render me impotent on the wedding night. I am also a huge fan of Senegalese wrestling. I always wear traditional clothes at wrestling matches with my friends who are fellow supporters.

Gueye Aminata, Secretary at ministry, Dakar

Aminata is a 55-year-old woman married to a polygamous man 15 year her senior, who lives in the family home with her two co-wives. She is the mother of two children. With her education and secretarial diploma, Aminata works as a secretary in a transfer company and also participates in side businesses, because her husband is retired and she is responsible for her children's education. In addition to her business activities, she performs charitable works to help abandoned or problem children. She always wears traditional dress.

I'm a large woman and I've got bigger as I've got older. My husband is an elderly man who is an "Iman" (Note 3) at the mosque. I'm considered an important woman and the clothes I wear must reflect this. My religion forbids me from wearing clothes which reveal my figure. I wear traditional dress to work. It's also important for a mother to wear traditional dress as she looks after her children who tend to copy what their mother wears. On Friday, I wear traditional dress to go to the mosque, taking care to choose quality fabrics in white, the color of pure love for Allah.

Not only does Aminata associate traditional dress with modesty, wisdom and spirituality, but she also believes that when people reach a certain age, they should wear decent clothes that are both modest and polite. This form of dress also allows her to attract others, enhancing her charm and beauty, but offers protection against evil spirits.

I wear traditional dress because it asserts my Senegalese culture. It conveys the originality of African culture. The styles created by designers are very attractive and follow the latest fashion. There is a wide variety of traditional dress options and they change according to your age—clothes for older people tend to be looser. My choice of traditional clothes is governed by the criteria of decency and beauty. Wearing traditional dress does not make me a "has-been." On the contrary, people like it when I dress that way as they find me pretty and attractive. I attract the attention of others—it's a subtle form of attraction. When you wear clothes which reveal certain parts of your body, it attracts evil spirits, the devil or djinns who can possess your body and mind. It can also cause many illnesses which modern medicine can't treat.

Sagna Hélène, Pedagogy Assistant at Hight School Management, Dakar

Hélène, a 38-year-old married woman with no children, was trained in human resources, has a master's degree and works as a teaching assistant in a management school. She is from the Jola ethnic group, originally from Casamance in the south of the country. As a Christian, she goes to mass every Sunday. Furthermore, she proudly wears Western dress for weddings in the Christian community, though these weddings blend two cultures: On the wedding day, the bride and guests wear Western clothes. The next day, everyone wears traditional dress. Hélène also wears traditional dress two days a week, during certain ceremonies and on Fridays, mainly to imitate Muslim women and respond to social demands. She associates traditional clothes with an ethnic tradition, whereas her Western clothes allow her to remain young and sexy.

I live in a Muslim-majority country where traditional dress is usually worn. Living alongside Muslims, I adopt the same dress habits. It's always a pleasure to wear traditional dress. In the Jola community, parents insist that their daughters be initiated into wearing pagnes. Given the largely agricultural work, from which pregnant women are not exempt, women sometimes give birth outside the family home or a hospital. The pagne worn by the woman must be used to cover the new-born baby. Pagnes therefore become essential items of clothing. Women must also wear the pagne after giving birth to avoid draughts. Despite these ancestral traditions, I still continue to wear Western clothes, as I want to stay young and not get old too quickly. Husbands like to see their wives looking younger, dressed in modern clothes because it reminds them of the girl they knew before they got married.

Yet Hélène also associates traditional clothes with elegance and attraction, with the belief that tradition can also be modern and fashionable. She thus aims to create a distinct personality while conforming to local norms.

As a Senegalese, I like to assert myself by wearing traditional dress. At home, it symbolizes a woman who takes good care of her husband. Traditional clothes have evolved along with the latest fashion designs. The various changes in traditional clothes can be explained by the melting pot effect. Traditional clothes with modern

touches evoke the respect of others. Sometimes you can see the admiration in the eyes of onlookers who appreciate the beauty of what you're wearing. Traditional clothes highlight the beauty of the African women.

Sané Malick, Salesman at Sandaga Market, Dakar

A married, 39-year-old father of six from Casamance, Malick dropped out after primary school and now sells a variety of goods at the Sandaga market, a major market in Dakar. He is a Muslim and wears traditional clothes at least two days a week: on Fridays to go pray and on some days for work. Since getting married and having his large family, he feels more responsible and wears traditional dress more often than in the past. He also forbade his wife from wearing modern or Western clothing, such that she dresses modestly to demonstrate her education as a model woman.

Given my age and the burden of my responsibilities as a husband and father, I told myself I had to change the way I dressed and adopt a more traditional style. As the head of a family, I had to change by wearing looser clothes which denote my sense of responsibility. After we got married, I strictly forbade my wife to wear modern dress. I see no point in her dressing like that because she's not an intellectual. She did not go to the French school—she went to a Koranic school and is part of a large religious family which does not allow girls to wear modern dress.

Malick thus associates the wearing of modern clothes by women with their level of education and type of schooling; he is very concerned about what his wife wears. He considers traditional dress a sign of respect, both from and for others, and believes that women, who are responsible for their children's education, must set a good example and earn respect by not parading their body in public.

When dressed traditionally, my wife is respected by my friends, relatives and neighbours. Women should set their children a good example by dressing decently. You know, if children see their mothers wearing modern clothes, they look at them differently and can't respect them. Modern clothes are often tight and leave little to the imagination. I find that very childish. You have to know how to dress to attract but also to respect others.

3.2 Discussion

These interviews reveal that wearing traditional dress provides several benefits and meanings that are an important source of value (Richins, 1994a). Wearing traditional dress also enables people to satisfy a range of psychological needs (Deci & Ryan, 2000; Maslow, 1954). We thus can examine what meanings are associated with wearing traditional dress and what psychological needs are satisfied through this behavior.

Specifically, to classify the meanings associated with wearing traditional dress, we used the 11 categories Richins (1994b) developed to classify the public and private meanings of possessions (utilitarian, enjoyment, represents interpersonal ties, facilitates interpersonal ties, self-expressive, represents achievement, symbolizes personal history, appearance-related, status, spiritual, financial). Two coders independently examined each interview for indications of these meaning categories, and the results confirm that traditional dress styles generate meanings and values associated with the range (Richins, 1994b), with the exception of the financial aspect (Table 2). Therefore, wearing traditional dress styles is highly meaningful and valued by wearers for a range of reasons. This richness of meaning and the associated values help explains people's attachment to a tradition, which is a source of enjoyment, social relationships, self-expression, status and religious expression.

3.3 Study 2: Means-End Analysis

We next aimed to link consumer benefits to motivations and finally to consumer end-goals or values. According to means-end chain theory, consumers exhibit a behavior (e.g., wearing traditional dress) to reach an objective or end (e.g., gain self-esteem). Generally, means-end chains consist of concrete and abstract attributes, functional and psychological consequences and instrumental and terminal values (Gutman, 1982). We are not interested in product attributes per se (e.g., type of cloth, color, pattern) but rather hope to understand how perceived benefits linked to wearing traditional attire relate to desired consequences (instrumental values), which then lead to end goals (terminal values). That is, consumers identify immediate benefits in wearing traditional dress (vs. modern dress), which generate positive consequences and help them attain values or preferred end-states at a more abstract or subconscious level (Zanolli & Naspetti, 2002). We ultimately measure the subjective meaning structures linked to wearing traditional dress and uncover the "ladders" or means-end chains that link benefits, consequences and end-goals (K. G. Grunert & S. C. Grunert, 1995), as shown in Figure 1.

The first step in this methodology is to identify the elements that constitute the three categories (benefits, consequences and end-goals). We undertook a systematic analysis of the interviews, using the data coding performed by two new judges (Reynolds & Gutman, 1988). The very few disagreements between judges were resolved by discussion. To build the means-end chains, we next organized two focus groups, one with frequent

users of traditional dress (3–7 days per week) and one with infrequent users (1–2 days per week), because we predicted that usage frequency might influence motivations and goals (Tables 3 and 4).

In a laddering technique (Reynolds & Gutman, 1988), we asked participants to provide reasons they wear traditional dress and encouraged them to reveal why each reason is important. Then participants were invited to disclose deeper motives. The format of the focus groups enabled participants to interact and reveal multiple reasons and associated motives, such that we could complete the list of benefits, consequences and end-goals identified previously (Table 5). In particular, we identified eight terminal values pursued by people wearing traditional dress, whether frequently or infrequently: aesthetics, pleasure and hedonism, ethical values, spirituality and religiosity, self-esteem, ancestral mystical values, social status and an expression of African self-identity.

Table 2. Meanings and values

Meanings and values	Examples from the interviews
Utilitarian	Hides the forms of the body. Less expensive and not costly to wash.
	Well adapted to the climate. Ample dress. Very comfortable. I really feel at ease. Very convenient to wear. The cloth is non-transparent, people cannot see through.
Enjoyment	Just to my taste. A pleasure for me to dress traditional. I feel good. I feel proud to dress traditional. I am happy to wear the pagne.
Represents interpersonal ties	Forces respect from others. Enables me to express my cultural identity. Shows that I belong to a group. Drives other to admire me. Inspires trust towards me. Shows respect for social traditions.
Facilitates interpersonal ties	I am considered as a perfect husband. I am considered as the wife of a wise man or of a religious leader. Protects me from sexual harassment or aggressions. Protects me from others starring at me.
Self-expressive	Shows responsibility. Gives me self-assurance. Gives me self-confidence. Expresses righteousness and honesty. Shows a good education. Gives psychological assurance. Brings self-esteem.
Represents achievement	Shows social success. Justifies professional and social success. Expresses the belonging to the upper social class. Enhances my social status.
Symbolizes personal history	I wear traditional dress when I go to my village where everyone dresses traditional. I wear traditional dresses because my parents have always bought it for me since I was a kid.
Appearance-related	Does not make you appear young. Gives the impression of an older person. Enables seduction. Brings elegance and style. Contributes to the beauty of the woman. Is a sign of decency.
Status	Very much worn by married women. Is a sign of motherhood. Shows the marital status of the women. Puts forward beauty and class.
Spiritual	I am seen as a good Muslim. I am considered as a religious person. Somebody who carries out his religious duty in going to the mosque. Shows faith in Islam. Enables to get closer to God and to religion. An obligation linked to Muslim religion.
*Mystical**	*Protects from evil spirits and djinns. Protects against evil spells. Gives mystical powers. Protects from malicious eyes.*

Measure added as a sub-category of spiritual, because these spiritual beliefs are not directly linked to religion.
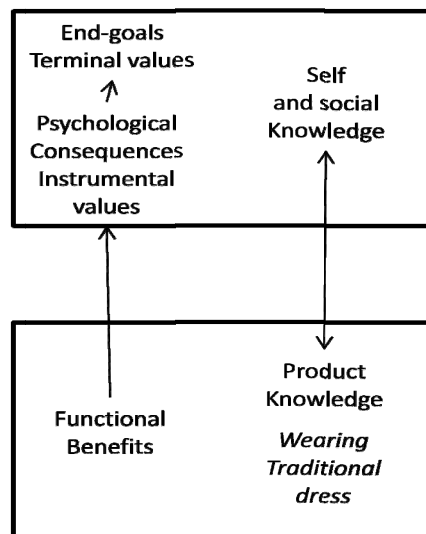
Figure 1. Means-end chain model

Table 3. Focus group informants (Infrequent users)

Informant	Gender	Age	Family status	Educational Background	Occupation	Religion	Wearing traditional dress (days per week)
Adja	Female	23	Single	Primary	Saleswoman	Muslim	2
Awa	Female	45	Married	High school	Employee	Muslim	1
Michelle	Female	60	Married	None	Housewife	Christian	2
Jean	Male	50	Single	Bachelor	Journalist	Christian	1
Masow	Male	32	Married	Professional	Security guard	Muslim	1
Omar	Male	47	Married	Master	Logistics manager	Muslim	2
Ousmane	Male	43	Married	High school	Salesman	Muslim	2

Focus group conducted in July 2012

Table 4. Focus group informants: frequent users

Informant	Gender	Age	Family status	Educational Background	Occupation	Religion	Wearing traditional dress (days per week)
Khady	Female	59	Married	High school	Accountant	Muslim	7
Christiane	Female	44	Single	Primary	Saleswoman	Christian	3
Binetou	Female	48	Married	High school	Employee	Muslim	3
Anastasia	Female	47	Married	Elementary	Housewife	Christian	6
Abdoul Aziz	Male	60	Married	Coranic	Tailor	Muslim	7
Souleymane	Male	39	Married	Elementary	Street merchant	Muslim	4
Jean	Male	27	Single	Master	Salesman	Christian	3

Table 5. List of benefits, consequences and end-goals

Benefits	Consequences Instrumental Values	End Goals Terminal Values
1. Covers the whole body well	1. Favours consideration by others	1. Aesthetics
2. Signals ethnic origin	2. Limits sexual harassment	2. Pleasure, hedonism
3. To be worn in special occasions (marriages, funerals, etc.)	3. Favours respect from others	3. Ethics
4. Adapted to the climate	4. Signals responsibility	4. Spirituality, religiosity
5. Conceals bodily forms	5. Shows honesty	5. Self-esteem
6. Ample and comfortable	6. Is a sign of self-respect	6. Ancestral mysticism
7. Enables to behave as others do	7. Expresses belonging to a social or an ethnic group	7. Social status
8. Keeps evil spirits away	8. Shows modesty and humility	8. African self-identity expression
9. Cheap to purchase and maintain, can be worn several times	9. Expresses belonging to a religious group	
10. Makes you look older	10. A sign of proper education	
11. Simple to wear anytime	11. Favours self-confidence	
	12. Enables to be discrete	
	13. Favours trustworthiness	
	14. Shows proximity to God	
	15. Expresses decency	
	16. Good for health	
	17. A way to seduce	
	18. Respects social traditions	
	19. Enhances beauty	

We then asked each participant in the focus groups to build his or her own sequences of benefits-consequences-values (Bagozzi & Dabholkar, 1994). This procedure allows people to reveal their personal reasons and end-goals naturally. Each participant described one means-end chain at a time but also could detail as many as they wanted. In total, we obtained 129 chains (65 from frequent traditional dressers and 64 from infrequent dressers). The chains yielded implication matrixes that linked benefits to consequences and then to end-goals or values (Reynolds & Gutman, 1988). The matrixes suggested hierarchical value maps (HVM) that depicted the aggregate consumer means-end chains, summarizing the association network of benefits, consequences and values. We constructed a HVM for both groups, which represented only the most frequent relationships between benefits and consequences or consequences and end-goals. We find both similarities and divergences between the cognitive structures of the two groups (Figures 2 and 3).

3.3.1 Infrequent Users of Traditional Dress Styles

The seven participants in the focus group of infrequent users generated 64 means-end chains, expressing the benefits sought, associated consequences and linked terminal values. Among the nine possible terminal values, infrequent users pursued three main end-goals: express spirituality (religiosity), express ethical values and self-esteem (or self-image enhancement). The means-end chain shared by most participants was 'covers the whole body well—expresses belonging to a religious group—expresses spiritual values.'

The HVM for these infrequent users revealed that the pursued end-goals were linked more to values defined by the society rather than to the self. These consumers wore traditional dress on special occasions (mariages, religious or social gatherings) or Fridays (a Muslim religious day), to conform to social traditions and gain respect or consideration from others. They thus expressed their conformity with dominant social values (i.e., ethical and religious) and their belonging with the social group. In these rather infrequent occasions, women also regarded traditional dress as a means to gain notice from others or express their beauty and power of seduction,
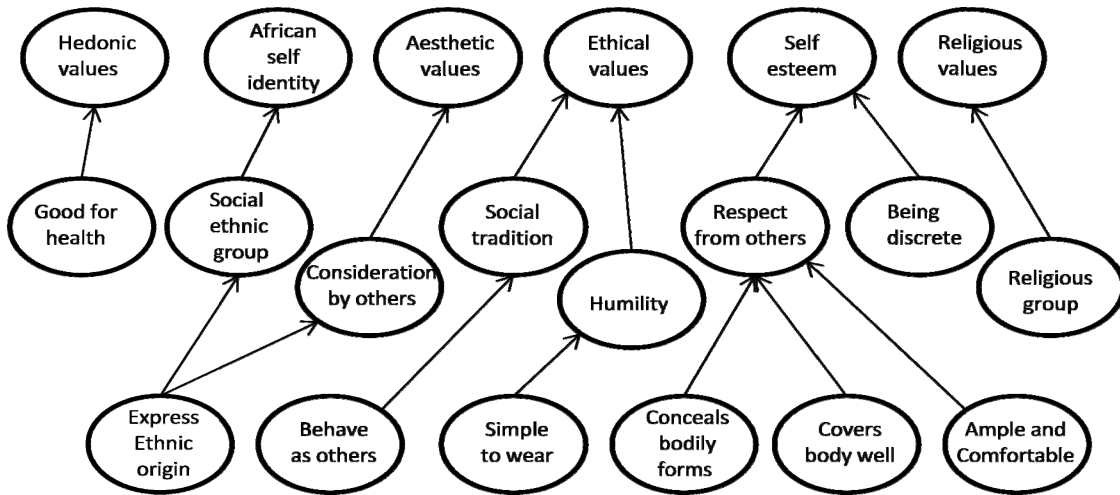
Figure 2. Hierarchical value map for frequent users of traditional dress
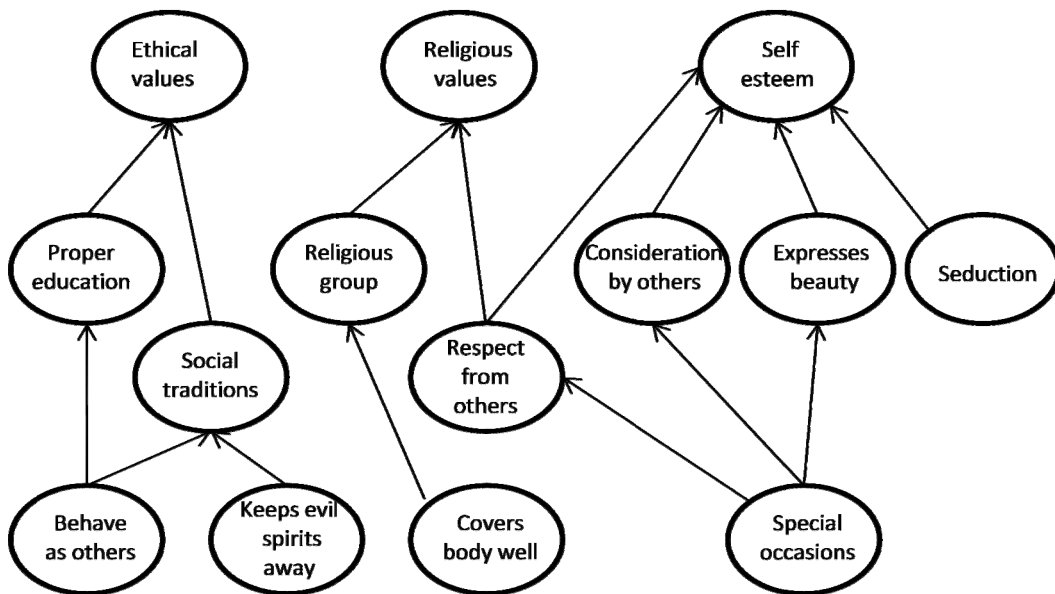
Figure 3. Hierarchical value map for infrequent users of traditional dress

which are linked to a search for self-esteem. In other special occasions that we identified in the individual in-depth interviews, traditional dress offered a means to fight evil spirits (e.g., during pregnancy), which also conforms with social traditions.

3.3.2 Frequent Users of Traditional Dress Styles

Among the 65 means-end chains in this group, the number of end-goals identified was much higher than for the infrequent users. End-goals included those pursued by infrequent users (express spirituality, express ethical values, self-esteem), along with hedonic values, aesthetic values and African self-identity expression. The reasons for frequently wearing traditional dress therefore were varied. Clothing is loose on the body, reduces perspiration and does not compress nerves. This leads to hedonic values also linked to the belief that wearing traditional dress is good for health and recommended by doctors, to avoid compressing the body. The expression of ethnic origin also helped indicate belonging to an ethnic group, leading to improved self-identity expression as an African and a Senegalese. This expression of ethnic origin increased recognition by the social group, through accessing aesthetic values. Frequent users wore traditional dress to behave as others would and respect social

traditions they had known and followed since childhood. It also seemed simple to wear at any time and led to conformity and humility. Respecting social traditions and expressing humility through traditional dress also offered a route to ethical values. That is, traditional dress is ample and comfortable, fully covers the body and conceals bodily forms, which induces respect from others, unlike Western styles that appear aggressive or conspicuous. Respect from others in the social group and the discreteness of the dress offered another way to enhance self-esteem. Finally, frequently wearing traditional dress expressed religious beliefs and affirmed religious values.

4. Discussion and Conclusion

Attachment to tradition, expressed through wearing traditional dress, is linked to a range of meanings, benefits, instrumental values and terminal values or end-goals. The meanings linked to respect for tradition and goals pursued helps explain the importance of tradition in West Africa and resistance to global consumer culture. Wearing traditional dress is a source of personal enjoyment, facilitates social relationships, is a means to express one's self and belonging to the African culture, represents achievement and status, expresses beauty, shows respect and obedience to the Muslim religion and chases off evil spirits.

The distinction between frequent and infrequent users of traditional dress indicates differences in motives and end-goals. Infrequent users wear traditional dress for special occasions, such as social outings, family gatherings, going to the village, on Fridays (a religious day), during and after pregnancy and so on. Essentially, traditional dress helps wearers be seen and noticed by the social group, because through it they can express religious values, belong to a social group and appear beautiful. In contrast, frequent users wear traditional dress to conform to social rules, hide their bodies, be discrete, show humility and gain respect from others. It expresses respect for social traditions and an African identity. Although not directly expressed by the study participants, we discerned some resistance to global consumer culture and dressing styles, with their implications of showing bodily forms, attracting the attention of others and not abiding by religious or cultural norms. Instead, frequent traditional dress wearers' apparel is consistent with their in-group values, enabling them to reject the global dressing style worn by an out-group that they do not wish to join. Their ethnic identity seems strong. Therefore, local traditional culture provides a barrier to the rejected global consumer culture, as exemplified by husbands who would not expect their wives to wear anything other than traditional dress. They draw self-esteem from conformity to social norms and respect from others.

Furthermore, for infrequent users, self-esteem stems from an ability to attract attention with dresses that express beauty and seduction, with a goal of being noticed in some occasions. These consumers, acculturated into global consumer culture, wear global styles more frequently than African dresses. However, traditional dress offers them specific, culturally grounded benefits that enable them to express their conformity with religious, ethical and culturally bound values. Wearing traditional dress is also deeply rooted in tradition, as revealed by the respondents who viewed traditional dress as a means to protect themselves from evil spirits. Finally, traditional dress, just as is the case with a global dressing style, aims to highlight beauty and attract attention from others. We thus find traditional adaptations to global consumer culture, such as in fashion shows organised by African stylists. In this sense, tradition and modernity seem mutually reinforcing, with an integration of the two cultures. Tradition adopts some codes from global consumer culture, and consumers alternate between African and global cultures, depending on the social context.

For both frequent and infrequent users, tradition is well anchored in consumer culture and offers important end-goals, such as religious and ethical values and a search for self-esteem. Frequent users also aim to express their African identity. Apparel, as a culture-bound product category, enables all Senegalese, whether frequent or infrequent users, to express their cultural identity, in opposition to a global identity or by nourishing a global and a local combined identity.

References

Alden, D. L., He, Y., & Chen, Q. (2010). Service recommendations and customer evaluations in the international marketplace: cultural and situational contingencies. *Journal of Business Research*, *63*(1), 38–51. http://dx.doi.org/10.1016/j.jbusres.2009.01.009

Alden, D. L., Steenkamp, J. B. E. M., & Batra, R. (1999). Brand positioning through advertising in Asia, North America, and Europe: The role of global consumer culture. *Journal of Marketing, 63*(1), 75–87. http://dx.doi.org/10.2307/1252002

Allman, J. (2004). *Fashioning Africa: power and the politics of dress*. Bloomington: Indiana University Press.

Amselle, J. L. (2002). Globalization and the future of anthropology. *African Affairs, 101*(403), 213–229.

http://dx.doi.org/10.1093/afraf/101.403.213

Arnett, J. J. (2002). The psychology of globalization. *American Psychologist, 57*(10), 774–783. http://dx.doi.org/10.1037/0003-066X.57.10.774

Auty, S., & Elliot, R. (1998). Fashion involvement, self monitoring and meaning of brands. *Journal of Product and Brand Management, 7*(2), 109–123. http://dx.doi.org/10.1108/10610429810216874

Bagozzi, R. P., & Dabholkar, A. P. (1994). Consumer recycling goals and their effect on decisions to recycle: a means-end chain analysis. *Psychology & Marketing, 11*(4), 313–340. http://dx.doi.org/10.1002/mar.4220110403

Bearden, W. O., & Etzel, M. J. (1982). Reference group influence on product and brand purchase decisions. *Journal of Consumer Research, 9*(2), 183–194. http://dx.doi.org/10.1086/208911

Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research, 15*(2), 139–168. http://dx.doi.org/10.1086/209154

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review, 46*(1), 1–30.

Beverland, M. L. B., & Farrelly, F. J. (2010). The quest for authenticity in consumption: consumers' purposive choice of authentic cues to shape experienced outcomes. *Journal of Consumer Research, 36*(5), 838–856. http://dx.doi.org/10.1086/615047

Cleveland, M., & Laroche, M. (2007). Acculturaton to the global consumer culture: scale development and research paradigm. *Journal of Business Research, 60*(3), 249–259. http://dx.doi.org/10.1016/j.jbusres.2006.11.006

Cleveland, M., Laroche, M., & Hallab, R. (2012). Globalization, culture, religion, and values: comparing consumption patterns of Lebanese muslims and christians. *Journal of Business Research, 65*, 489–498, http://dx.doi.org/10.1016/j.jbusres.2011.12.018

Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. http://dx.doi.org/10.1207/S15327965PLI1104_01

Diagne, S. B. (1992). L'avenir de la tradition. In Momar-Coumba Diop (Ed.), *Trajectoires d'un État* (pp. 279–298). Dakar, Senegal: Codesria.

Eicher, J. B., Roach-Higgins, M. E., & Johnson, K. K. P. (1995). *Dress and Identity*. New York: Fairchild.

Escalas, E. J., & Bettman, J. R. (2005). Self-construal, reference group and brand meaning. *Journal of Consumer Research, 32*(3), 378–389. http://dx.doi.org/10.1086/497549

Fall, B. (2008). *Situation économique et sociale de la région de Dakar de l'année 2007*. Retrieved October 6, 2012, from http://www.ansd.sn/publications/annuelles/SES_region/SES_Dakar_2007.pdf

Gordon, B. (1987). Fossilized fashion: 'old fashioned' dress as a symbol of a separate, work-oriented identity. *Dress, 13*(1), 49–60. http://dx.doi.org/10.1179/036121187803657444

Grunert, K. G., & Grunert, S. C. (1995). Measuring subjective meaning structures by the laddering method: theoretical considerations and methodological problems. *International Journal of Research in Marketing, 2*(3), 209–225. http://dx.doi.org/10.1016/0167-8116(95)00022-T

Gusfield, J. R. (1967). Tradition and modernity: Misplaced polarities in the study of social change. *American Journal of Sociology, 72*(4), 351–362. http://dx.doi.org/10.1086/224334

Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *Journal of Marketing, 46*(1), 60–72. http://dx.doi.org/10.2307/3203341

Hamilton, J. A. (1991). Mass fashion as threat in context and concept. *Clothing and Textiles Research Journal, 9*(2), 25–32. http://dx.doi.org/10.1177/0887302X9100900204

Hopkins, M. C. (2006). Review of: Fashioning Africa: Power and the Politics of Dress. *Africa Today, 52*(4), 130–135. http://dx.doi.org/10.1353/at.2006.0047

Kleine, R. E., Kleine, S., & Kernan, J. B. (1993). Mundane consumption and the self: a social identity perspective. *Journal of Consumer Psychology, 2*(3), 209–236. http://dx.doi.org/10.1016/S1057-7408(08)80015-0

Kleist, N. (2011). Modern chiefs: tradition, development and return among traditional authorities in Ghana. *African Affairs, 110*(441), 629–647. http://dx.doi.org/10.1093/afraf/adr041

Levy, S. J. (1959). Symbols for sale. *Harvard Business Review, 37*(4), 117–124.

Logan, C. (2009). Selected chiefs, elected councillors and hybrid democrats: popular perspectives on the coexistence of democracy and traditional authority. *The Journal of Modern African Studies, 47*(1), 101–128. http://dx.doi.org/10.1017/S0022278X08003674

Markus, H. R., & Kitayama, S. (1991). Culture and the self: implications for cognition, emotion, and motivation. *Psychological Review, 98*(2/6), 224–253. http://dx.doi.org/10.1037/0033-295X.98.2.224

Maslow, A. H. (1954). *Motivation and personality*. New York: Harper.

O'Cass, A., & McEwen, H. (2004). Exploring consumer status and conspicuous consumption. *Journal of Consumer Behavior, 4*(1), 25–39. http://dx.doi.org/10.1002/cb.155

Oswald, L. R. (1999). Culture swapping: consumption and the ethnogenesis of middleclass Haitian immigrants. *Journal of Consumer Research*, *25*(4), 303–318. http://dx.doi.org/10.1086/209541

Peñaloza, L. N. (1989). Immigrant consumer acculturation. In Srull, T. K. (Ed.), *Advances in Consumer Research*, *1*, 110–118.

Reynolds, T. J., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of Advertising Research, 1*(1), 11–31.

Richins, M. L. (1994a). Special possessions and the expression of material values. *Journal of Consumer Research, 21*(1), 522–533. http://dx.doi.org/10.1086/209415

Richins, M. L. (1994b). Valuing things: the public and private meanings of possessions. *Journal of Consumer Research, 21*(1), 504–521. http://dx.doi.org/10.1086/209414

Stayman D. M., & Deshpandé R. (1989). Situational ethnicity and consumer behavior. *Journal of Consumer Research, 16*(1), 361–371. http://dx.doi.org/10.1086/209222

Strizhakova, Y., Robin, A. C., Robin, A. & Linda, L. P. (2008). The meanings of branded products: a cross-national scale development and meaning assessment. *International Journal of Research in Marketing, 25*(2), 82–93. http://dx.doi.org/10.1016/j.ijresmar.2008.01.001

Swinyard, W. R., Kau, A. K., & Phua, H. Y. (2001). Happiness, materialism, and religious experience in the US and Singapore. *Journal of Happiness Studies, 2*(1), 13–32. http://dx.doi.org/10.1023/A:1011596515474

Thiof Magazine. (2009). L'ancrage de la culture sénégalaise à travers le port de l'habit traditionnel. *48*(13), 4–25.

Villalón, L. A. (1999). Generational changes, political stagnation, and the evolving dynamics of religion and politics in Senegal. *Africa Today, 46*(3/4), 129–147. http://dx.doi.org/10.1353/at.2003.0106

Weaver, G. R., & Agle, B. R. (2002). Religiosity and ethical behavior in organizations: a symbolic interactionist perspective. *The Academy of Management Review*, *27*(1), 77–98.

Wilk, R. (1995). Learning to be local in Belize: global systems of common difference. In Miller, D. (Ed.), *Worlds apart: modernity through the prism of the local*. London: Routledge.

Zanolli, R., & Naspetti, S. (2002). Consumer motivations in the purchase of organic food, a means-end approach. *British Food Journal*, *104*(8), 643–653. http://dx.doi.org/10.1108/00070700210425930

Notes

Note 1. Muslims in Senegal are organized around religious guides or marabous

Note 2. A "pagne" is the piece of cloth from which traditional dresses are made. It also designates the traditional dress itself.

Note 3. A person who leads Muslim prayers

The Factors of the Collaboration between the Upstream Supply Chain Actors: Case of the Automotive Sector in Morocco

Mohamed Mamad[1] & Fatima Ouazzani Chahdi[1]

[1] Faculty of Juridical, Economic and Social Sciences, University Mohammed V-Souissi, Morocco

Correspondence: Mohamed Mamad, PHD student in Management Science, Faculty of Juridical, Economic and Social Sciences, University Mohammed V-Souissi, Avenue Mohammed Ben Abdallah, Ragragui Al Irfan BP 6430, Rabat Institutions, Morocco. Tel: 212-5-3767-1709. E-mail: mamad.scm@gmail.com

Abstract

This communication aims to identify collaboration determinants between actors in the supply chain of the automotive industry in Morocco. In fact, much research and publication have been conducted in the areas of relationships in the European and North American context supply chain (SC), which have to have a comprehensive understanding of the determinants that can influence the collaborative relationship between actors in the industrial supply chain. However, in developing countries such as Morocco, few authors have attempted to examine this question. In this context, it seemed appropriate to study industrial relations in order to achieve a better understanding of the determinants of collaboration. By entering in a sequential process, our methodology consists of two phases: an exploratory qualitative—to contextualize the model through semi-structured interviews with 15 actors of Moroccan automotive industry and the other confirmatory quantitative based on the development of a questionnaire to collect data and test hypotheses. Data collection was conducted among 67 companies. The empirical findings indicate that the determinants both transactional (dependence, formalization and control) and relational (trust, commitment, communication and information technology) influence the collaboration.

Keywords: supply chain, relationship, collaboration, automotive, Morocco

1. Introduction

The new constraints and market pressures have "intensified the competition among the firms, prompting them to be innovative in order to reduce costs, enhance quality, and improve their performance and responsiveness to customers' demand" (Charan, 2012: 67). To achieve these goals, industrial companies are all attempting to establish more collaborative relationships with their supply chain partners, in order to ensure their sustainability development and the achievement of competitive advantages (Zhao et al., 2006; Corsten & Kumar, 2005; Field & Meile, 2008). Recently, many studies and researches have been done in the collaborative supply chain field and on its modelling implication particularly in the European and North American contexts (Paulraj et al., 2008; Chen et al., 2009; Yeung et al., 2004; Noordewier, John & Revin, 1990; Ganesan, 1994; Doney & Canon, 1997; Mohr & Spekman, 1994). However, these works become scarce, or when is in the context of developing countries and some emerging economies such as Morocco.

In this context, our interest is to achieve, in the Moroccan context, a better understanding of the determinants influencing collaboration between the actors in the automotive supply chain upstream. In fact, this industry appears as the most dynamic and most innovative in the upstream logistics, it mobilizes a multiplicity of actors, all called to work in the long term, to create mutual benefits (Bonet & Boissinot, 2012).

This sector, in the case of Morocco, is expected to play a locomotive role in economic growth. Strengthening its potential was demonstrated by an investment program that will make this sector a strategic industry, Morocco wants to take its competitive advantages. This interest is related to the primary role of the automobile industry in the Moroccan economy (6% of GDP, 14% of exports and 300,000 jobs). How, in the Moroccan automotive context, do the actors perceive the collaboration between them, and what are the determinants?

This research question puts us in an associative approach to the development of our conceptual framework. Indeed, the previous researches have examined only "transactional perspectives" or only the "relational

perspectives" (Heide & John, 1990; Noordewier, John & Revin, 1990; Anderson & Weitz, 1989; Ganesan, 1994; Doney & Canon, 1997; Spekman, 1992). Our present research expands on such previous studies to provide a theoretical foundation for our proposed model of collaboration in the Moroccan context.

To highlight the variables that explain the dyadic collaboration, we will proceed as follows: in a first point we will present the literature of collaboration between actors upstream SC. This will allow us to identify the variables and hypotheses used in our research purpose. A second point concerns the choice of the methodology and the interpretation of results. This work will conclude by the discussion, managerial implications, limitations of our study and future research.

2. Literature Review

In the literature review that follows, we discuss transaction approach analysis and social exchange theory, building on this review, in the subsequent section; we develop a theoretical model that outlines the factors and determinants of collaboration in an industrial context.

2.1 Collaboration, a Shift from Transactional Approach to Relational Approach

In recent years collaboration between supply chains partners have received increased attention in the supply chain literature (Whipple & Russell, 2007; Prakash & Deshmuk, 2010). Since the early 1990s, there has been a growing understanding that collaboration supply chain should be built around the integration of trading partners (Baratt, 2004). Bowersox (1990) state, that firms collaborate in the sense of "leveraging benefits to achieve common goals". Similar points are made by (Simatupang & Sridharan, 2002), As have also been noted, that the outcomes of the collaboration among supply chain companies, which also share losses and gains, must be quantifiably beneficial for everyone.

In fact, inter-organizational relationships are primarily perceived in terms of the transactional paradigm represented by economic approach: the transaction costs economics (Williamson, 1979; 1993) and the agency theory (Jensen & Mecklin, 1976). Based on contractual arrangements in the market or in the organization, this approach emphasizes the contract as a mechanism for managing relationships between stakeholders in order to reduce uncertainty and to fight against potential opportunism of a party Williamson (2008). Although Williamson (2008) considers that this approach is more suitable for managing interactions between actors under conditions of uncertainty. In this context, the theory of resource dependence (Pfeffer & Salancik, 1978) sets out the principle that actors will seek to reduce uncertainty and manage dependence through linkages with other partners to deliberately increase the extent of collaboration in a dyadic approach. In this way, (Zouaghi et al., 2012) stipulates that companies establish relationships with others to warrant mutual advantages.

In this sense, Ryu et al. (2007) suggests that the transactional model and the dependent resources are complementary; in that the large flows of transactions relating to interdependencies between actors are sometimes the main reason of collaborative behaviors. The dependence suggests that the interaction between the actors in dyadic relationships, customer/supplier, must also include elements that help to gradually reduce the uncertainty in the relationship for the mutual benefit of customers and suppliers (Ahmed & Ullah, 2012).

The transition to relational approach is based on a social science perspective social exchange theory (SET) (Blau, 1964; Emerson, 1976), the SET focuses on the norms of reciprocating benefits such that people cooperate under the expectation that they will give and receive from the relationship (Macualy, 1963) and relational contract (Macneil, 1980), the SET is characterized by long-term (Dwyer et al., 1987; Ganesan, 1994), continuity of the relationship (Heide & John, 1990), desire of the partners to collaborate on a long period (Abbad et al., 2012), trust (Morgan & Hunt, 1994; Ring & Van de Ven, 1994), interdependence (Ryu et al., 2007) and communication to limit opportunism of actors in a situation of dependence (Ahmed & Ullah, 2012).

The collaboration relationships are important elements that have also been cited in the literature including mutuality of benefits, risk, and rewards sharing (Baratt, 2004). In this sense, "partnerships tend to exhibit behavioral characteristics that distinguish these more intimate relationships from more traditional (conventional) business relationships" (Mohr & Spekman, 1994). Indeed, actors engaged in collaboration relationships achieved improved visibility, higher service levels, increased flexibility, greater end-customer satisfaction, and reduced cycle times (Min et al., 2005).

In the same sense of ideas, a lot of studies (Chen et al., 2009; Whipple & Russell, 2007; Bratt, 2004; Xiande et al., 2008) have affirmed that strong relationships increase the likelihood that firms achieve common goals for obtaining the competitiveness of the partners. In this context, collaboration is seen as a necessary component of strong relationships (Soosay et al., 2008). The concept of collaboration can be seen as a mode of governance of the relationship between customers and suppliers (Prakash & Deshmuk, 2010).

2.2 Determinants of Collaboration, Conceptual Framework

Before presenting the factors that influence collaboration between stakeholders in the automotive upstream SC (the explaining variables), we should present the concept of collaboration (explained variable).

2.2.1 Collaboration

The collaboration concept began to be popularized in the field of SC in the mid-1990s (Barratt, 2004). Collaboration is defined as occurring when "two or more independent companies work jointly to plan and execute supply chain operations with greater success than when acting in isolation" (Simatupang & Sridharan, 2002). Min et al. (2005) indicate that collaborative strategies focus on joint planning, coordination, and process integration between suppliers, customers, and other partners in a supply chain. Indeed, collaboration is a necessary component in the automotive supply chain (Charan, 2012).

In this context, Whipple and Russell (2007) indicate that "collaborative supply chain initiatives continue to be developed and to gain prominence based on the assumption that closer inter-enterprise relationships and enhanced information exchange will improve the quality of decision-making, reduce demand uncertainty, and, ultimately, improve supply chain performance. Recent research studies have shown that collaboration offers promise for improved supply chain performance in several core areas, including increased sales, improved forecasts, more accurate and timely information, reduced costs, reduced inventory, and improved customer service". In this order, the supply chain partners need to share both, the losses and the gains (Ouazzani, 2009). Mentzer et al. (2001) argued that developing and maintaining a collaborative relationship requires: trust, longevity of the relationship, sharing information and openly discussing processes and systems, leadership, technology, and benefit sharing. Ganesan (1994) adds and suggests that the requirements for effective collaboration are trust, communication, and commitment. The literature has focused on commitment, coordination, interdependence and trust as important attributes of partnerships (Mohr & Spekman, 1994).

Now that the notion of collaboration has been clarified, we define the concepts regarding the factors of collaboration.

2.2.2 Trust

Trust is defined as a belief, a feeling or expectation vis-a-vis an exchange partner that results from its expertise, reliability and intentionality (Ganesan, 1994). The research of (Gansan, 1994; Doney & Cannon, 1997) regarding trust in the supply chain assumed that trust is a multidimensional phenomenon consisting of two components: credibility of an exchange partner, an expectancy that the partner's word or written statement can be relied on-and benevolence: which is the extent to which one partner is genuinely interested in the other partner's welfare and motivated to seek joint gain. It is the belief of an actor that the other actor in the supply chain will carry out actions that will have positive outcomes (Anderson & Narus, 1990; Moorman et al., 1993). According to Doney and Cannon (1997), this definition of trust is relevant in an industrial buying context. It is widely treated as a major component of collaboration relationship, Doney and Cannon (1997) state that "Such collaborative relationships rely on relational forms of exchange characterized by high levels of trust". Also, "the high levels of trust characteristic of relational exchange enable parties to focus on the long-term benefits of the relationship" (Ganesan, 1994). Mohr and Spekman (1994) indicate that trust (i.e., the belief that a party's word is reliable and that a party will fulfill its obligation in an exchange) is highly related to firms' desires to collaborate. Anderson and Narus (1990) add credence to the above and suggest that once trust is established, firms learn that joint efforts will lead to outcomes that exceed what the firm would achieve had it acted solely in its own best interests. According to (Morgan & Hunt, 1994), the trust reduces transaction costs and reduces the perception of risk associated with opportunistic behavior on the other.

2.2.3 Commitment

Commitment can be defined as an implicit or explicit guarantee on the continuity between exchange partners (Dwyer et al., 1987). It refers to the desire to see the relationship continue in the long term (Gansan, 1994), It as a durable desire to maintain a privileged relationship (Morgan & Hunt, 1994). The mutual commitment implies a willingness of partners to make sacrifices in the short term to achieve long-term benefits (Dwyer et al., 1987). As the literature indicate (Abbad, 2012), commitment results in mutual gain and performance for both parties in a supply chain relationship (Tellefsen & Thomas, 2005; Mohr & Spekman, 1994). Lambert et al. (1999) found that when firms commit to long-term partnerships, both parties can achieve individual and joint goals without raising the specter of opportunistic behavior. In this context, El Alaoui et al. (2012) found that commitment had a direct and positive impact on performance and is an important indicator of the health of the relationships.

2.2.4 Communication

Communication acts as a process by which information is transmitted (Frazier & Summers, 1984). For Anderson and Narus (1990), communication is a formal or informal sharing of relevant information between firms. By communication, partners are able both to act independently in maintaining the relationship over time and to reduce uncertainty (Moor, 1998). It also reduces doubt, mistrust, asymmetric information and opportunistic behavior (Mohr & Nevin, 1990). However, this communication must avoid any ambiguity in the information transmitted between actors (Zhou & Benton, 2007); therefore, the strategy of communication between actors explicitly involves some characteristics: quality, frequency, direction and content (Mohr & Nevin, 1990). These characteristics are important determinants for a successful collaboration (Anderson & Narus, 1990) and for a long-term performance. In this order, Mohr and Spekman (1994) state that "Communication captures the utility of the information exchanged and is deemed to be a key indicant of the partnership's vitality … Is an important predictor of partnership success".

2.2.5 Information Technology

Information technology (IT) is used to connect users and facilitate the optimization process in the supply chain (Ahmed & Ullah, 2012). Collaboration between partners grows on the basis of adequate formal and informal communication using information technology (Anderson & Narus, 1990; Heide & Miner, 1992). The use of IT strengthens the links between actors in the supply chain, reduces transaction costs and limits opportunistic behavior (Pramatari, 2007). This technological aspect is facilitated by the use of EDI interface technologies, Extranet, CPFR, and VMI (Whipple & Russell, 2007; Ahmed & Ullah, 2012). This is a critical factor if partners are to realize benefits of collaboration (Bowersox, 1990). In this order, Pramatari (2007), indicate that "IT has clearly played a leading role in most if not in all the various supply chain collaboration practices referred to above and industry participants often use the terms 'enablers' and 'integrators' when referring to technological elements such as EDI, standards, Internet, etc."

2.2.6 Dependence

The desire of companies to acquire the resources necessary for their survival and development puts them in a situation that each is dependent on the other (Pfeffer & Salanncik, 1978). Several authors (Kumar et al., 1995; Lush & Brown, 1996) emphasize that all businesses depend on their environment and on other organizations for obtaining resources necessary to achieve their goals. Dependence is determined by two dimensions: the "essentiality" of resources and the "difficulty of replacing the partner" (Kumar et al., 1995; Heide & John, 1988). These dimensions require a mutual dependence leading to interdependence between actors in the supply chain over time. Interdependence results from a relationship in which actors perceive mutual benefits from interacting (Mohr & Spekman, 1994). In the same sense of ideas, Interdependence develops collaboration relationships in order of complementary contributions of each partner and the assets exchanged (Pfeffer & Salanncik, 1978). Each actor recognizes that this interdependence offers more benefits than either could attain singly (Benton & Maloni, 2005). Therefore, mutual dependence appears as a key to achieve mutually beneficial goals of both parties within the supply chain (Ryu et al., 2007).

2.2.7 Formalization

Formalization or formal contracts are "agreements in writing between two or more parties, which are perceived, or intended, as legally binding" (Lyons & Mehta, 1997; Klein Woolthuis et al., 2005). It is an agreement or a bilateral coordination mechanism by which two parties agree on another's behavior (Baudry, 2003). As indicated by Zouari and Samuel (2012), the formalization of collaboration is one of the most effective mechanisms to enable stakeholders to overcome the contradictions and control potential hazards that may occur throughout the supply chain. Consequently, the formalization (embodied in the contract) is critical to making effective collaboration within the supply chain (Malhotra & Lumineau, 2011). In this perspective, it must clearly state the goals pursued and the means (technology developed jointly, frequency of meetings, update contacts ...) to achieve these goals (Ellram, 1995) and then, provide solutions to differences of potential interest (Poppo & Zenger, 2002; Dekker, 2004; 2008). In a context characterized by increased risks and uncertainties related to international trade actors, Williamson (2008) states that the use of contract in the medium term would discourage opportunistic behavior. In supply chain context, Ellram (1995) adds formalization reduces uncertainty about the opportunistic behavior of partners and minimizes operating costs.

2.2.8 Control

According to Fenneteau and Naro (2005), control is the set of mechanisms and processes that enable the parties of a chain to ensure that decisions and behaviors developed by them in line with the objectives. Indeed, the concept of control includes the idea of mastery in order to coordinate the activities involved in the value chain (Kanda & Deshmukh, 2008), the control is mobilized in the form of an incentive monitoring and evaluation to

ensure that partners behave as expected (Baudry, 2003). For these reasons, tracking devices and monitoring tools are needed to establish a collaborative framework between actors of the supply chain: evaluation and monitoring. Some authors (Krause & Ellram, 1997; Noordewier et al., 1990; Frankel et al., 1996) state that, in the context of the supply chain, these devices can set collaborative behaviors (Kanda & Deshmukh, 2008) and lead to a level of motivation of the players in terms of learning and as a safeguard against the risk of opportunism (Williamson, 2008). In the same context, Klein Woolthuis et al. (2005) and Fenneteau & Naro (2005) consider that control is a necessity for efficiency and value creation in a supply chain.

2.3 Research Purpose and Hypotheses

The purpose of this work is to determine the factors of collaboration between actors in the supply chain (SC) upstream of Moroccan automotive sector, the analysis of our problematic led us to focus on two areas of research to be more precise:

- The nature of dyadic relationships between actors upstream in the automotive sector in Morocco SC.

- Transactional and relational determinants of collaboration between actors upstream of automotive SC Morocco.

To answer these questions we will put the following assumptions:

Hypothesis 1: Trust has a positive impact on collaboration between the actors of the SC.

Hypothesis 2: Commitment has a positive impact on collaboration between the actors of the SC.

Hypothesis 3: communication has a positive impact on collaboration between the actors of the SC.

Hypothesis 4: Information technology has a positive impact on collaboration between the actors of the SC.

Hypothesis 5: Dependence has a positive impact on collaboration between the actors of the SC.

Hypothesis 6: Formalization has a positive impact on collaboration between the actors of the SC.

Hypothesis 7: Control has a positive impact on collaboration between the actors of the SC.

3. Research Methodology

3.1 Data Collection and Procedure

Our research consists of 67 of the largest automotive companies in Morocco. Our choice of the target people is focused on those in charge. These responsible managers can be regarded as the essential source of information on the results of the collaboration in which their company is engaged. The choice of automotive is due to the fact that this sector must now consider new constraints and challenges facing increasingly present (flexibility, responsiveness and traceability). So the choice of the automotive industry is not neutral. Indeed, in this sector procurement and monitoring methods providers are considered a strategic issue.

As noted above, our research methodology is divided into two phases, which should explain the purpose and methodology of each phase.

The exploratory qualitative phase: In order to refine our problem, to better understand the factors of collaboration between actors, documentation and interviews are the two techniques for which we opted to collect qualitative data. While the literature (secondary data) is to reconstruct events and improve the understanding of the problem studied and for a better understanding of the environment of the study (automotive industry in Morocco) and mechanisms relating to the operation of the chain upstream (transactional and logistics), we conducted interviews (primary data), with practitioners and experts in the automotive industry in Morocco, during the second half of 2011. A standard semi-structured guide was developed from a review of the literature. The interview is practiced with the 10 industrial practitioners and 5 experts (consultants and academics), while satisfying the validation criteria of the qualitative study (internal acceptance, completeness, saturation; internal consistency and external confirmation). Our interview guide was organized around themes related to the problem. The duration of an interview is between 180 minutes and 4 hours. For that the analysis of the interviews will refine the assumptions made, to facilitate the drafting of the questionnaire and check the adaptation of concepts from the literature with the field of our issue, we have, after complete transcript, made thematic categorical analysis.

Confirmatory quantitative phase: Due to the lack of databases automobile industry to public access, we have used several ways to built our database, in collaboration with the some actors of the Moroccan automotive in the qualitative phase, which gave us a database that was not exhaustive, we have a complete list of twenty firms located in the free zone in Tangier (this list includes: phone numbers, email addresses, addresses, Fax, names of responsible ...), we then created the frame which can represent concrete elements of the target population to a

number. Then, to test our hypotheses, we sent questionnaires to 97 suppliers, manufacturers and logistic service providers. 67 usable questionnaires have been processed, a return rate of 69%. The survey was administered by us (in the month of July to December 2012). We used several possibilities: the telephone approach, Email and administration face to face.

Measurement: Concerning measures of variables, we adopted survey measurement items from past studies based on relevant literature and where appropriate, we adapted the items to our specific context (Moroccan case), all the variables of the model have been the subject of a multi-item measure, all measures used a five point likert scale (strongly agree/strongly disagree). These measures were then being translated and pre-tested.

3.2 Analysis of Data

The exploratory qualitative phase: The interviews we conducted were subject to a content analysis using NVivo software. This process is characterized by a technical analysis of the speech from a set of structured procedures. As Evrard et al. (2003) indicated content analysis consists of cutting back the text in units of basic analysis, to group them into homogeneous categories, exhaustive and exclusive, and then record their frequent appearance. As Evrard et al. (2003) say, content analysis has a heuristic function "content analysis enriches the exploratory trial and error, increases the propensity to discover and to see questions or interim statements as guidelines (...) to be verified in the sense of a confirmation or refutation: it is content analysis to prove".

The thematic analysis focuses on a cutting theme (e.g., frequency of occurrence of themes and association frequency). It is a division of the corpus theme, theme is defined as "a unit of meaning of variable length, and its reality is not linguistic but psychological: a statement but also an allusion may be a theme and conversely a theme can be developed in several statements" (Evrard et al., 2003). After the interviews, the corpus was transcribed and divided into themes (or content units). The plan of the interview guide includes the following topics: (the nature of the collaborative relationship power/dependence, relational determinants, transactional determinants, and the potential benefits of introducing a collaborative relationship). Finally, we conducted a horizontal analysis that treats the interview transversely focusing on each topic formalized the analysis grid. For each theme, the elements and sub-elements are identified according to their frequency. Then the research focuses on the vocabulary used, the chains and the nature of synonyms used to compare the contents of topics, for processing and interpretation of our results.

Confirmatory quantitative phase: The general approach to treatment of the data collected in the quantitative phase is organized as follow.

In order to ensure the validity of the scales of our research, we perform the KMO test, the Bartlett's test of sphericity for the data to be factorized. Thus, the factor analysis with rotation (Varimax) was conducted. This will allow us to consider the dimensionality of each variable. In the end, to ensure the internal reliability of the scale of measurement thus obtained, we have used Cronbach's alpha > 0.6.

In addition, to test the hypotheses, we use multiple regressions analyzes to put relations correlation between variables observed: on the one hand, the explanatory variables (trust, commitment, communication, IT, dependence, formalization and control) and the other variable to explain the collaboration. The tests were performed using **SPSS 20.0** software.

4. Results

The influence of explanatory variables on the dependent variable "collaboration between actors" is examined using multiple regressions (see table 1).

Table1. Overall goodness of fit of the regression model (sample of actors in the automotive industry in Morocco)

Indicators	R	R-squared	Adjusted R-squared	Standard error of the estimation	Number of individuals
Value	0,994	0,988	0,986	0,11857760	67

From this table, the overall accuracy of the model, measured by the adjusted coefficient of determination (adjusted R^2), shows that 98.6% of the variance of the concept is returned by four variables, trust, commitment, dependence and the formalization of the collaborative relationship. We can say that the model is of satisfactory quality. It can be considered as an explanation of the concept of collaboration between stakeholders in the

Moroccan automotive industry.

Regarding the contribution of each variable in the explanation of collaboration, the test results show that the seven variables removed from the regression equation, only four of the twelve variables have significant regression coefficients (see table 2). It is trust (Credibility), commitment (Implication), dependence (Essentiality of the relationship) and the formalization of the collaborative relationship.

Table 2. Confirmatory factor analysis

Variable	Factors	% variance explained	Bêta	t	Cronbach's alpha
Trust	Credibility	67.2%	,390	4,331**	,777
	Benevolence	67.44%	-,012	-,179 n.s.	,516
Commitment	Implication	82.79%	,597	3,050**	,926
	continuity of the relation	68%	,049	,719 n.s.	,529
Communication	Desire to exchange information	56.93%	,006	,201 n.s.	,594
	Regular exchange of information	67.88%	-,073	-1,919 n.s.	,508
IT	Information technology	46.26%	-,073		,657
Dependence	Essentiality of the relationship	92.6%	,061	2,857**	,919
	Difficulty of replacing	77.70%	,051	1,827 n.s.	.401
Formalization	Formalization	70%	,216	5,429**	.757
Control	Evaluation	79%	-,074	-,426 n.s.	,904
	Monitoring	61%	-,034	-,914 n.s.	,627

** Parameters are significant at 1%.

n.s. parameters are not significant.

Examination of the regression coefficients shows that:

1) The four selected variables have different weights in the regression equation. Coefficients to assess the explanatory power of each variable on collaboration are all significant, the significance level of 5% or less. It should be noted that the four selected variables all have the (t) Student value are greater than the threshold of 1.96 (which explains the positive impact of the explanatory variable on the variable explained) on the standardized multiple regression coefficient called (beta) which has a power in the explanation of the collaboration as follows: (Commitment: involvement and the importance of the relationship 39%; Trust: credibility almost 60%; Dependency: essentiality of the relationship 6.1% and Formalization almost 22%) of the explanation of the collaboration.

2) The eight hypothesis have been excluded and removed from the regression namely trust (benevolence), commitment (continuity), dependence (difficulty of replacement), communication (Desire to exchange information and Regular exchange of information), IT and control (Evaluation and Monitoring) are overturned therefore be rejected in the Moroccan context.

Regarding the contribution of each variable in the explanation of collaboration, the test results allow identifying by using the multiple regression analysis following significant variables:

$$Y = a + b1X1 + b2X2 + ... + bnXn$$

a: Predicted values

X1...Xn : independent variables

b1... Y bn : Regression coefficients of the independent variables, representing the specific effect of the respective independent variable on the dependent variable.

$$Collaboration = 0,390\ trust1 + 0,597\ commitment\ 2 + 0,061\ dependence1 + 0,216 formalization + e$$

These results demonstrate the existence of two types of variables: variables with significant regression coefficient (trust, commitment, dependence, and formalization) and excluded from the regression equation having no causal variables.

Table 3. The perception of variables of collaboration relationships in the Moroccan automotive context

Variable	Signification in the Moroccan context automotive	Verbatim
Trust	Is based on the skill, experience, reputation, size ...it increases in the trade, it can reduce conflict and the level of satisfaction finally it contributes to the development of collaboration between partners.	*"Trust, excellence and implication are now the hallmarks of the partnership relationship. It is more than simple market relations but relations of collaboration, functional association of design and production and division of labor based on the business".*
Commitment	Is the desire to maintain a long-term relationship with the partner being involved with short-term sacrifices, keeping promises and interpersonal relationships are key collaborative relationships elongated. The collaboration requires the mutual commitment of partners.	*"Indeed we are very involved and we aim in the long term, but nothing is certain, it is the instability of the environment that can make the unstable collaboration .... My experience in the automotive field the success of the relationship depends on the involvement of the heart to maintain the long-term possible ...".*
Communication	Is a way that connects actors in the supply chain and shows the desire to share information, however, the direct discussion and oral communication before the written submission, its quantity and quality that is essential in collaboration	*"Information is obtained sometimes by all means even if the culture of communication is often characterized by informational ambiguity".*
IT	Is an important element even essential in the effective management of a supply chain. But, expensive.	*"Frankly for us, small and medium-sized suppliers, the use of EDI are very expensive so the use of means of communication traditional, Web EDI, fax, phone and including meetings are largely sufficient to exchange all necessary information".*
Dependence	It determines the power level of each party in the relationship. it refers to the need for a company to maintain an exchange ratio to achieve goals, even if it harmful, it is accepted.	*"Even if we don't like to be always dependent, I think we need require us to get started ... I worked despite the dominance of my partner".*
Formalization	Is a very important step in the initiation of a collaborative relationship. This phase is the beginning of a new relationship is to define primarily the main rules to be observed by all members	*"The establishments of contractual relations allow sitting collaborative behavior between all stakeholders and bring them to be more responsive and more efficient in light of unanticipated changes, whether technical or organizational".* "*The value of a contract is to feel quiet.*"
Control	Is essential, since it allows to organize activities to meet the success of a collaborative relationship, this is to know how to handle disturbances (conflicts, and unforeseen problems occur during the contract) that can hinder the relationship.	*"In my opinion the control devices are supposed to further stimulate the partner, not a sort of policeman for the partner because they provide regular monitoring is to detect in advance the potential conflicts and risk between the different actors and to see the relationship continue in the long term".*

5. Discussion and Managerial Implications

5.1 Discussion

Collaboration aims to achieve common goals, make good use of the available resources of each partner and increase competitive advantage in the SC (Zhang & Chen, 2008). Collaboration must be intensified to better serve the consumer. Partners are value broadly in collaboration. Our results confirm that collaboration supply chain in Moroccan industry is becoming a popular strategy in the last few years. However, the course to

collaboration is not an easy one.

Trust constitutes a major determinant of collaboration between actors Moroccan industry. These results are consistent with empirical studies of Ellram (1995) and Brulhart (2002) that reflect the importance given by respondents to the trust regarding the collaboration between actors upstream SC. The study confirms and extends the empirical contributions of Moore (1998) and Mohr & Spekman (1994), which validates the hypothesis of a significant positive impact of trust on the effectiveness of the relationship between logistics partnership with a 339 enterprise customers provider.

The results validate our hypothesis H2 and show that commitment constitutes an important factor for collaboration between the actors of the upstream SC. Our results are consistent with some studies that highlight specific logistics positive role of commitment on collaboration (Ellram, 1995; Krause & Ellram, 1996) and studies that, if they do not specifically relate to the field of logistics partnerships nevertheless show an influence of commitment on the success of vertical partnership in different types of customers/suppliers relations (Mohr & Spekman, 1994).

Dependence has two components: the essentiality of the relationship and the difficulty of replacing partners. The mutual dependence (becoming interdependence) plays an important role in linking stakeholders to develop collaborative relationship. The results show that our hypothesis H5 dependence includes "the essentiality of the relationship" to impact on the collaboration of actors upstream SC.

In the Moroccan context, the dependence between the actors is rather forced as when it is the logic of power and dependence underlying relationship, in this sense, the actors manage their dependence collaboration. Thus, our results for the dependence between the parties in the relationship are generally similar to those of the study of Skinner et al. (1992) and Lusch & Brown (1996).

Formalization of the collaboration: The results obtained in our quantities study allow specifically its convergence with the exploratory qualitative study on the role of the formalization of collaboration between actors upstream SC. Indeed, we were able to validate hypothesis (H6) on the impact of the formalization of collaboration between actors of upstream SC. In this sense, our findings are consistent with some empirical contributions about the collaboration between actors upstream SC , as the study of Frankel et al. (1996) shows that respondents case studies give a positive role in the formal contract in the success of the partnership. We can then interpret this validation of our assumptions by advancing the idea that written agreements can play a big role in the development of a strong and enduring commitment of the collaboration.

These practical results seem consistent with the exploratory results.   It should, therefore, first establish rules to engage the actors (the role of the contract). In the context of Morocco, formalization plays an important role in the process of designing and developing collaboration. The contract allows the development of collaborative projects and to address issues that arise in the collaborative relationship. Thus, the results for the formalization of the parties in the relationship are generally similar to those of the study Brulhart (2002) and Dekker (2004).

The variables removed from the regression equation are those that are associated with statistically non-significant regression coefficients: communication (the desire to share information and regular exchange of information), IT and control (evaluation and monitoring).

The link between these three independent variables and collaboration (dependent variable) does not validate the assumptions from the literature. In other words, the assumptions H3, H4, H7 are rejected.

Despite the fact that communication appears to reduce the fears of opportunistic behavior by reducing the uncertainty associated with the relationship, causing a greater commitment to the partnership, our results our H3 hypothesis does not validate a significant impact of communication on collaboration. Indeed, as Brulhart (2002), we have not been able to validate the hypothesis of a positive impact of communication on the collaboration. However, this hypothesis has been validating in the collaboration studies context of Mohr and Spekman (1994).

Concerning information technologies (IT), we have not been able to validate the hypothesis of a direct positive impact of IT on collaboration between actors upstream SC. However, we found a negative effect of IT on collaboration in the Moroccan automotive context. The explanation of this non-significance of collaboration could be part of the transaction cost approach. According to Williamson (1979), "more the assets are specialized, more transaction costs increase".   In addition, in the sense of Brulhart (2002), the computer tool can be also seen sometimes as a pretext or excuse for poor performance, malfunction or inadequacy of the tool would then be advanced as explanations of deficiencies appearing on one side or the other, which would contribute to obscure the relationships and increase the uncertainty and ambiguity of the performance of the collaboration. Indeed, adequate IT to the functioning of collaboration are related not only to the mutual sharing of information

and the quality of information exchanged, but also confidentiality, which is sometimes very difficult to make sure.

We mentioned that control is seen as a tool for securing partners and developing collaboration (Poppo & Zenger, 2002) and the implementation of monitoring procedures is to assure and verify that everything is in line with what was expected. It seems to be perceived by some actors of Moroccan automotive supply chain upstream as a tool imposed to punish rather than collaborate. In this sense, our results (hypothesis H7) fully refute the idea that control and monitoring facilitate the development of collaboration relationships (Poppo & Zenger, 2002). In this sense, the validation corresponding to the significant impact of control on collaboration in the context of the automotive upstream supply chain is invalid.

Communication, IT and control, seem do not have a positive impact on collaboration relationships (hypothesis H3, H4 and H7 are reversed). The invalidation of the assumptions may well be explained by the insufficient number of observations. Hair et al. (2006) argue that the application of the regression method on a small sample size could lead to unreliable and reject some key variables in the real world results. The small size of our sample (67 respondents) could justify the absence of a linear relationship between these variables and collaboration could also be an explanation for rejection of these three independent variables involved. This smaller size leads to a bias in the estimation of regression coefficients. Otherwise, the non-causality between these three variables and collaboration can also be explained by an error in model specification or measurement error.

It should be noted here that communication, IT and control were mostly operationalized using statements from previous research. The results for these three variables may be due to the transposition of scales (U.S. measure for these three variables: communication, IT and control) in the Moroccan context. Because of cultural differences, these scales are not relevant in the field of investigation, which is the customer/supplier relations industry in Morocco. We can argue that the sensitivity of the subject (questions on these three variables) introduced a response bias, although care has been taken when administering questionnaires face to face (to ensure confidentiality of respondents). The set of assumptions could be deepening in future research.

5.2 Managerial Implications

The put forth in this research allow managers to have a better collaborative design relationship between customers and industry suppliers. This research also highlights the factors that have a significant impact on collaboration between actors of automotive industry in the Moroccan context. The research examines various factors of collaborative relationships in order to categorize collaborative relationships for Moroccan academicians and practitioners. In this perspective, managers may employ a mix of collaboration factors. Managers need to consider that to have better collaborative relationships, they must take account the specifics Moroccan determinants to develop collaborative strategies of relationships.

It has been indicated that each partner plays an important role not only in the development of the relationship, but the perception of the collaborative partner's relationship and its implementation in practice has an impact increasingly important in the development of collaboration. In this perspective, Moroccan and strange industrial managers can also use these results to assess current collaborations and seek ways to improve current collaborative efforts.

Finally, more practically, the automotive industry in Morocco is a big craze in recent years, especially with the establishment of the factory of car maker Renault on the Tangier Free Zone in Morocco. The results of our research have in their exploratory component to describe the relationships in this sector, and will be eager to enjoy the automakers to settle in Morocco a better understanding of these actors. This can reorient policies established supply chains and international managers wishing to settle in Morocco to take into account the Moroccan relationships specificity.

6. Conclusion, Limitations and Future Research

Relationships between actors within SC have experienced significant developments in recent years. Now, to gain a competitive advantage and be competitive, the Moroccan automotive industry must be engaged in collaborative relationships with a long-term look. We are well past a purely traditional relationship characterized by an economic approach to a less confrontational relationship, whose foundations are built on trust and continuity.

The results of the empirical study in the Moroccan context seem to agree with this theoretical assertion. These results show that the relationships between the actors move towards more collaborative relationships. In general, the results strongly support the hypotheses presented in previous studies. The interest of these studies is to allow those involved in the automotive industry to develop a stimulating collaborative relationship in the economic policies and development commitments. In Moroccan automotive context, collaboration is changing, but slowly

turning into relationships with a vision beyond the short term. The actors of supply chain are forced to feed a collaboration based on trust, commitment and involvement.

Many limitations of our work relates to the sample size of only 67 respondents, this inherent to the number of the entire population, this has reduced and limited the results of the study, therefore, the results obtained in this research can't be generalize and do not support the requirements of external validity. Other limitations:

- It is possible that there are other specific cultural variables in Morocco that we have not used that could have an impact on collaboration.

- We have neglected the phenomena of interactions between variables, which may be questionable in this area of research.

- In our study, trust and commitment are not as a mediating variable as most research regarding relationships.

- The small size of our sample is fully compatible with the implementation of partial least squares (PLS) which allows using the Structural Equation. We are just working with the regression method for data analysis.

The propositions put forth in this work imply a path for future research and to enrich the knowledge of the subject treated. Also, it would interesting to focus a single theoretical framework "transactional" or "relational". In addition, the adoption of a dyadic approach can be bypassed by the study of multi-stakeholder relations in various sectors. This would help to have a global view of the perceptions of partners influencing industrial collaboration in Morocco, we might think to develop a model of collaboration between partners from other sectors, such aircraft industry, electronics, etc...

Reference

Abbad, H., Paché, G., & Bonet, F, D. (2012). Peut-on désormais parler d'engagement du distributeur dans la relation avec l'industriel? *Management International*, *16*(4), 103–116. http://dx.doi.org/10.7202/1013152ar

Ahmed, S., & Ullah, A. (2012). Building supply chain collaboration: different collaborative approaches. *Integral Review—A Journal of Management*, *5*(1), 8–21.

Anderson, J. C., & Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. *The Journal of Marketin*g, *54*, 42–58.

Anderson, E., & Weitz, B. (1989). Determinants of Continuity in Conventional Industrial Channels Dyads. *Marketing Science*, 8, pp. 310–323. http://dx.doi.org/10.1287/mksc.8.4.310

Baudry, B. (2003). *Economie de la firme*. Paris: La Découverte.

Benton, W. C., & Maloni, M. (2005). The influence of power driven buyer/seller relationships on supply chain satisfaction. *Journal of Operations Management, 23*(1), 1–22. http://dx.doi.org/10.1016/j.jom.2004.09.002

Bonet, D., & Boissinot. A. (2012). Quel leadership pour les prestataires de services logistiques dans la supply chain de l'automobile. *Logistique & Management*, *20*(2).

Bowersox, D. J. (1990). The strategic benefits of logistics alliances. *Harvard Business Review*, *68*(4), 36–43.

Baratt, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management, An International Journal*, *9*(1), 30–42. http://dx.doi.org/10.1108/13598540410517566

Brulhart, F. (2002). Le rôle de la confiance dans le succès des partenariats verticaux logistiques: le cas des coopérations entre industriels agro-alimentaires et prestataires logistiques. *Finance Contrôle Stratégie*, *5*(4), 51–77.

Charan, P. (2012). Supply chain performance issues in an automobile company: a SAP-LAP analysis. *Measuring Business Excellence*, *16*(1), 67–86.

Chen, H., Daugherty, P., & Landry, T. D. (2009). Supply Chain Process Integration: A theoretical Framework. *Journal of Business Logistics*, *30*(2), 27–46. http://dx.doi.org/10.1002/j.2158-1592.2009.tb00110.x

Corsten, D., & Kumar, N., (2005). Do suppliers benefit from collaborative relationships with large retailers? An empirical investigation of efficient consumer response adoption. *Journal of Marketing, 69*(3), 80–94. http://dx.doi.org/10.1509/jmkg.69.3.80.66360

Dekker, H. C. (2004). Control of inter-organizational relationships: evidence on appropriation concerns and coordination requirements. *Accounting, Organizations and Society*, *29*, 27–49. http://dx.doi.org/10.1016/S0361-3682(02)00056-9

Dekker, H. C. (2008). Partner selection and governance design in inter-firm relationships. *Accounting,*

organization and society, *33*, 915–941. http://dx.doi.org/10.1016/j.aos.2007.02.002.

Doney, P. M., & Cannon, J. P. (1997). An Examination of the Nature of Trust in Buyer-Seller Relationships. *Journal of Marketing*, *61*, 35–51 http://dx.doi.org/10.2307/1251829

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *Journal of Marketing*, *51*(2), 11–27. http://dx.doi.org/10.2307/1251126

El Alaoui, A. M., Chakor, A., & Mdaghri, A. A. (2012). Ethics, Relationship Marketing and Corporate Performance: Theoretical Analysis through the Mediating Variables. *International Business Research, 5*(8), 68–84. http://dx.doi.org/10.5539/ibr.v5n8p68

Ellram, L. M. (1995). Partnering Pitfalls and Success Factors. *International Journal of Purchasing and Material Management, 31*(2), 36–44. http://dx.doi.org/10.1111/j.1745-493X.1995.tb00201.x

Evrard, Y., Pras, B., & Roux, E. (2003). *Market: études et recherches en marketing* (3rd ed.). Dunod.

Fenneteau, H., & Naro, G. (2005). Contrôle et confiance dans l'entreprise virtuelle illustrations logistiques. *Revue Française de Gestion*, *31*(156), 203–219. http://dx.doi.org/10.3166/rfg.156.203-219

Field, J. M., & Meile, L. C. (2008). Supplier relations and supply chain performance in financial services processes. *International Journal of Operations & Production Management, 28*(2), 185–206. http://dx.doi.org/10.1108/01443570810846892.

Frankel, R., Whipple, J. S., & Frayer, D. J. (1996). Formal Versus Informal Contracts: Achieving Alliance Success, *International Journal of Physical Distribution and Logistics Management*, *26*(3), 47–63. http://dx.doi.org/10.1108/09600039610114992

Ganesan, S. (1994). Determinants of Long Term Orientation in Buyer-Seller Relationships. *Journal of Marketing*, *58*, 1–19. http://dx.doi.org/10.2307/1252265

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*, Pearson Prentice Hall.

Heide, J. B., & John, G. (1990). Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer-Supplier Relationships. *Journal of Marketing Research*, *27*, 24–36. http://dx.doi.org/10.2307/3172548

Houssaini, A. (2008). SCM: La mutation des relations inter-acteurs. *Colloque, La logistique au Maroc: pratiques, enjeux et perspectives,* EST, Université Sidi Mohamed Ben Abdellah, 28, 29 Mai.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *3*, 306–360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Kanda, A., & Deshmukh, S. G. (2008). Supply chain coordination: Perspectives, empirical studies and research directions. *International Journal of Production Economics*, *115*, 316–335. http://dx.doi.org/10.1016/j.ijpe.2008.05.011

Klein Woolthuis, R., Hillebrand, B., & Nooteboom, B. (2005). Trust, contract and relationship development. *Organization Studies*, *26*, 813–840. http://dx.doi.org/10.1177/0170840605054594

Krause, D. R., & Ellram, L. M. (1997). Success Factors in Suppliers Development. *International Journal of Physical Distribution and Logistics Management*, *27*(1), 39–52. http://dx.doi.org/10.1108/09600039710162277

Pramatari, K. (2007). Collaborative supply chain practices and evolving technological approaches. *Supply Chain Management: An International Journal, 12*(3), 210–220.

Kumar, N. (1996). The Power of Trust in Manufacturer–Retailer Relationships. *Harvard Business Review*, November–December, 92–106.

Lambert, D. M., Emmelhainz, M. A., & Gardner, J. T. (1999). Building Successful Logistics Partnerships. *Journal of Business Logistics*, *20*(1), 165–181.

Lusch, R. F., & Brown, J. R. (1996). Interdependency, Contracting and Relational Behavior in Marketing Channels. *Journal of Marketing*, *60*, 19–38. http://dx.doi.org/10.2307/1251899

Lyons, B., & Judith, M. J. (1997). Contracts, opportunism and trust: Self-interest and social orientation. *Cambridge Journal of Economics, 21*, 239–257. http://dx.doi.org/10.1093/oxfordjournals.cje.a013668

Macneil, I. R. (1980). *The New Social Contract, An Inquiry into Modern Contractual Relations*. New Haven: Yale University Press.

Malhotra, D., & Lumineau, F. (2011). Trust and Collaboration in the Aftermath of Conflict: The Effects of Contract Structure. *Academy of Management Journal*, *54*(5), 981–998. http://dx.doi.org/10.5465/amj.2009.0683

Mentzer, J. T. et al. (2001). Defining Supply Chain Management. *Journal of Business Logistics*, *22*(2). http://dx.doi.org/10.1002/j.2158-1592.2001.tb00001.x

Min S., Roath, A. S., Daugherty, P. J., Genchev, S. E., Chen, H., Arndt, D., & Richey, R. G. (2005). Supply chain collaboration: what's happening. *The International Journal of Logistics Management*, *16*(2), 237–256. http://dx.doi.org/10.1108/09574090510634539

Mohr, J., & Spekman, R. (1994). Characteristics of Partnership Success: Partnership Attributes, Communication Behavior and Conflict Resolution Techniques. *Strategic Management Journal*, *15*, 165–152. http://dx.doi.org/10.1002/smj.4250150205

Moore, K. R. (1998). Trust and Relationship Commitment in Logistic Alliances: A Buyer Perspective. *International Journal of Physical Distribution and Logistics Management,* Winter*,* 24–37.

Moorman, C., Deshpandé, R., & Zaltman, G. (1993). Factors Affecting Trust in Market Research Relationship. *Journal of Markeling, 57*(l), 81–101. http://dx.doi.org/10.2307/1252059

Morgan, R. M., & Hunt, S. D. (1994). The Commitment—Trust Theory of Relationship Marketing. *Journal of Marketing*, *58*, 20–38. http://dx.doi.org/10.2307/1252308

Noordewier, T. G., John, G., & Nevin, R. (1990). Performance Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationships. *Journal of Marketing, 54,* 80–93. http://dx.doi.org/10.2307/1251761

Paulraj, A., Lado, A. A., & Chen, I. J. (2008). Inter-organizational communication as a relational competence: Antecedents and performance outcomes in collaborative buyer-supplier relationships. *Journal of Operations Management, 26*, 45–64. http://dx.doi.org/10.1016/j.jom.2007.04.001

Pfeffer, J., & Salancik, G. (1978). *The external control of organizations: A resource dependence perspective*, New York: Harper &Row.

Poppo, L., & Zenger, T. (2002). Do Formal Contracts and Relational Governance Function as Substitutes or Complements. *Strategic Management Journal*, *23*(8), 707–725. http://dx.doi.org/10.1002/smj.249

Prakash, A., & Deshmukh, S. G. (2010). Horizontal collaboration in flexible supply chains: a simulation study. *Journal of Studies on Manufacturing*, *1*(1), 54–58.

Ring, P. S., & Van de Ven, A. H. (1994). Developmental Process of Cooperative Inter Organizational Relationship. *Academy of Management Review*, *19*(1), 90–118.

Ryu, S., Arslan, H., & Aydin, N. (2007). The effect of inter firm dependence structures on governance mechanisms. *Journal of Purchasing & Supply Management*, *13*, 17-25. http://dx.doi.org/10.1016/j.pursup.2007.03.001

Simatupang, T. M., & Sridharan, R. (2002). The collaborative supply chain. *International Journal of Logistics Management*, *13*(1), 15–30. http://dx.doi.org/10.1108/09574090210806333

Soosay, C. A., Hyland, P. W., & Ferrer, M. (2008). Supply Chain Collaboration: Capabilities for Continuous Innovation. *Supply Chain Management: An International Journal*, *13*(2), 160–169. http://dx.doi.org/10.1108/13598540810860994

Skinner, S. J., Gassenheimer, J. B., & Kelley, S. W. (1992). Cooperation in Supplier-Dealer Relations. *Journal of Marketing*, *68*(2), 174–193.

Spekman, R. E. (1992). *A working consensus to collaborate: a field study of manufacturer supplier dyads.* Cambridge, MA: Marketing Sciences Institute.

Tellefsen, T., & Thomas, G. P. (2005). The antecedents and consequences of organizational and personal commitment in business service relationships. *Industrial Marketing Management*, *34*(1), 23–37. http://dx.doi.org/10.1016/j.indmarman.2004.07.001

Wagner, S. M. (2010). Supplier Traits for Better Customer Firm Innovation Performance. *Industrial Marketing Management*, *39*(7), 1139–1149. http://dx.doi.org/10.1016/j.indmarman.2009.12.001

Whipple, J. M., & Russell, D. (2007). Building supply chain collaboration: a typology of collaborative relationship strategies. *The International Journal of Logistics Management, 18*(2), 174–196.

Williamson, O. E. (1993). Calculativeness, Trust, and Economic Organization. *Journal of Law and Economics*, *36*,

April, 453–502. http://dx.doi.org/10.1086/467284

Williamson, O. E. (1979). *Transaction Cost Economics: The Governance of Contractual Relations*. New York: The Free Press.

Williamson, O. E. (2008). Outsourcing: transaction cost economics and supply chain management. *Journal of Supply Chain Management*, *44*(2), 5–16. http://dx.doi.org/10.1111/j.1745-493X.2008.00051.x

Xiande, Z., Baofeng, H., Barbara, B. F., & Jeff, H. Y. Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of Operations Management, 26*, 368–388. http://dx.doi.org/10.1016/j.jom.2007.08.002

Yeung, J., Zhao, X., & Yeung, T. (2004). Supply Chain Integration, Trust & Relationship Commitment. *IMS Conférence*, Jun, Hong Kong.

Zhang, X., & Chen, R. (2008). Examining the mechanism of the value co creation with customers. *International Journal of Production Economics, 116*, 242–250. http://dx.doi.org/10.1016/j.ijpe.2008.09.004

Zhao, X., Sum, C. C., Qi, Y., Zhang, H., & Lee, T. S. (2006). A taxonomy of manufacturing strategies in China. *Journal of Operations Management, 24*, 621–636. http://dx.doi.org/10.1016/j.jom.2005.07.003

Zhou, H., & Benton, W. C. (2007). Supply chain practice and information sharing. *Journal of Operations Management*, *25*(6), 1348–1365. http://dx.doi.org/10.1016/j.jom.2007.01.009

Zouaghi, I., Spalanzani, A., & Gunasekaran, A. (2012). Supply Chain Relational Behaviors: Outlook from Practical Cases. *RIRL 2012,* 15–17, Aout HEC Montreal Canada.

Zouari, D., & Samuel, K. E. (2012). Vers une structuration relationnelle au sein de la supply chain: le contrat comme mécanisme de coordination. *RIRL 2012,* 15–17, Aout HEC Montreal Canada.

Copyrights

Customer Relationship Management Scale for the Business-to-Consumer Market: Exploratory and Confirmatory Validation and Models Comparison

Gisela Demo[1] & Késia Rozzett[2]

[1] Anderson School of Management, University of California, United States

[2] Programa de Pós-Graduação em Administração, Universidade de Brasília, Brazil

Correspondence: Gisela Demo, Departamento de Administração da Universidade de Brasília, Campus Universitário Darcy Ribeiro, ICC Norte, Sala B1-576, Asa Norte, Brasilia, DF, Brasil. CEP: 70910-900. Tel: 55-61-31077109. E-mail: giselademo@gmail.com

Abstract

The main objective of this study was to validate in the United States a previous scale developed and validated in Brazil for the business-to-consumer (B2C) market to assess customers' perceptions regarding aspects they consider relevant in their relationship with companies in general. Brazilian and American Models were also compared. Three studies have been conducted with different national samples for the validation of the Customer Relationship Management Scale in the US. The result was a one-factor model with high reliability and good fit. This research is a starting point to provide a comprehensive valid measure of customer relationship management based on customers' perspectives. As practical implications, the one-factor model could be used as a diagnostic tool to identify aspects in customer relationship management where specific improvements are needed, as well as an instrument of evaluation to help managers better understand how to meet client's needs in order to deliver high-value products and services developing a long-term and profitable relationship.

Keywords: customer relationship management (CRM), business-to-consumer market (B2C), scale validation, exploratory factor analysis, confirmatory factor analysis, cross national comparison of models

1. Introduction

The main authors of Customer Relationship Management (CRM)(Wilson & Vlosky, 1997; Campbell, 2003; Zablah et al., 2004; Payne, 2006) agree on the relevance of managing the relationship between organizations and its customers. Thus the adaptation of the organizational capacity to detect opportunities in the market and the constant effort of companies on establishing long term relationships with its business partners, and especially with its customers, has been established as a priority on enterprises (Demo & Ponte, 2008).

Considering both the strategic relevance of Customer Relationship Management (CRM) for organizations nowadays, and the lack of measuring scales customized for the business-to-consumer (B2C) market as well as the importance of validating a scale in different countries for improved generalizability, the main objective of this study is to validate the Customer Relationship Management Scale (CRMS) in the US, based on the previous CRM scales that Rozzett and Demo (2010a; 2010b; 2011) developed and validated in Brazil. We found some CRM scales in the literature (e.g., Wilson & Vlosky, 1997; Sin, Tse & Yim, 2005; Öztaysi, Sezgin & Özok, 2011) but none focused on the customer's relationship marketing perception in the B2C market in general.

Furthermore, if the CRMS shows theoretical consistency and also good psychometric indexes when validated in a different country (US), it will be a psychometrically and operationally valid measure to be used in relational studies from both Marketing and Consumer Behavior fields. Additionally, it could be used as a diagnostic tool to identity CRM aspects where specific improvements are needed, as well as an instrument of evaluation to help managers better understand how to meet client's needs, deliver high-value products and services, and develop long-term profitable relationship.

2. Literature Review

This section first presents the theoretical background of CRM and after summarizes the studies Rozzett and

Demo (2010a; 2010b; 2011) conducted to develop and validate the CRM scale, used as basis for this research.

2.1 Theoretical Background

It is important to consider the competitiveness perspective on organizational studies. Along with globalization and new technologies, competitiveness is imperative and characterized by the non-stop organizational search for competitive advantage.

Kumar et al. (2011) investigated if market orientation is, indeed, a source of sustainable competitive advantage and discovered a positive effect of market orientation when crossed with business performance on either long or short terms. The study conducted by Mishra (2009) showed that as more organizations realize the significance of becoming customer-centric in today's competitive era, as more they adopted Customer Relationship Management (CRM) as a core business strategy, driving them to the conclusion that CRM can help organizations manage their interactions with customers more effectively in order to maintain competitiveness.

For Grönroos (1994), Sheth and Parvatiyar (2002), CRM or relationship marketing represents a paradigm shift on marketing concepts, a change on marketing orientation from just attracting customers to having customer's retention and loyalty. As stated by Payne (2006), CRM provides opportunities to use information, know clients better, offer value by customized sales and develop long-term relationships. The company should have know-how on processes, operations and integration in order to allow that the core of marketing become the philosophy that guides the business.

McKenna (1991) presents a strategic relationship marketing approach placing the customer in first and changing the marketing role of manipulating customers to making a real commitment with them. The author emphasizes the retention of profitable customers, multiple markets and an approach regarding multifunctional marketing, in which the responsibility for marketing strategies development and relationship with the customer is not limited to the marketing department only.

"Long-term customers buy more, take less of a company's time, are less sensitive to price and bring in new customers. Best of all, they have no acquisition or start-up cost" (Reichheld, 1996). In this sense, competitive advantage can be acquired by knowing the expectations, preferences, and behavior of customers. Thus, retaining customers, developing a relationship and continuously satisfying them can be considered the basis for a successful trajectory for most organizations, according to the author.

Although CRM has become an extremely relevant proposal, the comprehension of what it means is still limited. Many companies make a conceptual mistake by equaling customer relationship marketing to support systems for CRM implementation. Regarding this controversy, Bygstad (2003) conducted a longitudinal 6-year case study of a company implementing CRM both as a marketing principle and as an information system. The author found that from a managerial view CRM projects should be treated as complex challenges, needing tight project control and the application of change management techniques, focusing on the marketing process and data quality. In contrast, it's important to understand that the mechanisms at work at the micro level are only partly controllable by management techniques, so the infrastructure should grow organically.

Payne (2006) stresses that the importance of defining CRM correctly is not a semantic preciousness. Such definition significantly impacts the way CRM is understood, implemented and practiced in organizations. The author highlights that CRM is a strategic holistic approach to manage the relationship with customers in order to create value to the stockholder. Moreover, CRM needs to be infused with strategic vision to create value to the stockholder through the development of relationships with strategic customers, bringing together the potential of information technology (IT) to the relationship marketing strategies that will result in the establishment of profitable long-term relationships.

Zablah et al. (2004) agree that the CRM literature is still inconsistent and highly fragmented due to the lack of a common conceptualization, proposing a delineation of CRM as an "ongoing process that involves the development and leveraging of market intelligence for the purpose of building and maintaining a profit-maximizing portfolio of customer relationships" (p. 475). This idea converges with the conceptual framework presented by Campbell (2003) about the internal processes involved in creating customer knowledge competence composed by four components namely customer information process; marketing-IT (information technology) interface; senior management involvement; and employee evaluation & reward systems.

Huang and Xiong (2010) notice that CRM has reached a strategic maturity and it influences the entire cycle of life of a product and not only the before or after-sales stages. Still on the enlargement of CRM influence, Ernst, Hoyer, Krafft and Krieger (2011) sustain that its potential has been only investigated on already existent products cases, but it should be considered on the development of new products as well, once their studies showed that

CRM has a positive correlation with performance and success of new products.

Also considering that corporative culture has not been sufficiently studied on relationship marketing, Iglesias, Sauquet and Montaña (2011) presented a model of corporative culture from a CRM-oriented organization. The results showed two primary factors needed for its effectiveness: "client orientation" and "high level of care for employees". Moreover, other six-shared values (confidence, involvement, teamwork, innovation, flexibility and results orientation) also would facilitate the orientation development towards relationship marketing.

As for literature reviews regarding CRM, Ngai's (2005) first article was considered a milestone regarding the academic literature about customer relationship marketing. It analyzed 205 articles in different databases published in over 85 different academic reviews from 1992 to 2002. Ngai's (2005) study concluded for the force of CRM research, questioning about the low percentage of theoretical reviews related to CRM privacy, and predicting that the field would continue to present significant growth during the next years.

Ngai, Xiu and Chayu (2009) wrote the first academic review on the application of data mining techniques for CRM. The results showed that models of classification and association are the most commonly used in data mining regarding CRM. Besides, customer retention is the most researched area of all and the one-to-one marketing and loyalty programs are the most investigated themes.

Wahlberg et al. (2009) questioned the evolution of CRM research through time and identifying trends and research topics from 4 investigation areas: strategic CRM, analytical CRM, operational CRM and collaborative CRM. The results showed that the number of articles about CRM as a specific topic was relatively low until the end of the nineties, exactly as pointed by Ngai (2005), which confirms the aspect of novelty CRM holds on marketing research. Also, most of researches have been done on strategic CRM, which was the most popular by the end of the studied period of time. Additionally, they have found predominance of research on big companies at the expense of medium and small businesses whose characteristic must be taken into account.

Concerning CRM measures, we found some studies with scale validation that were mostly based in the works of Wilson and Vlosky (1997), Sin, Tse and Yim (2005), Agariya and Singh (2012a), and Rozzett and Demo (2010a; 2010b; 2011).Wilson and Vlosky (1997) developed a CRM scale for the business-to-business (B2B) market and Viana, Cunha Jr and Slongo (2005) adapted it for the industrial sector in Brazil. Sin, Tse and Yim (2005) validated a scale to measure the CRM dimensions practiced by the companies in the financial service sector of Hong Kong. Then, Soch and Sandhu (2008) developed a scale for CRM constructs applied to manufacturing industries in India, Wang and Feng (2008) validated a scale on CRM capability in service industries in China and Öztaysi, Sezgin and Özok (2011) proposed an instrument for the measurement of CRM processes in Turkey. Recently, Agariya& Singh (2012a; 2012b; 2013) developed a CRM Index for both insurance and banking sectors and a CRM scale for clients of Indian Public Hospitals, and Zulkifli & Tahir (2012) validated a scale for CRM practices construct consisted of six dimensions of CRM specifically for bank's customers.

Finally, Rozzett and Demo (2010a; 2010b; 2011) conducted three studies in Brazil to develop and validate a scale for the (B2C) market to assess customer's perception of relationship with companies in general. Three customized scales were adapted and validated based on Rozzett and Demo's scale: for amusement parks (Vasconcelos & Demo, 2012); for video-games (Batelli & Demo, 2012); and for beverages (Lopes & Demo, 2012).

2.2 Development and Validation of the Customer Relationship Management Scale in Brazil

The studies of the development and validation of the CRMS in Brazil (Rozzett & Demo, 2010a; 2010b; 2011) were the basis for the validation in the US because it is the only one found on the literature addressed to the B2C market in general. Item generation of the CRMS validated in Brazil was based on a broad literature review regarding CRM (Ryals & Payne, 2001; Campbell, 2003; Zablah et al., 2004; Ngai, 2005; Payne, 2006; Wahlberg et al., 2009; Kumar et al., 2011), as well as on interviews with various customers from different organizations that highlighted the relevance of items concerning customers satisfaction and also loyalty intention as possibly predictors of a long-term relationship. Regarding the interviews, the analysis of categorical thematic content recommended by Bardin (2011) was used for the identification of categories and its indicators. The categories that emerged from content analysis were consistent with the most recently literature and Rozzett and Demo's (2010a, 2010b) initial pool was composed of 40 items.

As to the theoretical analysis of the items, Rozzett and Demo (2010a, 2010b) followed the steps proposed by Kerlinger and Lee (2008). At first, the items were submitted to semantic analysis and then twelve experts in the CRM field (both professors and practitioners) were exposed to the definition of the construct and to a related explanation. They were asked to assess the fit of the statements to the CRM concept. After the judges' analysis,

the CRMS counted 26 items with a 5-point Likert scale, varying from "I totally disagree" to "I totally agree".

Thereafter, CRMS was validated through EFA (Rozzett & Demo, 2010a, 2010b). The results presented a one-factor instrument with 20 items (Rozzett & Demo, 2010a), namely the complete version, consistent with the literature review. It explained about 40% of the construct's total variance, had a Cronbach's alpha of .93 and 70% of the items ranked as excellent, very good and good, according to Comrey and Lee (1992). Nonetheless, Rozzett and Demo (2010b) validated a reduced scale with only 8 items, namely the abridged version, and presented even better indexes: 64% of total variance explained, a Cronbach's alpha of .92 and better items in terms of validity(excellent and very good items only).

Finally, Rozzett and Demo (2011) validated the CRMS, both complete and abridged versions, through confirmatory factor analysis. The complete version showed high reliability with a Jöreskog's rho greater than .70 (= .93), as proposed by Chin (1998) and a satisfactory fit, according to Kline (2011) ($\chi2_{(170)}$ = 757.84, p < 0.001; NC = 4.46; CFI = .90; RMSEA = .08). The abridged version, however presented an unsatisfactory fit ($\chi2_{(20)}$ = 138.43, p < 0.001; NC = 6.92; CFI = .96; RMSEA = .10), although it has shown high reliability (= .92).

3. Method

First we present the review of the scale for application in the US, regarding its translation for English and the content validity of the items. Then, the three studies conducted for the development and validation of the Customer Relationship Management Scale (CRMS) in the United States (US) are detailed. Three different national samples were collected online using MTurk in order to ensure the presence of abroad variety of American customers. This diversification indicates sampling variability and representativeness.

Data from study 1, which had 210 participants, were used to select items based on EFA. Then, CFA was used on data obtained in study 2, which had 425 participants, to examine factor structure, as well as to provide construct validity through convergent validity. Scale reliability was assessed by Cronbach's alpha and Jöreskog's rho. Finally, data from study 3, which had 415 participants, were used to test the scale generalizability by conducting a replicative analysis on the measurement model used in study 2, and by checking if the structure obtained through the CFA remained stable in a different sample.

For the three samples, data were examined (searched for incorrect values, missing data and outliers) and the assumptions for multivariate analysis were checked, following the procedures recommended by Tabachnick and Fidell (2007) and Hair, Black, Babin, Anderson and Tatham (2009).

3.1 Review of the Customer Relationship Management Scale for Application in the US

In order to make the CRMS suitable for application in the US, the 20 items were translated to English by a specialist in translation and retranslated to Portuguese by the authors of the scale. Then, an English Professor from a university in California checked out the translation to English. Following the item generation steps proposed by Kerlinger and Lee (2008), two faculty members from the Marketing area of a Brazilian University and one faculty member and a PhD student from a University in the US served as judges to evaluate the content/validity of the items. As a result, the 20 statements remained for the application in the US, with small adaptations and a 5-point Likert scale, varying from "I totally disagree" to "I totally agree".

3.2 Study 1: Exploratory Factor Analysis

The sample for this study was collected online using MTurk. Data were collected from 210 people. Of the employees, 65% were male, 63% were White or Caucasian, 55% were under the age of 26, 49.5% had a Bachelor degree, 43.5% had been customers of the companies chosen between 1 and 5 years, and 67% affirmed they purchase from the companies chosen on a weekly (33%) or monthly (34%) basis.

The final sample counted with 200 subjects. Hair et al. (2009) say that for an adequate sample size, it is necessary to have between 5 and 10 individuals for each item of the instrument. However, the authors state that any factor analysis with less than 200 individuals can hardly be considered suitable. The sample size with 200 subjects attended, therefore, both criteria.

To perform the EFA, the correlation matrix, the matrix determinant and the results of the Kaiser-Meyer-Olkin (KMO) sampling adequacy test were analyzed regarding factorability. For factor extraction, Principal Components Analysis (PCA) was used. Once the matrix was considered factorable, the eigenvalues, percentage of explained variance of each factor, scree plot graphic and parallel analysis were then examined in order to determine the quantity of factors to be extracted. After defining the quantity of factors, a Principal Axis Factoring (PAF) analysis was run using Promax rotation, since correlation among factors was expected. Cronbach's alpha

was used to check reliability or internal consistency of each factor.

3.3 Study 2: Confirmatory Factor Analysis and Construct Validity

The sample for this study was also collected online using MTurk. Data were collected from 425people. Of the employees, 64% were male, 55% were White or Caucasian, 45.5% were between 26 and 40 years-old, 48% had a Bachelor degree, 42% had been customers of the companies chosen between 1 and 5 years, and 49% affirmed they purchase from the companies chosen on a monthly basis.

The final sample counted with 403 subjects. Byrne (2009) and Kline (2011) state that for a CFA, an adequate sample size would be 20 subjects for variable. On the other hand, Hair et al. (2009) state that a minimum of 200 individuals is always required whereas samples much larger than 400 could make the method very sensitive. So, sample sizes approximately between 200 and 400 are recommended. The sample size with 403 subjects attended, therefore, all the criteria cited.

To determine which structure adjusts better to CRMS, its fit was evaluated by using AMOS through the following indexes: NC (normatized chi-square or chi-square value divided by the model's degrees of freedom = CMIN/DF), CFI (Comparative Fit Index) and RMSEA (Root Mean Square Error of Approximation), as recommended by Kline (2011). The internal consistency was measured through composite reliability, also known as Dillon-Goldstein's rho or Jöreskog's rho, as proposed by Chin (1998). Dillon-Goldstein's rho is a better reliability measure than Cronbach's alpha in Structural Equation Modeling, since it is based on the loadings rather than the correlations between the observed variables.

Finally, construct validity, "the degree to which a measure assesses the construct it is purported to assess" (Peter, 1981: 134), was examined in this study through convergent validity.

3.4 Study 3: Scale Generalizability

The sample for this study was collected online using MTurk as well. Data were collected from 305 people. Of the employees, 61% were male, 70% were White or Caucasian, 48% were under the age of 26, 50% had a Bachelor degree, 41.4% had been customers of the companies chosen between 1 and 5 years, and 41% affirmed they purchase from the companies chosen on a monthly basis.

The final sample counted with 404 subjects. Byrne (2009) and Kline (2011) state that for a CFA, an adequate sample size would be 20 subjects for variable. On the other hand, Hair et al. (2009) state that a minimum of 200 individuals is always required whereas samples much larger than 400 could make the method very sensitive. The sample size with 403 subjects attended both criteria.

4. Results

This section presents the results of exploratory factor analysis, confirmatory factor analysis, construct validity and scale generalizability.

4.1 Exploratory Factor Analysis

The analyses' results confirmed the matrix high factorability to perform the exploratory factor analysis. KMO was 0.931, classified by Kaiser (1974) as marvelous. The determinant of the matrix was extremely close to zero indicating that the number of factors is lower than the number of items. Through Principal Components Analysis, it was possible to decide how many factors would be extracted. The analysis of the criteria adopted (eigenvalues greater than 1.0, explained variance percentage of each factor above 3%, scree plot graphic visual analysis and parallel analysis) brought us to a one-factor solution, with a possibility of a two factors solution, according to the eigenvalues and explained variance percentage criteria.

When running the Principal Axes Factoring (PAF) analysis for two factors, we found a high-significant correlation between them (r = 0.744), indicating the presence of a second order factor. Therefore, we opted for the one-factor solution. After 4 iterations, the CRMS resulted in a one-factor scale with 14 items, compatible with the theoretical review done, explaining 50% of the construct's total variance, which can be considered worthy, especially for one-factor structures.

The validity or quality of the items that composed each factor was also analyzed based on Pasquali's (2010) statement that a valid item is the one that well represents the factor, that is, an item with a good factor loading. The minimum acceptable load was .50 (Hair et al., 2009). Comrey and Lee (1992) classified items with loadings higher above or equal .71 as excellent; above or equal .63 as very good; above or equal .55 as good; above or equal .45 as reasonable; and above or equal .32 as poor. Thus, as to the items' quality, 100% of them were classified as excellent, very good and good.

Concerning the reliability, internal consistency or precision of the factors, Pasquali(2010) states that values above .70 indicate that the scale is reliable, while values above.80indicate good reliability (Field, 2009). Nunnally and Bernstein (1994) say that "in the early stages of predictive or construct validation research," it may be satisfactory to "have only modest reliability, e.g., .70". For other scenarios, Nunnally and Bernstein (1994) go on to state that .80 or even .90 may be required. Peterson's (1994) meta-analytical study on Cronbach's alpha showed that reliable alphas have a .77 mean and .79 median.

The CRM scale showed high reliability, with alpha coefficient equals to .92, following the threshold recommended by authors such as Nunnally and Bernstein (1994), and Peterson (1994). Table A1 in Appendix Asummarizes the main information of the scale.

By comparing the CRM scales (both complete and abridged versions) validated in Brazil and the CRMS validated in US, regarding reliability, number of items and validity, it's possible to see similar parameters, as shown on Table 1, driving us to the conclusion that the one-factor structure validated in two different versions in Brazil remained stable when validated in a different country, being suitable for application in US organizations.

Table 1. Comparison among Brazilian and American CRM scales

	CRMS BRAZIL complete version (2010)	CRMS BRAZIL abridged version (2010)	CRMS US (2012)
Reliability	α=.93	α=.92	α=.92
Number of items	20	8	14
Quality of items	70% classified as excellent, very good and good	100% classified as excellent and very good	100% classified as excellent, very good and good
Total variance explained	40%	64%	50%

4.2 Confirmatory Factor Analysis and Construct Validity

According to Kline (2011), values that indicate satisfactory adjust for a model are: for NC (CMIN/DF), values 2.0 or 3.0 or, at most, up to 5.0; for CFI, values greater than .90 and for RMSEA, values lower than .05 or up to .08. The one-factor structure model (Figure 1) had 43 parameters and presented a satisfactory fit ($\chi^2_{(77)}$ = 256.02, p < 0.001; NC = 3.32; CFI =.95; RMSEA = .07), confirming the structure obtained through the exploratory factor analysis. The factor loadings of the items in this confirmatory validation were between .58 and .84, which means high-quality items, according to Comrey and Lee (1992).
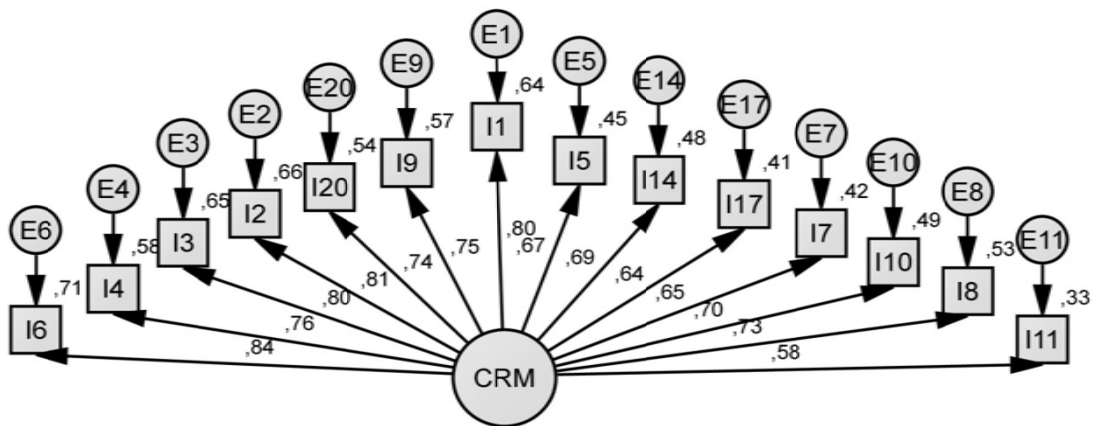
Figure 1. CRM latent variable

$\chi^2_{(77)}$ = 256.02, p<0.001 NC=3.32; CFI =.95; RMSEA=.07

The result of this analysis suggested that Customer Relationship Management for the American customers is a unidimensional construct. It is important to emphasize that, in the confirmatory analysis, the same one-factor structure of 14 items were kept, in agreement with the reviewed literature and with the exploratory validation, such that the interpretation of the items is the same displayed in Table 1. At last, the originated results confirmed the CRMS' validation by showing the conceptual suitability of the structure obtained in the exploratory analysis and satisfactory fit.

By comparing the fits provided in the Brazilian models (complete and abridged versions) to the fit obtained in the American sample, we observe, in general, better fit and indexes in the American model with 14 items. In addition, chi-square difference was significant, indicating that the American model is indeed better than the Brazilian ones. Table 2 shows this comparison.

Table 2. Comparison of Brazilian and American models for CRM

	BRAZILIAN COMPLETE MODEL (20 items)	BRAZILIAN ABRIDGED MODEL (8 items)	AMERICAN MODEL (14 items)
CMIN or χ^2 (p)	757.84 (p<0.001)	138.43 (p<0.001)	256.02 (p<0.001)
Df	170	20	77
NC (χ^2/df)	4.46	6.92	3.32
RMSEA	.08	0.10	.07
CFI	.90	0.96	.95
$\Delta\chi^2$	$\Delta\chi^2_{(93)}$= 501.82, p<0.001	$\Delta\chi^2_{(57)}$= 117,59, p<0.001	

4.2.1 Reliability Assessment

To assess the reliability of the CRM scale, Jöreskog's rho was computed. Chin (1998) recommends that acceptable scores for the Jöreskog's rho should be greater than 0.7. The result was very satisfactory, presenting a Jöreskog's rho of .94.

4.2.2 Construct Validity

Construct validity is the degree to which a set of measured items actually reflects the theoretical latent construct that those items are supposed to measure (Hair et al., 2009). In this study, the construct validity of the CRMS was examined by assessing convergent validity.

Convergent validity refers to the degree of agreement in two or more measures of the same construct. According to Hair et al. (2009), there are several indicators of convergent validity, for example, examining factor loadings, the reliability of the factors and the variance extracted.

The reliability of the one factor was above .70 (= .94), indicating appropriate convergence (Hair et al., 2009). In addition, all items of the CRM measure loaded significantly positive on their specified factor (see Figure 1). Moreover, all 14 items had loadings over .5 (Hair et al., 2009), which is indeed a test of convergent validity of the scale. Finally, according to Hair et al. (2009), variances extracted over .5 (or 50%) are a good rule suggesting appropriate convergence. The extracted variance for the CRMS was .53 (or 53%), attesting convergent validity. We may thus state that the CRM scale validated in US possessed convergent validity.

4.3 Scale Generalizability

Even though our proposed factorial structure has a good fit with the data (Figure 1) and we have used a broad sample from various American costumers, we recognize that the results could be specific to this particular sample. Although it can be said that the sample represents a cross-section of a large number of customers, the generalizability of the CRMS could be still questionable. To provide evidence on generalizability of CRMS, a replicative study on a wide and different sample is essential. Then, we use the measurement model shown on

Figure 1 with the study 3 sample to test the scale generalizability.

As far as the measurement model is concerned, the data in this study exhibit a satisfactory level of fit with43 parameters ($\chi2_{(77)}$=275.31, p < 0.001; NC=3.57; CFI =.94; RMSEA =.08) and is shown in Figure 2. Moreover, all 14 items were significant and loaded as predicted on their factor. These results provide further evidence to suggest that the proposed scale validated in this study is a reliable operational measure for CRM in the American culture.

To sum up, the results are encouraging in terms of scale generalizability. The 14-item CRM scale proposed in this study was found to have a high degree of reliability and validity and so it can be used to properly understand what aspects American customers consider relevant in their relationship with companies in general and that might influence their shopping experiences, satisfaction and loyalty as well. These results will help both consumer behavior scientists and companies managers better understand how to meet customer's needs in order to deliver high-value products and services and get their loyalty through a long-term and profitable relationship.
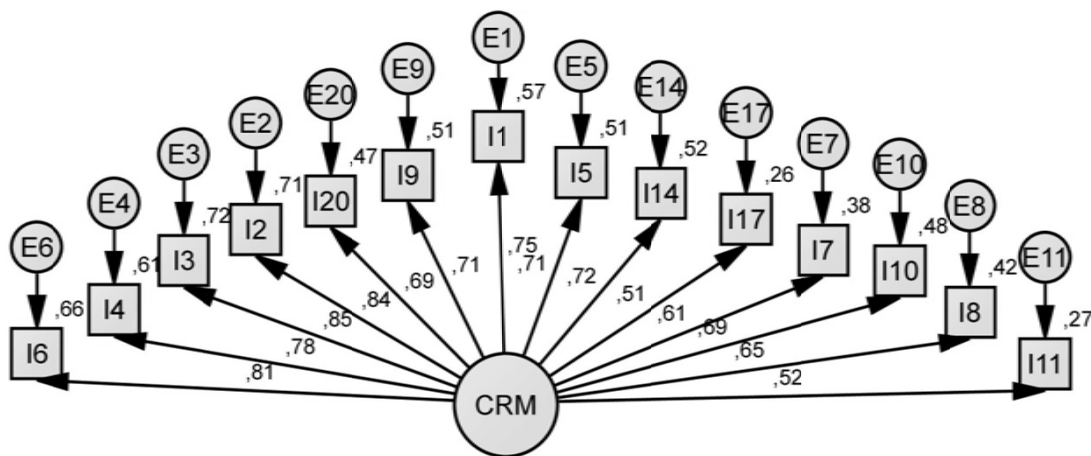
Figure 2. Scale Generalizability

$\chi2_{(77)}$ = 275.31, p < 0.001 NC = 3.57; CFI = .94; RMSEA = .08

5. Discussion

This section discusses the theoretical consistency of the scale validated in the study, academic and managerial implications of the results obtained and also points out limitations and directions for further research.

5.1 Theoretical Consistency of the Customer Relationship Management Scale (CRMS)

This paper reports three studies conducted on the development and validation of a measure of CRM from an American costumers' perspective. The CRMS was found to have a high degree of reliability and construct validity. Although the numbers resulted from the previous analyses performed were very satisfactory, it is also necessary to analyze CRMS's theoretical consistency or validity from the revised literature, verifying if the scale's items are coherent with the theoretical concepts used to support it.

Kerlinger and Lee (2008) have said that it is not appropriate to hold an item that has only mathematic meaning, for the factor must be relevant in the scientific theoretical context. Furthermore, validity of expression must be established before any theory test when using CFA, because without an understanding of the content or meaning of each item, it is impossible to express and correctly specify a theory of measurement (Hair et al., 2009).

All items of the CRMS have theoretical support indeed, and are relevant to the customer relationship assessment. The item with the highest factor loading, regarding respectful treatment to the client, is sustained by Demo et al. (2011) who also argue that buying experiences must go beyond the mere satisfaction of customer needs. In fact, in order to exceed customer's expectations, a company must provide experiences that positively surprise them on a recurring basis so that a long-term relationship can be established. The authors also highlight that companies should be concerned about making their customers feel important and unique and the offer of a personalized

service is, in this matter, a relevant indicator. Furthermore, customers' identification with the company can be a useful indicative of their appreciation and loyalty to it (Demo & Ponte, 2008).

The item regarding repurchase intention was ratified as an indicator of relationship, confirming what Ravald and Grönroos (1996) and Reichheld and Sasser (1990) affirmed about repurchase intention as a loyalty index. The item related to trust endorse the ideas of authors as Brei and Rossi (2005), Sirdeshmukh, Singh and Sabol (2002), and Morgan and Hunt (1994) who discuss trust as a key point in relational exchanges and as having an important role in reducing the asymmetry in the company-customer relationship to make it long lasting. Additionally, Demo et al. (2011) argue that a company only earns customers' confidence when their problems and demands are efficiently solved.

The item concerning recommendation of a company to friends and family, in turn, reinforces Payne's (2006) statement that loyal customers not only buy repeatedly, but also go a step further recommending the company to new customers. These recommendations reduce future customers' acquisition costs (Ravald & Grönroos, 1996).

Moreover, Payne (2006) attests that relationships are developed to the extent that the parties know each other. Hence the importance of companies' efforts to get to know their customers preferences, questions and suggestions. Additionally, authors such as Sheth and Parvatiyar (2002), and Payne (2006) point out that loyalty should be rewarded—which is translated into one of the items of the scale.

Finally, items that address important aspects of the business-to-consumer relationship, as product quality, cost-effective and facilities (either physical or virtual) must be constantly evaluated as suggested by Grönroos (1994) and McKenna (1991).

Table 3 summarizes the 14 items of the CRMS and their theoretical background.

Table 3. Items of the customer relationship management scale and their theoretical background

Item	Theoretical Background
I6. This company treats its customers with respect.	Demo and Ponte (2008)
I4. My shopping experiences with this company are better than I expected.	Demo, Rozzett, Ponte, Ferreira and Mendes (2011)
I3. This company treats me as an important customer.	Demo and Ponte (2008)
I2. I recommend this company to friends and family.	Ravald and Grönroos (1996), Payne (2006)
I1. This company deserves my trust.	Brei and Rossi (2005), Sirdeshmukh, Singh and Sabol (2002), Morgan and Hunt (1994)
I9. This company solves problems efficiently.	Demo, Rozzett, Ponte, Ferreira and Mendes (2011)
I20. The products/services sold by this company are high quality.	Grönroos (1994), McKenna (1991)
I5. I identify myself with this company.	Demo and Ponte (2008)
I4. I'm willing to buy other products/services from this company.	Ravald and Grönroos (1996), Reichheld and Sasser (1990)
I7. This company offers personalized customer service.	Demo and Ponte (2008)
I10. This company tries to get to know my preferences, questions and suggestions.	Payne (2006)
I17. This company has good facilities (either physical, in case of stores, or virtual, in case of websites).	Grönroos (1994), McKenna (1991)
I8. The products/services sold by this company are a good value (the benefits exceed the cost).	Grönroos (1994), McKenna (1991)
I11. This company rewards my loyalty.	Sheth and Parvatiyar (2002), Payne (2006)

Thereafter, we might affirm that CRMS's 14 items indeed have theoretical support, greatly corresponding to the literature reviewed throughout this paper.

The items of the Customer Relationship Management Scale developed and validated in Brazil by Rozzett and Demo (2010a; 2010b; 2011) were the basis for the validation conducted in the US. The comparison between the

scales, regarding the exploratory and the confirmatory factor analyses, drove us to the conclusion that the one-factor structure validated in Brazil remained stable in the American sample with respect to its validity and reliability, but the model validated in the US presented a leaner structure compared to the Brazilian complete version.

We should emphasize that respondents' questionnaire fatigue contributes to the response rate (Saunders, Lewis & Thornhill, 2009) and therefore shorter questionnaires may have a greater response rate. The problem with the Brazilian abridged version (8 items) is that its few numbers of items could probably compromise the comprehensiveness of the construct. Pasquali (2010) argues that a construct with about 15 or 20 items with good factor loadings is reliably stable and well represented. Besides, the 14-item-measurement model used to run the CFA, through the structure equation modeling, also showed better fit than both the 20-item-model and the 8-item-model, indicating that the American version of CRMS could be more suitable for test in other countries and cultures.

In sum, the three studies performed in this paper produce a one-factor measure for CRM with reliability, construct validity and theoretical consistency that may be used in the US to assess the relationship between customers and companies.

5.2 Academic and Managerial Implications

The present study makes both academic and practical contributions, and we suggest several applications for the research.

First, it is an attempt to develop a lean model of CRM specifically designed for the B2C market. Second, by exploring the strategic nature of CRM we attempted to provide a clearer conceptualization of the construct. Third, we found empirical evidence that the CRM scale validated in the US is both reliable and valid constituting a measure that can be used in relational studies from both Marketing and Consumer Behavior fields. This leads us to a new purpose of how CRM aspects can be managed in order to provide superior organizational outcomes.

As to the managerial implications, our scale might be used as an instrument of evaluation to help managers better understand how to meet client's needs in order to deliver high-value products and services and get their loyalty through a long-term and profitable relationship. Beyond, there is theoretical and empirical evidence that CRM is a critical success factor for business performance (e.g., Ryals & Knox, 2001; Ryals & Payne, 2001; Sheth & Sisodia, 2001; Sheth & Sisodia, 2002; Sin, Tse & Yim, 2005; Huang & Xiong, 2010, Ernst et al., 2011). Consequently, the CRMS may support managers decision-making and problem-solving regarding identification of CRM areas where specific improvements are needed in order to achieve better organizational outcomes.

5.3 Limitations and Directions for Future Research

Our proposal represents a first attempt to develop and test a CRM scale designed specifically for the B2C market. The first limitation is that the present findings are therefore indicative rather than conclusive. In spite of the scale's validation in Brazil, it would be useful to further assess its generalizability to other business environments such as European and Asian countries.

Another limitation is the cross-sectional nature of the data. Even by running the CRM structure obtained through factor analysis in a different sample in order to attest the scale's generalizability, the development of a time-series database and testing of the CRM structure validated here in a longitudinal framework would provide a refinement of the scale and also an improvement of some of its indexes obtained through confirmatory factor analysis (e.g., NC and RMSEA). Continued validations of the CRMS is recommended based on further research about new CRM trends, perspectives and also contemplating changes in business environments.

In this meaning, there could be a need of alteration or even deletion of original items. Additionally, items representing aspects of CRM very disclosed and mentioned as important in literature could be included in further validations, such as: the existence of communication channels for customers' complaints and suggestions (e.g., toll free, online customer service, etc), the encouragement of interaction among its customers (e.g., events, Facebook, etc), the offering of convenience to the customers (e.g., online services, home delivery, 24-7 customer service), the importance of the company be socially and environmentally friendly, if there are competitors to the company that have the same importance to its clients, the disclosure of information about the companies' policies, projects, products/services and new releases, and so forth.

6. Conclusion

We may conclude, in spite of the limitations pointed, that the main objective of this study was reached and an instrument to assess what aspects American customers rank as relevant regarding CRM was produced showing

theoretical consistency, reliability, construct validity. Considering the increasing research attention to the new strategic role of CRM in organizations, this study provides an operational measure of it. The findings found here are not intended to be conclusive or limiting but offer a useful starting point from which further theoretical and empirical research of customer relationship management in the B2C market can be built.

Acknowledgement

References

Agariya, A. K., & Singh, D. (2012a). CRM Scale development & validation in Indian insurance sector. *Journal of Internet Banking and Commerce, 17*(2), 1–21.

Agariya, A. K., & Singh, D. (2012b). CRM Index development and validation in Indian banking sector. *International Journal of Customer Relationship Marketing and Management, 3*(2), 10–32. http://dx.doi.org/10.4018/jcrmm.2012040102

Agariya, A. K., & Singh, D. (2013). CRM scale development and validation scale in Indian public hospitals. *Journal of Health Management, 15*(2), 275–291. http://dx.doi.org/10.1177/0972063413489035

Bardin, L. (2011). *Análise de conteúdo*. Lisboa: Edições 70.

Batelli, L. S., & Demo, G. (2012, October). Desenvolvimento e validação de uma escala para avaliar o relacionamento entre os jogadores e os jogos do Nintendo Wii. *Anais do Encontro Nacional de Engenharia de Produção*, Bento Gonçalves, RS, Brazil.

Brei, V. A., & Rossi, C. A. (2005). Confiança, valor percebido e lealdade em trocas relacionais de serviço: um estudo com usuários de internet banking no Brasil. *Revista de Administração Contemporânea, 9*(2), 152–163. http://dx.doi.org/10.1590/S1415-65552005000200008

Bygstad, B. (2003). The implementation puzzle of CRM systems in knowledge-based organizations. *Information Resources Management Journal, 16*(4), 33–45. http://dx.doi.org/10.4018/irmj.2003100103

Byrne, B. M. (2009). *Structural equation modeling with AMOS: basic concepts, applications, and programming* (2nd ed.). New York: Routledge.

Campbell, A. J. (2003). Creating customer knowledgement competence: managing customer relationship management programs strategically. *Industrial Marketing Management*, *32*, 375–383. http://dx.doi.org/10.1016/S0019-8501(03)00011-7

Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–236). London: Lawrence Erlbaum Associates.

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Demo, G., & Ponte, V. (2008). *Marketing de relacionamento (CRM): Estado da arte e estudos de casos*. Brasília, Brazil: Atlas.

Demo, G., Rozzett, K., Ponte, V., Ferreira, L. A., & Mendes, N. M. D. (2011). Marketing de Relacionamento (CRM): Estado da arte, produção nacional na primeira década do milênio e agenda de pesquisa. *Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Administração*, Rio de Janeiro, RJ, Brazil, 30.

Ernst, H., Hoyer, W., Krafft, M., & Krieger, K. (2011). Customer relationship management and company performance: the mediating role of new product performance. *Journal of the Academy of Marketing Science, 39*(2), 290–306. http://dx.doi.org/10.1007/s11747-010-0194-5

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage.

Grönroos, C. (1994). From marketing mix to relationship marketing. *Management Decision*, *32*(2), 4–20. http://dx.doi.org/10.1108/00251749410054774

Hair, J. F., Black, W. C., Babi, B. J., Anderson, R. E., & Tatham, R. L. (2009). *Análise multivariada de dados* (6th ed.). Porto Alegre: Bookman.

Huang, J., & Xiong, W. (2010). The effect of win-back investment on lost consumers' intention of reinitiating relationship. *Frontiers of Business Research in China*, *4*(3), 485–497. http://dx.doi.org/10.1007/s11782-010-0107-y

Iglesias, O., Sauquet, A., & Montaña, J. (2011). The role of corporate culture in relationship marketing. *European Journal of Marketing, 45*(4), 631–650. http://dx.doi.org/10.1108/03090561111111361

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*(1), 31–36. http://dx.doi.org/10.1007/BF02291575

Kerlinger, F. N., & Lee, H. B. (2008). *Foundations of behavioral research* (5th ed.). Independence, KY: Wadsworth Thomson.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.

Kumar. V., Jones, E., Venkatesan, R., & Leone, R. P. (2011). Is market orientation a source of sustainable competitive advantage or simply the cost of competing? *Journal of Marketing, 75*(1), 16–30. http://dx.doi.org/10.1509/jmkg.75.1.16

Lopes, C., & Demo, G. (2012). Desenvolvimento e validação das escalas de relacionamento com clientes da cerveja Skol e do guaraná Antarctica. *Anais do Encontro de Marketing da ANPAD,* Curitiba, PR, Brazil.

McKenna, R. (1991). *Relationship marketing.* Menlo Park, CA: Addison-Wesley.

Menard, S. (2002). *Applied logistic regression analysis*. Thousand Oaks, CA: Sage.

Mishra, A., & Mishra, D. (2009). Customer Relationship Management: implementation process perspective. *Acta Polytechnica Hungarica*, *6*(4), 83–99.

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, 58*, 20–38. http://dx.doi.org/10.2307/1252308

Myers, R. (1990). *Classical and modern regression with applications* (2nd ed.). Boston: Duxbury.

Ngai, E. W. T. (2005). Customer relationship management research (1992–2002): an academic literature review and classification. *Marketing Intelligence & Planning*, *23*(6–7), 582–605. http://dx.doi.org/10.1108/02634500510624147

Ngai, E. W. T., Xiu, L., & Chau, D. C. K. (2009). Application of data mining techniques in customer relationship management: A literature review and classification. *Expert Systems with Applications, 36*, 2592–2602. http://dx.doi.org/10.1016/j.eswa.2008.02.021

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Öztaysi, B., Sezgin, S., & Özok, A. F. (2011). A measurement tool for customer relationship management processes. *Industrial Management & Data Systems*, *111*(6), 943–960. http://dx.doi.org/10.1108/02635571111144982

Pasquali, L. (2010). *Instrumentação psicológica: fundamentos e práticas*. Porto Alegre: Artmed.

Payne, A. (2006). *Handbook of CRM: Achieving excellence in customer management.* Oxford: Elsevier.

Peter, J. P. (1981). Construct validity: a review of basic issues and marketing practices. *Journal of Marketing Research*, *18*, 133–1451. http://dx.doi.org/10.2307/3150948

Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, *21*, 381–391. http://dx.doi.org/10.1086/209405

Ravald, A., & Grönroos, C. (1996). The value concept and relationship marketing. *European Journal of Marketing, 30*(2), 19–30. http://dx.doi.org/10.1108/03090569610106626

Reichheld, F. F. (1996). Learning from customer defections. *Harvard Business School Press*, *74*, 56–69.

Reichheld, F. F., & Sasser, W. E. Jr. (1990). Zero defections—quality comes to services. *Harvard Business Review,* 107–111.

Rozzett, K., & Demo, G. (2010a, October). Desenvolvimento e validação da Escala de Relacionamento com Clientes (ERC). *Encontro Nacional de Engenharia de Produção*, São Carlos, SP, Brazil.

Rozzett, K., & Demo, G. (2010b). Desenvolvimento e validação da Escala de Relacionamento com Clientes (ERC). *Revista Administração de Empresas*, *50*(4), 383–395. http://dx.doi.org/10.1590/S0034-75902010000400004

Rozzett, K., & Demo, G. (2011). Escala de Relacionamento com Clientes (ERC): validação fatorial confirmatória por meio da modelagem por equações estruturais. In *Congresso Iberoamericano de*

Psicologia das Organizações e do Trabalho, *2*. Florianópolis: SBPOT.

Ryals, L., & Knox, S. (2001). Cross-functional issues in the implementation of relationship marketing through customer relationship management. *European Management Journal, 19*(5), 534–542. http://dx.doi.org/10.1016/S0263-2373(01)00067-6

Ryals, L., & Payne, A. (2001). Customer relationship management in financial services: towards information-enabled relationship marketing. *Journal of Strategic Marketing*, *9*(1), 3–27. http://dx.doi.org/10.1080/713775725

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). London: FT/Prentice Hall.

Sheth, J. N., & Parvatiyar, A. (2002). Evolving relationship marketing into a discipline. *Journal of Relationship Marketing, 1*(1), 3–16. http://dx.doi.org/10.1300/J366v01n01_02

Sheth, J. N., & Sisodia, R. S. (2001). High performance marketing: marketing must become a leader for change across the corporation. *Marketing Management, 10*(3), 18–23.

Sheth, J. N., & Sisodia, R. S. (2002). Marketing productivity: issues and analysis. *Journal of Business Research, 55*(5), 349–362. http://dx.doi.org/10.1016/S0148-2963(00)00164-8

Sin, L. Y. M., Tse, A. C. B., & Yim, F. H. K. (2005). CRM: conceptualization and scale development. *European Journal of Marketing*, *39*(11/12), 1264–1290. http://dx.doi.org/10.1108/03090560510623253

Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing, 66*(1), 15–37. http://dx.doi.org/10.1509/jmkg.66.1.15.18449

Soch, H., & Sandhu, H. S. (2008). Does Customer Relationship Management affect firm performance? *Global Business Review*, *9*(2), 189–206. http://dx.doi.org/10.1177/097215090800900202

Tabachnick, B., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). San Francisco: Allyn and Bacon.

Vasconcelos, H., & Demo, G. (2012). Enchant to retain: an instrumental study about the relationship between Walt Disney World Parks and its Brazilian customers. *Anais do International Conference on Industrial Engineering and Operations Management*, Guimarães, Portugal, 18.

Viana, D. A., Cunha Jr, M. V. M., & Slongo, L. A. (2005). Medindo o conceito de marketing de relacionamento no contextobrasileiro: a validação de umaescala no setor industrial. *Anais do Encontro da ANPAD*, Brasília, DF, Brazil, 29.

Wahlberg, O., Strandberg, C., Sundberg, H., & Sandberg, K. W. (2009). Trends, topics and under researched areas in CRM Research. *International Journal of Public Information Systems*, *3*(1), 191–208.

Wang, Y., & Feng, H. (2008). *CRM capability in service industries: conceptualization and scale development.* Proceedings of 2008 IEEE International Conference on Service Operations and Logistics, and Informatics, Beijing, China. http://dx.doi.org/10.1109/SOLI.2008.4686367

Wilson, E. J., & Vlosky, R. P. (1997). Partnering relationship activities: building theory from case study research. *Journal of Business Research*, *39*(1), 59–70. http://dx.doi.org/10.1016/S0148-2963(96)00149-X

Zablah, A. R., Bellenger, D. N., & Johnston, W. J. (2004). An evaluation of divergent perspectives on customer relationship management: towards a common understanding of an emerging phenomenon. *Industrial Marketing Management, 33*, 475–489. http://dx.doi.org/ 10.1016/j.indmarman.2004.01.006

Zulkifli, Z., & Tahir, I. M. (2012). Developing and validating Customer Relationship Management (CRM) practices construct. *International Journal of Business and Behavioral Sciences, 2*(1), 35–48.

Appendix A: Characterization of items

Table A1. Description of the customer relationship management scale items

Item	Description	Quality	Loading	Communalities
I6	This company treats its customers with respect.	Excellent	.85	.74
I4	My shopping experiences with this company are better than I expected.	Excellent	.79	.65
I3	This company treats me as an important customer.	Excellent	.79	.68
I2	I recommend this company to friends and family.	Excellent	.77	.69
I1	This company deserves my trust.	Very good	.69	.56
I9	This company solves problems efficiently	Very good	.69	.51
I20	The products/services sold by this company are high quality.	Very good	.66	.58
I5	I identify myself with this company.	Very good	.66	.55
I14	I'm willing to buy other products/services from this company.	Very good	.64	.61
I7	This company offers personalized customer service.	Good	.61	.50
I10	This company tries to get to know my preferences, questions and suggestions.	Good	.61	.52
I17	This company has good facilities (either physical, in case of stores, or virtual, in case of websites).	Good	.61	.48
I8	The products/services sold by this company are a good value (the benefits exceed the cost)	Good	.60	.52
I11	This company rewards my loyalty.	Good	.55	.49

Note: total variance explained = 50%; total of items = 14 items.

Copyrights

Profiling Industry-Relevant Competencies of Graduate Architect through Online Job Advertisements

Rohani Salleh[1], Md Anwar Md Yusoff[2], Sufian Che Amat[2], Azelin Mohamed Noor[1] & Neta Suredah[2]

[1] Department of Management and Humanities, Universiti Teknologi PETRONAS, Malaysia

[2] Department of Architecture, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, Seri Iskandar Campus, Malaysia

Correspondence: Rohani Salleh, Department of Management and Humanities, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia. Tel: 605-368-7760. E-mail: rohanisalleh@petronas.com.my

Abstract

This paper aims to explore and profile industry-relevant competencies of graduate architect in Malaysia. Content analysis conducted on online job advertisements offering positions for graduates were collected and analyzed to determine the common competencies listed in the recruitment of graduate architects. Competencies are divided into three main components: knowledge, skills and personal traits. Findings revealed a cluster of key competencies deemed necessary by the architectural firms in Malaysia. This competency profile is useful as a guide for architectural graduates towards meeting the employers' expectations. It can also provide information for architecture schools in reassessing possible competency gaps of their graduates and to realign their curriculum towards meeting the industry requirements. Finally, it is recommended for extending the content analysis for a longer duration and to include newspaper and magazines advertisements to further validate and strengthen the competency profile identified in the current study.

Keywords: competencies, graduate architect, industry, job advertisements, Malaysia

1. Introduction

The rules of employment has transformed and become more challenging for job seekers. New technologies emerge continuously and ways of task execution are constantly changing. Accordingly, duties are becoming more demanding. In line with such developments, employers nowadays demand that employees be equipped with relevant knowledge and skills for performance and productivity. As employers' demand increases, graduates need to be equipped with appropriate and corresponding competencies to meet this escalating prerequisite in the workplace. Employees are now expected to be competent not just in their specialized area or field but also in a wider spectrum of skills.

In preparing graduates to succeed in their prospective employment, they need to be equipped with the competencies deemed essential by the industry. Higher learning institutions play a critical role in enhancing the capacity of their graduates. In Malaysia, concerns have been raised on graduates' lack of employment competencies (Singh & Singh, 2008). Although graduates are well trained in their technical or specialized skills, they lacked in soft skills (Juhdi, Jauhariah & Yunus, 2007). The exam-oriented education system in Malaysia (Henwood, 2006) and the mismatch of university curriculum and expectations of the industry (Vijan, 2007) are partly blamed. Disturbingly, fingers are pointing at universities for not generating sufficient skilled workforce for the society (Weligamage & Siengthai, 2003). Additionally, institutions of higher learning are no longer considered as pro-active in providing the appropriate learning opportunities for students to develop the necessary skills and competencies (Eynde & Tucker, 1997).

As with many other professions, the role of architects is constantly evolving and has become more multidisciplinary. Architects today are not just involved in the planning, designing and modeling of building construction, but often, are also required to write contracts, lead a team of specialists, deal and negotiate with clients and contractors and solve problems. They are the key players within the building industry. Given the broad roles of architects, it is reasonable to assume in order to be competent, architects need diverse qualities from technical expertise to soft skills.

There is a vital need for identifying and understanding marketable qualities of graduate architects in Malaysia. To date, there is a deficiency in studies which specifically address the competencies of graduate architects in Malaysia. Therefore, this exploratory study aims to fill this gap by investigating and identifying workplace competencies of graduate architects. These competencies are gathered through content analysis of online job advertisements for graduate architects in Malaysia.

2. Competency

Before delving further into trying to identify competency components of graduate architects, it is worthwhile to define the term competency. According to the Australian Institute of Quantity Surveyors, competency is "*the ability to perform the activities within an occupation to the standard expected for employment*" (Australian Institute of Quantity Surveyors (AIQS)). Other scholars have defined it as "*a composite of skills, knowledge, attitudes or traits*" (Grzeda, 2005), the trait and knowledge that contribute to work performance (McLagan, 1983) and "*a combination of relevant attributes that underlie aspects of successful professional performance*" (Moore, Cheng & Dainty, 2002).

In reviewing the literature, there seem to be no single definition of the term competency. The diverse perspectives on how competency is defined indicated the presence of conceptual confusion and fuzziness felt by both scholars and practitioners (Sultana, 2009). Concerns over this issue and its possible negative implications have recently been raised by Jackson (2010). He explained: "... empirical studies on graduate employ ability liberally adopt different terms for competencies, resulting in confused findings which are often used to form the back bone of employ ability skills programs in HEIs throughout the UK, Australia and USA. This lack of clarity and uniformity drastically heightens the risk of HEIs developing competencies not prioritized by employers, leading to inefficient use of public funding and reduced impact of efforts to address the graduate skills gap" (Jackson, 2009).

Although it is recognized that diverse views have been used, it is vital that before proceeding further into identifying competency of graduate architects, clear conceptualization over the term is presented. In general, there seems to be some common elements in the above definitions, namely knowledge, skills, abilities and personal attributes. Knowledge and skills will "make-up" the right individual to fit the job scope of graduate architects as the employers expected. In addition, employers also seek individuals with the right personal attributes who fit well with the environment of the industry. Thus, it can be concluded that to be competent, a person not only requires the right knowledge and skills but also the right personal attributes. Competency thus, is the ability of an individual to perform his duties effectively and efficiently which requires the possession of specific knowledge, skills and personal attributes deemed important to both the job requirements and context of the industry.

It seems essential then a holistic view on architecture competency framework to include three major components, namely knowledge, skills and personal attributes. Therefore, this study proposes that the competency components to be viewed and measured, as presented in Figure 1. Knowledge, skills and personal attributes form an important triad of making a competent architect.
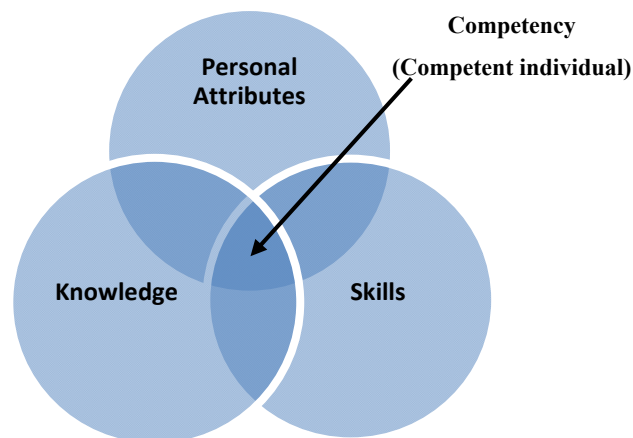

Figure1. Competency framework

3. Architectural Education and Skills

Architects are often acknowledged as products of the current architectural design education. Architectural design education, like most other types of education, reflects the values of the professions and society at large with the process of design education that is said to be interdependent and ever so often created in the field of tension between reasons, emotions and intuitions; that touches almost everything related to humanism. This complexity in dealing with problems and 'designing' the solutions is the very essence of the architectural education (Salama, 2008).

In Malaysia, an architecture graduate who holds Part 1 and Part 2 Degrees in Architecture qualifications are recognized by the Board of Architects Malaysia or *Lembaga Arkitek Malaysia* (LAM) and can be officially be acknowledged an 'architect'. These two qualifications are the equivalent to RIBA (Royal Institute of British Architects), RAIA (Royal Australian Institute of Architects), RIAS (Royal Incorporation of Architects in Scotland) and NZIA (New Zealand Institute of Architects Incorporated) qualifications. These graduates abide by the Architect Act 1967 and Architects Rules 1996 (Rule 17), including the Code of Professional Conduct for Professional Architects as specified in sub-rule 28(2) of the Architects Rules 1996. A graduate with Part I and Part 2 qualifications are then permitted to sit for the LAM Part 3 examination which upon success allows them to be registered as 'professional architects'. In this study, we use the term 'graduate architect' to differentiate from the 'professional architect' who has passed the LAM Part 3 examination.

According to LAM, there are some basic skills needed by an architect. These include planning, building construction knowledge, design skills, written and oral communication skills, architectural communication skills and CAD skills. Malaysian Institute of Architects, an important body that represents architects in Malaysia, states that architects need to acquire the following skills: planning, building design, landscape design, urban design, interior design, leading and coordinating, liaising and supervision.

Basically, the architectural education curriculum in Malaysia has four major fields namely History/Theory, Technology, Design and Professional Practice, with the overall aim is to ensure that the students "*receive a balanced education of these fields, as their value judgment of multifaceted issues will influence their architectural design output*" (Ibrahim, 2008). A recent study (Amat & Azhar, 2010) has demonstrated noticeable interest amongst students and tutors at an institution of higher education on current global issues such as environmental sustainability. The study has empirically established that if the knowledge acquired by the students and the emphasis level by tutors on similar issues can be increased, the students' ability to consider comparable issues in their design can also be improved. It is also suggested that periodic monitoring can be useful whilst at the undergraduate level to ensure effective attributes or traits are instilled or well before the students graduated into the world of professional practice (Amat & Azhar, 2010; Amat, 2009).

A study by Thinker and Butt (2004) revealed problems on learning and understanding of construction related subjects in that, little effort is consciously exerted to coordinate on-going design projects with construction assignment. Correspondingly the effectiveness of architectural education is constantly being scrutinized and the designer's ability to affect meaningful changes to the physical environment that we live in today is also being critically appraised (Sanoff, 1995). Hence, there exist gaps between current architectural education and the subsequent practice of architecture which evidently results in numerous pitfalls and problems for the built environments (Yunos, 2000).

A survey conducted on graduates majoring in architecture by the 2004 College of Design Alumni of Iowa State University (2004) found that design skill, math and sciences skills were perceived as less important by employers than the emphasis that had been placed in the curriculum by the university. The findings have triggered recommendation for the college to place more emphasis on areas such as presentation skills, critical thinking, problem solving, human behavior and work ethics. All these views have provided useful hints on the importance to constantly monitor university curriculum so students will be taught on competencies required at the workplace.

Changes in the construction industry, technological advances and rapid growth in information, have made it a necessity for those in the industry to keep their knowledge and skills updated. According to Nicol and Pilling (2000), architects need to "*become more skilled in human dimensions of professional practice and more adaptable, flexible and versatile over the span of their professional careers*". Architecture education, as they added, must adapt to changes in the industry and assist students to develop the skills, strategies and attitudes needed for professional practice.

4. Methodology

4.1 Data Gathering and Compilation

The requirements highlighted by the industry are a major means of indicating the requirements of potential employees (Kennan et al., 2008). As a method of profiling the three competencies of graduate architects, which are knowledge, skills and attributes, data from job advertisements or advertisements, were collected, compiled and analyzed. For this purpose, local online job advertisements from e-recruitment sites, company websites and niche sites, such as PAM, were collected and analyzed.

Since the position of a graduate architect is the focus of this study, careful selection of relevant advertisements were made. First, only advertisements with job positions suitable for Part 1 and Part 2 Degree holders were selected. Noticeably, different job titles were used in the advertisements, including Graduate Architect, Architect, Assistant to Architect, Design Architect, Project Architect, Junior Architects, Assistant Architect and Resident Architect. Secondly, only advertisements that required working experience of up to 3 years were considered.

4.2 Respondents

Based on the information, the expectations of the industry were compiled and tabulated. In total, 78 job advertisements were collected throughout a month period. Based on this screening exercise, 36 advertisements were excluded from further analysis and content analysis was conducted only on 32 advertisements. It should be highlighted that the advertisements had varied information stated in the text. For example, some advertisements were more detailed and longer than others. This inconsistency may be attributed to organizational factors such as the size and reputation of the firm.

5. Findings and Discussion

Based on the tabulated information, a list of knowledge, skills and personal attributes was produced. Table 1 to 3 illustrate the frequency distribution chart of the findings according to the components. The results are ranked in descending order of prevalence.

5.1 Knowledge

The content analysis of the job advertisements has revealed a list of knowledge deemed important by the industry. Based on the list, the knowledge can be segregated into five main categories namely "construction details and drawings", "architectural practice", "project management/execution" and "knowledge in materials". The findings are summarized in Table 1.

Table 1. Important knowledge of graduate architects

Knowledge	%
Construction details and drawings	31.3
Project management/execution	12.5
Contract Management	9.4
Building contract	6.3
Knowledge in materials	6.3
Local laws (Planning Act, Building By-Laws)	6.3
Authorities' submission	3.1
Visualization technique	3.1

As shown in the table, knowledge on construction details and drawings was stated in almost a third of the advertisements (31.3%), making it the most important knowledge required by the employers. This was anticipated since the bulk of most building design commonly involves laborious production information work and drawings. The high importance placed on this knowledge also mirrors the tools of the trade where the means to communicate a designer's ideas are through drawings. Our finding identified the necessity for graduate architects to possess knowledge on construction details and drawings before they enter the job market.

The finding also revealed that knowledge on project management/execution was the second highest (12.5%) mentioned in the job advertisements. The demand for knowledge in project management hinted that employers are progressively placing a high value on the ability of employees to handle project management albeit in a

limited capacity. Knowledge on contract management was the third highest (9.4%) stated by the employers. This indicates that although they are normally undertaken by senior partners, junior architectural assistants are also expected to assist matters related to contract management.

It is rather interesting that knowledge on building contract and local laws appeared in only 6.3% of the advertisements. This suggests that both lines of knowledge, which are related to contract implementation and management, are not highly required at the graduate architect level. One possible explanation for this could be due to the responsibility of handling matters related to contract management which are within the portfolio of senior/experienced architects and not under the portfolio of junior staff. Knowledge in materials was reported at only 6.3% of the advertisements, suggesting it is not a highly required skill for graduate architects. Knowledge in materials is not perceived as crucial as in the usage of materials in the construction industry. This trend has remained relatively the same over the years.

This study has also identified two lines of knowledge which surprisingly, are in low demand by the employers. In particular, knowledge on authorities' submission has been found to be minimally cited (3.1%) in the job advertisements. The low requirement for such knowledge may be due to the tendency for firms to assign the submission task to their technicians/draftsmen rather than junior architects. A similarly low percentage (3.1%) has been given to knowledge on visualization technique. Although this is rather unexpected, such knowledge may not be critical to be possessed by graduate architects as the task can easily be outsourced to affordable and professional graphic artists. With this option, it basically reduces the need for a firm to employ full time 3D/graphic visualizers.

5.2 Skills

Based on the analysis of the job advertisement content, various skills have been found to be perceived as important by the employers to be acquired by graduate architects. In general, the skills can be divided into two main categories: hard skills and soft skills. Hard skills are technical skills required for a person to carry out relevant tasks on the job domain. Alternatively, soft skills or people skills are about communicating with other another. This includes listening, speaking, giving feedback, participating in meeting, and problem solving or resolving conflicts. Such skills although observable, are difficult to quantify and measure. Table 2 shows the results for hard skills.

Table 2. Important hard skills of graduate architects

Hard skills	%
Design skills	50.0
Computer-Aided Design (CAD) skills	
AutoCad	75.0
3D Studio Max	43.8
Adobe Photoshop	43.8
Sketch UP	34.4
Revit	12.5
3D CAD	9.4
ArchiCAD	6.3
3D Drawing (General)	6.3
Shop drawing	3.1
Illustrator	3.1
Artlantis	3.1
Other skills	
Microsoft Office	15.6
MS Project	3.1

On hard skills, the list can be further segregated into design skills, computer-aided design skills and others.

Design skills, as shown in Table 2, appeared in half (50%) of the advertisements. The fact that it was not mentioned in all the advertisements is rather unexpected as design skill is the core activities of any architectural practice. One possible explanation for this is that it is an accepted assumption for all graduate architects to have already acquired the necessary skills in design. It is also possible that employers have already managed to have an organization of highly skilled employees but still lacking that final 'piece' to complement in creating a 'better' and more 'holistic' design team.

For computer-aided design (CAD) skills, the most frequently cited was AutoCAD (75%). This indicates that AutoCAD is probably the most common CAD programmes were used by architectural firms in Malaysia. Proficiency in AutoCAD is therefore highly sought after by architectural firms. Besides AutoCAD, 3D Studio Max (43.8%), Adobe Photoshop (43.8%) and Sketch-up (34.4%) were also highly cited in the advertisements. In general, our findings have highlighted on the actual extensive use of the technology at local architectural practices in Malaysia. Other computer-aided design tools mentioned include Revit 3D CAD, ArchiCAD, Shop drawing, Illustrator and Artlantis. This study also found that a small percentage of firms did not state specific CAD skills but put 3D Drawing in general as one of the basic requirements. Additionally, the analysis also revealed the importance of having skills in Microsoft Office such as Word, PowerPoint and Excel. A small percentage of companies also look for graduates with skill to conduct MS Projects.

Table 3 shows the results for the soft skills category. As shown, communication skill has been found to be most frequently cited (28.1%) in the job advertisements. The findings showed that the industry is emphasizing the requirement for good communication skills in their recruitment effort. The findings also revealed that other soft skills frequently cited were presentation skills (25%) and interpersonal skill (18.8%). In addition, the employers also stated leadership skills and time management skills (9.4% respectively) as required in their job advertisements.

Table 3. Important soft skills of graduate architects

Soft Skills	%
Communication	28.1
Presentation	25.0
Interpersonal	18.8
Leadership	9.4
Time management	9.4

Clearly, the findings on soft skills requirements suggest that the ability to communicate effectively is highly sought after by the industry. The demand for interpersonal skills indicated that employers are placing a high value on the ability of employees to work well with others and in groups. Presentation skills are required as graduate architects are required to give presentations to clients on a frequent basis. The requirements for good time management skills and leadership skills seem are also expected considering graduate architects are often required to ensure timely completion of assigned tasks and projects within a limited time and potentially limited supervision.

In general, the required soft skills identified in this study fairly portray the duties of a graduate architect which likely involved continuously report writing on work progress as well as dealing with clients, construction contractors, engineers, quantity surveyors and authorities throughout the entire construction process. All these duties require them to be able to communicate, interact, present, lead and manage time well. The soft skills side of graduate architects is crucial as it may influence their ability to plan and organize projects as well as to delegate and direct tasks as required. Overall, a high percentage of the job advertisements indicated not only the expected requirement for hard skills (design skills and computer-aided design skills), but also other complementary soft skills which could determine the success or failure of the candidate to be offered the job as advertised.

5.3 Personal Traits

Table 4 shows the frequency distribution chart of the findings with regards to personal attributes. The findings revealed "able to work independently/with minimum supervision" (40.6%) as the most sought after attribute, followed by "team player" (15.6%) and "able to work under pressure" (9.4%). The demand for individuals with

these traits hinted that employers are placing high importance on the ability of graduate architects to be able to work under pressure both independently as well in a team. These findings are expected as architectural field involves various stages of works from inception to completion. The traits that were also mentioned included "flexible and open attitude", "willing to learn", "creative" and "proactive". Although these traits appeared in only 3.1% of the advertisements, the findings revealed that employers were also looking for individuals who were self-motivated, matured and responsible as well as and possess positive attitudes.

Table 4. Important skills of graduate architects

Personal Attributes	%
Able to work independently	40.6
Team player	15.6
Able to work under pressure	9.4
Flexible and open attitude	6.3
Willing to learn	6.3
Creative	6.3
Proactive	6.3
Self-motivated	3.1
Matured	3.1
Responsible	3.1
Positive attitude	3.1

6. Recommendations

This study documents an initial effort to understand important competencies of graduate architects from the perspective of employers. Job advertisements were compiled and analyzed as means of collecting data for the study. Several key knowledge, skills and personal attributes have been found to be highly sought after by employers. The knowledge, skills and traits that were found to be important were not only common competencies or design skills but more so for personal traits such as being able to work independently and also the ability to work as part of a team.

Several interesting points have been gathered based on the findings. First, evidently graduate architects are expected to have many specialized knowledge pertinent to the industry. This knowledge should therefore be developed through formal education. To have a 'balanced education' may well means to have exposure and knowledge on relevant subjects during the learning process. Diverse but related subjects such as critical thinking, problem solving and even current global interest on green building etc. are crucial in the training to become an architect.

Second, the findings have highlighted high requirements for graduate architects to possess computer-aided design. Since the skill of using AutoCAD was the most sought after computer skill by employers, the findings could well indicate the need for graduate architects to be adept in AutoCAD know-how. In parallel to this development, all higher learning institutions have now equipped their architectural graduates with skills of using CAD to assist them in carrying their duties as junior architect. In order for graduate architects to effectively meet the CAD needs of industry, a curriculum must be developed based on the CAD related technical skills and competencies required by the industry.

Third, findings from this study have also identified that soft skills are demanded by the employers. The top three soft skills identified in this study are communication skills, presentation skills and interpersonal skills. The study identified that currently the industry is focusing on the ability to communicate effectively and to function well as part of a team. Coupled with a demand of interpersonal skills we can clearly see that employers are placing a high value on the ability of employees to work well in groups within the organization but also externally with clients/customers. These skills are in line with the job function of a graduate architect and as such one would expect to see these skills in high demand by the industry. The high importance on soft skills suggests the need for architectural education programs to consider creative ways of developing these additional but essential skills. In

general, the findings on soft skills provide evidence that architecture firms viewed soft skills as imperative in complementing graduates' hard skills.

Fourth, this study has managed to compile the attributes perceived important by the industry and thus highlighted that personal attributes are highly emphasized and sought-after by prospective employers. Specifically, the findings highlighted expectations of employers towards candidates who possess the ability to work independently. This suggests the apparent need for architecture education in Malaysia to possibly rethink in emphasizing to develop students' ability to work independently and creatively. The findings indicate that the industry demand graduate architects with not only hard skills, but also soft-skills and personal attributes to make them competent in their profession.

7. Conclusion

Overall, this paper provides the foundation for further understanding on the key competencies of graduate architects. The profile developed serves as a first step towards outlining key competencies necessary for graduate architects in Malaysia. For future research, several recommendations can be considered. Firstly, the content analysis of newspapers, magazines and online advertisements could be compiled over a longer period of time. Secondly, it is proposed that an instrument be developed based on the KSAs (knowledge, skills and attributes) discovered from the present study. Data on the importance of the competencies could then be collected from architectural firms or other stakeholders, using the instrument to further validate and strengthen the findings of the present study. In addition, a study on level of competencies of current graduate architects need to be conducted to identify potential competencies gap. Researchers should also look into the current architecture curriculum to evaluate the degree to which university curriculum is adapting to the expectation of the industry.

Development of a comprehensive competency framework can serve as a guideline for higher education institutions (HEIs) to respond to the competency requirements by the industry and consequently in understanding how well they have prepared or equipped their graduates for employment. This can later assist HEIs to further improve their academic curriculum structure to meet the needs of this highly competitive industry. This framework could also offer assistance in providing prospective employers and practitioners with the basis for the recruitment and selection of future fresh graduate architects.

References

Amat, S. C., & Azhar, K. (2010). *Integrating Environmentally Sustainable Construction in the Architectural Design Studio Education at Universiti Teknologi MARA: Opportunity and Challenges.* In Proc. ICSAUD2010: issues on Global Energy Crisis and its Impact on Design, Penang.

Amat, S. C. (2009). *Quantifying Integration Level of Sustainability Issues in Design Studio Education.* In Proc. The International Architecture and Cultural Education Exchange (IACEE2009), Institut Teknologi Bandung, Indonesia.

Australian Institute of Quantity Surveyors. (2008). *National Competency Standards for Quantity Surveyors.* Retrieved from http://www.icoste.org/AIQS%20Competencies.pdf

College of Design Alumni Survey. (2004). Retrieved from http://archive.design.iastate.edu/FILES/alumnisurvey.pdf

Eynde, D. V., & Tucker, S. (1997). A quality human resource curriculum: recommendations from leading Senior HR executives. *Human Resource Management, 36,* 397–408. http://dx.doi.org/10.1002/(SICI)1099-050X(199724)36:4<397::AID-HRM4>3.0.CO;2-Q

Grzeda, M. M. (2005). In competence we trust: Addressing conceptual ambiguity. *Journal of Management Development, 24*(6), 530–545. http://dx.doi.org/10.1108/02621710510600982

Henwood, R. (2006). *Careers in Malaysia.* Retrieved from http://www.asia.hobsons.com/regional_outlook/careers _in_malaysia

Ibrahim, N. (2008). *Sustainability and the Architectural Education: Are we there yet?* In Proc. SENVAR+ISESEE 2008: Humanity+Technology, Universiti Teknologi MARA, Malaysia.

Jackson, D. (2010). An international profile of industry relevant competencies and skill gaps in modern graduates. *International Journal of Management Education, 8*(3), 29–58. http://dx.doi.org/10.3794/ijme.83.288

Juhdi, N., Jauhariah, N. A., & Yunus, S. (2007). A study on employability skills of university graduates, *The Business Wallpaper, 2*(1), 1–6.

Kennan, M. A., Cecez-Kecmanovic, D., Willard, P., & Wilson, C. S. (2008). IS Knowledge and skills sought by employers: A content analysis of Australian IS early online job advertisements. *Australasian Journal of Information Systems, 15*(2). Retrieved from http://dl.acs.org.au/index.php/ajis/article/view/455

McLagan, P. A. (1983). *Models for Excellence, The American Society for Training and Development.* Washington, DC.

Moore, D. B., Cheng, M. I., & Dainty, A. R. J. (2002). Competence, competency and competencies: Performance assessment in organizations. *Work Study, 51*(6), 314–319. http://dx.doi.org/10.1108/00438020210441876

Nicol, D., & Pilling, S. (2000). Architectural education and the profession. In D. Nicol, & S. Pilling (Eds.), *Changing architectural education: Towards a new professionalism*. London: Taylor and Francis.

Salama, A. (1995). *New Trends in Architectural Education: Designing the Design Studio.* U.S.: Tailored Text & Unlimited Potential Publishing.

Sanoff, H. (1995). *Foreword, New Trends in Architectural Education: Designing the Design Studio*. In A. Salama (Ed.). U.S.: Tailored Text & Unlimited Potential Publishing.

Singh, G. K. G., & Singh, S. K. G. (2008). Malaysia Graduates Employability Skills. *UNITAR E-JOURNAL, 4*(1), 15–45. Retrieved from http://www.teo-education.com/teophotos/albums/userpics/GurvinderMalaysianGraduate_1.pdf

Sultana, R. G. (2009). Competence and competence frameworks in career guidance: complex and contested concepts. *International Journal for Educational and Vocational Guidance, 9*, 15–30. http://dx.doi.org/10.1007/s10775-008-9148-6

Tinker, A., & Butt, R. (2004). *Greening the Construction Curriculum*. PhD Thesis.

Vijan, J. (2007). *Infosys Ready to offer jobs to 29 Malaysian graduates, in Bernama.com.* Retrieved from http://www.bernama.com.my/bernama/v3/news_lite.php?id=269264.

Weligamage, S., & Siengthai, S. (2003). *Employer Needs and Graduate Skills: The Gap between Employer Expectations and Job Expectations of Sri Lankan University Graduates.* In Proc. 9th International Conference on Sri Lanka Studies, Matara, Sri Lanka.

Yunos, M. R. (2000). *A Study on Learning and Teaching Construction Technology related to Design—a Case for Architectural Schools in Malaysia*. Ph.D Thesis, University of Sheffield, UK.

Copyrights

The Influences of Market Information Management and Marketing Control in Small-Sized Firms in Korea

Sohyoun Shin[1]

[1] College of Business and Public Administration, Eastern Washington University, USA

Correspondence: Sohyoun Shin, College of Business and Public Administration, Eastern Washington University, Spokane, WA, USA. Tel: 1-509-828-1243. E-mail: sshin@ewu.edu

Abstract

Studies in management and marketing strategy have proven that various dimensions of marketing capabilities are associated with firm performance in a positives way. However, most of the researchers have focused on the relationships within relatively large-sized firms in industrialized countries. In this study, the author investigates market information management capability and marketing control capability and their possible antecedents, strategic orientations (i.e., customer, competitor, and technology orientation) in small-sized firms in Korea. Based on 180 data of small-scaled firms with no more than 500 employees across industries, both capabilities have been found to have an affirmative influence on firm performance. Furthermore, three focal orientations have been proven to drive both capabilities in a positive way. From the additional two-group analysis based on firm size, market information management capability has been found to be more critical to micro-sized firms with 100 employees or fewer while both capabilities show equally important positive impact for small-sized firms with between 500 and 101 employees. Implications are addressed along with the limitations and further research directions.

Keywords: market information management, marketing control, customer orientation, competitor orientation, technology orientation, firm performance, resource-based view

1. Introduction

1.1 Research Background

Numerous studies have proven that various dimensions of marketing capabilities are associated with firm performance in a positives way, but most of the studies have focused on finding the relationship within relatively large-sized firms in industrialized countries (Morgan, Vorhies & Mason, 2009; Fahy et al., 2000). Therefore, researches regarding the value of marketing-related capabilities in small-sized firms have been rarely treated as a major topic in marketing strategy. Even though how marketing capabilities affect firm level outcomes in small businesses may differ from the influential paths of marketing capabilities in large firms, lack of research in the specific area leaves a marginal implication to relatively smaller-sized organizations in emerging nations such as Korea.

According to European Commission, small-sized enterprises provide around 75 million jobs in the 25 nations of the enlarged European Union (European Commission, 2003). Thus, the importance of understanding how small-sized firms develop competitive advantages with marketing-related capabilities should not be neglected. Due to the limited capitals, small businesses may have to find the specific set of capabilities which better fits their specific situational contexts among various types of organizational capabilities. Carefully selected and cultivated capabilities may bring the firms maximized financial benefits of resource allocations and sustainable advantages.

Among different facets of marketing capabilities, the critical roles of market information management and marketing control in small firms have been rarely conceptually explored or empirically tested, at least at the same time. Therefore, despite mountainous evidence from the previous research undertaken, that marketing capabilities positively influence firms' economic rents (e.g., Shin, 2012), these specific sub-categories have been left as under-discovered research topics.

The objective of the study is to examine the direct impacts of two crucial marketing capabilities: market information management and marketing control on firm level performance variables within small-sized firms in Korea. Furthermore, the author investigates the detailed effects of critical strategic orientations: customer orientation, competitor orientation, and technology orientation on each of the two marketing-related capabilities. Through additional testing with two groups of companies based on their sizes; small-sized firms vs. micro-sized firms, the author attempts to further understand the optimization of resource allocations for each group. The findings of this study may provide specialized insights to small businesses in emerging nations on how to strategically utilize their limited capitals to grow, and furthermore, how to reallocate as they become bigger-sized firms.

1.2 Research Model

Figure 1 illustrates the research model in this study. The author proposes the relationships among three critical strategic orientations and two facets of marketing capabilities with four dimensions of firm performance. More specifically, the author attempts to prove the affirmative relationship of firm performance with market information management and with marketing control. As drivers of two capabilities of a firm, customer orientation, competitor orientation, and technology orientation are offered.
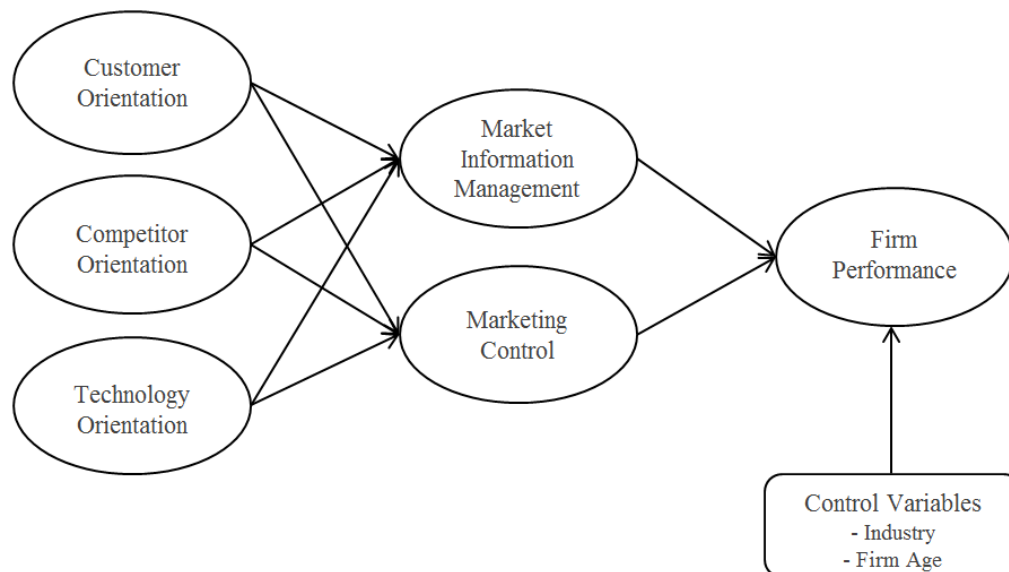
Figure 1. Research model

2. Theoretical Background and Hypotheses

2.1 Micro-, Small-, and Medium-Sized Enterprises (SMEs)

Micro, small and medium-sized enterprises (SMEs) play a central role in various economic sectors. In the European economy, SMEs are recognized as a major source of entrepreneurial skills, innovation, and employment (Bridge, O'Neill & Cromie, 1998). In the enlarged European Union of 25 countries, some 23 million SMEs provide around 75 million jobs, and represent 99% of all enterprises (European Commission, 2003).

The official definition of "small business" varies by country as well as by industry. Although there are many different measures and standards to classify small companies, such as annual sales, value of assets, net profit, and capital requirements (Ibrahim & Goodwin, 1986), firm size by the number of employees is most widely used. In the United States, US Small Business Administration (2013) specifies a small business as having fewer than 500 employees for most manufacturing and mining industries, and $7 million in average annual receipts for most non-manufacturing industries. The European Union generally defines SMEs as enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro (European Commission, 2003). As sub-categories, fewer than 50 employees for small business and 10 for micro business are also specified (European Commission, 2003). In

Korea Small & Medium Business Administration (2012) defines SMEs as firms having fewer than 200 or 300 employees for most of industries with a wide range of annual sales of 30 to 300 Million in Korean won. Fewer than 100 and 50 is also used as a threshold for the sectors such as real estate business, education business, and waste management.

Nevertheless, no consensus in the literature is noted as to what constitutes a "small" firm (Deakins, 1999; McCartan-Quinn & Carson, 2003). The lack of a clear global definition of "what a small business actually is" may mitigate an accurate assessment of success factors for the small-scaled businesses. Furthermore, even among small firms required resources may differ from one another based on the sizes and industrial contexts.

In this paper, a small-sized firm is defined as "an independent owner/managed business organization employing less than five hundred employees". In addition, a micro-sized firm is defined as "a small-sized firm with no more than hundred employees." These two categories under the operationalized definition of small-sized firm are purely arbitrary for the purpose of this study based on the standards of US, EU, and Korea in a collective way. Because many of small or micro firms are created and run by the owner/manager's omnipresence, a highly personalized management style can be witnessed. However, although this company-specific style may direct a characterized, prevalent types of marketing activities within a firm, desirable capabilities in marketing function can be recommended for success and survival of both micro- and small-sized firms.

2.2 Resource-Based View

Resource-based View (RBV), a well-known theory of strategy argues that firms with valuable, rare, inimitable, and non-substitutable resources have the potential of achieving superior performance (e.g., Barney, 1991; 1995). Traditionally, resources mean what a given firm possesses as its physical and financial property which can be input into production process (Barney, 1991; Miller & Shamsie, 1996). In an extended approach of RBV, resources implies intangible categories including organizational, human, and networks (Ahn & York, 2011; Day, 2011; Hunt & Morgan, 1995). This knowledge-based resource approach of RBV encourages firms to obtain, access, and maintain intangible endowments because these resources are the ways in which firms combine and transform tangible input resources and assets (Galunic & Rodan, 1998; Wiklund & Shepherd, 2003). Furthermore, intangible resources such as customer orientation are more causally ambiguous, and less observable than tangible resources, therefore, it is not easy for competitors to duplicate. Hitt, Ireland, and Hoskisson (1999) emphasize that organizational knowledge is a crucial bundle of intangible resources that can be the source of a sustainable competitive advantage. Due to its immobility (McEvily & Chakravarthy, 2002) and general applicability (Miller & Shamsie, 1996), knowledge has been argued as the key driver for a sustainable advantage.

Large size gives a firm advantages relating to the greater availability of financial resources, organizational routines, and capabilities (Bercovitz & Mitchell, 2007; Verwaal, Bruining, Wright, Manigart & Lockett, 2010). However, small firms have a smaller scale and scope of resources available (Bercovitz & Mitchell, 2007), so they can have a disadvantage in generating rents from its own possessed resources and assets. Thus, small corporates should carefully select and cultivate crucial knowledge-related assets including capabilities which can be added in the firm's knowledge storages. In this paper, two knowledge-based assets; marketing information management and marketing control, will be offered as critical drivers of better firm performance within small-sized firms.

2.3 Market Information Management and Firm Performance

Previous studies undertaken have proven a positive correlation between dimensions of marketing capabilities and various firm level measures of economic rents (e.g., Lee, Yoon, Kim & Kang, 2006; Morgan, Zou, Vorhies & Katsikeas, 2003; Sashittal & Tankersley, 1997). Marketing capabilities are viewed as important market-relating mechanisms by which superior market knowledge may be deployed by firms to generate economic performance (Madhavan & Grover, 1998). Marketing capability is also viewed as an organization's practices, routines, and work patterns applying the resources of the firm to the market-related needs of the business (Vorhies & Morgan, 2005). As one of the representative typologies, architectural marketing capability is referred as a firms' ability to orchestrate marketing tactical tools in an integrative way (Morgan et al., 2003). It has been asserted that the concept includes market information management, marketing planning, and marketing implementation (e.g., Capron & Hulland, 1999; Day, 1994; Morgan et al., 2003).

Among these various types of marketing-related capabilities, one of the author's foci is the critical roles of market information management in small-sized firms. Most of small businesses are deficient in well-developed skills and systems on how to collect, develop, manage, and utilize market information due to their resource limitation and relatively light-weighted importance of market research function. Some of small ventures are in

newly developed industrial sectors, so there has not been enough time for the firms to develop best practices to benchmark as well as an industry-wide guidance to gauge customer segments and targets. Thus, a firm's ability of market information management, the processes by which firms learn about their markets and use market knowledge (Day, 1994; Menon & Varadarajan, 1992) can be a critical weapon to bring clear market insights and therefore, become a source of competitive advantages. The market information management may include systematic information gathering about customers and competitors, excellence in utilization of market information to develop better marketing programs, and tracking customers' needs and wants (Vorhies & Morgan, 2005). Especially, for a small sized-firm, well-established processes in market knowledge development is hard to earn based on the given restraint budget. Thus, if a firm possesses excellence in this capability, this may influence firm performance positively. Hence, it can be hypothesized that;

H1: Market information management capability of a firm increases its business performance.

2.4 Marketing Control and Firm Performance

Marketing control is defined as "consistent evaluating the results of marketing strategies and plans and taking corrective actions to ensure that objectives are attained" (Armstrong & Kotler, 2011). Successful marketing control involves four steps; setting a goal, measuring its performance, evaluating the causes of any differences between expected and actual performance, and taking corrective actions to close the gap between goals and performance (Armstrong & Kotler, 2011).

Therefore, excellence in assessing, monitoring, and auditing the entire process of the marketing activities is assumed to be important to not only large- or medium-sized organizations but also to small-sized firms. However, small corporates generally do not have enough financial capitals to routinely review and evaluate marketing activities to develop a closed loop of enhancement on the process of marketing planning and execution. Because most of small businesses tend to focus on daily operations and short-lived sales tactics, setting up a set of marketing control processes with an anticipative perspective can be an impossible mission. Nevertheless, because it is essential to a firm to be equipped with skills and know-hows on improving marketing practices for a long run, the firm's marketing control may promote to carefully plan marketing programs from the beginning, to consistently assess every steps in marketing actions, and furthermore to disseminate the tacit knowledge for the next marketing opportunities. A Firm's ability to learn from the past, to evaluate self-accomplishments fairly, to document and share the assessments, and furthermore, to actively correct and redesign their marketing programs may bring competitive advantages over the competitors who without the relevant ability. This marketing control capability is relatively hard to be recognized as a critical resource due to its lack of visibility in the connection with enhanced organizational performance. However, marketing control is known to be one of the mandatory steps in marketing process with marketing analysis, marketing planning, and implementation (Armstrong & Kotler, 2011). Hence, it can be hypothesized that;

H2: Marketing control capability of a firm increases its business performance.

2.5 Customer Orientation, Market Information Management, and Marketing Control

Marketing capability of a firm is the extent of an excellence in applying the firm's collective knowledge, resources, and skills in order to add value in the marketing domain (Day, 1994; Su, Tsang & Peng, 2009). Therefore, marketing capability is expected to integrate, build and configure internal and external resources, including intangible strategic orientations (Su et al., 2009; Zhou & Li, 2010).

Customer orientation, one of most frequently studied strategic orientations, emphasizes the sufficient understanding of the target customers so as to deliver superior value to them. Organizational climate emphasizing the importance of understanding customers can be an essential company asset as itself and would guide a firm to learn what market-related information should be collected, managed, and assessed to improve the delivery of better value to the target. In particular, customer orientation helps a firm clearly identify their target customers, market, and partners, so information regarding the specified groups of its interests can be separated from overflowing general information. Therefore, the firm can efficiently focus on improving how to serve the needs of the groups. Customer-oriented market information management can support a firm to learn about customers' motives and attitudes as well as marketing programs in the market that customers actively respond to, and therefore, to promptly deliver enhanced marketing activities. Thus, better informed marketing actions become possible by using the polished routine of market information management, resulting in high levels of customer satisfaction as well as positive economic outcomes.

Marketing control can be fortified by customer orientation, too. Consistent evaluations on on-going marketing activities are the key of marketing control. Customer orientation may drive marketing control to set

customer-focused objectives, assess the reactions of customers, correctly measure their attitudes, and take an action to correct marketing programs to enhance their customers' brand experience. Therefore, marketing control can provide a firm an opportunity to re-design their marketing actions with better understanding of customers, and thus, it increases a chance to gain and maintain delighted customers. Hence, it can be hypothesized that;

H3: Customer orientation of a firm increases its a) market information management capability and b) marketing control capability.

2.6 Competitor Orientation, Market Information Management, and Marketing Control

It is not uncommon that multiple organizational orientations are exhibited in one organization at the same time (Greenley, Hooley & Rudd, 2005; Jackson, 2001). In the marketing literature, customer and competitor, as parts of market orientation or separately, have been actively researched as a critical market profile.

Competitor orientation refers the intention to identify, analyze, and respond to competitors' actions. Competitor orientation focuses on understanding the strengths and weaknesses of existing and potential competitors as well as on monitoring their behaviors (Narver & Slater, 1990). This enables the firm to rapidly sense, reverse-engineer, improve, and accumulate knowledge related to competitors within a firm. Therefore, marketing programs that competitors have implemented effectively and strategic directions that competitors are heading can be closely observed. Firm's capability in market information management can be led to competitive differentiations by this strategic orientation. Competitor-oriented firms emphasize the importance of examining and learning from competitors, so benchmarking the best practices becomes more affordable to a firm. The high cost of developing better market offerings make it crucial for the firms to invest in the right information, especially when the firms are not able to access sufficient financial stocks like small-scaled companies. Competitor orientation may empower the process of market information management within a firm, and therefore save resources and allocate un-used resources to differentiate marketing actions.

Marketing control can be well-directed by carefully observing competitors' behaviors and by understanding industry standards. Competitor-oriented firms may evaluate their goals and performance based on competitors' norms and outcomes. The monitoring process that is designed with locus on competitors may bring more objective evaluation approaches to gauge success and failure of its own marketing programs. Most of small firms operate their business locally and this causes a lack of varieties of business experiences out of their territories regardless their business history in the market. Competitor-focused marketing control may help firms go beyond their competitors and transfer knowledge from a different domain, and thus improve their marketing programs with innovative approaches. Thus, it can be hypothesized that;

H4: Competitor orientation of a firm increases its a) market information management capability and b) marketing control capability.

2.7 Technology Orientation, Market Information Management, and Marketing Control

Technology orientation implies that consumers will prefer products and services that maintain technological superiority (Gatignon & Xuereb, 1997; Zhou & Li, 2010; Zhou, Yim & Tse, 2005). Firms with technology orientation accumulate rich technological information through investments in R&D and relevant knowledge (Zhou & Li, 2010). Thus, this specific orientation can be one of a firm's critical foci related to gathering, interpreting and transforming information about new technologies.

Market information management is expected to have a positive effect on firm performance with gained knowledge about its market when focusing on the developments in the technological arena. Technology-oriented firms may be equipped with well-constructed operating systems as well as prompt communication processes, and thus, market information can be collected from multiple sources, accumulated in big data storages, and disseminated within the company easily. The firms can also detect new technologies in other industries, but without market information management capability backing up technology orientation, it is impossible for firms to use them for addressing an untapped customer need in their own industry.

Marketing control is expected to be cultivated by technology orientation, too. Especially, when management attempts to carry corrective actions, technology-focused marketing control can find better serving or best matching technologies to redesign next marketing arrangements. Furthermore, with state-of art technologies, real time monitoring and amendments become possible. These prompt adjustments and corrections may bring a chance to the firm to be ahead of competitors. Hence, it can be hypothesized that;

H5: Technology orientation of a firm increases its a) market information management capability and b) marketing control capability.

3. Research Design

3.1 Sampling and Data Collection

Survey method was used in this study. The sample was restricted to Seoul, South Korea and its metropolitan coverage where most suitable samples are located in. Data collection with convenience sampling was used for the project convenience, yet several restrictions were applied. Only one participant per organization joined in the survey, and the sizes of the corporations were strictly controlled to fall into the designed sample characteristics. Additionally, to obtain sound and reliable responses to the questions related capabilities in the survey, the respondents were carefully screened in. The detailed instructed questionnaire including the research objectives was sent to the key informants by email after the initial contact. The survey was designed in two sections with a cover page. The cover page included an invitation from the author, an assurance of confidentiality of the information, and contact methods for any questions and comments related to the research. First section included the main survey part with the measures, and the second section included questions related to the general information of the firms and the demographic information of the respondents. There were total twice follow-up calls and emails to encourage their participation. Data collection occurred over five weeks and resulted in a sample of 188. After discarding eight unusable questionnaires, total 180 were determined to use for analysis. Among 180 companies 69 were manufacturing and 75 were service organizations. The average firm size was 162.2, and all are with from 6 to 500 employees. Among the respondents, 73.3% were in marketing related functions including marketing, sales and strategy. The average working years of the participants in the current job was 4.3 years ranging from 2 to 23. Managers or higher rankings account for about 68% of the participants. Demographic information of the samples is in Table 1.

Table 1. Statistical information of samples

Respondents		No.	%	Company		No.	%
Function	Marketing	68	37.8	No. of employees	6-50	58	32.2
	Sales	35	19.4		51-100	37	20.6
	Strategy/Business Planning	29	16.1		101-200	27	15.0
	Administration	22	12.2		201-300	33	18.3
	R&D	13	7.2		301-500	25	13.9
	Others	12	6.7	Industry	Manufacturing	69	38.3
Title	Vice President/Director	25	13.9		Service (Consumer/Financial)	75	41.7
	General Manager	43	23.9		Distribution	17	9.4
	Manager/Assistant Manager	55	30.6		Others	19	10.6
	Senior Team Staff	57	31.7				
Working years	2-5	117	65.0				
	6-10	51	28.3				
	11-23	12	6.7				

Notes: N = 180.

3.2 Measures

All of the measures used in this study were drawn from the existing literature except marketing control capability. Throughout the survey, 7-point, Likert-type scales with the anchors 1=strongly disagree to 7=strongly agree were used.

Market information management was asked in total three items, and all the measures were adopted from Vorhies and Morgan's (2003) study. Marketing control was asked in total four items. To develop the measures for marketing control capability, raw scales were created based on the relevant literature reviews and interviews with marketing experts both in academic and practical fields. After eight meaningful measures were first screened in, four most critical aspects of marketing control were selected through the discussions. These newly

arranged measures indicate excellence in monitoring and control in marketing programs, checking progress of marketing activities and developing feedback, fair evaluation process on performance of marketing and firm, and sharing assessment results to take corrective actions. All four items were judged to use based on the item-to-total correlation and Cronbach's alpha. Customer orientation was asked in total four items, competitor orientation in four items, and technological orientation in four items. To measure three orientations, the original items by Narver and Salter (1990) and Gatignon & Xuereb (1997) were adopted with little modification.

For the dependent constructs, total fourteen subjective measures; customer satisfaction in four items, market effectiveness in four items, adaptability in three items, and profitability in three items were adopted from the previous studies. Customer satisfaction represents the effectiveness of the organization in delivering value to its customers (Day & Wensley, 1988; Kaplan & Norton, 1996). Market effectiveness as a scale that tapped the degree to which the firms' market-based goals had been accomplished (Ruekert, Walker & Roering, 1985; Vorhies & Morgan, 2003) and adaptability as an ability of the firm to respond to changes in its environment (Ruekert, Walker & Roering, 1985) were measured. Profitability, using perceptual scales related to financial performance over the past twelve months (Morgan, Clark & Gooner, 2002) was also asked. For further analysis, firm-specific questions were included such as industry type, firm age, and the number of employees. Respondents' working years in the current-working firm and their professional functions were also recorded as control variables.

4. Data Analysis and Results

4.1 Measurement Validation

Reliability, means, standard deviations, and inter-construct correlations are presented in Table 2. A test of reliability using Cronbach's coefficient alpha showed that all of the focal constructs (market information management: .861; marketing control: .928; customer orientation: .896; competitor orientation: .791; technology orientation: .875; customer satisfaction: .927; market effectiveness: .877; profitability: .890; adaptability: .900) exceeded Nunnally's (1978) standard of .70. Therefore, the author established support for convergent validity (Bagozzi, Yi & Phillips, 1991) of the constructs, exhibiting good measurement properties.

Table 2. Reliability and correlation coefficients, and descriptive statistics

	1	2	3	4	5	6	7	8	9	10	11	12
1. CO	*.896*											
2. PO	.369**	*.791*										
3. TO	.419**	.465**	*0.875*									
4. MI	.500**	.418**	.438**	*.861*								
5. MC	.415**	.428**	.469**	.613**	*.928*							
6. CS	.554**	.415**	.524**	.550**	.581**	*.927*						
7. ME	.444**	.378**	.467**	.486**	.540**	.679**	*.877*					
8. P	.328**	.280**	.271**	.313**	.277**	.418**	.480**	*.890*				
9. ADP	.367**	.437**	.503**	.463**	.472**	.599**	.678**	.457**	*.900*			
10. SizeLn	.003	.004	-.102	-.048	-.163*	-.170*	-.047	-.075	-.017	*N/A*		
11. AgeLn	-.022	.041	-.142	-.061	-.129	-.135	-.263**	-.165*	-.199**	.247**	*N/A*	
12. Indstry	-.011	.185*	.212**	.091	.048	.135	.190*	.163*	.055	.029	.056	*N/A*
Mean	5.386	4.640	4.833	4.670	4.104	4.912	4.584	4.732	4.264	N/A	N/A	N/A
S.D.	1.224	1.198	1.334	1.140	1.196	1.128	1.182	1.961	1.272	N/A	N/A	N/A
AVE	.63	.54	.68	.71	.68	.70	.69	.52	.58	N/A	N/A	N/A

Notes: N = 180; **p < .01, *p < .05; CO: Customer orientation; PO: Competitor orientation; TO: Technology orientation; MI: Market information management; MC: Marketing control, CS: Customer satisfaction; ME: Market effectiveness; P: Profitability; SizeLn: Company size (ln); AgeLn: Company age (ln); Company size and company age were transformed by taking logarithm; Indstry: Manufacturing vs. Non-manufacturing; The reliability of the construct with Cronbach's alphas are presented on the diagonal in *Italic*.

The validity of the scale items used was assessed via principal-axis factoring which completed using an eigenvalue of 1.0 and factorings of .50 as the cut-off point suggested by Zaichkowsky (1985). All items were loaded significantly on the corresponding latent construct with no evidence of cross-loading (3 items of market information management loaded in factor 8: .793, .751, .673; 4 items in marketing control loaded in factor 3: .796, .796, .813, .793; 4 items of customer orientation loaded in factor 2: .828, .814, .736, .819; 4 items of competitor orientation loaded in factor 6: .766, .801, .702, .623; 4 items of technology orientation loaded in factor 5: .813, .848, .768, .611; 4 items of customer satisfaction loaded in factor 4: .731, .740, .744, .717; 4 items of market effectiveness loaded in factor 1: .767, .795, .651, .623; 3 items of profitability loaded in factor 9: .807, .588, .550; 3 items of adaptability loaded in factor 7: .717, .783, .761). The factor analysis of all variables resulted in a solution that accounted for 77.79% of the total variance. The summed means of all the measures were used for the hypotheses analysis.

4.2 Research Model Test Results

The research model was assessed using multilevel regression with SPSS statistics 19. To test main hypotheses, total three times of regressions were executed with market information management, marketing control, and firm performance as a dependent variable for each corresponding model. All three regression models were verified through coefficient of determination. R-squares of each model indicated satisfactory level of explained variability (R^2/Adj. R^2= .343/.331, .314/.302, and .409/.396, respectively), and therefore, validations were established.

All affirmative relationships between two marketing-related capabilities: market information management and marketing control and firm performance were proven (β= .315, $p < .001$; β= .322, $p < .001$, respectively) with the entire sample, thus supporting H1 and H2. Customer orientation was found to positively influence market information management (β= .342, $p < .001$) and marketing control (β= .219, $p < .01$), supporting H3a and H3b. The affirmative relationships between competitor orientation and market information management (β= .197, $p < .01$) and marketing control (β= .220, $p < .01$) were proven. Both H4a and H4b were supported. Technology orientation was proven to show a positive association with market information management (β= .204, $p < .01$) and marketing control (β= .275, $p < .001$), supporting both H5a and H5b. Firm age, a control variable, measured by the business period from the founding year of the firms, negatively linked to firm performance (β= -.180, $p < .01$). Industry type (i.e., manufacturing coded as 1; non-manufacturing coded as 2) also influenced firm performance (β= -.137, $p < .05$). The results of multilevel regression analyses are reported in Table 3. In table 4 regression results with four dimensions of firm performance were presented for the detailed explorations in relationships.

4.3 Additional Analysis

To check which of two marketing capabilities is more essential for increased firm performance based on different size of the firm, additional analysis was conducted without proposing hypotheses. Organizations with 101 to 500 employees were grouped as small-sized firms while companies with 100 or less employees were named as micro-sized firms in this study. Additional multilevel regressions were executed to gauge the possibly different relationships. With small-sized firms, both market information management and marketing control showed to be important for abnormal firm performance (β= .357, $p < .01$; β= .388, $p < .001$, respectively) while with micro-sized firms, only market information management showed to be associated with firm performance (β= .324, $p < .01$). For micro-sized firms, the relationship between marketing control and firm performance was marginal (β= .202, $p < .10$).

In addition, two groups of samples were again observed to search for possibly different antecedents for two capabilities. For small-sized firms, competitor orientation was found to be a positive driver for both market information management and marketing control (β= .271, $p < .01$; β= .432, $p < .01$, respectively), but failed to prove either of its relationships with market information management or marketing control for micro-sized firms (β= .149, $p > .10$; β= .043, $p > .10$, respectively). Customer orientation seemed to be the most important cultural resource among three focal orientations because it showed to influence both capabilities for small-sized firms (β= .364, $p < .001$; β= .228, $p < .05$, respectively) as well as micro-sized firms (β= .335, $p < .01$; β= .277, $p < .01$, respectively). Technology orientation showed mixed relationships. For small-sized firms, firm age again negatively linked to firm performance (β= -.283, $p < .001$), but industry type had no impact. For micro-sized firms, industry type negatively influenced firm performance (β= -.193, $p < .05$), showing being in service sector does not help improve firm performance. No relationship was observed between firm age and performance among micro-sized firms.

Table 3. Results of hypotheses testing

	Standard coefficient			Hypothesis testing results		
	All Firms	Small Firms	Micro Firms	All	Small	Micro
	(N=180)	(N= 85)	(N= 95)			
H1: Market Info. Mgmt. → Firm Performance	.315***	.357**	.324**	O	O	O
H2: Marketing Control → Firm Performance	.322***	.388***	.202+	O	O	X
H3a: Customer Orientation → Market Info. Mgmt.	.342***	.364***	.335**	O	O	O
H3b: Customer Orientation → Marketing Control	.219**	.228*	.277**	O	O	O
H4a: Competitor Orientation → Market Info. Mgmt.	.197**	.271**	.149	O	O	X
H4b: Competitor Orientation → Marketing Control	.220**	.432**	.043	O	O	X
H5a: Technology Orientation → Market Info. Mgmt.	.204**	.192+	.203+	O	X	X
H5b: Technology Orientation → Marketing Control	.275***	.175+	.322**	O	X	O

Notes: N = 180; ***p < .001, **p < .01, *p < .05, +p < .10.

Table 4. Multilevel regression results with all data

Dependent Variables	Model 1 Market Info. Mgmt.	Model 2 Marketing Control	Model 3 Firm Performance	Model 3-1 Customer Satisfaction	Model 3-2 Market Effectiveness	Model 3-3 Profitability	Model 3-4 Adaptability
Independent Variables							
Customer Orientation	.342 (4.968)***	.219 (3.106)**					
Competitor Orientation	.197 (2.782)**	.220 (3.041)**					
Technology Orientation	.204 (2.812)**	.275 (3.714)***					
Mediating Variables							
Market Information Management			.315 (4.267)***	.304 (4.120)***	.238 (3.198)**	.219 (2.471)*	.281 (3.477)**
Marketing Control			.322 (4.34)***	.381 (5.150)***	.359 (4.798)***	.117 (1.321)	.280 (3.457)**
Control Variables							
Firm Age (Ln)			-.180 (-3.058)**	-.073 (-1.127)	-.212 (-3.569)***	-.145 (-2.060)*	-.147 (-2.294)*
Industry (Mnft. vs. Nonmnft)			-.137 (2.343)*	-.093 (-1.590)	-.163 (-2.762)**	-.146 (-2.078)*	-.024 (-.369)
R² (Adj. R²)	.343 (.331)	.314 (.302)	.409 (.396)	.411 (.397)	.397 (.383)	.149 (.129)	.293 (.277)
F	30.582	26.802	30.278	30.483	28.754	7.655	18.130

Notes: N = 180; ***p < .001, **p < .01, *p < .05, +p < .10; Firm age was transformed by taking logarithm; Industry: Manufacturing vs. Non-manufacturing.

4.4 Mediating Effect Analysis

To check the possibility of a mediating role of market information management and marketing control, the approaches suggested by Baron and Kenny (1986) and Preacher and Hayes (2008) were used. According to

Baron and Kenny (1986) to test a mediation effect, "first, regressing the mediator on the independent variables; second, regressing the dependent variable on the independent variables; and third, regressing the dependent variable on both the independent variable and on the mediator" (Baron & Kenny, 1986). However, Baron and Kenny's (1986) assessment strategy is for simple mediation, involving only one mediating or intervening variable, but not for multiple mediator models. Therefore, the multiple mediation assessment by Preacher and Hayes (2008), which involves simultaneous mediation by multiple variables, was adopted as well. In addition, the author also followed the guideline of Sobel's (1982) test, which is a test of whether the indirect effect of the independent variable on the dependent variable via the mediator is significantly different from zero.

In the first analytical step, firm performance was regressed on two capabilities at the same time as Preacher and Hayes (2008) propose. As Model 3 shows, the relationships which have been specified as H1 and H2 were statistically meaningful. In the second step, firm performance was regressed on all three dependent variables of strategic orientations. The regression results showed all strategic orientations are significantly related to firm performance in Model 4 (β= .307, p < .001; β= .201, p < .01; β= .295, p < .001; respectively). In the third step, the mediators were regressed on all three strategic orientations as Sobel (1982) proposes. As the results were shown in Model 1 and Model 2, and as H3, H4, and H5 were supported through multilevel regression tests, the relationships between three orientations and mediators were statistically meaningful. In the last step, two capabilities were loaded with all three orientations as independent variables. The results in Model 5 show that customer orientation and technology orientation were still found to still have a positive impact on firm performance but the effects of each were significantly decreased (customer orientation: .307 to .205; technology orientation: .295 to .204). Competitor orientation no longer influenced firm performance when two capabilities were loaded as predictors together, indicating the strongest demonstration of mediation occurring.

Table 5. Multilevel regression results with small-sized firms

Dependent Variables	Model 1	Model 2	Model 3	Model 3-1	Model 3-2	Model 3-3	Model 3-4
	Market Info. Mgmt.	Marketing Control	Firm Performance	Customer Satisfaction	Market Effectiveness	Profitability	Adaptability
Independent Variables							
Customer Orientation	.364 (3.844)***	.228 (2.463)*					
Competitor Orientation	.271 (2.813)**	.432 (4.576)**					
Technology Orientation	.192 (1.912)+	.175 (1.776)+					
Mediating Variables							
Market Information Management			.357 (3.619)**	.294 (2.535)*	.315 (2.971)**	.238 (1.905)+	.378 (3.519)**
Marketing Control			.388 (3.886)***	.393 (3/356)**	.362 (3.373)**	.257 (2.038)*	.316 (2.910)**
Control Variables							
Firm Age (Ln)			-.283 (-3.690)***	-.100 (-1.109)	-.294 (-3.566)**	-.304 (-3.138)**	-.257 (-3.203)**
Industry (Mnft vs. Nonmnft)			-.108 (-1.447)	-.021 (-.239)	-.155 (-1.937)+	-.111 (-1.180)	-.080 (-.988)
R^2 (Adj. R^2)	.396 (.374)	.420 (.398)	.575 (.554)	.415 (.385)	.509 (.485)	.320 (.286)	.496 (.471)
F	17.698	19.524	27.098	14.164	20.744	9.420	19.699

Notes: N = 85 (100 < Size =< 500); ***p < .001, **p < .01, *p < .05, +p < .10; Firm age was transformed by taking logarithm; Industry: Manufacturing vs. Non-manufacturing.

Table 6. Multilevel regression results with micro-sized firms

Dependent Variables	Model 1 Market Info. Mgmt.	Model 2 Marketing Control	Model 3 Firm Performance	Model 3-1 Customer Satisfaction	Model 3-2 Market Effectiveness	Model 3-3 Profitability	Model 3-4 Adaptability
Independent Variables							
Customer Orientation	.335 (3.296)**	.277 (2.679)**					
Competitor Orientation	.149 (1.421)	.043 (.686)					
Technology Orientation	.203 (1.889)+	.322 (2.948)**					
Mediating Variables							
Market Information Management			.324 (2.973)**	.376 (3.809)***	.211 (1.937)+	.237 (1.937)+	.245 (2.051)*
Marketing Control			.202 (1.865)+	.291 (2.955)**	.285 (2.625)*	.038 (.311)	.185 (1.557)
Control Variables							
Firm Age (Ln)			-.093 (-1.045)	-.006 (-.073)	-.159 (-1.975)+	-.059 (-.594)	-.080 (-.816)
Industry (Mnft vs. Nonmnft)			-.193 (-2.170)*	-.206 (-2.557)*	-.203 (-2.287)*	-.189 (-1.896)+	-.005 (-.054)
R^2 (Adj. R^2)	.313 (.290)	.290 (.267)	.304 (.273)	.428 (.402)	.304 (.273)	.124 (.085)	.161 (.124)
F	13.828	12.415	9.808	16.821	9.836	3.187	4.329

Notes: N = 95 (Size =<100); ***$p < .001$, **$p < .01$, *$p < .05$, +$p < .10$; Firm age was transformed by taking logarithm; Industry: Manufacturing vs. Non-manufacturing.

Table 7. Mediation test results

	Market Information Management		Marketing Control	Firm Performance[a]	
	Model 1	Model 2	Model 3	Model 4	Model 5
Main Effects					
Customer Orientation	.342 (4.968)***	.219 (3.106)**		.307 (4.650)***	.205 (3.059)**
Competitor Orientation	.197 (2.782)**	.220 (3.041)**		.201 (2.967)**	.122 (1.845)+
Technology Orientation	.204 (2.812)**	.275 (3.714)***		.295 (4.258)***	.204 (2.975)**
Mediating Effects					
Market Info. Mgmt.			.323 (4.250)***		.163 (2.147)*
Marketing Control			.346 (4.557)***		.212 (2.859)**
R^2 (Adj. R^2)	.343 (.331)	.314 (.302)	.362 (.354)	.398 (.388)	.466 (.451)
ΔR^2					.068 (.063)
F	30.583	26.802	50.143	38.755	30.399

Notes: N = 180; ***$p < .001$, **$p < .01$, *$p < .05$, +$p < .10$; a. Firm performance is the mean value of Customer Satisfaction, Market Effectiveness, Profitability, and Adaptability.

From the mediation analysis, both capabilities indeed acted as a mediator between strategic orientations and business performance. Specifically, they partially mediated customer orientation and technology orientation to firm performance while competitor orientation was fully mediated by two capabilities.

5. Discussion

5.1 Conclusions and Implications

The current study investigates the relationships between two marketing capabilities: market information management and marketing control and firm performance among small-scaled Korean firms. By analyzing data from 180 companies, the author finds both capabilities are proven to influence firm performance. As antecedents for two capabilities, three organizational orientations have been offered and proven to be positively related to two capabilities. However, when two group analysis has been adopted, interesting differences between small-sized firms and micro-sized firms have been found. Thus, this study delivers several meaningful substantive contributions. First, the results show a direct influence of two dimensions of marketing capability on firm performance within small-sized firms—further strengthening findings from previous studies with larger firms (e.g., Morgan et al., 2003; Shin, 2011; Vorhies & Morgan, 2005). It is recommended that small-sized firms need to invest on building capabilities although they are limited to access rich resources, in order to develop sustainable advantages. Second, for small firms with 101 to 500 employees, both capabilities are meaningful to cultivate improved firm performance. However, for micro firms with 100 or less employees, only information management capability has been positively associated with firm performance. This may imply that when a company starts its business as a micro scale, market information management is the mandatory capability. As the company grows and expends its serving market, balanced development in both capabilities are required to enhance organizational performance. Third, all three organizational orientations have been proven to have an impact on both capabilities linking to firm performance. It emphasizes the importance of developing and maintaining desirable organizational climate to strengthen the capability-firm relationship. From additional analysis, competitor orientation is found to be only impactful to firm performance among small firms, not among micro firms. Technology orientation influences marketing control capability for micro-sized companies only, implying system-oriented marketing auditing process may be critical at the initial stage of a business.

Our findings provide implications to small-sized firms in emerging countries, or at least small-scaled companies in Korea. First, firms need to cultivate market information management capability and marketing control capability to increase business performance. Especially in emerging market, due to the un-predictable economic transformation and fast changing trends in the market, firms may hesitate to invest in building their knowledge assets. In particular, small-sized firms may not consider it is one of their priorities in doing businesses. However, the study findings recommend managers and small business owners to start building their knowledge assets, which can bring sustainable competitive advantages. In addition, as the size of a firm grows, a firm may need to move its resource assignments from information management to a balanced emphasis on both capabilities to grow further. Market information management specially brings an opportunity to micro-sized firms to grow and survive through to be small-sized firms. Second, customer-oriented organizational climate is considered as the most versatile resources among all small firms. However, importance of competitor orientation increases as firms grow their sizes. Optimal and timely allocations of resources on both or either of these two strategic orientations of an organization may help the firm to successfully build its own knowledge assets and increase a chance to competitively survive through the economic transitions.

5.2 Limitations and Directions for Future Research

This study suffers from limitations despite the insights grained through the study results. First, generalizability is not justified because the findings are based on 180 small-sized firms in Korea. Second, this research has been conducted with the survey responses provided by one key informant per firm. Using multiple informants might be recommended for further research. Third, the interrelationships among strategic orientations as well as between two capabilities have not been explored for the objectives of the study. Especially, interaction effects between two capabilities may generate further understandings related to the focal constructs.

Future research might take some of the following directions. First, it would be valuable to link marketing capabilities to objective measures of firm performance such as share prices and ROI. Second, it may also be worthwhile to examine full multidimensionality of marketing capabilities including information management, planning, implementation, and control. Third, further research might explore the detailed paths of other strategic values such as entrepreneur orientation to firm performance. Lastly, further empirical investigations and precise validations are invited to explore the associations between multi-dimensional marketing capabilities and strategic orientations, especially among small-sized firms in varied economic domains.

References

Armstrong, G., & Kotler, P. (2013). *Marketing: An introduction* (11th ed.). New Jersey, NY: Prentice Hall.

Ahn, M. J., & York, A. S. (2011). Resource-based and institution-based approaches to biotechnology industry development in Malaysia. *Asia Pacific Journal of Management, 28*(2), 257–275. http://dx.doi.org/10.1007/s10490-009-9147-2

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly, 36*(3), 421–458. http://dx.doi.org/10.2307/2393203

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*, 99–120. http://dx.doi.org/10.1177/014920639101700108

Barney, J. (1995). Looking inside for competitive advantage. *Academy of Management Executive*, *9*, 49–61. http://dx.doi.org/10.5465/AME.1995.9512032192

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinct in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. http://dx.doi.org/10.1037/0022-3514.51.6.1173

Bercovitz, J., & Mitchell, W. (2007). When is more better? The impact of business scale and scope on long-term business survival, while controlling for profitability. *Strategic Management Journal, 28*(1), 61–79. http://dx.doi.org/10.1002/smj.568

Bridge, S., O'Neill, K., & Cromie, S. (1998). *Understanding enterprise, entrepreneurship and small business.* Hampshire: Macmillan Business.

Capron, L., & Hulland. J. (1999). Redeployment of brands, sales forces, and general marketing management expertise following horizontal acquisitions: A resource-based view. *Journal of Marketing, 63*(April), 41–54. http://dx.doi.org/10.2307/1251944

Day, G. S., & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing, 52*(2), 1–20. http://dx.doi.org/10.2307/1251261

Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing, 58*(4), 37–52. http://dx.doi.org/10.2307/1251915

Day, G. S. (2011). Closing the marketing apabilities gap. *Journal of Marketing, 75*(4), 183–195. http://dx.doi.org/10.1509/jmkg.75.4.183

Deakins, D. (1999). *Entrepreneurship and small firms* (2nd ed.). London, UK: McGraw-Hill Publishing Company.

European Commission. (2003). *Small and medium-sized enterprises (SMEs) What is an SME?* Retrieved from http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/

Fahy, J., Hooley, G., Cox, T., Beracs, J., Fonfara, K., & Snoj, B. (2000). The development and impact of marketing capabilities in Central Europe. *Journal of International Business Studies, 31*(1), 63–81. http://dx.doi.org/10.1057/palgrave.jibs.8490907

Galunic, D. C., & Rodan, S. (1998). Resource combinations in the firm: knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal, 19*(12), 1193–1201. http://dx.doi.org/10.1002/(SICI)1097-0266(1998120)19:12<1193::AID-SMJ5>3.0.CO;2-F

Gatignon, H., & Xuereb, J. M. (1997). Strategic orientation of the firm and new product performance. *Journal of Marketing Research, 34*(1), 77–90. http://dx.doi.org/10.2307/3152066

Greenley, G. E., Hooley, G. J., & Rudd, J. M. (2005). Market orientation in a multiple stakeholder orientation context: Implications for marketing capabilities and assets. *Journal of Business Research, 58*(11), 1483–1494. http://dx.doi.org/10.1016/j.jbusres.2004.07.004

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (1999). *Strategic management competitiveness and globalization* (3rd ed.)*.* Cincinnati, OH: South-Western College Publishing.

Hult, G. T., Ketchen, D. J. Jr., & Slater, S. F. (2005). Market orientation and performance: An integration of disparate approaches. *Strategic Management Journal, 26*(12), 1173–1181. http://dx.doi.org/10.1002/smj.494

Hunt, S., & Morgan, R. (1995). The comparative advantage theory of competition. *Journal of Marketing, 59*(1),

1–15. http://dx.doi.org/10.2307/1252069

Ibrahim, A. B., & Goodwin, J. R. (1986). Perceived causes of success in small business. *American Journal of Small Business, 11*(2), 41–50.

Jackson, G. (2001). The origins of nonliberal corporate governance in Germany and Japan. In W. Streeck & K. Yamamura (Eds.), *The origins of nonliberal capitalism: Germany and Japan compared* (pp. 121–170). Ithaca, NY: Cornell University Press.

Kaplan, R. S., & Norton, D. P. (1996). Using the balanced scorecard as a strategic management system. *Harvard Business Review*, January-February, 75–85.

Korea Small & Medium Business Administration. (2012). *New guidelines for small businesses.* Retrieved from http://www.smba.go.kr/kr/public/criteria_scope.do?mc=usr0001086

Lee, S., Yoon, S., Kim, S., & Kang, J. (2006). The integrated effects of market-oriented culture and marketing strategy on firm performance. *Journal of Strategic Marketing, 14*(3), 245–261. http://dx.doi.org/10.1080/09652540600825548

Madhavan, R., & Grover, R. (1998). From embedded to embodied knowledge: New product development as knowledge management. *Journal of Marketing, 62*(4), 1–12. http://dx.doi.org/10.2307/1252283

McCartan-Quinn, D., & Carson, D. (2003). Issues which impact upon marketing in the small firm. *Small Business Economics, 21*, 201–213. http://dx.doi.org/10.1023/A:1025070107609

McEvily, S. K., & Chakravarthy, B. (2002). The persistence of knowledge-based advantage: an empirical test for product performance and technological knowledge. *Strategic Management Journal, 23*(4), 285–305. http://dx.doi.org/10.1002/smj.223

Miller, D., & Shamsie, J. (1996). The resource-based view of the firm in two environments: the Hollywood film studios from 1936 to 1965. *Academy of Management Journal, 39*, 519–543. http://dx.doi.org/10.2307/256654

Morgan, N. A., Vorhies, D. W., & Mason, C. H. (2009). Market orientation, marketing capabilities, and firm performance. *Strategic Management Journal, 30*(8), 909–920. http://dx.doi.org/10.1002/smj.764

Morgan, N. A., Clark, B. H., & Gooner, R. A. (2002). Marketing productivity, marketing audits, and systems for marketing performance assessment: integrating multiple perspectives. *Journal of Business Research, 55*(5), 363–375. http://dx.doi.org/10.1016/S0148-2963(00)00162-4

Morgan, N. A., Zou, S., Vorhies, D. W., & Katsikeas, C. S. (2003). Experiential and informational knowledge, architectural marketing capabilities, and the adaptive performance of export ventures: A cross-national study. *Decision Sciences, 34*(2), 287–321. http://dx.doi.org/10.1111/1540-5915.02375

Narver, J., & Slater, S. (1990). The effect of a market orientation on business profitability. *Journal of Marketing, 54*(4), 20–35. http://dx.doi.org/10.2307/1251757

Nunally, J. (1978). *Psychometric Theory*. New York, NY: McGraw-Hill.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891. http://dx.doi.org/doi: 10.3758/BRM.40.3.879

Ruekert, R. W., Walker, O. C. Jr., & Roering, K. J. (1985). The organization of marketing activities: A contingency theory of structure and performance. *Joumal of Marketing, 49*(Winter), 13–25. http://dx.doi.org/10.2307/1251172

Sashittal, H. C., & Tankersley, C. (1997). The strategic market planning-implementation interface in small and midsized industrial firms: An exploratory study. *Journal of Marketing Theory & Practice, 5*(3), 77–92.

Shin, S. (2012). Decomposed approach of market orientation and marketing mix capability: Research on their relationships with firm performance in the Korean context. *International Business Research, 5*(1), 22–33. http://dx.doi.org/10.5539/ibr.v5n1p22

Sobel, M. D. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.

Su, Y. S., Tsang, E. W., & Peng, M. W. (2009). How do internal capabilities and external partnerships affect innovativeness? *Asia Pacific Journal of Management, 26*(2), 309–331. http://dx.doi.org/10.1007/s10490-008-9114-3

US Small Business Administration. (2013). *Summary of size standards by industry.* Retrieved from http://www.sba.gov/content/summary-size-standards-industry

Verwaal, E., Bruining, H., Wright, M., Manigart, S., & Lockett, A. (2010). Resources access needs and capabilities as mediators of the relationship between VC firm size and syndication. *Small Business Economics, 34*, 277–291. http://dx.doi.org/10.1007/s11187-008-9126-x

Vorhies, D. W. (2003). A configuration theory assessment of marketing organization fit with business strategy and its relationship with marketing performance. *Journal of Marketing, 67*(1), 100–115. http://dx.doi.org/10.1509/jmkg.67.1.100.18588

Vorhies, D. W., & Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing, 69*(1), 80–94. http://dx.doi.org/10.1509/jmkg.69.1.80.55505

Wiklundi, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal, 24*, 1307–1314. http://dx.doi.org/10.1002/smj.360

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, *12*(3), 341–352. http://dx.doi.org/10.1086/208520

Zhou, K. Z., & Li, C. B. (2010). How strategic orientations influence the building of dynamic capability in emerging economies. *Journal of Business Research, 63*(3), 224–231. http://dx.doi.org/10.1016/j.jbusres.2009.03.003

Zhou, K. Z., Yim, C. K., & Tse, D. K. (2005). The effects of strategic orientations on technology- and market-based breakthrough innovations. *Journal of Marketing, 69*(April), 42–60. http://dx.doi.org/10.1509/jmkg.69.2.42.60756

Research on the Synergetic Mechanism Rooted in the Interest Stakeholders of China's Urban Modern Agriculture

Fuping Zhang[1], Nan Zhou[1], Xin Wang[1], Bo Wang[1], & Yuneng Du[2]

[1]The School of Public Affairs, University of Science and Technology of China, China

[2] College of Economics & Management, Anhui Agricultural University, China

Correspondence: Nan Zhou, the School of Public Affairs, University of Science and Technology of China, Hefei, China. E-mail: munan11@mail.ustc.edu.cn

Abstract

As a part of modern agriculture, urban modern agriculture gains a worldwide focus, and lots of large cities treat urban modern agriculture as development direction. This study use Beijing for instant, discussed the cooperation actuality among the interest stakeholders. Though the analysis of the benefit imbalance, the disorder, nonlinear, diversity, and correlation were found in the current situation. Finally, a few proposals were put forward to the China's urban modern agriculture development.

Keywords: urban modern agriculture, interest stakeholders, cooperative phenomena, interest synergetic

1. Introduction

1.1 Background

How to develop urban modern agriculture is a worldwide focused issue, which attracted lots of attention by agricultural managers and researchers. Started at 1930s, urban modern agriculture first appeared in Japan, Europe and America, and the concept of urban modern agriculture were treated as a research objective after 1980s. In China, Beijing first established its urban modern agriculture development strategy in the beginning of 1990s, and nowadays, 80% of Chinese large cities have launched and implemented urban modern agriculture development strategy. Beijing's modern agriculture has gained great achievements, and leads the agriculture industry in China. The rudiment of a modern agricultural industry has been built in Beijing. However, some important issue still need further attention, especially the cooperation and benefit distribution, which impact the stability and synergy of the interest stakeholders.

1.2 Literature Review

Urban agriculture is highly related with agricultural productivity progress, urban economy development, social evolution, and culture prosperity. The origin of the urban agriculture is the concept of "Metropolitan agriculture" (Ebnezer, 1989). With the world modernization process, the widely usage of science and technology emerged in the agriculture industry, and scale operation, mechanization, intensification, and marketization became the symbols of the agriculture (ACIL Tasman Pty Ltd., 2009). Urban agriculture and modern agriculture merge together with the same characteristics, so that the urban modern agriculture always located at the suburban area or included in the metropolitan economic circle (Bachev, 1996). The driven forces of the urban modern agriculture are mainly related with the high-tech, green ecological, tourism, and export orientation. Mechanization, factorization, and industrialization have promoted the agriculture productivity effect, agricultural product diversification, and the regional ecological environment optimization, which lead to the integration of agriculture, industry and service. The academic circles called this kind of multicultural industry "urban modern agriculture" (Barnet et al., 1995). Nowadays, "urban modern agriculture" not only attracts the world research's attention, but also stimulates the ordinary people's curiosity. The related study on this issue could be summarized from those following aspects:

Economic geography and economics: Scholars in this field argue that urban population aggregation will definitely cause the increase of the resources consumption, especially the agriculture resources (Christpoher, 1992). While the urban modern agriculture activity can upgrade the urban development to a large extent by not only promoting the city running efficiency, but also improving the living environment and comfort level, so that

the government should highly support the urban modern agriculture development (Conway, 1986; David & Tim, 2009).

Urbanology and ecology: Scholars in this field argue that there should be some green land and agricultural garden around the metropolis, so that the residents who lived in the crowded city could have space to relax, and those areas could also be an important supplement to the urban development (Fare et al., 1992). When the urban planning is executed, the proportion of the urban land and rural land should be keeping at an appropriate rate, which can not only support the city retain a healthy and efficient development, but also keep supply continuous power to the urban sustainable development (Vnader, 2002). The urban sustainable development cannot retain without agriculture, while the urban modern agriculture can play a positive role in urban biodiversity and environment improvement.

Sociology: Because of the rapid progress of the urbanization, the rural residents are getting closed to the center of the cities, while the farmers comparatively lack of enough knowledge and technology skill, which induce that famers are less competitive compare to the urban residents (Takawira, 2003). Obviously, urban modern agriculture can provide the farmers who flow into the cities important buffer area and channel (Gail & Mike, 2003), and build the social labor pool (Pablo, 2000; Smith, 1996)

"Stakeholder Theory" initialed as "ST" came from management science, which originated from a kind of cooperation concept prevailed in 1960s. In 1963, Stanford Research Institute firstly created this word "Stakeholder". In 1984 Milton Friedman established the "Stakeholder Theory", and this theory has been started to use in enterprise management. Friedman argue that stakeholder theory refer to the activities of enterprise manager who comprehensively balance the benefit among the stakeholders, who are highly related with the Enterprise production and management behavior especially the business performance. Since then, the "Stakeholder" and "Stakeholder Theory" have been focused by both scholars and also businessmen, and even widely used in many areas like economics, management science, business ethics, legal science, and sociology. Nowadays the "Stakeholder Theory" has become an important economic theory. In this theory, stakeholders are restricted by other economic entity or person, nobody could arbitrarily extent benefit by offend other's interest, only if all the stakeholders cooperate each other and coordinate their benefit distribution.

2. Definition of Stakeholders in Beijing Urban Modern Agriculture Industry

Stakeholder refer to the multiple economic benefit relationship exist in the certain institution, organization, environment, and this kind of relationship include direct and indirect form. Regarding to an organization, a stakeholder was supposed as any related individual or group. The agricultural industry now became a crucial factor with big impact to the national welfare and people's livelihood. In Beijing urban modern agriculture system, farmers, consumers, government, and agricultural product processing enterprise, are all closely linked. Although almost all the people in the urban cycle are related with urban modern agriculture, the stakeholders should only be the main part or highly representative organizations. Based on these hypotheses, this study took urban modern agriculture in Beijing as an instant, and focused on the interest stakeholders and their interest synergetic mechanism in China urban modern agriculture industry. Four kinds of stakeholders were defined as "government", "agricultural enterprise", "research institution" and "farmer".

3. Current Situation of Stakeholder Cooperation in Beijing Urban Modern Agriculture Industry

In the development of Beijing urban modern agriculture industry system, stakeholders are interactive, and have individual sole benefit objective. The interest demands of stakeholders are always different, which is a kind of interactive game relationship. The core of conflict is the demand of the distribution of resources or benefit, and all of the stakeholders want their resources and benefit maximization. In the following paragraphs, the stakeholder relationships were analyzed in pair.

3.1 Government and Agricultural Enterprise

In the development of Beijing urban modern agriculture industry, government will consider the coordinated development of economy, society, culture, environment, and focus on the unity of economic benefit, the social benefit and ecological benefit. While agricultural enterprise is a kind of profit-making organization, the profit and self-interest is the starting point and final objective. The enterprise will choose its business behavior according to utility maximization principle, and to enhance its economic returns and other benefit. These two different objectives sometimes caused problems, for example, the government may over interfere in the enterprise business behavior, or inadequately support.

On one hand, government sometimes push the agricultural enterprise provide price lower than the free market to the farmers, or let the agriculture enterprise to take excessive social burden. These government behaviors could

badly influence the business of agricultural enterprise, and make the enterprise suffer losses, which may damage the government credibility and the development of Beijing urban modern agriculture. On the other hand, the duty that needs government attention sometimes hasn't accomplished well, because of the nonstandard government decision-making process or democratic supervision procedures. In addition, the high tax, land occupancy charge, and incidentals impel the risen of the agriculture enterprise running cost, which is negative to the agriculture enterprise competitiveness. Obviously, the government should improve its work in Beijing urban modern agriculture development.

3.2 Government and Farmers

For a longtime, Beijing municipal government have paid high attention to the agriculture investment, and farmer support. The municipal government adhere to provide financial subside, price support, tax deduction, education coverage, social insurance, and infrastructure construction. However, from a practical perspective, some problem still exits like less investment, too much restriction and insufficient service. The farmers in the remote mountainous area still cannot get enough help, and in statistic the proportion is around 30%.

In the aspect of agricultural land use, the communication between government and farmer is not sufficient, the option right, right to know, participation rights are ignored. The land use property of famer often encroached or deprived, and toll breakdown sometimes happen, which arouse farmers' strong resistance. These wrong behaviors of government are negative to the Beijing urban modern agriculture. While as the main subject of agriculture industry, farmers' interest demand embody in the agriculture land output and government subsidy. When farmers feel their self-interest space is threatened or violated, they will preserve the rights through applying for an audience with the higher authorities to appeal for help, or even confront the municipal government. However, based on self-interest, the famers will spontaneously discover rural resources and infrastructure construction, and because of organize insufficiency, these discoveries belong to extensive growth, destructive exploitation, and ruined the agricultural resources and ecological environment.

3.3 Government and Research Institution

Problems also exist in the relation of government and research institution. First issue is scientific research funding problem. Agricultural research institution always service the weak industry, who always lack fund, and government support to the agricultural research institutions sometimes not enough. So that agricultural research institution constantly supplies free service to the farmers, which induce the motivation shortage and discontinuity of guidance. Second issue is policy environment and policy system problem. Recently, the Beijing municipal government successively issued a few documents in talent cultivation, science and technology investment, technology project support, but the documents and regulation in finance, taxation, land, and credit are imperfect. For example, the policy support in children of migrant workers in cities, poor agricultural students allowance, and new type farmers are not strong enough. In the aspect of new rural practical scientific research projects, there still exists lack protection of intellectual property, technology consulting, and capital assess evaluation, these problems hinder the agricultural science and technology achievements transformation of continuous development.

3.4 Agricultural Enterprise and Farmers

Agricultural Enterprise and Farmers are both individual stakeholders in the market economy system, and they both operate their business according to the criteria that maximize their benefits. In order to acquire high quality raw material and decrease the transaction cost, the enterprise initiatively establish agricultural trade relationship with the farmers. The forms of cooperation can be transfer profit from agricultural enterprise to farmers, serving the farmers freely, purchasing agricultural products at protected prices, or dividing the net income according the contact.

However in the benefit distribution aspect, agricultural enterprise and farmers are unequal in economic and social status, the benefit connection mechanism between the standardization and institutionalization is not strong enough. Firstly, to the agricultural enterprise, they will support the famers only if their business will not be negatively influenced and get enough profit. Secondly, the enterprise-style management and traditional tillage method are conflicting, so that traditional farmers are hard to reach the demand of the agricultural enterprise, and also hardly to share the value-added profits. Only use the cooperative economic organization, famers can improve the bargaining position and defend the risk of the market. In addition some agricultural enterprises sometimes make unfair contracts to farmers, and meanwhile some farmers also make malicious breach of contract, or both of them fail to fulfill the contract, which are harmful to both sides. Furthermore, agricultural enterprises sometimes ruin the local ecosystem and environment, and farmers always became the sufferer of this kind of damage.

3.5 Agricultural Enterprise and Research Institution

The curial contradiction in agricultural enterprise and research institution is imbalance between supply and demand. Firstly, from the positive perspective, research institution inclines to cooperate with the agricultural enterprise in order to seek the high added value brought by scientific and technological achievements. While the cooperation of agricultural enterprise and research institutions neither can raise the economic benefit in short while, nor can gain fund support or tax deduction, so that agricultural enterprise always reluctant to be involved in the cooperation. From the demand and supply of scientific achievements perspective, the research activities are not driven by the market economy, cannot provide practical, proper, low risk, high efficient scientific achievement, so that the achievement conversion rate is low. In order to reduce R&D investment, agricultural enterprises generally incline to buy the scientific achievement directly but not to cooperate, and the reason is the payment that enterprise willing to pay always much lower than the research institutions' expect. In addition, from technical reliability and controllability perspective, research institutions prefer self-develop scientific achievement compare to cooperation, and totally get the future profit. With regard to the sized enterprises, those companies have self-ability to do R&D, which induce the reluctant cooperation with research institutions. In the meanwhile, some small scale, low powerful companies incline to introduce mature "Market-oriented products", so they usually don't willing to fulfill the commercialization of research findings, and also cannot afford. Finally, in demand and supply of agriculture scientific-technology talents, the shortage of professional stuff become more and more serious, to the contrary, the graduates in colleges and universities is hard to find jobs they want. Influenced by the old system and opinion, the service consciousness of research institutions is not strong, and agricultural science and technology talent cultivation system cannot meet the need of the reality. In the other hand, the fresh graduates job choosing concept are not mature, some of them despise the rural and agricultural work, and lack of practical experience.

3.6 Research Institutions and Famers

With the rapid development of Beijing modern agriculture, the market awareness and right consciousness of farmers have been enhanced. Simultaneously, with the benefit expression channel became completed, the famers are eager to personalized, diversified services, and service content requires universality and hierarchy. However, research institutions are hard to meet the needs of Beijing suburb farmers in diversity of agricultural modernization and information-based services, so that supply gap of education, science and technology, and talents became even bigger and bigger.

From the aspect of service coverage proportion, nowadays, there are still 30% of the farmers cannot get relevant agricultural science and technology supporting services in Beijing. The ways that farmers obtain information mainly rely on old media like oral spreading and light box advertising, and only 20% famers use modern methods to acquire information. From the data released by the local government, only 80% villages in Beijing still haven't established science and technology service stations. In the civil servants aspect, the current number of rural civil servants are not enough and unstable, and generally the personnel qualification and professional title are generally low, which cannot meet the demand of famers. In addition, research institutions haven't provide timely technic help, and lack of supporting service skills. Actually, the talents trained by the research institutions always flow into the urban not rural areas, and farmers haven't sufficient channel to promote their technic skill, so the gap between the research institutions and famers became even bigger.

4. Problems Analysis of Stakeholders in Beijing Urban Modern Agriculture Industry

In terms of cooperation actuality about stakeholders in Beijing urban modern agriculture industry mentioned in previous chapter, noteworthy is the fact that the cooperation among stakeholders show at least four traits, such as disorder, nonlinearity, diversity and correlation.

4.1 Disorder

Although these interacted and interdependent stakeholders in urban modern agriculture industry constitute the system of urban modern agriculture industry, they don't belong to this system absolutely, but participating in it due to other interest demands and conditions. From the horizontal perspective, all kinds of stakeholders possess complexity, messy and disordered demands, nonidentity interests of all elements, and they can't substitute with each other, even the opposite; from the longitudinal perspective, with the development of urban modern agriculture industry, these stakeholders having different standpoints and thoughts show varying interests and viewing angles. For instance, if the perspectives change, the entire interest-chain of the system in the urban modern agriculture industry can also modify. Therefore, the operating circumstance of the urban modern agriculture industry displays uncertainty and disorder to some extent.

4.2 Nonlinearity

The construction of the urban modern agriculture industry not only value long-term interests, but current interests; not only economic benefits, but social interests; not only the overall interests, but the individual efficiencies. The developing process is viewed as dynamic and fickle. Therefore, the connection and influence among all the stakeholders are nonlinear. The function, target and effect of these stakeholders in the urban modern agriculture industry are entirely different and irreplaceable. The behaviors as well as their models are all influenced by others. Under the condition of the uncertainty and pursuing their own maximal interests, the inconformity of the interest disparity and the objective function of these stakeholders give rise to a more conspicuous complexity and nonlinearity among all the stakeholders. Not only can the nonlinear effect bring the positive effect for the urban modern agriculture industry, but also the negative effect which can be thought massive and long term.

4.3 Diversity

The construction for the urban modern agriculture industry involves different stakeholders, such as government, agricultural enterprise, research institution as well as farmers; the combination with the arrangement, economy, society and marketing philosophy; the connection of policy, raising capital, circulation and issues of agriculture, farmer and rural area. Multiple interest demands and conflicts are generated due to various positions, ideas and dynamic changes on stakeholders.

4.4 Correlation

Interest demands among stakeholders demonstrate diverse. Because these stakeholders are the important factor in the system of the urban modern agriculture industry, their interest demands display relevance (even the coherence). When the interest conflicts occur, they can perform the correlation in the interest game. As a result, the relationships among the stakeholders transfer unceasingly.

5. Conclusions

The interests among stakeholders in the development of urban modern agriculture industry are inconsistent. Their relationships are a kind of interaction and game. The essence of conflict can be thought an interest demand for resources division and renewal distributions. Each one strive for a further optimization about resources quantity and structure of their own. The urban modern agriculture industry of Beijing includes four stakeholders, which are government, agricultural enterprise, research institution and farmers. The condition of their cooperation affects the development of Beijing's urban modern agriculture industry. At present, there exists imbalance in the aspect of synergetic relationship and interest distribution among all the stakeholders in the urban modern agriculture industry of China. In the system of the entire urban modern agriculture industry, they represent disorder, nonlinearity, diversity and correlation. These problems should be paid more attention.

As promoting the urban modern agriculture industry, it is pressing to coordinate the relationship among stakeholders to guarantee their synergetic, high efficient, well-organized and reasonable development Only by establishing a kind of synergetic developing system, ensuring its normal and steady operating, obtaining relevant balance through repeating games among stakeholders, can we maintain harmonious and healthy development situation.

Though the paper finds and summarizes the problems with respect to the development of the urban modern agriculture industry in order to provide some reference experience, deep synergetic analysis about stakeholders are not launched. In the future researches, on one hand, we should make a further investigation to acquire more abundant materials; on the other hand, we need to measure the synergy of concrete stakeholders to construct effective solving models by using some quantitative methods.

References

ACIL Tasman. (2009). *Agriculture and GHG mitigation Policy: options in addition to the CPRS*. Report for Victorian Department of Primary Industries and Industry and Investment NSW.

Bachev, H. (2004). *Efficiency of agrarian organizations*. Available at SSRN 903483. http://dx.doi.org/10.2139/ssrn.903483

Barnet, V., Johnston, A. E., Landau, S., et al. (1995). Sustainability: the Rothamsted experience. In Barbett, V. R., & Steiner, R. (Eds.), *Agricultural Sustainability: Economic, Environmental and Statistical Considerations* (pp. 171–206). Chichester, UK: Wiley.

Christpoher, R. B., & Thomas, R. R. J. (1992). *Agriculture in the city's countryside*. London: Belhaven Press.

Conway, G. R. (1986). *Agroecosystem analysis for research and development*. Bangkok: Winrock International.

David, B., & Tim, J. (2009). *Greenhouse Gas Reduction Policies and Agriculture: Implications for Production Incentives and International Trade Disciplines*. ICTSD-IPC Platform on Climate Change, Agriculture and Trade, August.

Ebenezer, H. (1984). *Garden cities of tomorrow*. Harvard University Press.

Fare, R., Grosskopf, S., Linderdgren, B., et al. (1992). Productivity changes in Swedish pharmacies 1980–1989: A nonparametric Malmquist approach. *Journal of Productivity Analysis*, *3*(1/2), 85–101. http://dx.doi.org/10.1016/0925-5273(94)00063-G

Gail, S., & Mike, M. (2003). Facilitating land access for the Copperbelt's periurban farmers. *Urban Agriculture Magzanie*, *1*, 34–36.

Pablo, T. L. (2000). Mexico City: the integration of urban agriculture to contain urban sprawl. In Bakker, N., Dubbeling, M., Gündel, S., Sabel-Koschella, U., & Zeeuw, H. (Eds.), *Growing cities. Growing Food*. Eurasburg: Proff Offsetdruck.

Smith, P., Martino, D., Cai, Z., Gwary, D., Jan-zen, H., Kumar, P., MeCarl, B., Ogle, S., Ogle, F., Mara, C., Rice, B., Scholes, O. (2007). Agriculture. *Climate Change: Mitigation. Contribution of working Group to the Fourth Assessment Report of IPCC*. Cambridge, UK & New York, NY: Cambridge University Press.

Takawira, M., Shingirayi, M., & Rene, V. V. (2003). Availabity, access and usability of land for urban agriculture. *Agriculture Magzanie*, *1*, 1–3.

Hayo, M. G. van der W., & Jean, P. (2002). Evaluation of the environmental impact of agriculture at the farm level: a comparison and analysis of 12 indicator-based methods. *Agriculture, Ecosystems and Environments, 93*, 131–145. http://dx.doi.org/10.1016/S0167-8809(01)00354-1

Copyrights

Dynamic Lot Optimization of Assembly Supply Chain with Delivery Time Constraint

Shuang-yan Li[1], De-zhi Zhang[2] & Fang-ping Jin[2]

[1] College of Transportation and Logistics, Central South University of Forestry and Technology, China

[2] School of Transportation Engineering, Central South University, China

Correspondence: De-zhi Zhang, School of Transportation Engineering, Central South University, 410075, China. E-mail: dzzhang@csu.edu.cn

Abstract

In this paper, we investigate operational decision optimization problem of assembly manufacturing capacitated supply chain. Open equations of this system in all planning periods are set up. Delivery time to clients form a time window that limits point to assembly manufacturer delivery start and end time. The system model divide planning time into many equally periods, and decisions can vary with time. Ability constraint in the process of supply chain operation, time constraints and assembly production constrain are all considered in the inventory control dynamic batch optimization model. We solve the optimization problem by hybrid mixed integral optimization and SQP algorithm. At last, we examine a set of numerical examples that reveal the insights into the dynamic inventory control policy and the performance of such an assembly type inventory mode.

Keywords: dynamic optimization, delivery on time, SQP algorithm

1. Introduction

Assembly manufacturing enterprises are different from processing production enterprises, because their products are composed by a variety of component which has a strict assemble relationship, that's why no component are allowable to be missing when it comes to assemble. It is also different from daily goods production enterprise. Because backlog penalty is serious, delivery in time is the primary goal of assembly manufacturing enterprises. For customer generally requiring delivery should be finished before the deadline, delivery is a window time constraint type. So the supply chain operation optimization is to minimize the whole operation cost while fulfill orders in time. Decision optimization to meet the requirement of the assembly manufacturing enterprise supply chain is also a practice problem.

2. Literature Review

In assembly manufacturing supply chain optimization, the ratio of components in the assembly process according to bill of material must be considered. An assembly manufacturing supply chain includes several components. The key issue in an assembly system is the coordination of the components, while the key issue in a distribution system is the allocation of the component among the products. An ATO system combines the elements of assembly and distribution, and resolves both coordination and allocation issues. This makes the ATO systems difficult to analyze, design, and manage (Song & Zipkin, 2003).

Dan et al. (2007) solved the problems of optimization arranging job sequences of a supplier and a manufacturer in a three-stage supply chain. A cooperative batch scheduling model with due windows was established for collaborative decision-making between the supplier and the manufacturer. The objective is to minimize the overall logistics and delivery cost, which include the costs of inventories, transportation and penalties without delivery in time across the supplier and the manufacturer.

There are many literatures about delivery constraint production and transportation planning problems. The dynamic lot-sizing can be divided into two categories as refer to uncapacitated problem (Aggarwal & Park, 1993; Federgruen & Tzur, 1991) and capacitated version (Anily, Tzur & Wolsey, 2009; Van Hoesel & Wagelmans, 1996). With system collaborative operation, the time of delivery time is a interval period rather than a point time that known as the delivery time window. (Lee, Çetinkaya & Wagelmans, 2001) studied the dynamic lot-sizing problem with demand time windows and provides polynomial time algorithms for computing its solution. If

shortages are not allowed, the complexity of the proposed algorithm is O (T2). When backlogging is allowed, the complexity of the proposed algorithm is O (T3). Jaruphongsa and Lee (2008) consider speculative costs and given a optimal algorithm based (Lee, et al., 2001). They researched lot optimization with delivery tine windows in which production are transported by container and cost of transportation is incurred. A polynomial time algorithm suggested for the problem in which every time window is not strictly covered with other time windows.

Classical dynamic lot-sizing problem by considering production capacity constraints as well as delivery and/or production time windows was summarized (Hwang, Jaruphongsa, Çetinkaya & Lee, 2010). They used an untraditional decomposition principle. They developed a polynomial-time algorithm for computing an optimal solution for the problem under the assumption of non-speculative costs. The proposed solution methodology is based on a dynamic programming algorithm. And two new mixed integer programming models for capacitated multi-level lot-sizing problems with backlogging, whose linear programming relaxations provide good lower bounds on the optimal solution value (Wu, Shi, Geunes & Akartunalı, 2011).

In fact, economic lot and delivery scheduling problem for a multi-stage supply chain comprising multiple items is complex. It is required to develop a synchronized replenishment strategy, and specify the sequence of production and the replenishment cycle time that achieves synchronization through the supply chain at minimum cost (Osman & Demirli, 2012).

The problem to cooperate multiple levels decision of a supply chain is important. It is well known that coordination members of supply chain can lead to benefits for whole supply chain. And that optimising single stage alone may not be sufficient for an enterprise. So, more and more scholars has studied on cooperation of whole supply chain, rather than a single stage. Kim, T., & Glock, C. H. studied the case of a multi-stage supply chain where equal- and unequal-sized batches are transported between the stages and where penalty costs are imposed for long lead times. Unlike earlier works, They did not restrict the number of stages to a given value, but rather analyses a general case of the model (Kim & Glock, 2013). Glock, C. H. reviewed lot-size models which focus on coordinated inventory replenishment decisions between buyer and vendor and their impact on the performance of the supply chain. These so-called joint economic lot size (JELS) models determine order, production and shipment quantities from the perspective of the supply chain with the objective of minimizing total system costs (Glock, 2012).

3. Optimization model with delivery time constraint

As shown in figure 1, first stage nodes indicate suppliers who process and supply all needed components for manufacturers. Second stage node is manufacturer who assemble different components whose quantity in accordance with assembly ratio. And finished products are sent to the third stage nodes (i.e., customers). The supply chain system has delivery time constraint and capacity constraint.
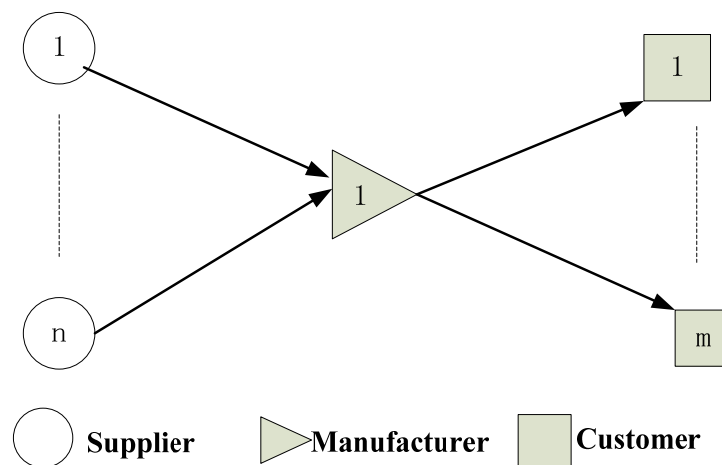

Figure 1. Three-stage supply chain structure diagram of assembly manufacturing

Planning time L is from order accept time T_{str} to delivery time T_{end}. Manufacturer must finish and delivery product to customers before T_{end}. L is discrete into k equivalent intervals that are minimum common divisor of the various types of nodes' cycle length. Constructing k simultaneous equations for every interval is modeling approach in this paper. It will be in the form of differential non-linear equations

The decision variables are including the processing production lot and component inventory level of each supplier for every interval, and the assembly lot, component inventory level, finished-product inventory level of the manufacturer, and the dispatch volume between different stage nodes every interval. The input parameters are including the boundary of the decision variables, transportation capacity, Storage capacity, Single-trip transportation cost, component and finished product holding unit cost per unit time, production prepare cost per unit time. In the process of supply chain operation, there are non-linear equations reflect the relationship between the variables. Each intermediate node amount of input and output must be equal. And various components in the assembly must meet the ratio constraint and delivery constraint.

The symbol definition is as follows:

IS_i^k Inventory level of suppliers i in the kth interval, i=1,2…n.

PS_i^k Whether suppliers i processing production i in the kth interval which is 0-1 variable, where i=1,2…n..

IPS_i^k Component quantity that suppliers i production i at the start of the kth interval.

QPS_i^k Component quantity that suppliers i production i at the end of the kth interval.

TS_i^k Whether supplier i deliver goods to manufacturers in the kth interval which is 0–1 variables.

QTS_i^k Component quantity that supplier i sent to the manufacturers in the kth interval i.e. freight volume.

IMS_i^k Inventory level of component i in the kth interval of manufacturer.

PM^k Whether manufacturer assemble product in the kth interval, which is 0–1 variables.

$PINS_i^k$ The ith component quantity that manufacturer assembles in the kth interval.

$MS_i^{k_i}$ The ith component quantity accepted by manufacturer in the kth interval after transportation.

λ_i The ith component quantity needed of single finished product.

IF^k Manufacturer's finished product inventory in the kth interval.

$IPOUT^k$ Product's quantity that manufacturers assembled in the kth interval.

TM_j^k Whether manufacturer sent finished products to the jth customer in the kth interval which is 0–1 variables, where j=1,2…m.

The QTM_j^k finished product quantity that manufacturers send to the jth customers in the kth interval.

$\sum_{j=1}^m TM_j^k$ The total finished product quantity that manufacturers sent to all customers, where m is the number of customers.

TWS$_j$ The start time of the jth customer can accept product.

TWE$_j$ The deadline time of the jth customer can accept product.

ID_j^k The jth customer's inventory level in the kth interval..

Mdelay$_i$ Transportation time between manufacturer and the ith supplier.

Mdelay$_i$ Transportation time between manufacturer and the jth customer.

D$_j$ The jth customer order quantity, j=1,2…m.

cp$_i$ Single production preparation cost per unit time of supplier;

cm Single assembly preparation cost per unit time of manufacturer

ct$_i$ Transportation cost from the ith supplier to manufacturer.

ct$_j$ Transportation cost from manufacturer to customer j.

cis$_i$ Unit component inventory cost per unit time of supplier i .

cms$_i$ Unit component i inventory cost per unit time of manufacturer.

cmf Unit finished product inventory cost per unit time of manufacturers.

cdf$_j$ Unit component inventory cost per unit time of customer j.

cps_i Supplier i's maximum production ability.

cpm The manufacturer's maximum assembly capacity.

$isca_i$ The maximum capacity that supplier i can hold .

$imsca_i$ The maximum component i's quantity that manufacturer can hold .

im Finished product's quantity that manufacturer can hold .

ca_i Capacity of transport car from supplier i to manufacturer.

ca_j Capacity of transport car from manufacturer to customer j.

$delay_i$ The time of supplier i's processing single component .

delaym Manufacturer's assembly single production time.

So the goal of the system is to minimize the overall three stage supply chain operation cost of the planning period.

$\min F\cos t$

$$F\cos t = \sum_{i=1}^{n}\sum_{k=1}^{TWE} cp_i * PS_i^k + \sum_{k=\max(Mdelay_i)}^{TWE} cm * PM^k + \sum_{i=1}^{n}\sum_{k=1}^{TWE} cis_i * IS_i^k + \sum_{k=\min(Mdelay_i)}^{TWE_i} cms_i * IMS_i^k + \cdots +$$ (1)

$$\sum_{k=\min(Mdelay_i)}^{TWE_i} cmf * IF^k + \sum_{j=1}^{m}\sum_{k=TWS_i}^{TWE_j} cdf_j * ID_j^k + \sum_{i=1}^{n}\sum_{k=1}^{TWE} ct_i * TS_i^k + \sum_{j=1}^{m}\sum_{k=1}^{TWE} ct_j * TM_j^k$$

S.t.

$$IPS_i^k = QPS_i^{k+delay_i}, \qquad i=1,2\cdots n$$ (2)

$$IS_i^k = IS_i^{k-1} + QPS_i^k - QTS_i^k, \quad i=1,2\cdots,n$$ (3)

$$QTS_i^k = MS_i^{k+Mdealy_i}, \qquad i=1,2\cdots,n$$ (4)

$$IMS_i^k = IMS_i^{k-1} - PINS_i^k + MS_i^k, \quad i=1,2\cdots,n$$ (5)

$$\frac{PINS_1^k}{PINS_i^k} = \frac{\lambda_1}{\lambda_i}, \qquad i=1,2\cdots,n$$ (6)

$$PINS_1^k = \lambda_1 POUT^{k+delaym}$$ (7)

$$IF^k = IF^{k-1} + POUT^k - \sum_{i=1}^{n} QTM_i^k$$ (8)

$$ID_j^{k+Ddelay_i} = QTM_j^k \qquad j=1,2\cdots m$$ (9)

$$QTM_j^k = 0, \quad k \prec TWS_i, \qquad j=1,2\cdots,m$$ (10)

$$\sum_{k=TWS_i}^{TWE_i} QTM_j^k = D_j, \quad j=1,2,\cdots m$$ (11)

$$IPS_i^k \leq cps_i, \qquad i=1,2\cdots n$$ (12)

$$PINS_i^k \leq \lambda_i cpm, \quad i=1,2\cdots n$$ (13)

$$IS_i^k \leq isca_i, \quad i = 1,2 \cdots n \tag{14}$$

$$IMS_i^k \leq imsca_i, \quad i = 1,2 \cdots n \tag{15}$$

$$IF^k \leq imf \tag{16}$$

$$QTS_i^k \leq ca_i, \quad i = 1,2 \cdots n \tag{17}$$

$$QTM_j^k \leq ca_j, \quad j = 1,2, \cdots m \tag{18}$$

Where Fcost represents objective function, means the supply chain operation cost during whole planning period, including the production preparation costs $\sum_{i=1}^{n} \sum_{k=1}^{TWE} cp_i * PS_i^k$ of supplier and assembly production preparation costs $\sum_{k=max\,(Mdelay\,i)}^{TWE} cm * PM^k$ of manufacturer, which is not depends on assembly quantity at current interval. Inventory cost including supplier inventory cost $\sum_{i=1}^{n} \sum_{k=1}^{TWE} cis_i * IS_i^k$ and manufacturer's inventory cost including components holding cost $\sum_{k=min\,(Mdelay\,i)}^{TWE_i} cms_i * IMS_i^k$ and finished product inventory $\sum_{k=min\,(Mdelay\,i)}^{TWE_i} cmf * IF^k$, Customer's inventory cost $\sum_{j=1}^{m} \sum_{k=TWS_j}^{TWE_j} cpf_j * ID_j^k$. Transportation cost includes $\sum_{i=1}^{n} \sum_{k=1}^{TWE} ct_i * TS_i^k$ and $\sum_{j=1}^{m} \sum_{k=1}^{TWE} ct_j * TM_j^k$ that present transport cost from supplier to the manufacturer and from manufacturer to the customer respectively. The transportation cost is proportional to the number N of vehicle used. N is the rounding integral number of the ratio of traffic amount to car capacity. As it can be seen from the above model, many decision variables are integer and the objective function is nonlinear with variables.

Formula (2)–(18) represent the system different type constraints, and Equations (2) (4) (7) (9) represents the time constraint between each node, including processing time, assembly time, transportation time. Equations (3) (5) (8) are the traffic equilibrium constraint of each node, meaning the sum of node's production quantity and inventory of former interval then subbed by the sending volume to another node equivalent to node's current interval inventory. Equation (6) is the assembly ratio constraint of different components. Equations (10) (11) is the constraints of delivery time and delivery amount. Inequality (12)–(18) is the ability constraint of each node, including maximum value of inventory, maximum production capacity, y transportation equipment maximum capacity. Different types constraints of each time interval are included in model, so compared with other model above model's number of decision variables increased greatly but also more realistic

4. Solution and Numerical Example

The optimization model of assembly manufacturing supply chain with delivery constraint belongs to mixed integer nonlinear programming abbreviated as MINLP. There are lots of equality and boundary value constraints in the model. The Sequential Quadratic Programming with super linear convergence rate, abbreviated as SQP and Branch Bound Method are hybrid used to solve the above problems.

Firstly the nonlinear NLIP (nonlinear integer programming) relaxation of the problem NLP (Nonlinear Programming) NLP is solved with SQP. If the solution does not meet the integer constraint, while the solution as a starting point, the original problem is decomposed into two branches, each one each add a new constraint. Thus feasible domain is diminished. Then solving branch of NLP solution and continue to branch sub-problem that does not meet the integer constraint. Branch search will be stopped until the new constraints make the problem of NLP component is gradually turned into an integer. MATLAB programming language and its optimization toolbox are used in this paper to get numerical result

In this section, a supply chain with two suppliers and a manufacturer and two customers is considered. Four group data sets are tested and compared. Assumptions with day being the unit time and zero initial inventories, customer demand are expressed as $D_1(9) = 20$，$D_2(11) = 40$, that means delivery the first customer 20 finished product before the ninth day and the second customer 40 finished products before the eleventh day. Different process time cost are presented as $delayl = 1$，$Mdelayl = 3$，$Mdelay2 = 2$，$delaym = 1$，$Ddelayl = 2$，$Ddelay2=2$. And the assembly ratio of two components is $\lambda_1 / \lambda_2 = 2/3$. In order to study the impact of various cost parameters on optimization results, first set of data as the basic one, then reducing transportation cost in the second group, reducing two suppliers' inventory unit cost per unit time in the third group, reducing the manufacturer's component holding cost per unit time in the fourth group. The parameter change can be seen in table 1 and table 2.

Table 1. Transportation cost parameters values in different scenarios

NO.	ct_1	ct_2	ct_3	ct_4
Scenario 1	50	40	50	40
Scenario 2	10	8	18	8

Table 2. Unit inventory holding cost per unit time of manufacturer and suppliers values in different scenario

NO.	Supplies		Manufacturer		
	cis_1	cis_2	cms_1	cms_2	cmf
Scenario 1	20	10	9	8	10
Scenario 3	2	1	9	8	10
Scenario 4	20	10	4	3	5

According to the above optimization model and solution algorithm, then results can be calculated and shown in Table 3.

Table 3. Optimization results corresponding to different scenarios

NO.	Scenario 1	Scenario 2	Scenario 3	Scenario 4
NV The total number of used vehicles	6	7	6	6
IS The total inventory quantity of two supplier	110	60	140	90
IM The total inventory quantity of manufacturer	50	40	20	70
F The sum of supply chain costs (i.e. the objective function value)	2650	1802	1350	1520

5. Discussion and Conclusion

From the numerical example it can be conclude that:

(1) When reducing transportation cost, the number of used vehicles will increase. But number change in our example, because the transport cost is much higher than other cost. And even after reduced, it would be still greater than the other and a majority of the proportion of total cost. That's why the fluctuation of the total number of transportation times is small.

(2) When reducing the two suppliers' unit component holding cost per unit time substantially. The total cost of supply chain operation will decreased mostly, up to 49.06%. And it will decrease up to 27.2% of supplier's inventory.

(3) If reducing the manufacture's component holding cost per unit time, the component inventor level of manufacturer will significantly increase. Meanwhile, compared with the third data set, the inventory level of the supplier will reduce that it is corresponded to the reality.

Above optimization method can be used to solve the multi-periods lot optimization problem of the assembly manufacturing supply chain. Furthermore, this model can also analyze the mutual relationship between input parameters, it is very helpful to improve and complete the existing structure of supply chain.

References

Aggarwal, A., & Park, J. K. (1993). Improved algorithms for economic lot size problems. *Operations Research, 41*(3), 549–571. http://dx.doi.org/10.1287/opre.41.3.549

Anily, S., Tzur, M., & Wolsey, L. A. (2009). Multi-item lot-sizing with joint set-up costs. *Mathematical programming, 119*(1), 79–94. http://dx.doi.org/10.1007/s10107-007-0202-9

Dan, B., Xiao, J., Liu, X. H., Zhang, X. M., Li, Z. W., & Tang, H. L. (2007). Batch scheduling of a multi-stage supply chain with due windows. Computer Integrated Manufacturing Systems Beijing*, 13*(2), 1006–5911.

Federgruen, A., & Tzur, M. (1991). A simple forward algorithm to solve general dynamic lot sizing models with n periods in 0 (n log n) or 0 (n) time. *Management Science, 37*(8), 909–925. http://dx.doi.org/10.1287/mnsc.37.8.909

Glock, C. H. (2012). The joint economic lot size problem: A review. *International Journal of Production Economics, 135*(2), 671–686. http://dx.doi.org/10.1016/j.ijpe.2011.10.026

Hwang, H. C., Jaruphongsa, W., Çetinkaya, S., & Lee, C. Y. (2010). Capacitated dynamic lot-sizing problem with delivery/production time windows. *Operations Research Letters, 38*(5), 408–413. http://dx.doi.org/10.1016/j.orl.2010.04.009

Jaruphongsa, W., & Lee, C. Y. (2008). Dynamic lot-sizing problem with demand time windows and container-based transportation cost. *Optimization Letters, 2*(1), 39–51. http://dx.doi.org/10.1007/s11590-006-0042-1

Kim, T., & Glock, C. H. (2013). A multi-stage joint economic lot size model with lead time penalty costs. *Computers & Industrial Engineering, 66*(1), 133–146. http://dx.doi.org/10.1016/j.cie.2013.05.019

Lee, C. Y., Çetinkaya, S., & Wagelmans, A. P. M. (2001). A dynamic lot-sizing model with demand time windows. *Management Science, 47*(10), 1384–1395.

Osman, H., & Demirli, K. (2012). Economic lot and delivery scheduling problem for multi-stage supply chains. *International Journal of Production Economics, 136*(2), 275–286. http://dx.doi.org/10.1016/j.ijpe.2011.12.001

Song, J. S., & Zipkin, P. (2003). Supply chain operations: Assemble-to-order systems. *Handbooks in operations research and management science, 11*, 561–596. http://dx.doi.org/10.1016/S0927-0507(03)11011-0

Van Hoesel, C. P. M., & Wagelmans, A. P. M. (1996). An O (T3) algorithm for the economic lot-sizing problem with constant capacities. *Management Science, 42*(1), 142–150. http://dx.doi.org/10.1287/mnsc.42.1.142

Wu, T., Shi, L., Geunes, J., & Akartunalı, K. (2011). An optimization framework for solving capacitated multi-level lot-sizing problems with backlogging. *European Journal of Operational Research, 214*(2), 428–441. http://dx.doi.org/10.1016/j.ejor.2011.04.029

An Examination of Product Structure and Efficiency within the Property Insurance Industry in China

Chenxi Li[1], Gaiqin Hu[2] & J. Tim Query[3]

[1] China United Property Insurance Company Limited, China

[2] Bank of Ningbo, Beijing Branch, China

[3] College of Business, New Mexico State University, USA

Correspondence: J. Tim Query, College of Business, Department of Finance, New Mexico State University, Las Cruces, NM 88003, USA. Tel: 1-575-646-5253. E-mail: tquery@nmsu.edu

Abstract

The property insurance industry in China has achieved rapid growth since 1980s. However, further growth and development has been restricted for several reasons. While there are a variety of property insurance products, the product portfolio is unbalanced. Also, the early stages of these products are too simple to meet the diverse requirements of policyholders. Finally, certain products of different companies are somewhat duplicative. Based on the Structure Conduct Performance (SCP) analytical framework, the research paper analyzes various management index indicators and market competitive behaviors of China's property insurance market in recent years.

Utilizing germane data to perform an empirical study model, this paper elaborates on the importance of product structure on the property insurance market and proposes related measurements of practical and theoretical significance. These include the delicate management of the auto insurance business, expansion of the non-automobile property business, etc. The paper also provides suggestions on improving the current business structure, increasing the industry's probability of profitability, lowering management risk, strengthening the competitiveness of the business enterprise, and achieving a more productive and efficient increase in the development of China's promising property insurance market.

Keywords: property insurance company, business structure, adjustment measures

1. Introduction and Literature Review

1.1 Introduction

Since the 1980s, China's insurance industry has achieved sustainable and rapid growth. By the end of 2008, there were 8 insurance groups, 112 insurance companies, 10 asset management companies and 3.23 million employees in the insurance industry. The development of the insurance industry has also created a more competitive environment.

Property insurance is an important part of the insurance industry. According to government-provided industry statistics, national property insurance premium income reached 244.63 billion Yuan in 2008 (25.0 percent of the national insurance premium income), up from 17.2 percent in 2007. Automobile insurance premiums totaled 170.25 billion Yuan, up 14.7 percent, accounting for 65.6 percent of the national property insurance premium income. However, indemnity expenditures are also high and were more than 70 percent of the total premium income. The reasons are three-fold. First, many Chinese property insurance companies are focused primarily on scaling premium income and enlarging market share via a pricing strategy. Second, risk control from an underwriting perspective is somewhat optimistic and aggressive. Third, the virtual commoditization of product offerings is combined with a relatively undifferentiated approach to the marketing and service function by different insurance companies. Because of these factors, pricing has become the main competitive approach. This has resulted in a homogeneous business structure that has created a "bottleneck" type problem in China.

Upon examination of the successes of mature insurance markets in developed countries, it is reasonable to expect the competitive approach to be transformed from price competition to products competition in an open market.

Chinese property insurance companies have recognized and attempted to address the problem, and even the government has intervened through a series of enacted policies. However, problems still exist, including a lack of innovation, business structure homogeneity and market failures related to supply and demand.

Through the incorporation of industrial organization theory, this paper analyzes the current status of the Chinese property insurance business structure and makes some comments and suggestions, which should improve the sustainable development of the domestic insurance market. Meanwhile, with the approaching twelfth anniversary of China's accession to WTO, this analysis of the structure practiced by property insurers can also give foreign property insurance companies an insight into the Chinese insurance market.

1.2 Literature Review

Most studies by scholars outside of China focus on enterprise competitiveness, operational efficiency, solvency, risk return, cash flow and comprehensive goals; trying to find the main variables affecting the property insurance business. Meanwhile, cultural acceptance and comfort with the theory of property insurance started relatively late in China. Research and monitoring of solvency, specific risk, asset liability management, and dynamic financial analysis started much later given the relative newness of the insurance industry, and there has been noticeable progress.

Throughout our literature review, we were unable to identify microcosmic and quantitative research within the context of property insurance structure, whether in domestic Chinese document or foreign articles originating in other countries. However, the theory of industrial organization has often been used to assess the state of development of certain industries; a review of these research methods is instructive in the analysis of the insurance business structure.

1.2.1 Review of Foreign Studies

Western theory of industrial organization sprouted in the 19th century, and "Principles of Economics" written by Marshall in 1890, was the leading authority on the topic. Marshall believed that the organization, particularly industrial organizations, can play an important role in improving the economic efficiency. However, the meaning of the term organization here is not explicit. In 1959, modern industrial organization theory system was formed through the book of industrial organization by Bain, and became the mainstream or orthodox theory of industrial organization factions.

The complete framework of industrial organization theory is that market structure restricts market conduct and then decides the market performance, referred to as the Structure Conduct Performance paradigm (SCP). The main factors which determine market structure are concentration, product differentiation and market entry (exit) barriers. Additional support from leading academics of the day allowed the theory of industrial organization to become a comprehensive theoretical system.

From the research of various countries and through the development of industrial organization, the theory has evolved into the content-rich and relatively independent Mesoeconomics. Mesoeconomics is a neologism that describes the study of economic provisions that are not based on either the macroeconomic reasoning of aggregate totals of demand, nor on the microeconomics of buying/selling and supply/demand, but rather on the importance that structures play in the formulation of these forces and their measurement. It is argued by Mesoeconomic thinking that structural influences are not adequately reflected in price signals and supply/demand curves, nor in Gross Domestic Product (GDP), large economic measures of inflation, unemployment rate, and other measures of aggregate demand and savings. After several years of revisions and development, initial results when applied to industry, manufacturing, etc. have been promising. The theories and ideas of market structure can also be applied to the analysis of the structure of property insurance. However, no specific discussion applicable to the Chinese property insurance industry has transpired and such a conversation is warranted.

Frequently, from an economics perspective, the discussion of insurance focuses on uncertainty issues. Specifically—within the realm of insurance—he concepts of insurance systems, methods, and principles are frequently discussed, mainly within the framework of risk theory, insurance companies and insurance practices of the business.

A review of the insurance economics textbooks published internationally finds that many scholars research areas such as insurance demand and supply, insurance products, insurance pricing and the relationship between insurance and the national economy. The development of insurance is considered from the angle of productivity and efficiency, but often industry organization theory is given little consideration. From the collected materials in non-China countries, there is still a paucity of research incorporating organization theory to a study of the

development of the insurance industry.

1.2.2 Domestic Research (China)

Upon restoration of the domestic insurance industry, insurance theory was introduced to mainland China from Taiwan and other foreign countries. Mature insurance business practices and insurance operating principles were studied, and greatly assisted in the development of China's insurance industry. Nonetheless, traditional economic theory of insurance has many limits, such as emphasizing insurance market research and its security system, while ignoring the interrelated interests between insurance companies.

In regard to insurance theory, very few researchers apply the principles of industrial organization to the analysis of China's insurance industry. To our knowledge, only "China's Insurance Industry Organization Optimization", a book written by Professor Jiang Shengzhong, is authoritative and systemic regarding this issue. This book mainly focuses on the concept of optimization of the insurance industry organization, content, approach, policy and so on, but because there is no differentiation between property insurance and life insurance, some key issues are not adequately developed. Recently, even though some scholars' do not systematically propose insurance industry organization theory, they do acknowledge that an unreasonable business structure will affect the development of property insurance industry.

Jiang Shengzhong and Yi-Qiao (2000) characterize the current performance of the Chinese insurance industry market as poor. As with most industries, China's traditional theory emphasizes insurance industry growth. In practice, many insurance companies accentuate insurance premium income, market share, and institution-building, which could result in incremental increases in risk and irregularities in the insurance business activities. Sun Qi-xiang (2002) points out that auto insurance business lines account for more than half of the Chinese property insurance business, with other insurance lines, such as liability and credit insurance, developing quite slowly. Lu Ling (2002) contends that the rapid emergence of imitation products and substitute products make the life cycle of products shorter and shorter. When facing changing market conditions, enterprises cannot compete with inflexible products. Lei Tao (2006) finds that product supply should be closely linked to market demand states the importance of adjusting the pace of development and size of the products of both the non-auto and auto insurance business. Wang Xu-jin (2009) finds that while China's property insurance business has developed rapidly, it is still at a relatively low level of penetration and density. Hao Yan-su (2009) contends that the auto insurance lines of business dominate the success or failure of a majority of Chinese property insurance companies and the property insurance industry has on occasion suffered severe losses because of faulty underwriting and rate-making assumptions. Huang and Query (2007) note that property-casualty actuaries in China have to rely more heavily on subjective factors and instinct than do their counterparts in developed insurance markets, as much of the data used for ratemaking is unreliable.

Although many scholars have pointed out that the property insurance structure has many problems in China's insurance market, targeted specific empirical research and analysis is still needed. In this paper, we provide an in-depth study of the property insurance business structure, which should advance both theoretical and applied research in this area.

2. The Status of China's Property Insurance Market

2.1 Expanding Premium Income and the Dominance of Automobile Insurance

Since the resumption of the insurance business in 1980, Chinese property insurance premium income has increased from 460 million Yuan in 1980 to 287.6 billion Yuan in 2009. Excluding inflation, the average annual growth is about 29.9 percent, much faster than the 12 percent average growth rate of GDP. An obvious reason for this is that in 1980, the insurance industry was still in its infancy; in addition, China's rapid economic growth during these years expanded demand for insurance, and growth on the supply side was also faster (see Table 1).

Automobile insurance lines experienced exceptional growth, as those premiums increased from 7.28 million Yuan (1980) to 170.25 billion Yuan (2008), or an increase of 23,385 times (See Table 2). There are several reasons for this, including the acceleration of car ownership, an increase of the rate of insurance coverage, and the implementation of compulsory accident insurance. Due to the spirited efforts of the China Insurance Regulatory Commission (CIRC), by the end of 2008 the proportion of non-auto insurance business lines were 30.4 percent, up 1.5 percent, meanwhile, premium income of areas such as agricultural insurance, health insurance, guarantee insurance, and liability insurance also increased dramatically, with premium income increases of 112.5 percent, 155.1 percent, 50.7 percent, and 22.7 percent respectively (China Insurance Statistical Yearbook, 2009).

2.2 Management Entities and the Severity of Competition

The domestic property insurance industry in China began in earnest in the 1980s, and quickly experienced significant changes. It went from only one property insurance company in 1985 to 51 companies by the end of 2009. The increase of these entities has changed the configuration of the property insurance, going from basically a monopolistic market dominated by PICC to an oligopolistic market structure. In 2009 five property insurance companies accounted for a combined 74.15 percent of the market, with a premium income exceeding 10 billion Yuan. The market share of the remaining 29 Chinese-funded property insurance firms is 24.79 percent, and the market share of 17 foreign and joint venture property insurers share is 1.06 percent.

Table 1. China's GDP and the property insurance premium income (1980–2009)

Year	GDP billion Yuan	Growth %	premium income million Yuan	Growth %
1980	451.78	7.8	460	-
1981	486.24	5.2	780	69.57
1982	529.47	9.1	1028.4	31.85
1983	593.45	12.08	1384	34.58
1984	717.10	25.01	1991	43.86
1985	896.44	13.5	3273	49.94
1986	1020.22	13.81	5050	54.29
1987	1196.25	17.25	7434	47.21
1988	1492.83	24.79	10074	35.51
1989	1690.92	13.27	12306	22.16
1990	1854.79	3.80	14859	36.78
1991	2161.78	9.20	18648	28.17
1995	5847.81	10.5	57450	15.97
2000	8944.22	8.00	59840	14.8
2001	9731.48	7.50	68540	14.6
2002	10239.79	8.00	77981	13.3
2003	11652.85	9.00	86940	11.7
2004	13651.5	9.50	108990	25.4
2005	18232.1	9.90	122990	12.9
2006	20940.7	10.7	150940	22.6
2007	24661.9	11.4	1997.7	32.4
2008	30067.0	21.9	2446.3	22.46
2009	33535.3	11.54	2876	17.57

Source: China Insurance Statistical Yearbook (1980–2009), China Statistical Yearbook (1980–2009) and China Insurance Regulatory Commission website.

Table 2. Vehicle insurance premiums in China (1980–2008) (Units: billion Yuan)

Year	1980	1998	1999	2000	2001	2002
premiums	0.00728	28.098	30.642	37.3	42.2	47.2
Year	2003	2004	2005	2006	2007	2008
premiums	54.0	74.5	85.8	110.8	148.43	170.25

Source: China Insurance Statistical Yearbook (1980–2009).

Although the number of insurance entities is increasing, premium income is growing and profitability is being improved, the overall level of property insurance market density and depth is still relatively low. Insurance depth is measured by total gross premiums written as a percentage of GDP. Insurance density is measured by total gross premiums written per capita. Government statistics for the period of interest to this study indicate that the depth of China's non-life insurance was only 1.0 percent as compared to 2.9 percent for the world; non-life insurance density was 33.7 U.S. dollars in China, and 264.2 U.S. dollars for the world (Swiss Re, Sigma 2000). The preponderant questions are: Why doesn't the profit growth match the property insurance market's rapid growth? What effect does homogenization of the product structure bring to the property insurance market? Within the context of these problems existing in the development of property insurance, we will utilize Industry Organization Theory, study the existing property insurance market, market structure and product structure, and recommend the optimal ways to efficiently and equitably develop the Chinese domestic insurance market.

3. An Empirical Analysis of the Business Structure in Property Insurance

There are numerous factors that are germane in the determination of the business structure, and here we focus our analysis on the three main factors: market concentration, regional differences in degree of development and product structure.

3.1 Market Concentration

3.1.1 Analysis of Market Share

Our analysis of market concentration is based on market share. As seen in Table 3, from 2004 to 2009, the top four Chinese property insurance companies who account for the largest market share of premium income, are PICC (Note 1), PING AN (Note 2), CPIC (Note 3) and CIC (Note 4) respectively. The vast majority of market share for the time frame of interest is held by these four companies.

The market share of other Chinese-funded insurance companies is much smaller, and each one is in a somewhat less competitive position. Because of few differences among these insurance companies, the competition will be more intense. Interestingly, the market share of foreign insurance companies is also small during this time period. This may be due to imperfections and inefficiencies in the Chinese insurance market and an uncertain legal environment, as well as a long period of acclimatization of some foreign-funded insurance institutions into the Chinese culture.

3.1.2 Analysis of Market Concentration

According to The OECD Glossary of Statistical Terms and industry organization theory, market concentration is a function of the number of firms and their respective shares of the total production (alternatively, total capacity or total reserves) in a market (Note 7). As an economic tool, market concentration is useful because it reflects the degree of competition in the market. Bain's (1956) original concern with market concentration was used to study industry monopoly and degree of competition. He divided it into six levels, as described in Table 4 below.

Table 3. Analysis of market share (2004–2009) (ten thousand yuan;%)

Company	2004	Proportion	2005	Proportion	2006	Proportion	2007	Proportion	2008	Proportion	2009	Proportion
PICC	6532582.1	58.09	6593644.6	51.47	7129936.8	45.12	8859179.8	42.00	10165607	41.56	11946412	39.92
CPPI	1384917.1	12.32	1444037.4	11.27	1812268.7	11.47	2343304.4	11.00	2781677.5	11.37	3422794.8	11.44
PING AN	1064057.4	9.46	1267451.5	9.89	1686247.1	10.67	2144953	10.00	2675134.4	10.94	3848338.2	12.86
CIC	655317	5.83	1039821.5	8.12	1505655.9	9.53	1831098.5	9.00	1912480.7	7.82	1943962.9	6.50
TIAN AN[5]	512797.07	4.56	635071.5	4.96	638664.09	4.04	1002839.62	4.81	669774.97	2.74	700002.77	2.34
CCP [6]	153481	1.36	381532.52	2.98	632798.48	4.00	1002839.6	5.00	942448.75	3.85	1025302.8	3.43
Chinese-funded	11109473	98.79	12643055.62	98.69	15612103.07	98.79	20622748.56	98.84	24174102.41	98.82	29611440.52	98.94
Foreign-controlled	136017.24	1.21	98.69	1.31	191440.67	1.21	242095.64	1.16	288389.17	1.18	317548.53	1.06
Total	11245491		12811077.47		15803543.75		20864844.2		24462491.59		29928989.05	

Source: China Insurance Regulatory Commission website (Note 5, Note 6).

Table 4. Concentration style table

Type	C_4（100%）	C_8（100%）
Oligopolistic market structure Ⅰ	$75 \leq C_4$	-
Oligopolistic market structure Ⅱ	$65 \leq C_4 \prec 75$	Or $85 \leq C_8$
Oligopolistic market structure Ⅲ	$50 \leq C_4 \prec 65$	$75 \leq C_8 \prec 85$
Oligopolistic market structure Ⅳ	$35 \leq C_4 \prec 50$	$45 \leq C_8 \prec 75$
Oligopolistic market structure Ⅴ	$30 \leq C_4 \prec 35$	Or $40 \leq C_8 \prec 45$
Atomic style	-	-

Source: Bain, J. 1956. Barriers to New Competition, Cambridge, Mass: Harvard University Press.

On the basis of market share, we calculate CR_n, and use the indicators to measure market concentration in China's property insurance market.

Formula: $$CR_n = \sum_{i=1}^{n} X_i \bigg/ \sum_{i=1}^{N} X_i$$

X_i ——Output value, production, sales or total assets of i th business entity, which is the property insurance premium income here.

n ——The number of the enterprises affected.

N ——The total number of industrial enterprises.

On the basis of the above model, we use the data from 1998 to 2009 to calculate Table 5 below.

Table 5. Concentration analysis table of Chinese properly insurance market in 1998–2009

Year	1998	1999	2000	2001	...	2004	2005	2006	2007	2008	2009
CR_4	97.7	97.65	97.12	97.43		85.70	80.75	76.79	72.00	71.69	70.72

Source: China Insurance Statistical Yearbook (1980–2009) and CIRC website.

From Table 5, we observe that the CR₄ of the Chinese property insurance market has been steadily falling 97.7 percent (1998) to 70.72 percent (2009); and essentially moving from an Oligopolistic market structure Ⅰ to Oligopolistic market structure Ⅱ (Note 8). The initial concentration is high, and it may be caused by many factors, such as a policy history of closed-market operations. With the rapid and relatively controlled development of China's economy, small/medium sized insurance companies are growing and foreign/joint venture insurance companies are increasing in numbers, causing market concentration to decrease significantly. However, compared with world's major countries, China's property insurance market has a high market concentration, with the market concentration of the three top insurance companies in China being 2 or 3 times that of the top five insurance companies in many developed countries.

3.2 Diversity of Regional Development

On one hand, uneven development of an economy can lead to different regional market concentrations. In China, eastern coastal areas opened earlier, with good results for the development of the insurance industry. Therefore the competitive situation in those areas has gradually been diversified. Meanwhile, in the central and western regions, economic development is lagging and there are fewer new entities, so structural changes are very slow and market competition is at a comparatively low level. Overall, market concentration in the eastern provinces has declined more quickly than in the central and western provinces. As the barriers to entry are reduced and the degree of open competition increases, the market concentration will be expected to decrease further as market competition is more intensified.

On the other hand, the production structure exhibits characteristics that are regional in nature. From the analysis above, PICC has held the leading market share for many years, so we will use it as a proxy for the whole market. Specifically, 2008 data on PICC will be used as a case study. In Figure 1 on the next page we make the following observations:

First, auto insurance, business property insurance and third party liability insurance are the main products in east, central and western regions. Motor vehicle insurance is the biggest line of property insurance, with market shares of 69.6 percent, 67.7 percent and 59.7 percent, respectively in the eastern, central and western regions. We can reasonably conclude that many aspects of motor vehicle insurance not only bring more premium income but add also more costs of compensation. Whether it is beneficial to development of property insurance companies has yet to be verified. Second, the premiums of cargo insurance in eastern regions and agricultural insurance in western regions are larger proportionally than similar products in other regions. The development of a regional economy is the direct reason for such differences. Third, while the premiums of engineering insurance and credit & guarantee insurance are still somewhat small, the market potential in these areas is enormous.

	enterprise property	automobile	cargo	TPL	enginerring	credit & guatantee	agriculture	others
Eastern	8.83%	69.62%	5.75%	3.90%	1.05%	0.22%	3.23%	6.05%
Central	12.94%	67.71%	2.56%	4.45%	1.08%	0.30%	7.00%	3.40%
Western	7.95%	59.69%	2.71%	4.40%	1.33%	0.29%	10.79%	1.83%
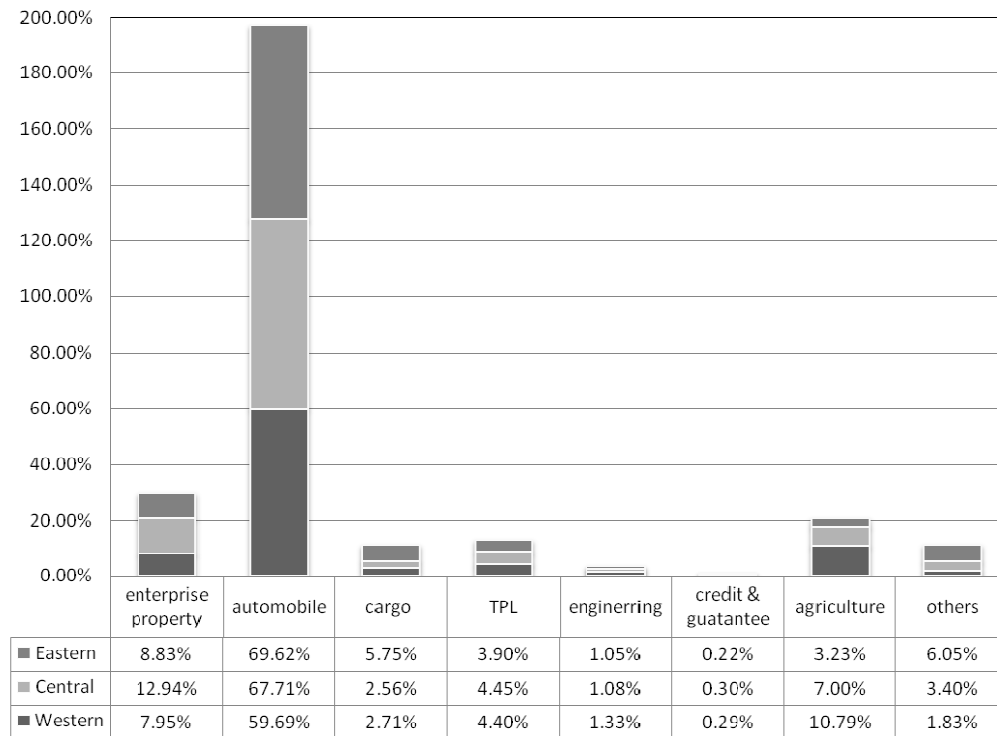
Figure 1. Product distribution in different regions of PICC (2008)

3.3 Product Structures

3.3.1 The Balance of Products

Whether viewing product structure nationally or regionally, the market share of auto insurance has a decided advantage. An empirical analysis is conducted to address the practicality of a seemingly over-reliance on a single line of insurance (Note 9).

● Motor & Non-Motor Insurance

(1) The Impact on Premium Income

Assume Y1 as the Total Premium Income, NONAUTO as Non-auto insurance premium income, X1 as Vehicle insurance premiums. Eviews were used to regress the model.

$$Y1=0.668100 \ NONAUTO+1.204836X1 +39.24548 \qquad (1)$$

$$(3.048945) \quad (25.88506) \quad (1.344034)$$

R-squared=0.999497   F =7946.255

Via statistical tests of significance, we have t-statistics of vehicle insurance premiums and non-auto insurance premium income attained at 25.89 and 3.05. Obviously, both of these T-statistics are higher than $T_{0.025}(11) =$ 2.228. Both of these variables are statistically significant at the 95% significant level. An R-squared equal to 0.999497 shows a high degree of goodness of fit. The F-statistic is $F_{0.05}(2,8) = 4.46$. Since this is well below the

5% critical value, the result is that vehicle insurance premiums and non-auto insurance premium income are jointly insignificant in this model.

From an economic viewpoint, the result that every parameter is non-zero means that Total Premium Income increases with increases in each lines of insurance. That is consistent with general economic interpretation. In addition, contributions of vehicle insurance premiums to total premium income are larger than that of non-auto insurance premium income. Specifically, total premium income increases 1.2 with a one unit increase in vehicle insurance premium, and only a 0.67 increase as one unit increases in non-auto insurance premium income. The contribution of auto insurance on total premium income is much larger than non-auto insurance.

However, the absolute proportion of premium income as a test product structure cannot be the only indicator of rationality. Within the context of an applied process, compensation is also a key factor.

(2) The Impact of Compensation

Assume Y2 is Total Indemnity, NONAUTO2 as Non-auto insurance indemnity, and C1 as Vehicle insurance indemnity. Eviews was used to regress the model.

$$Y2=0.896116\ NONAUTO2+1.133894\ C1+0.030326 \qquad (2)$$

$$（9.729620）\qquad（51.81689）\qquad（0.005624）$$

R-squared=0.999800   F =19982.95

Via the test for statistical significance, the t-statistics of vehicle insurance indemnity and non-auto insurance indemnity are 51.82 and 9.73 respectively. Both of these t-statistics are higher than $T_{0.025}$ (11) = 2.228. It illustrates that both of these two variables are statistically significant at the 95% significant level. An R-squared equal to 0.999800 shows a high degree of goodness of fittest. The F-statistic is $F_{0.05}$ (2,8) = 4.46, and this is well below the 5% critical value, supporting the result that vehicle insurance and non-auto insurance indemnity are jointly insignificant in this model.

Again using an economic perspective, the coefficient of each variable is greater than 0. We find that with the increase in insurance compensation, the sum also increased, and was economically significant. More specifically, there are 1.13 times as much compensation of automobile insurance for every increase by one unit and about 0.90 times as much that of non-automobile insurance for every increase by one unit. Our conclusion is that auto insurance has a greater impact on compensation.

Combining and analyzing formulas (1) and (2), we can see that, per each additional unit, automobile insurance not only resulted in a significant increase in total premium income, but also made a substantial increase in compensation. While a seemingly unchecked expansion of auto insurance does bring in added premiums, there are also business fees and a variety of other costs that may alter expected benefits.

● Non-Motor & Non-Motor

(1) The Impact on Premium Income

We calculate the ratio of premium income of non-auto insurance to the total sum and use Excel to produce Figure 2.

1) Operating conditions of enterprise property insurance are basically the same as cargo insurance. From terms of absolute premium income, the necessity of these two products are increased by the recent growth of business enterprises, but the ratios of premium income of the two products to the total sum actually decreased year to year. There are two main reasons for this phenomenon. First, the growth rate of these two products is lower than that of the total premium, whose growth rate is 30 percent. Second, the development of new business property insurance has not kept pace with the general expansion of the private economy in China.

2) Homeowners insurance. The proportion of home property insurance is small. This insurance line peaked at 2.4 billion in 2002, and accounted for 3.08 percent of total Property insurance premiums. However, it declined significantly in 2003, and the premium income has been hovering around 1.3 billion Yuan since then.

3) Agriculture insurance. The share of agricultural insurance has always been low, which does not match China's standing as one of the world's largest agricultural countries. It declined from 1.41 percent (1998) to 0.51 percent (2006). A likely reason for this is that the risk exposures covered by agriculture insurance are more complex, and potential catastrophic risks are greater. However, the Chinese government has recently given more support to the agriculture insurance market, and it appears to have made a difference—with rapid growth of 2.55 percent (2007) and 4.53 percent (2008).
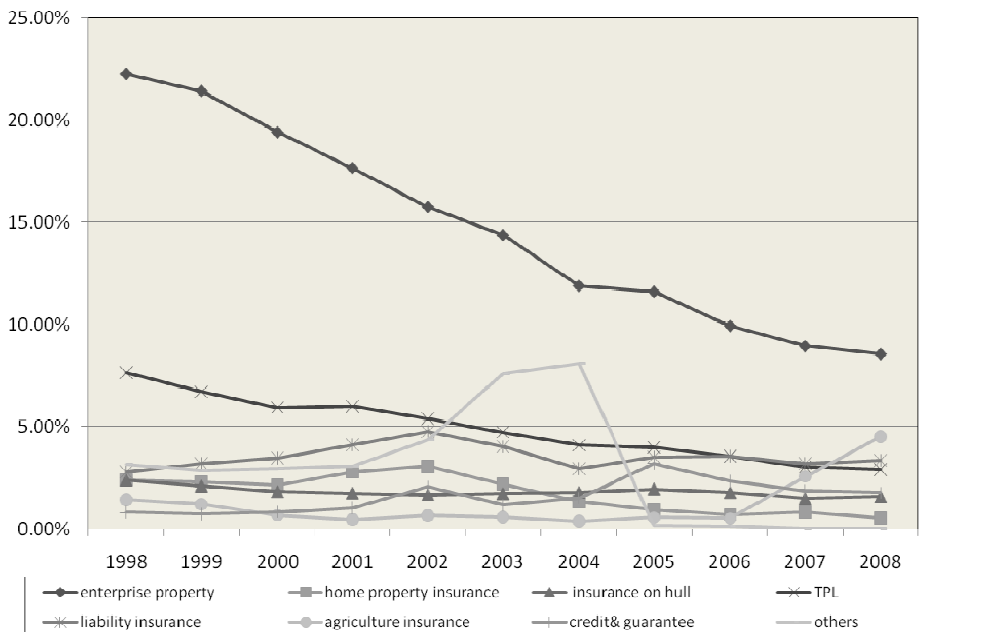
Figure 2. 1998–2008 Market share trend of non-auto insurance in China (1998–2008)

4) Liability insurance and credit & guarantee insurance. These lines account for an insignificant proportion of the total (Note 10), mainly due to inadequate laws and regulations in China and a lack of cultural awareness of insurance in these areas by the Chinese.

(2) The Impact on Compensation

We calculate the ratio of compensation of non-auto insurance to the total sum and use Excel to produce the results found in Figure 3.
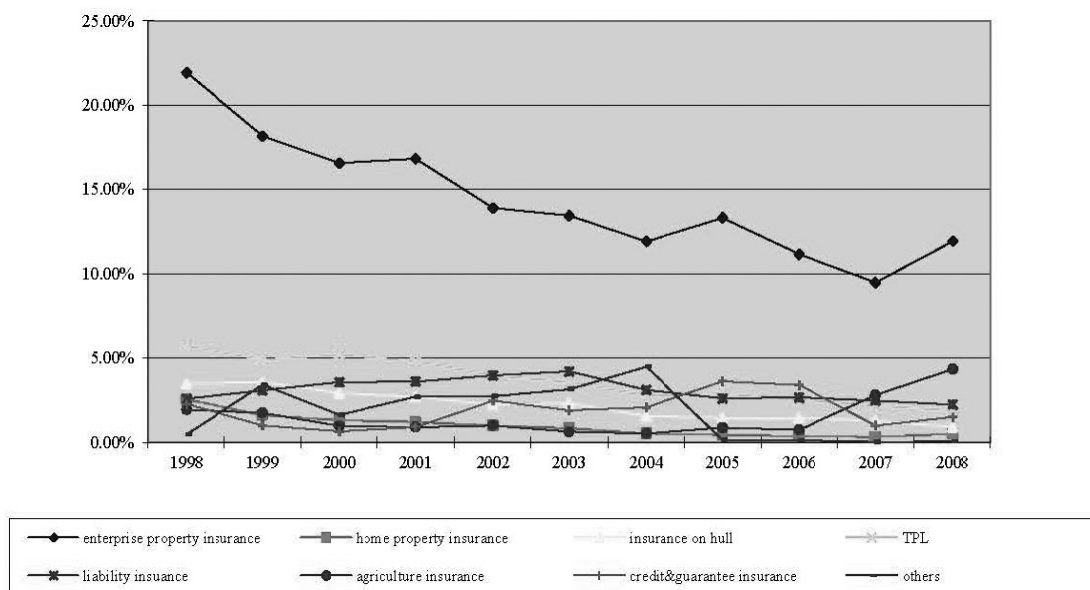
Figure 3. Analysis of compensation of non-auto insurance (1998–2008)

First, the ratio of compensation of enterprise property insurance to the total sum is higher than other non-auto insurance. This type of insurance is traditional, and most of the potential insureds have taken advantage of this

coverage, resulting in a higher market share. However, the concentration of insurance coverage has created severe competition, leading to higher indemnity claim costs in an aggressive effort to expand this traditional business. From the policyholders' viewpoint, expectations of insurance claims are relatively high, causing the ratio of indemnity claims to premiums written to persist at an unattractive level. Simultaneously, the ratio in corporate property insurance is declining to a more profitable level of underwriting. Reasons given include greater total income of the insureds, and a better handle by insurance companies on the risk exposures being underwritten. As in developed countries, a natural disaster can also cause hardening of the underwriting market, and the Wenchuan earthquake which occurred during this time frame is cited as a catalyst for higher prices and tighter underwriting practices in the commercial market.

Second, compensation of agricultural insurance has fluctuated around 1.03 percent from 1998 to 2006, but appeared to reach a potential inflection point in 2007, and it is at a turning point in 2007, quickly rising to 2.08 percent, again due to governmental policy changes preferential to the agricultural industry. The other lines of insurance are too insignificant at this time to have any meaningful influence on total compensation.

3.3.2 Research Analysis on Product Homogeneity

Using an analysis of the coefficient of variation, we investigate the homogeneity of products between different insurance companies, as illustrated in Figure 4 below (Note 11).
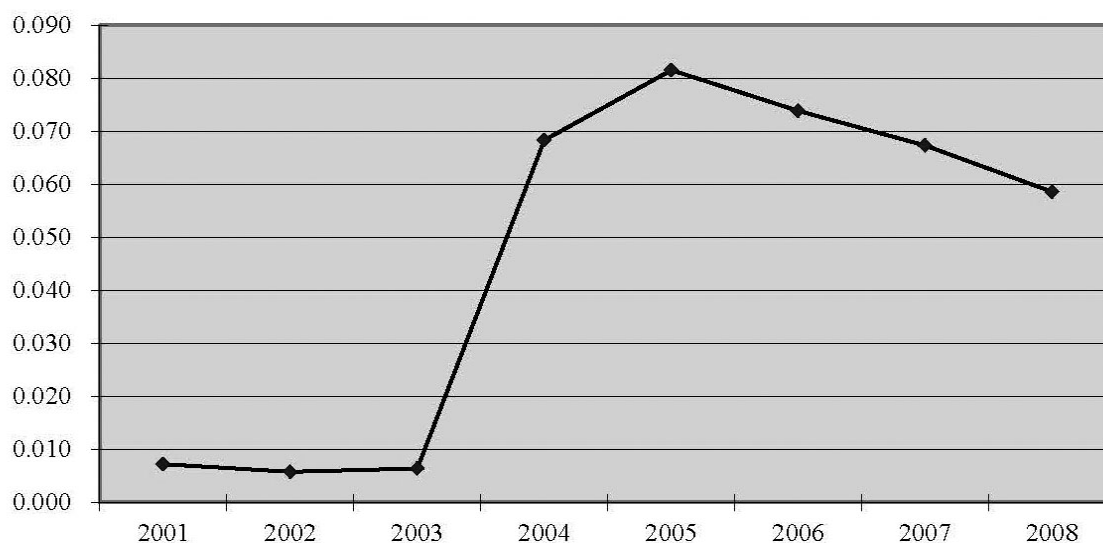
Figure 4. Coefficient of variation in auto insurance (2001–2008)

From Figure 4, we find that the coefficient of variation fluctuated at 0.006 from 2001 to 2003, which suggests that motor vehicle insurance was the main product operated by insurance companies, so the homogeneity of products structure was increasingly severe. The development of the insurance industry in China, coupled with an increase in the number of insurance companies led to a CV in 2004 that suddenly increased to 0.068, and peaked at 0.081 in 2005. Predictably, the proportion of motor vehicle insurance declined, and the overall product structure was markedly improved. A substantial change in regulatory policy, resulting in Automobile Traffic Accident Third Party Liability Compulsory Insurance, was mandated in 2006. As expected, vehicle insurance sales expanded rapidly. Combined with basically no rights for foreign insurance companies to enter the compulsory insurance market, we find that the CV began to decline and the homogenization of the insurance products structure increased in severity once again.

4. Optimized Measurements for China's Property Insurance Industry

In this section we make general suggestions for improved measures to effectively document the structural and operational improvements in the Chinese property insurance industry. Recommended responses to measurement results are also included in this section.

"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it;

but when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science, whatever the matter may be."

-- William Thomson, Scottish physicist

4.1 Differentiation Strategy

According to the definition of Industrial Organization Theory, differentiation strategy in property and casualty insurance means the service provided by insurance companies can create special preferences by the insured, and the insured can distinguish it from similar services in other companies. Successful implementation of such a strategy can put a company in a favorable position with respect to market competition. Increased product differentiation should greatly expand consumer options and enhance consumers' welfare.

Currently, China's property insurance market can best be characterized as immature. Any existing business differentiation is a type of administrative monopoly, which is due to the continued transition from a planned economy to market economy. Business differentiation is still at a relatively low level, which is a result of the strong influence of business networking. There is little obvious incentive for insurance companies to become effectively competitive entities in the short term, and competition remains at a comparatively low level. Our suggested themes for moving China's property insurance industry forward are "Optimize the product structure" and "Build the company's core competitiveness."

- Optimize the Product Structure

(1) Automobile Insurance—Professional Management

Unconstrained expansion of the auto insurance business will lead to increased risk of insolvency, so the implementation of professional management is necessary. We suggest a more in-depth analysis of basic issues in auto insurance; the use of ratemaking to eliminate products with few losses; strengthening financial supervision and regulation on insurance to protect against additional risks with serious losses; and expand on the cost-effective additional insurance popularization, such as risk of breakage. Second, detailed management must be incorporated into vehicle models. Insurance companies should make full use of business systems on vehicles, analyze various car models accurately and track loss ratios and other credible data in various models. Utilization of these steps can result in an underwriting policy of differentiation that can be implemented smoothly. Third, differentiation management should include vehicle use. Companies should consciously reduce the proportion of trading vehicles and expand the coverage of company and high-end private cars.

(2) Non-Automobile Insurance—Key Management

We recommend that companies develop the home property insurance and enterprise property insurance lines. With the continued development of China's economy, enterprise value continues to rise and household wealth has also increased dramatically, so the demand for insurance products by both enterprises and individuals is urgent. As an example, consider homeowners insurance. Currently, China has more than 300 million households and many families have been accumulating property. According to surveys, even in cosmopolitan Shanghai and other big cities, the rate of family property insurance is estimated at about seven percent. If the rate of insurance coverage is a modest 30 percent (the average coverage rate in developed countries is 80 percent), that would result in 90 million potential customers in the home property insurance market. In view of this situation and market characteristics, property insurance companies should seize the opportunity to increase the development of the personal lines insurance market.

Companies should also make a continual effort to improve agricultural insurance to keep up with the modernization of the agriculture industry in China. There is no doubt that the implementation of subsidies of agricultural insurance by government has benefited agricultural insurance. Property insurers offering this product should seize the opportunities, by developing and improving the agricultural insurance and reinsurance systems. Coordinating with the government to establish financial subsidies or diversification to enable reasonable coverage of catastrophic losses caused by natural disasters is also recommended.

(3) New Types of Insurance—Innovation Management

Rates and price competition should be changed into product competition and new types of innovative products should be developed. An increase in market research and development will likely be a necessary and fruitful capital investment. As with more mature insurance markets in developed countries, a continual move toward a "paperless" system through the extensive use of technological advances will also reap efficiency dividends in the long run. An upgrade of the business structure under the close cooperation with financial and insurance institutions and scientific research is also highly encouraged. Products should be protected through the use of

patents, and submit new products should be submitted for placement in the category of Intellectual Property Rights.

- Construction of the Company's Core Competitiveness

The primary source of core competitiveness is the building of core expertise (Note 12), for its survival as essentially a specialized monopoly in a niche market is especially important for small and medium sized insurance companies. As long as the target market is clear, differentiating property and casualty insurance businesses of small and medium insurance companies would be entirely possible and should increase market share, reduce the concentration of the largest insurance carriers, and even change the corporate insurance industry's market structure.

(1) Differentiation Focus Strategy

This competitive strategy requires all levels of business organizations to properly segment their most profitable markets, select the right target market, and invest resources in this area. In addition, they should actively cultivate the core technical capabilities, increase strategic decision-making capacity and product development capabilities and ultimately achieve economies of scale.

(2) Customer Strategy

Different demands of disparate customers for the insurance company's product differentiation may provide a realistic opportunity. In the current environment of fierce market competition, small insurance companies need to improve risk pricing technology to enhance security capabilities, consider the basic requirements for risk diversification, enhance consumer satisfaction and risk preference analysis, and increase the anti-disaster loss mitigation. These goals are all possible in the current homogeneous insurance market. With clear target market segmentation, the uniqueness of the company can be matched with said markets, which will achieve difference in the design of insurance products.

(3) Technology Innovation Strategy

A necessity for market leading positions in today's world is an accumulation of experience, state-of-the-art technology, and a continuous improvement in the areas of technology, actuarial, underwriting, and risk management techniques. This will mitigate the risk of having the insurance business imitated by creating a moat around pioneering insurance product offerings.

4.2 Regional Coordination Development

The insurance companies should adjust product development and marketing strategy by making it responsive to diverse regional characteristics, promoting regional coordination and forming a pattern of succession and cooperation among the central, eastern and western areas of China.

- The Leading Role of China's Eastern Region

As the most advanced area for the insurance industry in China, the eastern region is rich in insurable resources, which has lead to an increased need for the pooling mechanism provided by insurance market stakeholders. In order to address international market competition, the domestic insurance industry in China must develop new products; open up new areas of business; and update product construction by increasing the content of business techniques. From the above analysis, we predict that cargo insurance and property insurance will have greater business potential in the eastern region. The eastern region is poised to make full use of its economic advantage, technology, talent, and resources to develop advantageous products, update product construction, and enhance capability for sustainable development. Moreover, the eastern region should take the lead for developing insurance lines that have a low coverage ratio, such as credit & guarantee insurance and liability insurance.

- Promoting Business in the Central and Western Regions

With a long history heavily influenced by a mixture of economic, societal, geographical, cultural, customs and religious beliefs, the insurance market in the central and western regions is admittedly not mature by acceptable measures. The key to accelerating insurance in these regions depends on education about the risk transfer role of insurance in society. Developing products to match these potential insurance consumers is challenging yet also necessary. Broadening of the channels of insurance and investing in the human resources talent to carry out these objectives will also advance the penetration of the insurance industry into these regions. The gradual improvement of western Chinese infrastructural facilities, will require engineering and special insurance protection for roads, railways, airports, telecommunications and water conservancy.

5. Conclusion

In this study we have performed a comprehensive analysis of the Chinese property insurance business structure as it currently stands. Our first observation is that while the market concentration of Chinese property insurance is high, efficient economies of scale have yet to be achieved. Stated another way, a higher market share is not accompanied by a higher return on assets.

Secondly, some features still prevalent in the Chinese insurance industry are obsolete on a global basis and up to now the determination of the optimal product mix and structure has been a somewhat intuitive undertaking. Since the insurance business is relatively concentrated, high dependence on a single line of insurance has served to curtail overall development of the industry. For too many companies, the performance of the motor vehicle insurance line determines the success or failure of the entire insurer.

Thirdly, the influence of governmental policy in China is significant and warrants greater consideration from the insurance industry. Two obvious examples are the implementation of Automobile Traffic Accident Third Party Liability Compulsory Insurance and policy-oriented Agricultural Insurance. These regulations, either directly or indirectly, influence product structure.

Future suggested studies include deeper research into the impact of macro-controls, and methodologies that may be employed to enhance property insurers' profitability and optimize their operational efficiency. This stream of research could also be expanded to compare the impact of equity fund investments, corporate debt investments, underwriting and claims management, etc. on the profitability of China's property casualty insurance industry.

Acknowledgements

References

Bain, J. S. (1968). *Industrial Organization: A Treatise* (2nd ed.). Hoboken, NJ: John Wiley.

Yearbook of China's Insurance. (2009). Editorial Office of Yearbook of China's Insurance.

Cummins, J. D. (1988). Risk-based premiums for insurance guaranty funds. *Journal of Finance*, *43*, 823–839. http://dx.doi.org/10.2307/2328138

Cummins, J. D. (1993). Measuring Cost Efficiency in Property Liability Insurance Market. *Journal of Banking and Finance*, *17*, 463–482. http://dx.doi.org/10.1016/0378-4266(93)90046-G

Cummins, J. D., & Dionne, G. (2008). Dynamics of Insurance Markets: Structure, Conduct, and Performance in the 21st Century. *Journal of Banking & Finance*, *32*(1), 1–3. http://dx.doi.org/10.1016/j.jbankfin.2007.09.001

Cummins, J. D., & Weiss, M. A. (2000). Analyzing firm performance in the insurance industry using frontier efficiency and productivity methods. *Handbook of Insurance* (pp. 767–829). Springer Netherlands. http://dx.doi.org/10.1007/978-94-010-0642-2_24

Dionne, G., & Harrington, S. E. (1992). An Introduction to Insurance Economics. In Dionne, G., & Harrington (Eds.), *Foundation of Insurance Economics* (pp. 1–48). Boston, MA: Kluwer Academic Publishers.

Hao, Y. (2002). *Insurance*. Beijing: Tsinghua University Press.

Huang, D., & Query, J. T. (2007). Designing a New Automobile Insurance Pricing System in China: Actuarial and Social Considerations. *CAS Forum*, Winter Forum.

Jiang, S. Z., & Yi-qiao, S. (2000). The economic analysis of China's Insurance Industry. *Insurance Studies*, *3*, 20–22.

Lei, T. (2006). Rational view of the structural adjustment. *China Insurance*, *5*, 45–47.

Lu, L. (2002). Product Innovation. *China Insurance*, *6*.

Scherer, F. M. (1970). *Industrial Market Structure and Economic Performance*. Chicago: Rand McNally.

Sun, Q., & Li-Ming, S. (2002). A Review of Insurance Economics Study. *Economic Research, 5*, 48–57.

Swiss Re Investor Inc. (2000). Asset-Liability Management for Insurers. *Sigma, 6*, 1–36.

Wang, X. (2009). Analysis of the Property and Casualty Market in China. *Insurance Studies*, *1*, 25–40.

Wei, H. L., & Qian, W. X. (2001). *WTO rules for the insurance industry and international practice.* Beijing: China Integrity Press.

Williams, C. A., Young, P. C., & Smith, M. L. (1998). *Risk Management and Insurance*. Boston, MA: McGraw-Hill.

Witt, R. C., & McCabe, G. M. (1976). A simulation analysis of capital structure in a property insurance firm. *Journal of Risk and Insurance*, *43*, 721–726. http://dx.doi.org/10.2307/252036

Zhou, Y. (2007). *China's Insurance Market Structure, Conduct and Performance*. Beijing: Economic Science Press.

Notes

Note 1. PICC is short for Property and Casualty Company Limited

Note 2. PING AN is short for Ping An Property & Casualty Insurance Company of China, Ltd.

Note 3. CPPI is short for China Pacific Property Insurance Co., Ltd.

Note 4. CIC is short for China United Property Insurance Company

Note 5. TIAN AN is short for TIAN AN Insurance Company

Note 6. CCP is short for China Continent Property & Casualty Insurance Company Ltd.

Note 7. http://stats.oecd.org/glossary

Note 8. The difference between Structure Ⅰ and Ⅱ is the number of the entities in one industry. In Structure Ⅰ, there are only about 20-40 entities, for example the motor line. In Structure Ⅱ, more entities will be included, about 40-200, such as the tire industry as an example. For more details on this theory, see Bain, J. (1956), *Barriers to New Competition*. Cambridge, Mass: Harvard University Press.

Note 9. Using the "China Insurance Statistical Yearbook"(1999–2009), we are able to calculate premium income, claims expenditure and some ratios for major types of insurance (1998–2008).

Note 10. Data show that, premiums of liability insurance and credit insurance in the market economy countries (e.g., Western Europe, North America, Japan, etc.) account for 35–50% of property and casualty insurance.

Note 11. In probability theory and statistics, the coefficient of variation (CV) is a normalized measure of dispersion of a probability distribution. It is defined as the ratio of the standard deviation to the mean: $CV = \sigma / \mu$. Restricted by the Chinese law, foreign-fund insurance companies cannot sell compulsory insurance. Therefore, we only use the data of Chinese property insurance companies (2002–2008).

Note 12. A Company's core competitiveness is the most fundamental one with regard to long-term stability of competitive advantage and sustainable excess profits.

Copyrights

Impairment of Goodwill: Level of Compliance and Quality of Disclosure during the Crisis
An Analysis of Italian Listed Companies

Maria Federica Izzo[1], Valerio Luciani[2] & Elisa Sartori[1]

[1] Department of Business and Management, LUISS Guido Carli University, Italy

[2] Department of Economic, Political Sciences and Modern Languages, Libera Università Maria Ss. Assunta, Italy

Correspondence: Maria Federica Izzo, Department of Business and Management, LUISS Guido Carli University, Rome, Via Salvini 2, 00197 Rome, Italy. Tel: 39-06-8522-5045. E-mail: fizzo@luiss.it

Abstract

This paper investigates the level of disclosure on impairment test of goodwill in the Italian context. The research is based on the analysis of the consolidated financial statements 2007–2011 of companies listed on FTSE MIB of Milan Stock Exchange at 31st December 2012. The main objective of the research is to verify if financial crisis has impacted on the level of compliance with IAS 36 and Guidelines issued by Italian Authorities. In addition, it tests if there are any relations between the level of disclosure and factors such as market capitalization, the ratio Goodwill on Equity and Impairment loss/Goodwill. Our results show that the quality of disclosure is still incomplete, even if it is clear that there is a significant improvement in the period covered by the analysis. In addition, we observe that, at least in relation to our data, there is no relation between the quality of mandatory disclosure on goodwill and the mentioned factors.

Keywords: impairment, goodwill, disclosure, IAS 36, compliance, value in use, market capitalization

1. Introduction

In 2011 Italy has been the European country that has most impaired assets recognized in the financial statements of listed companies (mainly goodwill). The amount of impairment has been over35 billion euros, equal to six times the total amount impaired in the previous 4 years (2007–2010) and the estimates for 2012 seem to confirm the need for further impairment.

Goodwill is one of the most controversial company assets, and this controversial nature is not just related to its definition but also to its quantification and accounting treatment (Bloom, 2009).

The impairment test procedures represent one of the most critical aspect of IAS/IFRS implementation (IFRS Foundations, 2013a), both for the high complexity and subjectivity of the evaluation process required by IAS 36, *Impairment of assets* (International Accounting Standard Board (IASB), 2004a) and for the incidence of these intangible assets in companies' financial statements (in relation to total assets, equity and market capitalization).

The recent financial crisis has led, in many cases and with no differences among countries, to a severe correction of the estimated financial cash flows and performance expectation formulated before the crisis with a clear and unavoidable impact on financial statements. At the same time, the ratio between market capitalization and equity has dramatically dropped off and for a number of companies it is less than one (Organismo Italiano di Valutazione (OIV), 2012). That leads to an increase, at least hypothetically, in the probability that the Cash Generating Unit (CGU) carrying amount is less than its recoverable amount.

In this macro-economic scenario many researchers have argued that concrete doubts exist on impairment real capability to fairly represent the company results, to offer reliable information and to inform financial markets and investors (Guatri, 2009; Liberatore, Ridi & Di Pietro, 2012). In June 2012, IASB Chairman Hans Hoogervost underlined the existence of a general delay, especially in this critical moment, in recognizing the impairment losses in companies' financial statements. In the light of the above, IASB is even considering, with concern to the IFRS 3 post-implementation, the possibility to re-adopt the goodwill amortization over its useful lifetime.

Starting from these doubts and concerns, our paper focuses on goodwill impairment test disclosure, addressing two main research questions:

(a) is the disclosure provided by Italian listed companies compliant with the IAS 36 requirements?

(b) has this disclosure changed (both in terms of compliance and accuracy) before and after the financial crisis explosion?

Some recent literature contributions, analyzing only the mandatory disclosure, demonstrate that the disclosure quality among European companies on goodwill impairment test is very poor (European Securities and Markets Authority (ESMA), 2013; Devalle & Rizzato, 2012; Hartwig 2012) and that in the Italian scenario, in contrast to the English one, a strong and robust positive relation between the impairment loss and the disclosure level exists, due to potential earnings management dysfunctions (Massoud & Raiborn, 2003; Watts, 2003; D'Alauro, 2011).

Foremost, the relevance of this topic is confirmed by IASB that, through the Exposure Draft Recoverable Amount Disclosures for Non-Financial Assets (IASB, 2013), is trying to revise and adapt information rules about goodwill impairment test to the actual international situation.

Our research concerns the evaluation of the compliance level with the provisions of IAS 36 provisions (par. 134 about the CGU recoverable amount) and the quality of the disclosure provided in accordance with this standard, by reviewing the consolidated financial statements of a sample made up of 40 Italian companies, listed on the FTSE-MIB Italian Stock Exchange in the period 2007–2011.

In relation to our sample, the banks analyzed present a ratio Goodwill/Market capitalization equal, on average, to 63, 61%, while for industrial companies the ratio Goodwill/Invested Capital is, on average, 15% and higher than 30% for 1 company out of 5.

The analysis is enriched by taking into account the requirements and best practices presented in other documents and guidelines provided by Italian Authorities: Bancad'Italia (central bank of the Republic of Italy); CONSOB (the supervisory authority regulating the Italian securities market) and ISVAP (now IVASS, Institution for the supervision of insurance). The required additional information regards, starting from 2009 financial statements, the discount rate components, the sensitivity analysis, the differences between the amounts of the key assumption in the current period and the same ones in the previous year and the reasons why, even if there are signs of impairment's value of an asset, the entity didn't register an impairment loss. The time horizon has been chosen in order to distinguish between a pre-crisis period (2007–2009) and a crisis-affected period (2010–2011).

Thus, the aim of this analysis is to verify if the crisis worsening and the external impairment indicators have led Italian companies to improve the quality of their financial disclosure both in the case of an impairment loss recognition and in the opposite case. Our starting idea, in fact, is that especially in the depicted contest, where an impairment's indicator is more probable than not, the decision not to impair goodwill should require even more clear and accurate disclosure that the one presented when entities register an impairment loss.

In order to test our hypothesis, a compliance matrix is built and a score is assigned to each company in order to verify the level of goodwill's disclosure compliance and its variation during the period covered by the analysis. The main analyzed aspects refer to the determination of growth rate, the disclosure about the discount rate, the sensitivity analysis, the dimension of impairment losses on goodwill, the percentage of goodwill to total assets, the equity/market capitalization ratio and the goodwill/equity ratio.

Our first results reveal a material level of non-compliance and quite a high level of variation both in the quality and precision of the information presented in relation to impairment assumptions and testing procedures. The major deficiencies concern the assumptions used in order to define the expected flows and the terminal value. The discount and growth rates are often presented but rarely commented on in a proper way and thoroughly defined (as explicitly requested by the Italian Authorities and the Italian Standard Setter). In particular, the paper deals with factors that may explain why some firms are not entirely compliant with IAS 36. The analysis of this non-compliant information gave us the possibility to define best practices, discuss on policy recommendation and potential rules-improvement and, finally, to identify directions for future research. The paper offers some remarks to improve the quality of goodwill disclosure, also in order to submit useful findings to IASB in the process of accounting standard setting: IFRS Foundation, as confirmed in the new Due Process Handbook (IFRS Foundation, 2013b), has set out the new due process principles, where it is considered that the IASB, also through the ASAF's role, will use fieldwork to support the development of changes in IAS/IFRS.

In order to provide shareholders with relevant information, it seems particularly important to examine IAS 36 requirements that ask to disclose on goodwill impairment in an entity-specific manner and not in a generic and vague way. In this regard, if the level of uncertainty in an estimate is sufficiently large, transparency and

accuracy of disclosure are essential to ensure that the faithful representation of the phenomenon is presented in financial reports (IASB, 2010).

The paper is structured as follows: in section "Regulatory framework" we analyze the requirements of IASB and recommendations of Italian Authorities in order to better introduce the section "Literature review" in which the theoretical framework is presented and the main assumptions of the work are introduced. In section "Methodology" the sample is explained and all the variables are presented. Finally, the section "Empirical results" shows the main results of the model.

The article concludes by considering the results and the limits of this study with further research/analisys in the "Conclusions" section.

2. Disclosure of Goodwill: Regulatory Framework

The current version of IAS 36 *Impairment of Assets* was issued in April 2004 within the project on business combination's reform (IASB, 2004b). The original text of IAS 36 has been amended by IFRS 3 revised in 2008 and endorsed by Regulation CE n. 495/2009. Further amendments have been made by *Annual Improvements to IFRSs 2007* (endorsed by Regulation CE n. 70/2009) and *2009* (endorsed by Regulation CE n. 243/2010).

Substantial changes have impacted on accounting and disclosure's requirements on impairment test following the issue of IFRS 13 *Fair Value Measurement*, enacted in May 2011 and endorsed by Regulation n. 1255/2012 (IASB, 2011).

Impairment test describes the procedures that an entity applies to ensure that its assets are carried at no more than their recoverable amount, defined as the higher of an asset's fair value less costs to sell ("fair value less transaction cost" according the new terminology introduced by IFRS 13) and its value in use.

The impairment procedure usually starts when trigger events, both related to external and internal source, arise, but the existence of impairment indicator does not imply automatically the recognition of an impairment loss.

The assets under scope of IAS 36 are impaired only if evaluation's process confirms that the "fundamental" value of the asset (or group of assets) is lower than carrying value.

IAS/IFRSs require a detailed disclosure on the estimation made to ascertain the carrying value of goodwill and carrying value of intangible assets with indefinite useful life (from now on, only goodwill) recognized in the financial position (both individual and consolidated).

It is important to clarify that the disclosure's obligations are compulsory for the CGUs that have a significant allocated goodwill's portion on the total carrying value of goodwill. The CGU is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.

IAS adopters are required to disclose the carrying amount of goodwill (or of intangible assets with indefinite useful life) allocated to the CGU and the *basis of value* (*value in use* or *fair value*) elected to estimate the recoverable amount of CGU (IAS 36, par. 134, lett. c).

The information required by IAS 36 on impairment test is different according the adopted basis of value for CGU recoverable amount's estimation.

If recoverable amount is based on value in use, the entity has to describe each key assumption (IAS 36, par. 134, lett. d. i) which the unit's (group of units) recoverable amount is most sensitive and the approach adopted to assign a value to each key assumption.

It is also necessary to specify whether those values reflect past experience or, if appropriate, are consistent with external sources of information (IAS 36, par. 134, lett. d. ii).

For this reason, the current text, that is different from the Exposure Draft that was published before IAS 36 revised 2004, does not require:

- the values assigned to each key assumption;

- the change that each key assumption should register in order for the CGU's recoverable amount to be equal to its carrying amount. According to the current requirements, entities have to provide this information only if a reasonably possible change in a key assumption would cause the CGU's carrying amount to exceed its recoverable amount. Under this circumstance, the preparers have also to disclose the amount by which the CGU's recoverable amount exceeds its carrying amount (IAS 36, par. 134, lett. f) and the amount by which the value assigned to the key assumption must change, after incorporating any consequential effects of that change on the other variables used to measure recoverable amount, in order for the unit's (group of units') recoverable

amount to be equal to its carrying amount. It can be deduced that this disclosure obligation is excluded implicitly if there is a goodwill impairment loss.

Taking into account the views of respondents to the public consultation of mentioned Draft, the Board has concluded that the requirement to disclose the values assigned to every single sensitive assumption went beyond the goals set in order to guarantee a satisfactory level of disclosure for the users. The users of financial statement, as far as we concern, are interested in the reliability of estimation process of impairment test.

In the details, this requirement should expose IAS adopters to the risk of litigation, especially if quantitative data reported in the Notes were not accurate.

The proposal for a legal action based on values assigned to each key assumption should lead to the management to engage independent experts to develop all key assumptions or to use super-conservative assumption, thereby resulting in improper asset write-downs.

At the same time, it is important to notice that above explained approach does not concern the discount rate of future cash flows and the growth rate of terminal value's cash flow. IAS 36 requires the amount assigned to these two key assumptions, irrespective the results of impairment test and the uncertainty of economic evaluations used to perform the test.

For this reason, if the preparer uses a growth rate to extrapolate cash flow projection higher than long- term average growth rate for the products, industries, or country in which the entity operates, this choice has to be justified (IAS 36, par. 134, lett. d.iv e d.v.).

Finally, as far as the value in use, the entities have to declare the period over which management has projected cash flows based on financial budgets/forecasts approved by management and, when a period greater than five years is used for a cash-generating unit (group of units) an explanation for the adoption of a longer period (IAS 36, par. 134, lett. d.iii).

If the recoverable amount of CGU is based on fair value less costs to sell, the level of disclosure depends on the approach that has been adopted.

If it is used the market approach through observable market prices, it is enough to give information on the methodology (IAS 36, par. 134, lett. e); in case of adoption of alternative criteria (i.e., the income approach) IAS 36 *revised* 2004 was limited to require the description of key assumption (par. 134, e.ii) and the approach used to assign an amount to these key assumptions (IAS 36, par. 134, lett.e.ii).

As a consequence, the level of disclosure under the adoption of income approach to estimate the fair value was lower than the one required for the value in use.

IASB has amended this incoherence through the issue of *Improvements to IFRS 2007* (published on 2008) that has introduced, even for the evaluation of fair value through income approach, the requirement on the disclosure of the growth rate used to extrapolate cash flow projections and the discount rate applied to the cash flow projections (par.134, e.iii, iv e v).

This amendment, that represents an improvement as far as the financial reporting's transparency, is particularly significant because it has eliminated the doubt about the application of income approach for the estimation of fair value.

It is useful to remark that IAS 36 does not define analytical rules for the projection of future cash flows and discount rate for the fair value, in contrast to what is required for value in use.

As outlined earlier, IFRS 13, published in May 2011 and become effective 2013, amends significantly some disclosure's rules of IAS 36.

These changes have a double goal: to extend the disclosure on recoverable amount of assets under impairment (particularly if the estimation is based on fair value) and to balance the disclosure required if fair value is adopted and the disclosure required if the value in use is adopted.

Focusing on the amendment on goodwill, current IAS 36 requires to disclose the recoverable amounts of CGUs for which the carrying amount of goodwill and intangible assets with indefinite useful life allocated is significant.

This new requirement obliges IAS adopters to disclose the final result of evaluation performed in application of impairment test in the notes.

A new requirement, in case CGU's recoverable amount is based on fair value, concerns the obligation to give information on the level of hierarchy of fair value and on contingent change of evaluation technique and the

reason that justifies this accounting behavior.

As evidence of the importance of this subject for the IASB, in January 2013 IASB has published an *Exposure Draft* that proposes some amendments, just introduced by IFRS 13, on IAS 36 as far as the disclosure.

The Draft remarks that originally IASB intended to require the entities to disclose the recoverable amounts of impaired CGUs (or of CGU that have been object of reversal in the current period).

On the contrary, IAS 36 revised 2011 has extended this requirement to all CGUs for which the carrying amount of goodwill allocated to that unit is significant, nevertheless the recognition of an impairment loss.

The amendments to par. 130 and 134 of the Draft should allow to align the text of the Standard to the real purposes declared by IASB. Without addressing the issue, it seems quite surprising that IASB recognizes to have enacted requirements that are contradictory with the expected goals.

In addition, the Draft includes an amendment that has been already inserted in the Draft to Improvements to IAS/IFRS 2010–2012. This amendment requires to disclose the discount rate that was used in a present value technique in order to determine the recoverable amount of impaired assets, regardless of whether that recoverable amount was based on fair value or on value in use.

At a national level, OIC (Organismo Italiano di Contabilità, the Italian Accounting Standard Setter) has enacted the Application n. 2 "Impairment and Goodwill" in December 2009 for not financial entities. This document addresses the practical application of IAS 36 as far as the measurement of goodwill, providing the users with useful formats in terms of graphs used to insert the numerous information required by IAS 36 (OIC, 2009).

In substantial terms, OIC focuses on the obligation to provide with adequate information on the ways used to determine the terminal value (perpetuity annuity or temporary annuity) and on the related discount rate that, so far as known, could be different from the discount rate used for the cash flows for the period covered by the most recent forecast.

The economic and financial crisis of 2008 has induced the Regulatory Authorities (Banca d'Italia, ISVAP and CONSOB) to enact some recommendations to request the application of requirement on impairment test for Board of directors and for Board of statutory auditors of Italian listed companies.

The communication of 6 February 2009 has this purpose: the Authorities have called attention the Boards of Italian under surveillance to disclose information adequate according the requirements of IAS 36 on impairment test (Banca d'Italia, ISVAP & CONSOB, 2009).

Document n. 4 published in 2010 face the issue in more detail, remarking the need to provide, starting from period 2009, with more exhaustive information as far as some critical phases of impairment test ex-IAS 36 (Banca d'Italia, ISVAP and CONSOB, 2010).

Particularly, Regulatory Authorities believe that impairment's process should be approved "separately" before the approval of financial statement.

As far as the disclosure, The Authorities, in addition to the requirements of IAS 36, oblige the entities to disclose the components of discount rate and to specify whether it is used a rate before or after taxes and the amount of the previous period.

It is also required to focus the preparers on the existence of external impairment indicators and to disclose adequately the contingent not alignment between the market's evidences and the impairment test's result. In example goodwill is not impaired although market capitalization is lower than book value.

The authorities seem to suggest the entities to report the results of sensitivity analysis even if there is absence of conditions required by IAS 36, par. 134, lett.f. (the first condition regards the reasonably possible change in a key assumption on which management has based its determination of CGU's recoverable amount and the second condition is that this reasonable change causes the recognition of an impairment loss).

The recommendations of Regulatory Authorities on goodwill's disclosure have been recalled on Application of OIC: *Application 2.1. Impairment and goodwill for banking sector* (OIC, 2011a) and *Application 2.2. Impairment and goodwill for insurance sector* (OIC, 2011b).

Italian Standard Setter believes that the information about the components of discount rate has to be provided only at a descriptive level. This interpretation is not reported in the Document n. 4 of Regulatory Authorities.

OIC Applications give evidence of obligation to perform sensitivity analysis on the change of future cash flows, growth rate and discount rate. Therefore, a sensitivity analysis conducted only on a single evaluation's driver (i.e., discount rate) is not considered exhaustive and is not compliant with IAS 36 (ESMA, 2013).

3. Literature Review

There has been a considerable number of recent studies regarding the accuracy and level of compliance of financial statements disclosure. The importance of providing reliable and compliant disclosure there have been particularly evident for companies applying IAS/IFRS, considering the volatility of performance that is likely to result from the increased use of fair value (Verriest & Gaeremynck, 2009; Petersen & Plenborg, 2010)

The research on this topic can be divided in two parts: the first one faces the general quality of the disclosure; the second one is focused and limited to the disclosure on specific items.

Concerning the first aspect, the literature contributions have focused particularly on the association between the level of disclosure and the cost of equity (Botosan, 1997; Botosan, 2006; Botosan & Plumlee, 2012; Armitage & Marston, 2008; Barth, Landsman & Lang, 2008).

Other researchers, focusing on the effect of IAS/IFRS adoption process, have demonstrated that the quality of financial statements of companies adopting IAS has increased significantly for companies of the countries analyzed (Austria, Germany and Switzerland), leading to higher liquidity in the capital markets and lower cost of capital to the reporting entities (Daske & Gebhardt, 2006).

Disclosure is a key factor in investing process: Douglas and Verrecchia (1991) have shown that revealing public information to reduce information asymmetry can reduce a firm's cost of capital by attracting increased demand from large investors due to increased liquidity of its securities; Daske and Hail have demonstrated that "serious" IFRS adopters have experienced an increase in liquidity and a decline in cost of capital (Daske, Hail, Leuz & Verdi, 2013).

The issue on impairment test of goodwill is related to the topic regarding the accounting of goodwill, composed of two indistinguishable parts: internally generated goodwill, that can't be accounted for, and purchased goodwill that is recognized in the financial statement. Bloom (2009) stated that it can confidently be expected that, as anomalies and practical difficulties manifest themselves in practice, the current impairment regime will, in its turn, be abandoned. The last developments on this issue seem to demonstrate the reasonability of these considerations.

About specific research on the level of disclosure, it is important to notice that, as analyzed in the paragraph on Regulatory framework, some authors suggest that the goodwill's Impairment Test will satisfy the need for analysts for better information about intangible assets (Donnelly & Keys, 2002). Some research papers have also demonstrated that Impairment regime reflects the underlying economic attributes of goodwill than do amortization charges, finding the association between firms' goodwill charges against income and the firm's investment opportunities (Chalmers, Godfrey & Webster, 2011). IAS 36 is a complicated standard that requires valuation techniques' knowledge. IAS 36 impairment disclosure should provide users of financial statements with better information as goodwill is not amortized (Colquitt & Wilson, 2002).

At international level, some of the evidence relating to the level of disclosure regarding teh impairment test for goodwill comes from analysis on listed Australian market (Carlin & Finch, 2010). The authors have found that the impairment test information is not so clear and "compliant", also because of the recent vicissitudes in financial markets. They have found a material level of "no-compliance" and a material degree of variation in the quality of disclosure pertaining the impairment test procedures.

Similar results are contained in the paper of Hartwig (2012) that has found that the compliance level of goodwill's disclosure for Swedish and Dutch listed companies is low, registering an increase over the time covered by the analysis.

Among the most recent research contributions on the topic, the analysis performed by Devalle and Rizzato (2012) on the quality of mandatory disclosure of goodwill for European listed companies for period 2010 statement. The authors have verified whether the mandatory disclosure is shown in the notes of consolidated financial statements of Italian, French, German and Spanish companies. The results show that the disclosure index is very low and there are significant differences among the stock markets analyzed by the Authors.

Petersen and Plenborg (2010) made an assessment of disclosure quality and compliance levels conducted on Danish listed firms pointing out that a common practice on impairment test of goodwill has not yet been established. The authors have examined how firms implement impairment test of goodwill focusing on the definition of a cash generating unit and how firms measure the recoverable amount of a CGU. They found that some firms do not define a CGU in compliance with IAS 36 and they also have registered some inconsistencies in the way that firm estimate the recoverable amount (the discrepancies regard especially before-tax discount rate, adjusting for risk, and estimating the cash flow in the terminal period).

An interesting application of a model for measuring the level of disclosure about intangibles developed by University of Ferrara is exposed in the contribution of Bergamini and Zambon (2001). They have appreciated the level of information on intangibles disclosed by Italian, French, German and UK companies in 2001 annual reports. This analysis, that has been developed on financial statements prepared before the application of IAS/IFRS, has demonstrated that traditional financial statements are not able to provide any interesting information on the intangible assets that are key to the company. This contribution has also proved that Continental European companies supply much more information on intangible assets than UK companies.

Some interesting research on this topic has been led by Camodeca and Almici (2012). They have demonstrated that in the European banking sector the level of disclosure regarding the components of Discounted Cash Flow Model used to estimate the recoverable amount increased during the period 2006–2011, and especially after the financial crisis, even if the level of compliance disclosure is lower for some specific topic such as discount rate, growth-rate and terminal value.

In relation to Italian listed companies, Liberatore, Ridi and Di Pietro (2012) have examined the value relevance and reliability perceived by the markets for goodwill and intangible assets recognized in the financial statement for the period 2002–2008, concluding that information relating these intangibles is value relevant in terms of market value.

Teodori and Veneziani (2010) have conducted an analysis on the three main Italian Stock Market indexes in terms of disclosure of intangible assets as required by IAS 36 with the analysis of consolidated financial statements for 2005 and 2006 periods. The level of disclosure in compliance with IAS 36 is summarized through the construction of a "disclosure index". It has emerged that there is not only little voluntary information but at times there is also little mandatory information concerning the most delicate aspects introduced by the IAS 36.

Specifically, some research contribution focuses on some specific information of impairment test regarding the discounted rate for the estimation of value in use for goodwill (Liberatore & Mazzi, 2011). The mentioned analysis compares a sample of Italian companies and a sample of North European country in order to evaluate whether the mandatory disclosure quality is related to the significance that intangible assets have in North European countries. The results demonstrate that the discount rate disclosure level used in estimating goodwill increases following a goodwill write-off.

Another relevant study that contributes to the debate on the appropriateness of disclosure regarding the Impairment Test of goodwill is the one conducted on Italian companies listed on Milan Italian stock exchange by Biancone (2012). The author has analyzed the information offered in terms of disclosure of impairment test of goodwill by consolidated financial statements of companies listed on the Italian Stock Exchange for the periods 2007–2009. The research found that most Italian companies offered incomplete and not compliant disclosure, finding that there is no connection between the recorded amount of goodwill or its impairment and the amount of information.

The importance of a full and compliant disclosure on Impairment test of goodwill in the financial statements is particularly significant: the investors need reliable and material information to help them determine whether they should buy, hold or sell the company's equity instruments. The investors penalize much more the "opacity" of disclosure than the impairment loss: a better quality of disclosure on Impairment Test will offer an important contribution to the answer to financial crisis. Impairment test is not an "accounting act" but an instrument of control and communication to financial markets (Guatri & Bini, 2009).

This paper is focalized on the disclosure of impairment test of goodwill that requires numerous assumptions to be made in estimating recoverable amount. Considerable ambiguity and subjectivity are inherent in this IFRS requirement (Wines, Dagwell & Windsor, 2007).

This paper contributes to existing literature giving interesting results on goodwill impairment disclosure of Italian listed companies for periods 2007–2011 focusing on the analysis of compliance according to IAS 36 through a differentiation for specific topic.

We highlight the critical aspects of disclosure that are particularly sensitive to the discretion of management and to the uncertainty of Financial Crisis. The analysis of current practice of listed Italian companies is a good starting point to evaluate the major difficulties companies face to carry out goodwill's Impairment Test and to reflect on some critical aspects of IAS 36.

This analysis could be of interest to companies, auditors, financial advisors, users of financial statements and standard setters in order to offer some remarks to improve the quality of goodwill's disclosure and to discuss on policy's recommendation and potential rules' improvements.

4. Hypotheses

This research aims to answer to the following questions about level of disclosure on goodwill's Impairment for a sample of Italian listed companies:

a) are Italian listed companies compliant with requirements of IAS 36 par. 134?

b) can we have some evidences of a disclosure's improvement during the period 2007–2011?

c) are Italian listed companies compliant with recommendations of Italian public Authorities and of Italian Standard Setter on this topic?

d) are there any relations between level of disclosure and some factors, such as market capitalization and ratios like G/E (goodwill on equity), I/G (impairment loss/goodwill)?

According to previous contributions (Carlin & Finch, 2010; Hartwig, 2012; Devalle & Rizzato, 2012; Petersen & Plenborg, 2010; Teodori & Veneziani, 2010; Biancone, 2012) expect that, in the Italian scenario, there is a lack of compliance both with the requirements of IAS 36 and with Italian public Authorities and Italian Standard Setter. The critical aspects could be related to the quality and precision of the information presented in relation to impairment assumptions and testing procedures. In relation to question b), our starting idea is that especially in the depicted contest, where an impairment indicator is more probable than not, the decision not to impair goodwill should require even more clear information and accurate disclosure that the one presented when entities recognizing an impairment loss. For that reason, we expect to find an increase in the disclosure score of the analyzed companies from 2007 to 2011.

As far as the question d) is concerned, the investors of financial markets penalize much more opacity of disclosure than the impairment loss (Guatri & Bini, 2010); so we can assume that listed companies are more sensitive to disclosure problems, perhaps due to reputational problems. In addition, we expect that when the G/E ratio is high, companies are more interested in offering a detailed information on goodwill and when the I/G ratio is relevant, companies are expected to disclosure more and more in detail, as the market is particularly sensitive to these kind of loss. Hence, we expect a positive relation between the level of disclosure and market capitalization, G/E and I/G.

In order to test our hypothesis, we have built disclosure grids and we have assigned a score to the panel companies in order to verify the level of goodwill's disclosure compliance in the period 2007–2011 and its variation during the period covered by the analysis.

The main aspects we have considered refer to the information on basis of value, determination of growth rate, disclosure about discount rate and cash flow and sensitivity analysis.

5. Methodology

This research is structured by 5 phases:

- data collection and identification of companies included in the sample;

- construction of assessment grids on goodwill disclosure provided in the financial statement;

- "disclosure index" construction;

- calculation of disclosure index for each company included in the sample;

- evaluation of results through:

a) analysis in order to determine the relevance of goodwill on total assets and on total equity and in order to investigate the basis of value used by companies to evaluate recoverable amount of CGU (this is particularly important because the disclosure rules depend on adopted basis of value).

b) the determination of descriptive statistics' indicators (mode, mean and median);

c) the analysis of correlation test between disclosure index and some relevant parameters mentioned in our research hypotheses (see par. 6).

5.1 First Phase—Data's Collection and Identification of Companies Included in the Sample

In the first phase, we have collected the consolidated financial statements for a sample of Italian companies that are listed on FTSE MIB of Milan Stock Exchange at 31st December 2012 and it covers a period of 5 years, from 2007 until 2011.

The FTSE MIB is the primary benchmark Index for the Italian equity markets. Capturing approximately 80% of the domestic market capitalization, the Index is derived from the universe of stocks trading on the Borsa Italiana

main equity market.

The sample is heterogeneous and includes companies belonging to different industries, as presented in Table 1.

Table 1. Companies analyzed

Company	Industry
Banca Monte Paschi Siena	Banking
Banca Popolare Emilia Romagna	Banking
BancaPopolare Milano	Banking
BancoPopolare	Banking
IntesaSanpaolo	Banking
Mediobanca	Banking
Mediolanum	Banking
UbiBanca	Banking
Unicredit	Banking
Azimut Holding	Financial
Exor	Financial
Generali	Insurance
A2a	Manufacturing and Service
Ansaldo Sts	Manufacturing and Service
Atlantia	Manufacturing and Service
Autogrill	Manufacturing and Service
BuzziUnicem	Manufacturing and Service
Campari	Manufacturing and Service
Diasorin	Manufacturing and Service
Enel	Manufacturing and Service
Enel Green Power	Manufacturing and Service
Eni	Manufacturing and Service
Fiat	Manufacturing and Service
Fiat Industrial	Manufacturing and Service
Finmeccanica	Manufacturing and Service
Impregilo	Manufacturing and Service
Lottomatica	Manufacturing and Service
Luxottica	Manufacturing and Service
Mediaset	Manufacturing and Service
Parmalat	Manufacturing and Service
Pirelli & C	Manufacturing and Service
Prysmian	Manufacturing and Service
Salvatore Ferragamo	Manufacturing and Service
Saipem	Manufacturing and Service
Snam	Manufacturing and Service
Stmicroelectronics	Manufacturing and Service

Telecom Italia	Manufacturing and Service
Tenaris	Manufacturing and Service
Terna-Rete ElettricaNazionale	Manufacturing and Service
Tod's	Manufacturing and Service

In Table 2 the number of observations are indicated in the sample for each year covered by the analysis. The number of observations per year is equal to the difference between the total companies in the Index FTSE MIB at 31st December 2012 and the companies excluded from the observation.

Table 2. Observations

	2007	2008	2009	2010	2011
Companies in the Index at 31st December 2012 (a)	40	40	40	40	40
Companies excluded (b)	-8	-5	-4	-3	-3
Number of observation (a-b)	**32**	**35**	**36**	**37**	**37**

Companies have been excluded for two reasons: lack of financial statement IAS/IFRS compliant for one or more period (companies that have been constituted after 2010 or listed after 2010) and no goodwill or irrelevant goodwill recognized in financial statement (Goodwill on Total Asset less than 0,04%).

In this way we have obtained the smallest number of missing data and a reliable sample dataset.

Data extracted for the analysis have been extrapolated from:

- consolidated financial statements for the period covered by analysis: 2007–2011;

- Data stream and Osiris database's resources for market data.

5.2 Second Phase—Construction of Assessment Grid

The most important step of our research has been the construction of assessment grids on goodwill disclosure provided in the financial statement.

In relation to goodwill disclosure, we have built two grids:

(a) **"mandatory disclosure grid"** according to IAS 36 requirements;

(b) **"recommended disclosure grid"** examining the guidelines provided by Italian Standard Setters and Italian public Authorities.

Every grid is composed of two columns: the first one concerns the specific requirement that company has to apply in the notes and the second one contains the pertaining score assigned to each company.

Mandatory disclosure grid

This grid has been constructed on the basis of requirements contained in IAS 36, paragraph 134.

Particularly, the disclosure's requirements have been grouped in the following four areas, in order to simplify the evidence of the analysis:

- Basis of value;

- Value in use, divided into:

    a) cash flow projection;

    b) terminal value;

    c) discount rate;

    d) growth rate;

    e) coherence of key assumptions;

- Fair Value;

- Sensitivity Analysis.

The requirements included in each cluster have not extracted *sic et simpliciter* from IAS 36 but it's also a result of an interpretation based on the best theories and best practices on the subject, such as recommendation of Accounting Standard Setter.

Table 3. Mandatory disclosure requirements

Mandatory Grid	
Basis of value	
Has the entity disclosed the basis on which the CGU's recoverable amount has determined (fair value or value in use)?	0 point = information not included 1 point = information complete
Value in use (the information below are required only if company has applied this basis of value. If not the score is for each requirement N/A, not applicable)	
Value in use—Disclosure on future cash flow for the period covered by the most recent budget/forecast	
Has the entity disclosed each key assumption of macro-economic source on which management has based its cash flows projections for the period covered by the most recent budgets/forecasts (IAS 36, par. 134, letter d) i).	0 point = information not included 0,5 point = information not complete (only one key assumptions is disclosed) 1 point = information complete (more than one key assumption is disclosed)
Has the entity disclosed each key assumptions of internal source on which management has based its cash flows projections for the period covered by the most recent budget/forecast? (IAS 36, par. 134, let. d) i).	0 point = information not included 0,5 point = information not complete (only one key assumptions is disclosed) 1 point = information complete (more than one key assumption is disclosed)
Has the entity described the management's approach to determining the value(s) assigned to each key assumption on which management has based its cash flows projections for the period covered by the most recent budget/forecast? (IAS 36, par. 134, lett. d) ii)	0 point = information not included 0,5 point = information not complete (not for all key assumptions) 1 point = information complete
Has the entity disclosed the period covered by the most recent budget/forecast?	0 point = information not included 1 point = information complete N/A = the period is less than five years
Has the entity disclosed the reasons that justify the adoption of a period covered by the most recent budget/forecast exceeding five years? (only if this option is exercised)	0 point = information not included 1 point = information complete
Value in use—Terminal value	
Has the entity disclosed the approach applied to assign value(s) to each key assumption concerning future cash flows for the period over which management has projected cash flows based on financial budget/forecast?	0 point = information not included 1 point = information complete (it is disclosed the approach to determine the terminal cash flow)
Has the entity disclosed the approach to assign value(s) to each key assumption concerning discount rate used for the estimation of terminal value? (IAS 36, par. 134, let. d) ii)	0 point = information not included 1 point = information complete (it is disclosed the approach to determine the discount rate applied to terminal cash flow or it is specified that this rate is the same of the one applied for the budget cash flows)
Value in use—Discount rate for the period covered by the most recent budgets/forecasts	
Has the entity disclosed the approach adopted to assign value(s) of each key	0 point = information not included

assumptions concerning the discount rate? (IAS 36, par. 134, lett. d) ii)	0,5 point = vague and general information (i.e. the entity only declares to have applied the CAPM)
	1 point = information complete
Has the entity disclosed discount rate applied for the projections of cash flows?	0 point = information not included
	1 point = information complete
Value in use—Growth rate	
Has the entity disclosed the growth rate (g) used to extrapolate future cash flows for the period over which management has projected cash flows based on financial budget/forecast?	0 point = information not included
	1 point = information complete
Has the entity specified whether growth rate g is compliant with the long-term average growth rate for the products, industries, or country or countries in which the entity operates?	0 point = information not included
	1 point = information complete
Has the entity explained the decision to adopt a growth rate exceeding the long-term average growth rate for the products, industries, or country or countries in which the entity operates? (only if this option is exercised)	N/A = the growth rate does not exceed the growth rate for the industry, etc.
	0 point = the growth rate exceeds the one for the industry, etc. and the information is not included or it is not included the information on the previous requirement
	1 point = information complete
Value in use—Coherence of key assumptions	
Has the entity disclosed if values assigned to each key assumption reflect past experience? (IAS 36, par. 134, let. d) ii)	N/A = if company is fully or partially compliant with next requirement
	0 point = information not included
	0,5=information not complete
	1 point = information complete
Has the entity disclosed if values assigned to each key assumption differ from past experience or external source of information? (IAS 36, par. 134, let. d) ii)	N/A = if company is fully or partially compliant with previous requirement
	0 point = information not included
	0,5 point =information not complete
	1 point = information complete

Fair Value (the information is required only if company has applied this basis of value. If not the score is for each requirement N/A, not applicable)

Has the entity described the methodology used to determine fair value less costs to sell?	0 point = information not included
	1 point = information complete
	N/A = if fair value is determined through market approach
	0 point = information not included
Has the entity described each key assumption on which management has based its determination of fair value less costs to sell?	0,5 point = information not complete (only one key assumptions is disclosed)
	1 point = information complete (more than one key assumption is disclosed)
Has the entity described management's approach to determining the value (values) assigned to each key assumption?	N/A = if fair value is determined through market approach
	0 point = information not included
	0,5 point = vague and general information
	1 point = information complete

Has the entity disclosed if values of each key assumption reflect past experience or, if appropriate, are consistent with external sources of information?	N/A = if fair value is determined through market approach
	0 point = information not included
	0,5 point =information not complete
	1 point = information complete

Sensitivity analysis (only if a reasonably possible change in a key assumption on which management has based its determination of CGU's recoverable amount would cause the CGU's carrying amount to exceed its recoverable amount)

Has the entity disclosed the amount by which the CGU's recoverable amount exceeds its carrying amount?	N/A= if entity has impaired goodwill
	0 point = information not included
	1 point = information complete
Has the entity disclosed the value assigned to the key assumption?	0 point = information not included
	0,5 point = information not complete (only one key assumptions is disclosed)
	1 point = information complete (more than one key assumption is disclosed)
Has the entity disclosed the amount by which the value assigned to the key assumption must change, after incorporating any consequential effects of the change on the other variables used to measure recoverable amount, in order for the CGU's recoverable amount to be equal to its carrying amount?	0 point = information not included
	0,5 point = information not complete (only one key assumptions is disclosed)
	1 point = information complete (more than one key assumption is disclosed)

Recommended disclosure grid:

It is important to clarify that both OIC's Guidelines "*Impairment and Goodwill*" and Communications issued by Banca d'Italia, Consob and ISVAP concerning IAS/IFRS do not have the objective to introduce new accounting requirements but to facilitate the correct application of IAS/IFRS requirements.

However, as regards the disclosure on goodwill impairment test, the above-mentioned documents require the preparers to disclose some specific information not expressly required by IAS 36. In particular:

- the Application OIC n. 2 suggests to give information on the amount of goodwill allocated to CGU also for the previous period and the inclusion of chart on relations between CGU and operating segments in case CGU and operating segments do not coincide;

- the Communication enacted by Banca d'Italia, Consob and ISVAP in March 2010 requires the companies to:

(a) give information on identification of CGU compliant with the operating characteristics and with the strategic vision of the company;

(b) disclose the components of discount rate;

(c) clarify if the discount rate is after or before taxes;

(d) specify if the discount rate coincides with the one of the previous year;

(e) provide with complete information if companies do not impair carrying value of assets, even though there is a presence of external indicators of Impairment.

- the Applications OIC n. 2.1 and 2.2.—in addition to confirm the recommendation of disclosure required by above mentioned Authorities—require to banks and insurance companies to:

(a) specify the carrying amount of CGU;

(b) disclose the approach that has been applied to draw up budget;

(c) perform sensitivity analysis considering the hypotheses on flows, discount rate and growth rate;

(d) perform "variability" analysis in order to point out the impact on CGU's recoverable amount in case there is a simultaneous change of key assumption's values.

The requirements of these Guidelines have been effective starting from financial statements 2010.

As this paper focalizes its attention on the disclosure concerning the evaluations of goodwill for Impairment test, the analysis on the level of compliance with Guidelines of OIC and Recommendations of Authorities has taken into consideration only the aspects concerning this topic.

The grids we have prepared to evaluate the level of compliance with the suggestion of Italian Standard Setter and Authorities are the following:

Table 4. Recommended disclosure requirements

Recommended Grid	
Discount rated is closure	
Is it disclosed Risk free-rate?	0point=information not included
	1point=complete information(quantitative or descriptive)
Beta	0point=information not included
	1point=complete information
Risk premium	0point=information not included
	1point=complete information
Cost of debt	N/A=entity uses equity's approach
	0point=information not included
	1point=complete information
Proportion of equity and debt on funding mix-if entity apply unlevered cash flow	N/A=entity uses equity's approach
	0point=information not included
	1point=complete information
	0point=information not included
Has the entity specified if the discount rate corresponds to the one used in the previous period?	1point=complete information
Has the entity clarified if the discount rate is after or before taxes?	0point=information not included
	1point=complete information
Disclosure on external indicators of Impairment	
Has entity disclosed on presumed indicators of external sources of information in a complete way? Only if entity has not impaired goodwill	0point=information not included
	0,5point=information not complete
	1point=complete information
	N/A=entity has impaired goodwill
Additional Recommended Grid for banks and insurance companies	
Requirement	**Score**
Has entity disclosed the approach that has been applied for the budget/forecast? (budget that has been approved and publicized to the market; budget that has been approved and publicized to the market but not more up-to-date)	0point=information not included
	1 point = complete information
Has sensitivity analysis been conducted on the basis of following factors: future cash flow, growth rate, discount rate?	0point=information not included
	0,5=informationnotcomplete(notmorethantwoassumptionsaredisclosed)
	1point=complete information
Has the entity carried out also a variability analysis?	0point=information not included
	1point=complete information

5.3 Third and Fourth Phases—"Disclosure Index" Construction and Calculation

We have calculated disclosure index for every period covered by the analysis for each company included in the sample and examined the disclosure in the notes of financial statement in order to evaluate the quality of disclosure for the requirements included both in the mandatory grid and in recommended grid. The *total score* is the sum of the assigned scores for each requirements; this is an absolute value, expressive of the company's disclosure level on goodwill's impairment test.

At the end we have calculated the annual disclosure index as the ratio between the *total score* and the *total potential score,* that represents the achievable score in case of full compliance.

This approach has been adopted both for mandatory disclosure and for recommended disclosure (in case of banks or insurance companies we have also scored the level of disclosure according to further guidelines, suggested by Italian Standard setter for those companies).

6. Empirical Results

6.1 Preliminary Analysis

In 2009 about 22% of companies in the sample has accounted an impairment loss of goodwill; this percentage has increased up to 35% in 2010 and in the last period analyzed (period 2011) the companies impairing goodwill were about 60%.

It is also interesting to notice that in 2008 that has been the first year of financial crisis, about 43% of companies has impaired goodwill in comparison to almost 20% of companies in the previous year (see Table 5).

However (see Table 6), the amount of goodwill's write-down recognized in the period 2007–2010 is not comparable to values registered in the income statements of 2011 both in absolute level and in relative value (i.e., impairment rate, as ratio between impairment loss of goodwill and carrying value of goodwill: 1,73% in 2008 while almost 23% in 2011)

Inter alia, in general terms, mean incidence of goodwill on equity and mean incidence of goodwill on total assets remain stable in the course of time (see Table 7).

Table 5. Impairing entities

	2011	2010	2009	2008	2007
N° Impairing entities	22	13	8	15	6
N° Entities with goodwill	37	37	36	35	32
% Impairing entities on total entities	**59%**	**35%**	**22%**	**43%**	**19%**

Table 6. Impairment rate | | | | | Euro/million

	2011	2010	2009	2008	2007	2006
Total Goodwill	147.447	161.824	159.608	155.811	149.807	93.441
Total Impairment	37.257	966	106	2.592	210	
Impairment rate*	**23%**	**0.6%**	**0.1%**	**1.7%**	**0.2%**	

*Impairment rate (I/G) = Impairment period X/Goodwill 31.12.X-1

Table 7. Impact of goodwill on equity and on total asset

	2011	2010	2009	2008	2007
Goodwill/Equity	50%	44%	47%	57%	52%
Goodwill/Total Asset	12%	12%	12%	0.13	14%

The above evidence—in particular the significant increase of impairment rate in 2011—seems to confirm the worries that have been revealed by IASB and recently by ESMA. The Board and European Securities and Markets Authority believe that the recognition of impairment loss in income statement often came too late during the financial crisis.

It is important to clarify that this paper has not evaluated the accuracy and correctness of impairment procedures applied by the companies in the sample. In other words, the fact that a company has not impaired can't be considered *a priori* an IFRS not compliant behavior.

We have already pointed out that the content of disclosure on goodwill depends on the basis of value that has been used to evaluate the recoverable amount of CGU. Therefore, to understand the results of this research, it seems useful to describe the choice that has been made for the companies in the sample.

Value in use is the basis of value that has been chosen by almost all the companies in the period covered by the analysis; fair value is a basis of value that has been used just as a control method or, in some cases, fair value is used for minor CGU for which management has not the availability of data that are necessary to draw up budget or forecast.

Table 8 indicates, for any period, the number of companies as main criterion, for one or more CGU, the fair value as basis of value (also together with value in use).

Table 8. Impairment test based on fair value

	2011	2010	2009	2008	2007
Fair value	0	1	3	2	0

From our analysis, it is possible to notice that fair value is estimated through the market approach.

Therefore, at the moment, the income approach is not applied for the estimation of fair value. At this regard, if recoverable amount is based on fair value (less costs to sell) using observable market prices, IAS 36 requires the preparers to disclose the methodology that has been used (i.e., multiples from comparable firms or multiples from comparable transactions).

6.2 IAS/IFRS Disclosure—Comprehensive Evaluation

For all the companies in the sample, the compliance level is increasing from 2007 on. This improvement is evident from the results in Table 9.

In 2007, no companies reached a compliance level higher than 80% and at the same time 16 companies out of 32 reached a level lower than 20% even if, in some cases, the companies had recognized significant goodwill in financial statement. Conversely, in 2011, 5 companies (out of 37) had a compliance score more than 80% and only one company had a bad level of compliance on goodwill disclosure (lower than 20%).

Nevertheless, it is important to underline that even in 2011 no companies reached full level of compliance on goodwill's disclosure.

Table 9. Compliance range 2007–2011

2011			
Range	*N.*	*% sample analyzed*	*Cumulative frequency*
0-20%	1	3%	3%
21%-40%	9	24%	27%
41%-60%	14	38%	65%
61%-80%	8	22%	86%
81%-95%	5	14%	100%
95% - 100%	0	0%	100%
Total	**37**	**100%**	
2010			
Range	*N.*	*% sample analyzed*	*Cumulative frequency*
0-20%	1	3%	3%
21%-40%	14	38%	41%

41%-60%	11	30%	70%
61%-80%	7	19%	89%
81%-95%	4	11%	100%
95%-100&	0	0%	100%
Total	37	100%	

2009			
Range	*N.*	*% sample analyzed*	*Cumulative frequency*
0-20%	0	0%	0%
21%-40%	17	47%	47%
41%-60%	12	33%	81%
61%-80%	4	11%	92%
81%-95%	3	8%	100%
95%-100%	0	0%	100%
Total	**36**	**100%**	

2008			
Range	*N.*	*% sample analyzed*	*Cumulative frequency*
0-20%	1	3%	3%
21%-40%	16	46%	49%
41%-60%	11	31%	80%
61%-80%	5	14%	94%
81%-95%	2	6%	100%
95%-100%	0	0%	100%
Total	**35**	**100%**	

2007			
Range	*N.*	*% sample analyzed*	*Cumulative frequency*
0-20%	16	50%	50%
21%-40%	10	31%	81%
41%-60%	4	13%	94%
61%-80%	2	6%	100%
81%-95%	0	0%	100%
95%-100%	0	0%	100%
Total	**32**	**100%**	

Figure 1 highlights the trend of mode, mean and median values of disclosure on goodwill's compliance with the requirements of IAS 36 in the period 2007–2011.

The increasing trend of mean and median values confirms the improvement of disclosure's quality, as shown in the previous Table.

We can observe that in the first period there are companies that do not provide any information on economic evaluation aimed at testing the recoverable amount of goodwill in consolidated financial statements.

From this point of view, the decrease of mode value registered in 2011 (35.29% in 2011; 50% in 2010)—even if it is not an indicator of a decrease in the disclosure–highlights that, even in recent times, cases of not compliance still remain.

Table 10 displays that in 2008 for many companies it has been a turning point concerning compliance with

requirements of IAS 36. In this period, in fact, the median and mean values have registered an important increase (respectively 23% and 19%).

This positive change is higher that the one the indicators have reached on the whole in the three years (2009–2011). It is important to notice that, at this regard, the number of companies that registered an impairment loss of goodwill in 2008 is significantly superior to the one in 2007 (see Table 5).

Table 10. IAS 36 Compliance. Disclosure score—mode, mean and median 2007–2011

	2007	**2008**	**2009**	**2010**	**2011**
Compliance IAS Disclosure score: Mean	23%	42%	47%	50%	55%
Compliance IAS Disclosure score: Median	20%	43%	44%	50%	53%
Compliance Disclosure score: Mode	0%	26%	28%	50%	35%
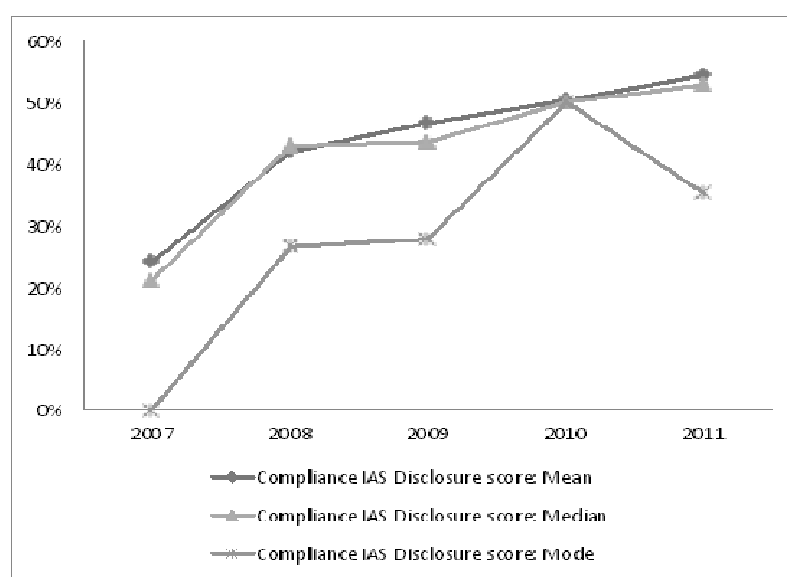
Figure 1. IAS 36 compliance. Disclosure score—mode, mean and median 2007–2011

6.3 IAS/IFRS Disclosure– Evaluation for Subject

Table 11. Compliance disclosure score for subject (ex IAS 36)

	2011	**2010**	**2009**	**2008**	**2007**
Basis of value					
Has the entity disclosed the basis on which the CGU's recoverable amount has determined (fair value or value in use)?	99%	99%	99%	99%	89%
Value in use - Value in use – Disclosure on future cash flow for the period covered by the most recent budget/forecast					
Has the entity disclosed each key assumption of macro-economic source on which management has based its cash flows projections for the period covered by the most recent budgets/forecasts (IAS 36, par. 134, letter d) i).	34%	24%	18%	16%	6%
Has the entity disclosed each key assumptions of internal source on which management has based its cash flows projections for the period covered by the most recent budget/forecast? (IAS 36, par. 134, let. d) i).	58%	54%	49%	41%	26%
Has the entity described the management's approach to determining the value(s) assigned to each key assumption on which management has based its cash flows projections for the period covered by the most recent budget/forecast? (IAS 36, par. 134, lett. d) ii)	46%	36%	32%	30%	18%

Has the entity disclosed the period covered by the most recent budget/forecast?	88%	89%	88%	91%	61%
Has the entity disclosed the reasons that justify the adoption of a period covered by the most recent budget/forecast exceeding five years ? (only if this option is exercised)	60%	64%	45%	44%	20%
Value in use—Terminal Value					
Has the entity disclosed the approach applied to assign value(s) to each key assumption concerning future cash flows for the period over which management has projected cash flows based on financial budget/forecast?	47%	39%	38%	27%	8%
Has the entity disclosed the approach to assign value(s) to each key assumption concerning discount rate used for the estimation of terminal value? (IAS 36, par. 134, let. d) ii)	32%	26%	28%	20%	3%
Value in use – Discount rate for the period covered by the most recent budget/forecast					
Has the entity disclosed the approach adopted to assign value(s) of each key assumptions concerning the discount rate? (IAS 36, par. 134, lett. d) ii)	51%	39%	43%	30%	18%
Has the entity disclosed discount rate applied for the projections of cash flows?	88%	89%	84%	80%	52%
Value in use - Growth Rate					
Has the entity disclosed the growth rate (g) used to extrapolate future cash flows for the period over which management has projected cash flows based on financial budget/forecast?	91%	85%	78%	73%	40%
Has the entity specified whether growth rate g is compliant with the long-term average growth rate for the products, industries, or country or countries in which the entity operates?	35%	35%	29%	29%	23%
Has the entity explained the decision to adopt a growth rate exceeding the long-term average growth rate for the products, industries, or country or countries in which the entity operates? (only if this option is exercised)	8%	8%	8%	7%	6%
Value in use—Coherence of key assumptions					
Has the entity disclosed if values assigned to each key assumptions reflect past experience? (IAS 36, par. 134, let. d) ii)	36%	36%	30%	17%	2%
Has the entity disclosed if values assigned to each key assumptions differ from past experience or external source of information? (IAS 36, par. 134, let. d) ii)	33%	20%	22%	20%	13%
Fair value Disclosure					
Has the entity described the methodology used to determine fair value less costs to sell?	No FV	100%	100%	50%	No FV
If fair values less costs to sell is not determined using an observable market price for the CGU, has the entity described each key assumption on which management has based its determination of fair value less costs to sell?	No FV	N/A*	N/A	N/A	No FV
Has the entity described management's approach to determining the value (values) assigned to each key assumption?	No FV	N/A	N/A	N/A	No FV
Has the entity disclosed if values of each key assumption reflect past experience or, if appropriate, are consistent with external sources of information?	No FV	N/A	N/A	N/A	No FV
If Discount Cash Flow is applied, has the entity disclosed the period over which management has projected cash flow?	No FV	N/A	N/A	N/A	No FV
If Discount Cash Flow is applied, has the entity disclosed the growth rate used to extrapolate cash flow projections?	No FV	N/A	N/A	N/A	No FV
If Discount Cash Flow is applied, has the entity disclosed the discount rate applied to cash flow projections?	No FV	N/A	N/A	N/A	No FV
Sensitivity Analysis					
Has the entity disclosed the amount by which the CGU's recoverable amount exceeds its carrying amount?	35%	29%	14%	6%	0%
Has the entity disclosed the value assigned to the key assumption?	51%	49%	43%	34%	17%

Has the entity disclosed the amount by which the value assigned to the key assumption must change, after incorporating any consequential effects of the change on the other variables used to measure recoverable amount, in order for the CGU's recoverable amount to be equal to its carrying amount?	48%	43%	33%	24%	2%

* N/A = For the entity that applies fair values less cost to sell, the recoverable amount of CGU is determined on the basis of observable market prices.

Table 11, confirming the higher accuracy in the application of requirements on goodwill's disclosure, highlights an increase of quality of disclosure for all the requirements of IAS 36 in the period covered by the analysis.

In period 2011 the higher level of compliance concern the following areas of disclosure:

- declaration on basis of value that has been applied (99%),

- information on the period covered by the most recent budget/forecast (88%),

- information on growth rate (91%) and discount rate (88%).

As far as disclosure on basis of value, we observe that compliance level of disclosure was large also in 2007 (89%). Conversely, for the other area of disclosure we register a remarkable increase of compliance, especially in 2008.

With regards to disclosure on growth rate, even if companies, nearly every case, disclose the value of this parameter, we observe that there is a significant lack of information about the adoption to apply a growth rate exceeding the long-term average growth rate for the products, industries, or country or countries in which the entity operates.

Considering the other area of disclosure on IAS 36, the financial statements register significant lack of information on key assumptions used to estimate future cash flows (in particular for external source of information) and for the methodologies applied to assign a value to these key assumptions.

On this aspect, it is interesting to notice that this lack regards also discount rate. In other words, almost all the companies in the sample disclose the amount of discount rate but usually they do not provide information on the criteria used to assign a value to this key assumption, limiting to declare only the adoption of CAPM.

In relation to terminal value's disclosure, we register partially positive results. Starting from 2008, some companies in the sample start to provide with adequate information on future cash flows and on discount rate pertaining terminal value.

In particular in the financial statements we have analyzed it is specified:

- if the future cash flow coincides with the one of the last year of the most recent budget/forecast or, alternatively, if it is used a normalized flow;

- if the discount rate is the same of the one applied for the most recent budget/forecast.

We have obtained similar conclusion by referring to the amount of information on sensitivity analysis.

It is useful to observe that, following the above mentioned recommendations of Authorities, starting from 2009, it is most frequently that companies disclose on the results of sensitivity analysis even if the company has impaired goodwill (IAS 36 does not require disclosure about this in case of impairment).

However we highlights that the maximum score reached by a company in the sample does not exceed 51%.

As far as disclosure on fair value, we observe that the small number of companies that apply this basis of value disclose the information required by IAS 36. The information on key assumption is not provided by the companies as this information is not required by IAS 36 if it is not applied the income approach.

6.4 Italian Standard Setter (OIC) and Italian Authority Disclosure

Figure 2 and Table 12 show, as we have noticed for mandatory disclosure of IAS 36, a significant increase of disclosure's quality required by National Boards. Even if, looking at the data, it is clear that the growth occurs less that the one registered for mandatory disclosure.

Table 13 highlights that companies have not adopted the recommendations of Authorities that have suggested to disclose on the components of discount rate. The most significant omissions regard (level of compliance is about at 2%):

- the information on the cost of debt and on mix of financial capital/debt (D/E+D; E/E+D) used to determine WACC. This disclosure is not required if the entity has applied an equity approach for the evaluation of CGU;
- some specific information on impairment's indicators of external source of information, if the entity has not impaired.

Table 14 exhibits the score reached by banks and insurance companies in relation to the disclosure recommended by OIC, effective starting from 2010. Even in this case, the results do not appear satisfactory, even if the compliance level is higher than the one we can observe in Table 13.

Table 12. Compliance Authority/OIC Disclosure score – Mode, Mean and Median 2007–2011

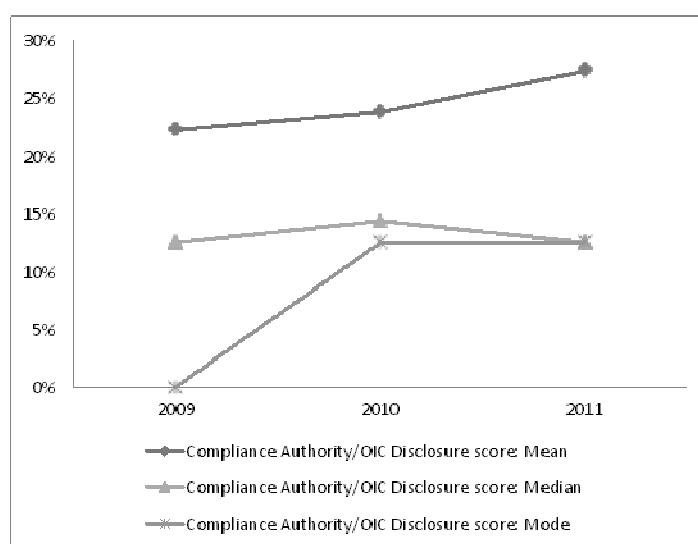|	2009	2010	2011
Compliance Authority/OIC Disclosure score: Mean	22%	24%	27%
Compliance Authority/OIC Disclosure score: Median	13%	14%	13%
Compliance Authority/OIC Disclosure score: Mode	**0%**	**13%**	**13%**

Figure 2. Compliance Authority/OIC disclosure score—mode, mean and median 2009–2011

Table 13. Compliance disclosure for subject (according to Authorities and OIC)

Area of Disclosure	2009	2010	2011
Discount rate disclosure			
Is Risk-free-rate disclosed?	22%	21%	26%
Is Beta disclosed?	26%	25%	28%
Is Risk Premium disclosed?	22%	21%	28%
Is Cost of Debt disclosed?	7%	7%	7%
Has the entity disclosed proportion of equity and debt on funding mix- if entity applies unlevered cash flow?	7%	7%	7%
Has the entity specified if the discount rate corresponds to the one used in the previous period?	15%	25%	30%
Has the entity clarified if the discount rate is after or before taxes?	46%	57%	64%
Disclosure on external indicators of Impairment. Only if entity has not impaired goodwill			
Has entity disclosed on presumed indicators of external sources of information in a complete way?	7%	6%	2%

Table 14. Bank and insurance company: compliance OIC disclosure score for subject

Compliance Analysis	2010	2011
Has entity disclosed the approach that has been applied for the budget/forecast ? (budget that has been approved and publicized to the market; budget that has been approved and publicized to the market but not more up-to-date)	65%	75%
Have the sensitivity analysis been made on the basis of following factors: future cash flow, growth rate, discount rate?	48%	50%
Has the entity carried out also a variability analysis?	10%	10%

6.5 Correlations

The following charts exhibit the relation between the level of disclosure in 2011 by the companies in the sample and the following variables:

- *Impairment rate* (Figure 3)

- *Goodwill/Equity* (Figure 4)

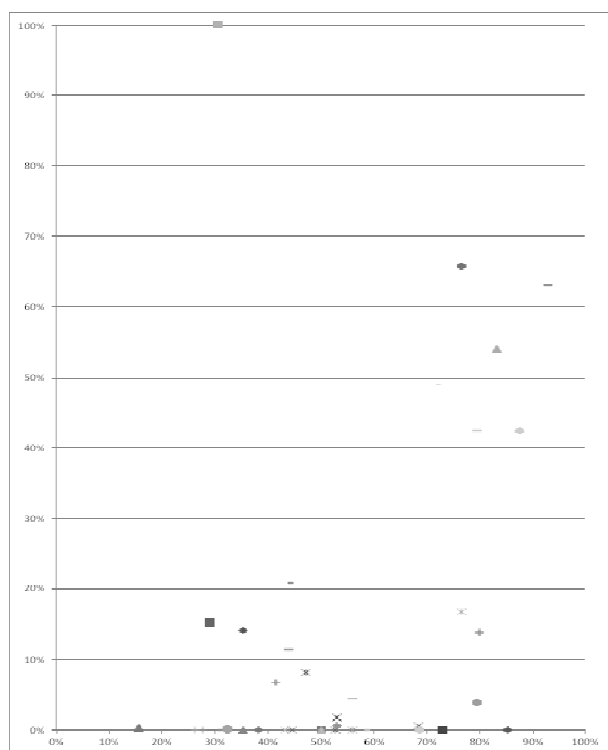- *Market Capitalization* (Figure 5)

Figure 3. Scatter pattern impairment rate and level of disclosure   Figure 4. Scatter pattern goodwill/equity and level of disclosure
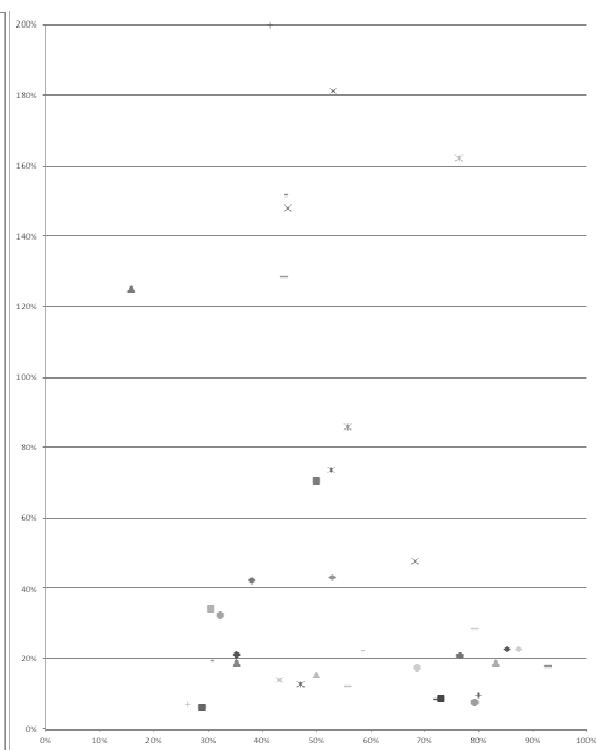
The results we have obtained exhibit that there is not a relation between the quality of mandatory disclosure on goodwill and the above-mentioned parameters.

Taking into account this consideration, we can highlight that:

- for many entities that have an high G/E, the level of compliance is lower to the one reached by entities that have lower level of G/E. We have reached similar results as far as market capitalization (even if the relation between the two parameters is lower);

- the entities that have recognized significant impairment losses (except for the case of a company that has a G/E not reliable because of the impairment loss regards a business combination occurred in the same period) reach a level of disclosure higher than 70%. However, we can't state that there is a relation between quality of disclosure

and goodwill's impairment because same results of disclosure are registered for the companies that have not impaired goodwill. Specifically 7 companies out of 13 companies, that in 2011 have a level of compliance higher than 70%, have a I/G lower than 20%.

In order to validate the absence of relation between impairment rate and amount of information in the notes, in Table 13 we exhibit the trend of disclosure compliance's level according to IAS 36 for the five companies that at 31st December 2011 registered the higher and the lower impairment rate.

Considering that, even if there is a significant increase of impairment rate, the number of companies that have not impaired (I/G=0%) is material, we have selected the companies with the highest level of compliance (see Table 15 and Table 16).

For the both categories of companies, it can be observed an overall increase of disclosure that it is not related to the recognition of impairment loss. In few cases we note that the relevant increase of compliance occurs in the same period of impairment loss particularly high.

Another aspect we highlight is that the different approaches adopted by companies to be in line with the requirements of IAS 36: in some circumstances the growth of level of compliance occurs steadily; for other entities the improvement occurs in a period that does not correspond to the one of impairment loss recognition.
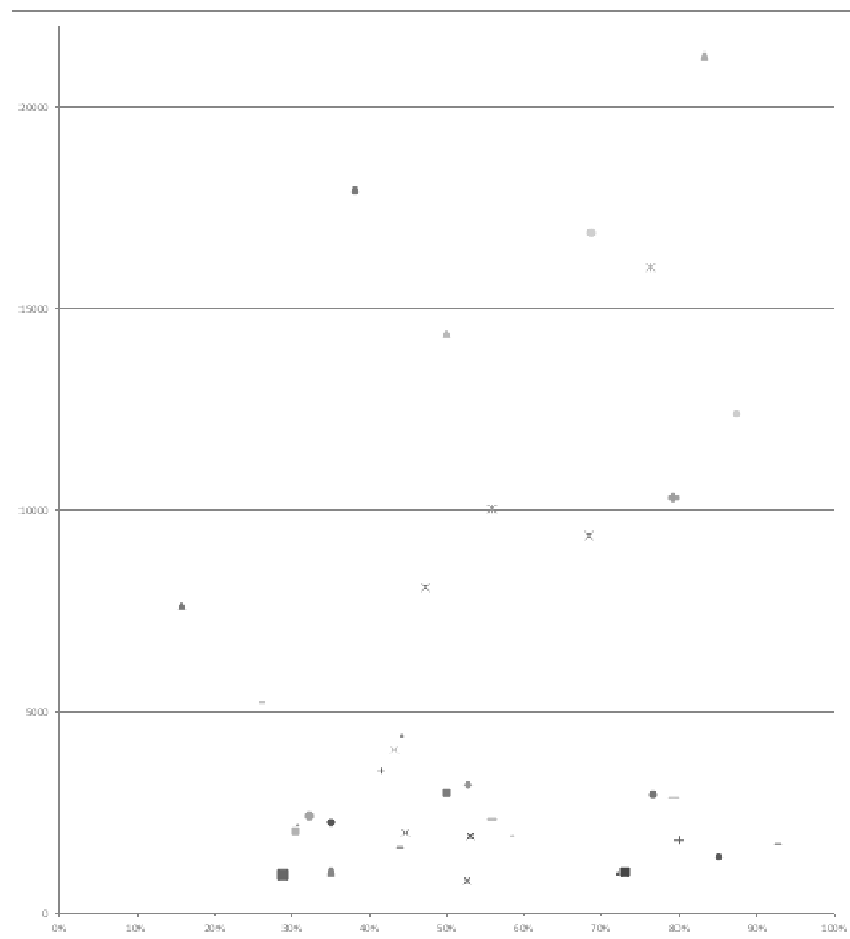

Figure 5. Scatter pattern market capitalization and level of disclosure

Table 15. Compliance 2007–2011 for impairing entities

Impairing entities 2011	2007		2008		2009		2010		2011	
	I/G	% comp.	I/G	% comp.	I/G	% comp.	I/G	% comp.	I/G	% comp.
Entity 1	0%	14%	16%	63%	0%	64%	0%	74%	66%	79%
Entity 2	0%	0%	0%	86%	0%	86%	0%	86%	63%	94%
Entity 3	7%	0%	6%	84%	0%	84%	1%	84%	54%	85%
Entity 4	0%	37%	2%	57%	0%	55%	0%	50%	49%	75%
Entity 5	0%	10%	4%	50%	0%	84%	2%	84%	42%	89%

Table 16. Compliance 2007–2011 for not impairing entities

Not Impairing entities 2011	2007		2008		2009		2010		2011	
	I/G	% comp.	I/G	% comp.	I/G	% comp.	I/G	% comp.	I/G	% comp.
Entity 1	0%	58%	33%	58%	2%	79%	1%	79%	0%	87%
Entity 2	0%	32%	0%	32%	0%	37%	0%	77%	0%	77%
Entity 3	0%	26%	16%	33%	0%	39%	0%	72%	0%	72%
Entity 4	0%	5%	0%	50%	0%	63%	0%	63%	0%	63%
Entity 5	0%	11%	0%	50%	0%	61%	1%	61%	0%	61%

7. Discussion and Conclusions

From the analysis of financial statements of listed companies included in the sample and for the years 2007–2011, it is evident that the quality of disclosure on the impairment test of goodwill-evaluated in terms of compliance with the requirements of IAS 36 and with the guidelines recommended by the Authority and the national standard-setter—actually it is still very incomplete. At the same time, even if it is never achieved full compliance, the positive evolution of the mean score of level of disclosure from 2007 to 2011 shows, as expected, a greater sensitivity of companies that are willing to render easier the process of investors assessing the reliability of estimates made for the purpose of impairment testing.

Moreover, scores next to full compliance (above 90%) can't be considered satisfactory because these are anyway expression of a breach of requirements ex IAS 36, even if these scores are not "pathological" as some ones analyzed in this study (for some companies the level of compliance is below 30%).

From this point of view, the results of this study confirm some authoritative studies on this subject relating to a period prior to the one analyzed in this paper.

In contrast, as far as the period of the analysis (2007–2011) is concerned, the thesis according to which the level of disclosure depends on the decision of top management to impair or not to impair goodwill doesn't seem to be confirmed since the same level of disclosure is reached by firms with impairment rate profoundly different. Further analysis concerning the accounting behavior of a sub-sample of companies in the period 2007–2011 show that, frequently, the improvement of disclosure is not affected by the amount of impairment loss goodwill.

We have attempted to identify the reasons that, in the last years of analyzed period, have led companies to provide more detailed information regarding goodwill's impairment testing, it is reasonable to argue that the emergence of the first effects of the financial crisis (2008) and the recommendations of public Authorities have had a decisive role in this direction (2009).

As indicated in the previous paragraphs, many companies have registered a substantial increase in the quality of their disclosure in one of these periods and then they have registered a further enhancement in the following two years.

However, the widespread reluctance to provide information concerning the basic assumptions of the assessment leads to the conclusion that, in many cases, the application of Authorities' recommendations is mainly formal rather than substantive. In other words, the greater information in the notes may not be considered complete because often there is a lack of an adequate reporting on information sources.

Therefore, the quality of disclosure does not seem to be an element in order to evaluate the correctness of the impairment tests' procedures carried out by the companies.

In such a context, it is necessary to wonder about the reasons justifying the "accounting attitude" of the companies in the sample.

The first reason may be sought in the excessive discretion or in poor comprehensibility of the disclosure requirements contained in the paragraph 134 of IAS 36. By examining these rules, we observe that for some of them, there is no doubt of interpretation: it is the case for the requirements concerning the obligation to disclose:

(a) the basis of value that has been used;

(b) the value assigned to discount rate and the growth rate;

(c) the period covered by the most recent budget/forecast for the cash flow projections;

(d) if the values assigned to the key assumptions are consistent with past experience or with external sources of information.

Conversely, the declaration of the basic assumptions of the evaluation and the presentation of the sensitivity analysis' results requires the exercise of professional judgment to assess both the sensitivity of the recoverable amount to the key assumptions that have been adopted and the possibility of an adverse change in a key assumption to some extent to require a goodwill's impairment in the future.

Such reasons do not seem to justify completely the results of the research because there is a significant lack of disclosure compliance even for clear and comprehensible disclosure requirements.

In 2011, only 33% of the companies in the sample declare if the values assigned to the key assumptions are consistent with past experience or with external sources of information and only 60% of companies adopting plans for a period exceeding five years illustrate the reasons that justify this option.

In addition, especially in the early years of the period covered by the analysis, there are examples of companies that did not communicate the discount rate and/or the rate of growth.

Another reason could be the difficulty to fulfill the disclosure obligations set forth in IAS 36. This explanation, however, is not sustainable because the information required by IASB is necessary for the procedure of impairment. Therefore, these information can be extrapolated from evaluation's report drawn up by the expert (internal or external to the entity) who made the estimates, if these reports have been prepared in compliance with generally accepted evaluation principles (IVS 2011).

In our opinion, it may seem reasonable to argue that the partial compliance with requirements of IAS 36 may be justified by the fact that the potential benefits of a full compliance for the companies are lower than the costs occurring if companies disclose and publish sensitive information to the market about its expected cash flow and income.

Regarding the limitations of the research, we highlight that the analysis has been conducted on a small number of companies and, therefore, the results could change if the study was extended to other listed companies belonging to segments identified by the Italian Stock Exchange. Secondly, for the evaluation of the information provided by the companies—in particular to those related to the key assumptions—the assigned score may be affected by a certain degree of subjectivity of authors.

Since IFRS are mandatory for all European listed companies and have been adopted in several countries, our results could be of interest also outside the Italian scenario and this study can improve the analysis of the effective implementation and disclosure required.

As far as the possible future developments of the research, it might be useful to verify, through regression models, if the increase of the disclosure registered for a company in a certain year produces benefits regarding:

- an increase of profitability in the following period;

- a decrease of cost of capital in the following period;

- an increase of market capitalization for the following period.

Such a study could confirm the intuition of some researchers that believe that the transparency of the information, in certain contexts, is a premium factor higher than the final result of the impairment test, provided that the three variables just mentioned are influenced by a plurality of other factors, internal and external to the company, different from the level of disclosure's compliance.

References

Armitage, S., & Marston, C. (2008). Corporate disclosure, cost of capital and reputation: Evidence from finance directors. *The British Accounting Review*, *40*(4). 314–336. http://dx.doi.org/10.1016/j.bar.2008.06.003

Banca d'Italia, ISVAP, & CONSOB. (2009). *Informazioni da fornire nelle relazioni finanziarie sulla continuità aziendale, sui rischi finanziari, sulle verifiche per riduzione di valore delle attività e sulle incertezze sull'utilizzo delle stime.* Retrieved from www.consob.it

Banca d'Italia, ISVAP, & CONSOB. (2010). *Esercizi 2009 e 2010. Informazioni da fornire nelle relazioni finanziarie sulle verifiche per riduzione di valore delle attività (impairment test) sulle clausole contrattuali dei debiti finanziari, sulle ristrutturazioni di debiti e sulla gerarchia del fair value.* Retrieved from www.consob.it

Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research*, *46*, 467–728. http://dx.doi.org/10.1111/j.1475-679X.2008.00287.x

Bergamini, I., & Zambon, S. (2002). A scoring methodology for ranking company disclosure on intangibles. *EU PRISM Research Project, WP*, *4*.

Biancone, P. P. (2012). IFRS: Italian Experience on Impairment Test of Goodwill. *International Journal of Advances in Management Science*, *1*(3).

Bloom, M. (2009). Accounting for Goodwill. *Abacus*, *45*(3). 379–389. http://dx.doi.org/10.1111/j.1467-6281.2009.00295.x

Botosan, C. (1997). Disclosure Level and the Cost of Equity Capital. *The Accounting Review*, *72*(3), 323–349. http://dx.doi.org/10.1111/1475-679X.00037

Botosan, C. (2006). Disclosure and the cost of capital: what do we know? *Accounting and Business Research*, 31–40. http://dx.doi.org/10.1080/00014788.2006.9730042

Botosan, C. A., & Plumlee, M. A. (2002). A Re-examination of Disclosure and the Expected Cost of Equity Capital. *Journal of Accounting Research*, *40*(1). http://dx.doi.org/10.1111/1475-679X.00037

Carlin, T., & Finch, N. (2010). Evidence on IFRS goodwill impairment testing by Australian and New Zealand firms. *Managerial Finance, 36*(9), 785–798. http://dx.doi.org/10.1108/03074351011064654

Camodeca, R., & Almici, A. (2012). The information content of goodwill impairment before and after the Financial Crisis: evidence from European listed banks. 7th Annual Business Research Conference, World Business Institute, Australia. Retrieved from http://www.wbiconpro.com

Carlin, T. M., & Finch, N. (2009). Discount Rates in Disarray: Evidence on Flawed Goodwill Impairment Testing. *Australian Accounting Review*, *19*(51), 326–336. http://dx.doi.org/10.1111/j.1835-2561.2009.00069.x

Chalmers, K. G., Godfrey, J. M., & Webster, J. C. (2011). Does a goodwill impairment regime better reflect the underlying economic attributes of goodwill? *Accounting & Finance*, *51*, 634–660. http://dx.doi.org/10.1111/j.1467-629X.2010.00364.x

Colquitt, L., & Wilson, A. (2002). The elimination of pooling-of-interests and goodwill amortization and its effect on the insurance industry. *Journal of Insurance Regulation*, *20*(3), 338–351.

D'Alauro, G. (2011). L'avviamento nei bilanci aziendali: Impairment test and disclosure. *Financial Reporting*, *3*, 11–43.

Daske, H., & Gebhardt, G. (2006). International Financial Reporting Standards and Experts' Perceptions of Disclosure Quality. *Abacus, 42*, 461–498. http://dx.doi.org/10.1111/j.1467-6281.2006.00211.x

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2013). Adopting a Label: Heterogeneity in the Economic Consequences Around IAS/IFRS Adoptions. *Journal of Accounting Research, 51*(3), 495–547, http://dx.doi.org/10.1111/1475-679X.12005

Devalle, A., & Rizzato, F. (2012). The quality of mandatory disclosure: the impairment of goodwill. An empirical analysis of European listed companies. *Procedia Economics and Finance*, (2), 101–108. http://dx.doi.org/10.1016/S2212-5671(12)00069-X

Donnelly, T., & Keys, R. (2002). Business Combinations and Intangible Assets. *Australian CPA*, *72*(4), 68–69.

Douglas, W. D., & Verrecchia, R. E. (1991). Disclosure, liquidity and cost of capital. *Journal of Finance*, *46*(4), 1325–1359. http://dx.doi.org/10.1111/j.1540-6261.1991.tb04620.x

ESMA. (2013). *European enforcers review of impairment of goodwill and other intangible assets in the IFRS financial statements.* Retrieved from http://www.esma.europa.eu

Gu, F., & Lev, B. (2011). Overpriced Shares, Ill-Advised Acquisitions, and Goodwill Impairment. *The Accounting Review*, *86*(6), 1995–2022. http://dx.doi.org/10.2308/accr-10131

Guatri, L. (2009). Rischio IAS/IFRS in periodi di crisi endemica. *La Valutazione delle Aziende*, *52*, 3–8.

Guatri, L., & Bini, M. (2009). *L'impairment Test nell'attuale crisi finanziaria e dei mercati reali*. Milano: Egea.

Hartwig, F. (2012). Swedish and Dutch listed companies' compliance with IAS 36 paragraph 134, working paper.

IFRS Foundations. (2013a). *International Financial Reporting Standards IFRS (Red Book)*. Retrieved from http://www.iasb.org

IFRS Foundations. (2013b). *IASB and IFRS Interpretations Committee Due Process Handbook*. Retrieved from http://www.iasb.org

International Accounting Standard Board. (2004a). *IAS 36—Impairment of assets.* Retrieved from http://www.iasb.org

International Accounting Standard Board. (2004b). *IFRS 3—Business Combinations.* Retrieved from http://www.iasb.org

International Accounting Standard Board. (2010). *The Conceptual Framework for Financial Reporting.* Retrieved from http://www.iasb.org

International Accounting Standard Board. (2013). *Exposure Draft Recoverable Amount Disclosures for Non-Financial Assets*. Retrieved from http://www.iasb.org

International Valuation Standard Board. (2011). *International Valuation Standard 2011*. Retrieved from http://www.ivsc.org

Liberatore, G., & Mazzi, F. (2011). Informativa Tasso di attualizzazione nella stima dell'avviamento secondo lo IAS 36: un confronto fra Italia e Paesinordici. *Financial Reporting*, *4*, 107–133.

Liberatore, G., Ridi, T., & Di Pietro, F. (2012). Rilevanza E Affidabilità del valore contabile di'avviamento e dei beni immateriali sul mercato italiano. *Financial Reporting*, *3*, 31–50.

Massari, M., & Zanetti, L. (2004). *Valutazione Finanziaria*. Milano: McGraw-Hill.

Massoud, M. F., & Raiborn, C. A. (2003). Accounting for Goodwill: Are we better off? *Review of Business*, *24*(2), 26–32.

Organismo Italiano di Contabilità. (2009). Applicazione 2—"Impairment e avviamento". Retrieved from http://www.fondazioneoic.eu

Organismo Italiano di Contabilità. (2011a). Applicazione 2.1—"Impairment e avviamento" per ilsettorebancario. Retrieved from http://www.fondazioneoic.eu

Organismo Italiano di Contabilità. (2011b). Applicazione 2.2—"Impairment e avviamento" per il settore assicurativo. Retrieved from http://www.fondazioneoic.eu

Organismo Italiano di Valutazione. (2012). Discussion Paper Impairment test dell'avviamento in contesti di crisifinanziaria e reale: lineeguida. Retrieved from www.fondazioneoiv.it

Petersen, C., & Plenborg, T. (2010). How Do Firms Implement Impairment Tests of Goodwill? *Abacus*, *46*(4), 419–446. http://dx.doi.org/10.1111/j.1467-6281.2010.00326.x

Quagli, A. (2011). Goodwill accounting as a missing link between financial and management accounting: literature review and research agenda. *Financial reporting*, *3*, 17–39.

Teodori, C., & Veneziani, M. (2010). Intangible assets in annual reports: a disclosure index. Department of Business Studies, University of Brescia.

Verriest, A., & Gaeremynck, A. (2009). What determines goodwill impairment? *Review of Business and Economics*, *54(*2), 1–23.

Watts, R. L. (2003). Conservatism in Accounting. Part q: Explanations and Implications. *Accounting Horizons*: *17*(3), 207–221. http://dx.doi.org/10.2308/acch.2003.17.4.287

Wines, G., Dagwell, R., & Windsor, C. (2007). Implications of the IFRS goodwill accounting treatment.

Managerial Auditing Journal, *22*(9), 862–880. http://dx.doi.org/10.1108/02686900710829381

Copyrights

A Tool to be Used Deliberately: Investigating the Role of Profit in Consumer Co-operatives

Terhi Tuominen[1], Pasi Tuominen[1] & Iiro Jussila[1]

[1] Department of Management and International Business, School of Business, Lappeenranta University of Technology, Finland

Correspondence: Terhi Tuominen, Department of Management and International Business, School of Business, Lappeenranta University of Technology, P.O. Box 20 FIN-58351, Finland. E-mail: terhi.tuominen@lut.fi

Abstract

Profit is a controversial concept in co-operative literature. It is primarily associated with shareholder corporations and, thereby, sometimes seen as concealing the distinctiveness of the co-operative model. Following our observations from Finnish consumer co-operatives, which highlight the importance of profit, we decided to investigate its role in more detail by thematically analyzing twenty qualitative interviews with S Group executives and key representatives of governance, asking: why do consumer co-operatives make profit? The findings provide co-operative researchers and practitioners with a more comprehensive understanding on the chain of reasons underlying profit-making in consumer co-operatives. Importantly, the findings also suggest that profit is approached in consumer co-operatives differently than in shareholder corporations and that the difference can be traced back to the set of ideas that make the co-operative a unique model of economic organization.

Keywords: consumer co-operation, co-operative, profit, surplus, growth

1. Introduction

Shareholder corporations are built on the association of invested capital (Novkovic, 2008; Hansmann, 1996). Their owners are investors, who expect returns on the capital invested (Duska, 1997). They benefit from shareholding in terms of dividends and the increase of share value. Profits are essential for both of these ways of creating value for the owners, which makes investor-owned corporations profit-seeking entities. Profit maximization is placed as a core idea and purpose of the investor-owned model (Jensen & Meckling, 1976; Friedman, 1970). Further, an essential feature of the public corporation is that shareholders get their share of the firm's market value immediately as their sell their stock. Thereby, the market value of the company is of investors' concern.

Co-operatives are different. It is argued that one of the key distinguishing features of co-operatives as compared to shareholder corporations is that they are built on association of people (the owners) as opposed to capital invested (Jussila, 2012; Novkovic, 2008; Michelsen, 1994). Association of people refers to the fact that the owners compose a community of members, who share mutual interests (e.g., in having particular service needs satisfied) and are also dependent on each other in the pursuit of having those interest served. As it comes to the co-operative organization—a legal (contractual) entity—it can be seen as a tool for the members to serve their mutual interests. Thereby, the member interests serve as the basis of co-operative purpose, which for consumer co-operatives (Tuominen, 2012) is to operate in the consumer market in a manner that creates user-benefits to the consumer-owners (e.g., in terms of lower prices). Further, since the members cannot sell their 'share' of the co-operative (Nilsson, 2001), the members interest in the co-operative is focused on its capacity to provide them with future user-benefits.

Given this purpose, and the fact that they are not investors by their primary role, members do not have a direct interest in profits (Spear, 2004). In fact, consumer-owners may be against profits, since profits (in co-operatives typically referred to as surplus) are made in trade with the owners themselves and, thereby, in their expense (e.g., in terms of higher prices). Consistently, a traditional view of co-operation questioned the role of profit in co-operation (Jokisch, 1994). It was expected that if profit is made due to 'miscalculated prices', it should be

returned to the members and, according to the principles of co-operation, that should be done in proportion to the members' transactions with the co-operative (Nilsson, 2001; Mills, 2001).

More recent thinking, however, positions profit as an important part of co-operation (Hicks, Maddocks, Robb & Webb, 2007). Some believe (even if it may not hold for co-operatives) that profit manifests economic efficiency and by showing a level profitability that matches that of their investor-owned peers, co-operatives can prove wrong the general assumption that they are inefficient (Boyle, 2004). More importantly, it is reasoned that a co-operative requires financial resources in order to survive competition (Mills, 2001) and making profit is a convenient way to accumulate those resources (Hicks et al., 2007).

Despite the above discussion, there is scarcity of research focusing on the role of profit in co-operatives. Thereby, profit remains a controversial concept in this context (see e.g., Boyle, 2004; Syrjä, Sjögren & Tuominen, 2012) and, in our view, one that deserves more research. The process that led to the identification of this gap started with our dealings with Finnish consumer co-operatives and financial media. In the co-operatives, it was often highlighted, consistent with Hicks et al. (2007), that profits are crucial in order invest to the future, to survive. Representatives of financial media on the other hand questioned profits and investments made by consumer co-operatives and called for lower prices, echoing some of the voices we had heard also in the co-operatives. In the view of the journalists, a co-operative making profits and accumulating its own capital reserves is just like any other company—not a unique form following a set of co-operative ideas (for the set of basic ideas of co-operation, see Jussila, 2012; Novkovic, 2008). Following these observations, we decided to study this issue in more detail in order to provide the kind of intellectual framings that can serve to inform both scholarly and practitioner domains. Serving this purpose, we analyze qualitative data (altogether twenty interviews) from Finnish consumer co-operatives asking: *(1) why do consumer co-operatives make profit?* We go deeper into the chain of reasons that start from profit being a convenient way to accumulate financial resources (Hicks et al., 2007). This is how we push understanding on this issue forward, thereby providing both scientific and practical value.

The paper is structured as follows. Consistent with our research approach, we first provide a detailed account on the context, data and methods of the study. As our research is data-driven, we present our findings first and then discuss their relationship with extant literature. In some areas the literature helps us answer what the data does not and in other areas the data is be used to push co-operative literature forward, in part by bringing in literature from outside the field. Essential is the synthesis that is the outcome of intertwining the data and literature and which provides us with a more detailed understanding on the topic.

2. Context, Data and Methods

In more than a hundred years, Finnish retail co-operation has come a long way from small village co-operatives to large scale businesses. Perhaps the most successful example of this is the S Group, which comprises of 20 independent regional co-operatives, eight local co-operatives and the central unit, SOK, which is owned by the co-operatives. S Group has expanded to several fields of business and currently operates in the grocery trade, agricultural trade, consumer goods trade, service station and fuel trade, travel and hotel industry, automotive trade and accessories. In addition, S Group has also established S Bank providing primarily small deposit and loan services (www.s-kanava.net; accessed 14th of May, 2013).

S Group is currently the market leader of daily consumer goods in Finland with an exceptionally high 45.2 % market share in 2011 (1.1% increase from the year 2010). At the end of 2012 S Group had 2.055 million members (at the same time the population of Finland was approximately 5.400 million). Noteworthy, the number of employees in S group has increased rapidly in eight years and at the end of 2012, S Group employed 43 417 people (in 2011, approximately 42 000 employees). Currently, S Group has over 1600 outlets. (www.s-kanava, accessed 14th of May, 2013).

In 2012, S Group's retail sales were EUR 12 billion (11.46 billion in 2011) and the group's total profit before extraordinary items were 212 million euros (269 million in 2011). In 2012, members were paid 378.5 million in bonuses (360 million in 2011) and the group's investments to new services and new stores / shops were 574 million euros (546 million in 2011) (www.s-kanava.fi; accessed 14th of May, 2013).

2.1 Data

Our research process began with some pilot interviews (see Fielding, 1993) with experts of S Group co-operatives. The interviews were carried out by the third author using an instrument developed by an analysis of extensive archive materials on co-operation. The primary purpose of these interviews was to gain understanding on the context of the study and to ascertain the relevance of research questions to the interviewees.

Two authors continued the process with more interviews on the topic and some related themes. The aim of these tape-recorded thematic interviews (see Braun & Clarke, 2005) was to deepen our understanding on the strategic management of consumer co-operatives. The authors have also engaged in several informal discussions with the executives of S Group that have painted a clearer picture of the cases and enabled us to deepen our understanding and test our interpretations.

Altogether, the documented qualitative data (e.g., Denzin & Lincoln, 1994) analysed for this study consists of twenty interviews. Acknowledging the challenges related to interview data (Eisenhardt & Graebner, 2007), we engaged into data collection approach that limits bias and chose to interview experts of co-operation, organizational actors from different levels and areas (i.e., CEOs of several regional co-operatives, managers from SOK, and supervisory board chairs of regional co-operatives).

2.2 Methods

As the phenomenon we are investigating has not yet received much scholarly attention in this field of research, we believe that our decision to build our research in the form of qualitative thematic analysis is justified (see Gioia, Corley, & Hamilton, 2012; Braun & Clarke, 2005). In the interviews, we did not directly ask our research question. Instead, we followed the kind of procedure that has been recently described for example by Gioia et al. (2012), giving the voice to the informants and allowing them to talk about co-operation, co-operative ownership and co-operative management in their own terms.

Following the guidelines of thematic analysis (e.g., Gioia et al., 2012; Braun & Clarke, 2005), we studied through the data several times, codified it, analyzed it and identified implicit and explicit ideas and associations. The findings were combined to triangulate the themes and then intertwined with the interpretative frameworks (i.e., ideas and associations of ideas in co-operative literature). We first listed all the interview accounts that seemed to speak to our research question (see Braun & Clarke, 2005). Simplifications of these accounts were defined as 1st order concepts (see Gioia et al., 2012) in our study.

Table 1. Data structure

2nd order themes and the related 1st order concepts
Profit is a safe way to accumulate capital and one that promotes independence
Does not have to show as much profit as the normal capital firm
The slice returned to the owner from annual surplus is smaller than in IOFs and money is allocated to investments
Investment resources must be left to the company
Profitability is the precondition for the existence of operation
Co-operatives need their own resources to be independent
Efficiency of operation cannot be sacrificed
Financial resources are required for competition and regional development
Co-operative has to face the everyday threats of market economy
Critical mass is needed to succeed in competition and to develop
Supermarket trade is a business with so low profit margins that growth is the only way to survival
The surplus goes back to members in the form of investments to the region
Competition and regional development are essential part of executing co-operative purpose in the consumer market and regional economy
The production of economic benefit for the owner in the form of affordable services is the most important goal
Co-operative has to offer better services than a competitor
Ability to operate reliably, predictably and patiently according to the interests of the province and the people
The co-operative is the last one who has to leave the region

Next, we searched for similarities and differences among the 1st order concepts and tried to figure out "*is there some deeper structure in this array?*" (see Gioia et al., 2012) and moved to axial coding in which we searched

for relationships between and among categories, which helped to shape the 2nd order themes. Following the work of Gioia et al. (2012), we asked whether the emerging 2nd order themes suggest concepts that might help us describe and explain the phenomenon of interest. At this stage of the research process, we redefined the 2nd order themes several times after re-analyzing the data and intertwining it with extant literature. Table 1 presents the data structure of our study in which we show the 1st order concepts and 2nd order themes. In order to increase the credibility of our interpretations, we also established three separate tables (Tables 2, 3 and 4), in which we present the selected a representative data for each of the 1st order concepts.

In the following, we discuss the findings from our thematic analysis in more detail. Noteworthy, we also discuss our findings in relation to the existing literature on consumer co-operation in those aspects that this literature does not take into consideration or is not well grounded.

3. Analysis and Synthesis: Intertwining Data and Literature

As illustrated in Table 1, we established three different 2nd order themes that provide a logical account of the reasoning for profit in consumer co-operatives; 1) Profit is a safe way to accumulate capital and one that promotes independence, 2) Financial resources are required for competition and regional development, and 3) Competition and regional development are essential part of executing the co-operative purpose in the consumer market and regional economy. Next we will provide a more detailed account of the formation of the 2nd order themes by focusing on each of its constitutive 1st order concepts in more detail.

3.1 Profit is a Safe Way to Accumulate Capital and One that Promotes Independence

Our data suggests that consumer co-operatives do have to make profit even if they do not have to show it to the extent that investor-owned firms do. That is, they have to make enough profit to be able to secure their future through investments. In that regard, our interviewees highlight that the slice returned to the owner from annual surplus is smaller than in IOFs as investment resources must be left to the company. As put forward by one of the interviewees:

"We cannot operate in the same way than the exchange-listed company… You share maximum amount of profit to shareholders and only the necessity is allocated to investments, we have to operate in a different manner because these investments are the same as this customer-owner, because it develops the (service) network in different regions/areas, as I told you I think it is a brilliant business idea, from many different perspectives.."

This finding provides further understanding on why the co-operatives use their profits to expand their business, as observed by Syrjä et al. (2012). Consistent with extant literature (Hicks et al., 2007), co-operatives use profit as the mechanism to accumulate their own capital resources. This leads us to ask why profit is used as such a mechanism as opposed to relying on, for example, member contributions or outside resources. Our data refers to profit providing the co-operative with independence. This is where extant literature provides us with some answers. It seems that in order to understand the role of profit, we must understand the nature of capital in the co-operative organization.

First, upon the establishment of a co-operative the members build up the initial capital-base by contributing participation shares (Novkovic, 2008; Hicks et al., 2007; Nilsson, 2001; Hansmann, 1996). These shares are typically small in value and can sometimes be partly paid from bonuses that member-candidates receive from patronage with the co-operative (Watkins, 1986). Further, the number of participation shares is not fixed. Instead, the number changes as members join or leave the co-operative. That is, according to the principles of co-operation, the co-operative is open for new members to join, while existing members are free to leave any time they choose to terminate their membership (Novkovic, 2008; Watkins, 1986). The participation shares are individual property of the members, which are paid back to the members when they leave the co-operative (Nilsson, 2001). What this means is that the member contributions can be seen as a loan to the co-operative. This is very different from investor-owned firms in which the capital stock does not decrease when a shareholder sells her/his shares to someone else.

Second, resulting from the nature of shares, the co-operative has "the special financing risk of the co-operative" (Jokisch, 1994, p. 26). As a consequence, it is crucial that a co-operative builds its own capital base and this is done by making profit and retaining it in the co-operative (Hicks, et al., 2007) as collective property of the members (Nilsson, 2001). Thereby, for co-operatives, profit-making is "a means to an end rather than an end in itself" (Cornforth, 2004, p. 15). Considering typical credit policies, making and showing profit could also be seen as important if a co-operative is in need of outside capital (Jokisch, 1994). However, the option of outside liabilities in terms of debt is not encouraged in the co-operative model. Instead, freedom and independence from other organizations (e.g., outside creditors) are amongst the basic ideas of co-operation (Jussila, 2012). This is

how co-operative principles can be seen as steering co-operatives towards financing their operations by primarily using their profits rather than going outside the co-operative system. Obviously, this is not to say that co-operatives do not use banking services. Following the principle of co-operation amongst co-operatives it is recommended, however, that co-operatives primarily seek for outside capital in another co-operative, such as a co-operative bank (Watkins, 1986).

Highlighting the importance of profit as means to an end (Cornforth, 2004; Davis, 2001), it is put forward in our data that profit-making could be added as a principle for co-operative enterprises. As an interviewee states:

"The task of a co-operative CEO is to take care of the continuity and principles of business meaning that we definitely not have forgotten the principles of business in a co-operative, sometimes we have but not today because the concept of profit is the principle of securing continuity in business"

However, co-operative literature (e.g., Jussila, 2012; Watkins, 1986) indicates that profit is in fact part of co-operative principles even if expressed in different terms. The principle of economy suggests that in co-operation rewards of each operation must exceed its costs. If a co-operative makes losses, in the long run it will cease to exist. According to our data, this principle has not always been remembered in S Group. As a manager commented:

"We forgot these economic factors and all the decisions were made solely by the criteria that could that kind of store bring some joy also and…until we realized that they all were (more or less) unprofitable and the whole good was beginning to disappear… the whole group would fall and at the last moment we had a wake-up call and profitability was given proper attention"

In fact, paying insufficient attention to profitability was one of the major reasons that led S Group to a nearly devastating crisis in 1960s–1980s, during which the group lost its position to its competitors (mainly merchants of Kesko Corporation), who had been efficiently developing their operation. Table 2 provides a summary of the above discussed 1st order concepts; representative supporting data is also included.

Table 2. Profit is a safe way to accumulate capital and one that promotes independence

1st order concepts and the selected representative data
Does not have to show as much profit as the normal capital firm
"Co-operation is, it does not necessarily have to show as much profit as the normal capital firm…"
The slice returned to the owner from annual surplus is smaller than in IOFs and money is allocated to investments
"The return of the surplus and the interests paid to co-operative capital, in kind of, the slice returned to the owner from the annual surplus is considerable smaller (when compared to IOFs), and if used well, that slice can be used for the development of business…so that in a way…I see the co-operative perhaps even technically that way that it is a one company form which have significant superiorities or benefits when compared to other company forms, as long as we are able to use them right."
Investment resources must be left to the company
"In S group we have even defined it on the paper that what the principles for allocation of the surplus are and in them we have started with the premise thought that the co-operative must be healthy and it must create a certain amount of cash flow financing and cash flow in order it can develop, so investment resources must be left to the company and for the financing and self-fulfilling for these kind of investments and it is until then if there is still something left, then it is returned as interests of co-operative capital or as return of the surplus…"
Co-operatives need their own resources to be independent
"we looked that we have the preconditions that the co-operative is independent and self-directed so it is able to create itself that kind of resources that it is able to respond to the challenges of the future…"
Profitability is the precondition for the existence of operation
"We have to start from that the precondition for the existence of some kind of operation is that it has to be competitive and profitable, otherwise there is no co-operative and membership and other…"
Efficiency of operation cannot be sacrificed
"In co-operation the meaning of customer feedback is not only in the efficiency of operation but also in directing the services so that they cover the customers' needs as good as possible.. and not necessarily and solely so and the main point is not that does this customer oriented direction of operation produce a better financial result…as long as we keep in mind that we cannot sacrifice the efficiency of operation so that we are not able to produce the services in the long run…"

3.2 Financial Resources are Required for Competition and Regional Development

So far, we have established that consumer co-operatives need resources to secure continuity and profit is a convenient way to accumulate them. What remains to be understood in more detail is why existence is in jeopardy without financial resources. The above-mentioned lessons learned by S Group indicate that the answer to this question should not be treated as self-evident. On the other, those lessons also lead us to the answer. That is, our data highlights the fact that consumer co-operatives are market economy actors that face competition. In a competitive environment, any firm pursuing survival and success has to have resources in order to respond to the competitor's moves. As put forward by an interviewee:

"Competition is becoming more intense in daily consumer goods, our main competitor shapes up and probably there will be foreign entrants to Finnish markets too and it means that the price level will fall, it means that we need to accumulate buffers against the fall of the price levels…"

According to our data, critical mass is needed. This is consistent with retailing literature suggesting that retailing organizations are primarily engaged in "the procurement of merchandise for subsequent resale to the end customer" (Robinson & Clarke-Hill, 1995, p. 179) and in well-functioning retail markets, price is a key competitive element and "the cost of goods sold (i.e., product costs and distribution costs) is the single largest expense item on a retail company's profit and loss account" (Burt & Sparks, 2003, p. 246). According to our data, critical mass is particularly important in supermarket trade, because it is business with so low profit margins that growth is the only way to survival. In Finland, retail trade (the main branch of S Group) does not grow much and neither does the population of the country (at least not so significantly), mainly people just change places of residence. In the absence of growth, critical mass is likely to become even more important, as "market share exploited through centralized buying processes provides greater scope to negotiate volume and other discounts" (Burt & Sparks, 2003, p. 246).

Our data also suggests that growth is important, since as more and more people bring their trade to the co-operative (i.e., new members join collective action), also the costs and other trading risks can be spread more widely and prices can be kept low (Mills, 2008). This is yet again one example of why it is important that the surplus made by the co-operative goes back to members in the form of investments to the region. As an interviewee put it:

"..of course this good economic development of the co-operative has assisted us in that we have been able to invest more and we have come back to co-operation and its structure; to us the money has no other pocket to go and the money which has been generated in that good spiral, we have used the cash flow and the bottom line to investments, building up new services and restoring and improving old business units. This has caused a positive spiral in that customers have been happier and we have become more competitive"

Burt and Sparks (2003) refer to this development as a spiral of growth, which begins when increasing scale allied to efficient operation and investment that meets customer demands allows an organization to increase its sales faster than others do. This will then enable cost to fall across the organization and provide further possibilities to invest for operational activities or to reduce price. If the investments to operational activities are successful, they will then continue to attract customers as well as increase sales and market share. In general, such spiral of growth may be critical for consumer co-operatives, since in the capitalistic market economy their competitors are, as Watkins (1986) takes note, typically shareholder corporations that derive their power from capital association.

Our data suggests that competition in the market is not the only reason for the need of resources. It is also the special role of consumer co-operatives as organizations counteracting market failures (Hansmann, 1996). As an interviewee put it:

"…we invest in such places of business, in which no other actor in retail business would even think of building a new unit. We invest to produce services in such municipalities"

For many communities, such a role may be critical. Quite obviously, access to services is likely to be an important factor in people's decision to inhabit a location (cf. Jussila, Kotonen & Tuominen, 2007). By accumulating resources and assuming the role of a regional developer and promoter of community viability, consumer co-operatives may achieve stability and predictability in their organization-environment relationships. That is, in their classic work in this area, Pfeffer and Salancik (1978) put forward that "growth enhances an organization's survival potential because it provides additional stability and reduces uncertainty and also provides leverage for the organization in managing interorganizational relationships" (p. 139). Because of their size, large organizations have larger constituencies to look after them as well as more important and established relations to business communities. Table 3 provides a summary of the above discussed 1st order concepts;

representative supporting data is also included.

Table 3. Financial resources are required for competition and regional development

1st order concepts and the selected representative data
Co-operative has to face the competition in market economy
"We now that in Finland our main branch, supermarket trade or retail trade does not grow much, population of Finland does not grow, it just changes the place of residence and due competition price levels have almost deflationary development in supermarket trade and currently our competitors are probably at a disadvantage in supermarket trade, but we know that K Group does everything in their power to get everything into shape and possibly also foreign chains will enter so we have threats, but these are everyday threats in a market economy…"
Critical mass is needed to succeed in competition and to develop
"we talk about the concept of critical mass, in a way we need to have adequate business and competence in order to be able to develop also in terms of competence, not only the economic side but also this competence side…"
Supermarket trade is a business with so low profit margins that growth is the only way to survival
"..especially when talking about supermarket trade the situation is that price competition becomes tougher… the logic of supermarket trade is that is has no other option than grow, in a way it is a business with so low profit margins that growth is the only way to survival …"
The surplus goes back to members in the form of investments to the region
"The surplus that the co-operative generates goes back, we do not have shareholders who get dividends or we do not pay dividend, in our case the surplus we are able to generate goes back to members, in the form of bonuses and other refunds but also via investments to this region, for example our co-operative has two ways, we pay more... in every year more than before at least so far and then we invest in this network, we still have a lot to do with this network…"

3.3 Competition and Regional Development are Essential Part of Executing Co-operative Purpose in the Consumer Market and Regional Economy

As we start looking into why co-operatives compete and develop their regions, our data suggests that the answer lies in their purpose, which is different as compared to that of shareholder corporations (Tuominen, 2012; Borgen, 2004). As an interviewee put it:

"Maximizing the profit is not the most important task of co-operation; it is bringing about the good services and the development of operation"

Importantly, our interviewees also emphasize the fact that the performance of a consumer co-operative is always relative to other actors in the market (Jussila et al., 2008; Mills, 2001). As put forward by an interviewee:

"..when according to our business idea, we say that the delivering benefits and services to the customer-owner, so in addition to the services, we also have to produce benefits and it is not a benefit if we have the same prices or even higher than the competitors so they have to also have the network close to them, that it is plentiful, I mean all around Finland, it is diverse from car shops to grocery stores"

Co-operatives execute their purpose by providing the goods and services in a more convenient location (Saxena & Craig, 1999), with higher quality, and/or lower prices (Spear, 2004; Borgen, 2004; Fulton & Hammond, 1992). The emphasis may vary across market conditions, but the main point is that "a co-operative fulfills its purpose only if it is beneficial to the members relative to alternatives" (Jussila, 2012, p. 3). In other words, consistent with Jussila et al. (2008), our data suggests that in serving its members, a co-operative has to do better than its competitors do in serving them as customers.

Finally, speaking to co-operatives' role as counter actors to failing markets, the purpose of consumer co-operatives is to provide goods and services that are needed, but not provided by other market actors (Jussila et al., 2008). What further stresses the importance regional development is that our interviewees emphasize co-operatives' *"ability to operate reliably, predictably and patiently according to the interests of the province and the people"*. This is consistent with the thoughts of Fairbairn et al. (1991) among others. Co-operatives are expected to be the last to leave their regions and function as vehicles of economic and regional development and promoters of community viability (see e.g., Majee & Hoyt, 2011; Jussila et al., 2007). While growing co-operatives have more power and leverage over their environment, they are also expected to be responsible and use their power in a way that benefits the entire community (i.e., in accordance with the co-operative

purpose). Table 4 provides a summary of the above discussed 1st order concepts; representative supporting data is also included.

Table 4. Competition and regional development are essential part of executing co-operative purpose in the consumer market and regional economy

1st order concepts and the selected representative data
The production of economic benefit for the owner in the form of affordable services is the most important goal
"Well of course the most important goal is the production of economic benefit for the owner of a co-operative share but it does not come via company's return on investment but in the form of affordable services and that is a clear indicator, for example in grocery store we have the objective that the price level of our every market chain is two percentage cheaper than what the competitors have …that is a this kind of clear indicator of the way you achieve benefits from ownership…"
Co-operative has to offer better services than a competitor
"Possibilities are just in this co-operation and the originality and maintaining the special features and especially that, that our basic starting point for our competitive strategy is that how do we get people to come here over and over again to this store and there is it…by being different, being better than the competitor and this company form offers us this.."
Ability to operate reliably, predictably and patiently according to the interests of the province and the people
"Reliability in this operation and the fact that the decision-makers and owners are near to the operations of the co-operative and they are not going to transfer the operation to China, continuity and security of operation…"
The co-operative is the last one who has to leave the region
"..that is the spirit, we make so big units there and are so competitive that we are the last one who has to leave and others will leave before us, there is no pessimism in that "

4. Summary of the Findings

Consumer co-operatives make profit because it is regarded as a safe way to accumulate capital and one that provides the co-operative with independence. In more detail, co-operatives have to show profit, but not as much as the normal capital firm in which profit is a central goal. In consumer co-operatives profit is used to accumulate resources in order to avoid the risks associated with the nature of capital provided by individual members. That is, the initial capital base is formed from members' small participation shares (which are not fixed in terms of total count) and which are paid back to the members if they leave the co-operative. This causes a specific financial risk in consumer co-operation, and thereby, co-operatives should build their own capital by making profit and retaining it in the co-operative. The idea of profitability can be seen as linked to the principle of economy and, thereby, not a total stranger to the co-operative model.

Co-operatives accumulate these resources since they are required both to respond to competition and to act as regional protectors and developers. Particularly in supermarket trade growth and critical mass is important. By having strong financial resources, consumer co-operatives are able to achieve stability and predictability in their environment which increase their survival potential and reduces the uncertainty stemming from their regional dependence.

Finally, competing and regional development are based on the purpose of co-operatives in the consumer market and regional economy. In more detail, a consumer co-operative fulfils the purpose it was established for only if it is beneficial to members in relation to alternatives (competitors). In an uncompetitive market, a consumer co-operative is supposed to provide goods and services that are needed, but not provided by other market actors. Such a role is important since it is expected from a co-operative that it operates reliably, predictably and patiently according to the interests of the province, which includes securing service provision in the long run: to be the last to leave the community. Figure 1 summarizes the chain of reasoning found through the above-reported iterative process, which answers the question: why do consumer co-operatives make profit?

5. Discussion and Conclusion

For consumer co-operatives, profit is a tool that must be used deliberately. Although it is typically associated primarily with a different company form (i.e., the shareholder corporation), it serves a purpose also in consumer co-operatives. The management uses it as it seeks to find a proper balance between the immediate individualistic short-term interests of members and their long term mutual interests.
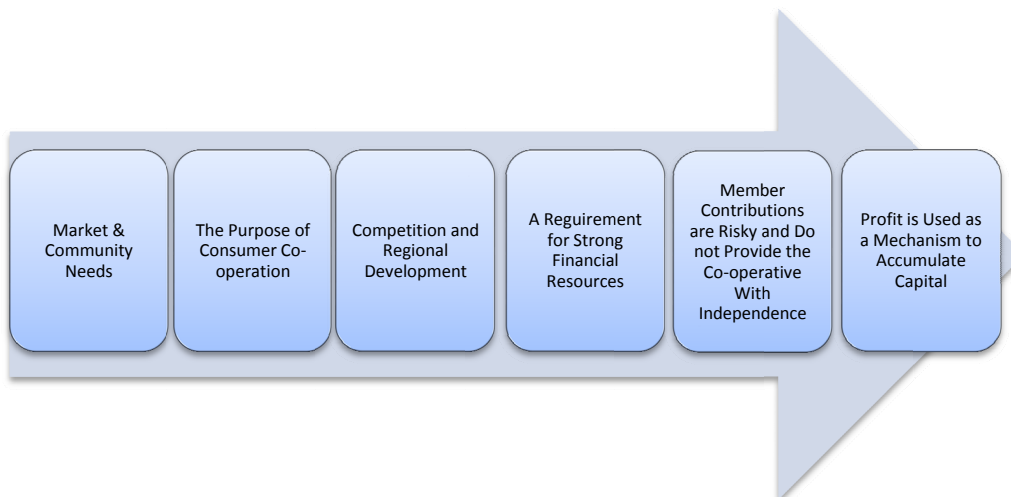
Figure 1. A chain of reasons for profit-making in consumer co-operatives

Prior our study, we already knew that profit is essential for co-operatives in order to accumulate financial resources (Hicks et al., 2007). We also knew that co-operatives use profits to expand their businesses (Syrjä et al., 2012). Our work provides a more holistic view and a more logical understanding on the role of profit in consumer co-operatives. In more detail, now we know why profit is used to accumulate resources instead of member contributions or loans. We also know more broadly why consumer co-operatives accumulate financial resources even if they are not primarily based on capital association. Finally, we now know that this all comes to executing the purpose of co-operatives in the consumer market. In other words, through this study, we now have a chain of reasons that takes us from profit to the purpose of consumer co-operation.

Noteworthy, we have reached this additional understanding by inductively proceeding from data to themes in aniterative process that has made use of extant literature from different co-operative contexts as well as literature from outside the field. Thereby, we not only provide new insight, but also introduce an approach that is new to the discussion on this issue.

The notion that pursuit of risk-avoidance and independence are amongst reasons for using profit to accumulate resources instead of member contributions or loans offers a number of important avenues for future research. For example, it would be useful to study what other means these organizations may utilize to create stability and predictability in their organization-environment-relations. It seems to us that the importance of this question for co-operative management is highlighted due to the geographic-boundness of consumer co-operatives, which stems from their purpose.

The finding that competition and regional development call for financial resources leads us to ask about the role of capital association in consumer co-operatives. How well this is actually addressed in previous research that has highlighted the association of people (the owners) as opposed to capital invested (Jussila, 2012; Novkovic, 2008; Michelsen, 1994) as a key distinctive feature of consumer co-operation. Our work suggests that even though the the social side of co-operation (Novkovic, 2006) is important, it is also important to keep in mind that co-operatives usually operate in the capitalistic market economy (Watkins, 1986), which in many markets requires "big muscles" to survive. It seems to us that this aspect of the co-operative as a tool of the members should not be overlooked. Instead, it deserves more attention and research. Growth is another tricky concept in the context of co-operation. How can co-operatives hold on to their distinct identity (in the competition for social legitimacy), if they are seen as operating like more growth-oriented capitalistic market actor?

Given that competition relates to the execution of the co-operative's purpose in the consumer market, it is worth asking do we know enough about co-operatives as competitive actors? While co-operation and competition may seem like opposite strategies, our work suggests that they co-exist. Consumers co-operate, but their joint co-operative competes with other actors in the market and cannot settle for anything else than victory—at least if it wants to fulfill its purpose. On the other hand, their role as promoters of the market leads us to ask whether their role is—or should be considering the model—collaborative also in their relationships with their competitors. Thereby, more research should be focused on the roles of different kinds of market actors and their reciprocal

decisions that contribute the evolution of the market and the repositioning of different actors in relation to each other, including the co-operatives.

The high demands that the execution in otherwise demanding conditions or competitive conditions place on consumer co-operatives lead us to ask about the concept of efficiency and the role of efficiency in consumer co-operation. We agree with prior research (e.g., Boyle, 2004) in that we should not assume co-operatives are less efficient than investor-owned firms. However, we also think that we should not be too quick to judge co-operatives as efficient or inefficient simply by comparing their financial results to those of investor-owned firms. We must ask how efficiency is defined and measured across company forms and critically examine to what extent these definitions match and measures are comparable. Further, it would be worth studying what strategies consumer co-operatives use to increase their efficiency as co-operative actors. We certainly hope a lot of research will follow to address this question and other important questions identified through this study.

References

Borgen, S. O. (2004). Rethinking incentive problems in cooperative organizations. *Journal of Socio-Economics*, *33*, 383–393. http://dx.doi.org/10.1016/S1053-5357(04)00049-6

Boyle, G. E. (2004). The economic efficiency of Irish dairy marketing co-operatives. *Agribusiness, 20*, 143–153. http://dx.doi.org/10.1002/agr.20000

Braun, V., & Clarke, V. (2005). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. http://dx.doi.org/10.1191/1478088706qp063oa

Burt, S. L., & Sparks, L. (2003). Power and competition in the UK retail grocery market. *British Journal of Management, 14*, 237–254. http://dx.doi.org/10.1111/1467-8551.00377

Cornforth, C. (2004). The governance of cooperatives and mutual associations: A paradox perspective. *Annals of Public and Cooperative Economics*, *75*, 11–32. http://dx.doi.org/10.1111/j.1467-8292.2004.00241.x

Davis, P. (2001). The governance of co-operatives under competitive conditions: Issues, processes and culture. *Corporate governance, 1*, 28–39. http://dx.doi.org/10.1108/EUM0000000005975

Duska, R. F. (1997). The why's of business revisited, *Journal of Business Ethics*, *16,* 1401–1409. http://dx.doi.org/10.1007/978-94-009-1475-9_18

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: opportunities and challenges. *Academy of Management Journal, 50*, 25–32. http://dx.doi.org/10.5465/AMJ.2007.24160888

Fairbairn, B., Bold, J., Fulton, M., Hammond-Ketilson, L., & Ish, D. (1991). *Co-operatives and community development: economics in social perspective.* Centre for the study of co-operatives, University of Saskatchewan.

Fielding, N. (1993). Qualitative Interviewing. In N. Gilbert (Ed.), *Researching Social Life* (pp. 135–153). London: Sage.

Friedman, M. (1970). The social responsibility of business is to increase its profits. *New York Times Magazine*, 13 September.

Fulton, M., & Hammond, K. L. (1992). The role of cooperatives in communities: examples from Saskatchewan. *Journal of Agricultural Cooperation, 7,* 15–42.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: notes on the Gioia methodology. *Organizational Research Methods.* http://dx.doi.org/10.1177/1094428112452151

Hansmann, H. (1996). *The Ownership of Enterprise*. Cambridge, MA: Belknap Press of Harvard University Press.

Hart, O., & Moore, J. (1990). Property rights and the nature of the firm. *The Journal of Political Economy, 98*, 1119–1158. http://dx.doi.org/10.1086/261729

Hicks, E., Maddox, J., Robb, A., & Webb. T. (2007). Co-operative accountability and identity: an examination of reporting practices of Nova Scotia co-operatives. *Journal of Co-operative Studies, 40*, 4–16.

Jensen, M., & Meckling, W. (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics, 3*, 305–360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Jokisch, J. (1994). Assesment of success and the distribution of benefits and surplus in co-operatives. In E. Dülfer & J. Laurinkari (Eds.), *International Handbook of Cooperative Organizations* (pp. 23–28). Göttingen: Vandenhoeck & Ruprecht.

Jussila, I. (2012). Inaugural editorial. *Journal of Co-operative Organization and Management*. http://dx.doi.org/10.1016/j.jcom.2012.11.001

Jussila, I., Kotonen, U., & Tuominen, P. (2007). Customer-owned Firms and the Concept of Regional Responsibility: Qualitative Evidence from Finnish Co-operatives. *Social Responsibility Journal*, *3*(3), 35–43. http://dx.doi.org/10.1108/17471110710835563

Jussila, I., Tuominen, P., & Saksa, J. M. (2008). Following a different mission: where and how do consumer co-operatives compete? *Journal of Co-operative Studies, 41*, 28–39.

Majee, W., & Hoyt, A. (2011). Cooperatives and community development: A perspective on the use of cooperatives in development. *Journal of Community Practice, 19*, 48–61. http://dx.doi.org/10.1080/10705422.2011.550260

Michelsen, J. (1994). The rationales of cooperative organizations. Some suggestions from Scandinavia. *Annals of Public and Co-operative Economics*, *65*, 13–34. http://dx.doi.org/10.1111/j.1467-8292.1994.tb01504.x

Mills, C. (2001). Distributions, and what it means to be a co-operative. *Journal of Co-operative Studies*, *34*(3), 173–181

Mills, C. (2008). Do large membership-based businesses have a future in the twenty first century? Some reflections on UK retail co-operative societies. *Journal of Co-operative Studies*, *41*, 17–29.

Nilsson, J. (2001). Organisational principles for co-operative firms. *Scandinavian Journal of Management*, *17*, 329–356. http://dx.doi.org/10.1016/S0956-5221(01)00010-0

Norman, K. D., Yvonna, S. L., & Yvonna, S. L. (1994). *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage.

Novkovic, S. (2008). Defining the Co-operative Difference. *The Journal of Socio-Economics*, *37*, 2168–2177. http://dx.doi.org/10.1016/j.socec.2008.02.009

Pfeffer, J., & Salancik, G. R. (1978). *The External Control of Organizations: A Resource Dependence Perspectiv*e. New York: Harper & Row.

Robinson, T., & Clarke-Hill, C. M. (1995). International alliances in European retailing. *The International Review of Retail, Distribution and Consumer Research, 5,* 167–184. http://dx.doi.org/10.1080/09593969500000012

Saxena, S., & Craig, J. (1999). Consumer co-operatives in a changing world: A research review. *Annals of Public and Cooperative Economics*, *61*, 489–517. http://dx.doi.org/10.1111/j.1467-8292.1990.tb01358.x

Somerville, P. (2007). Co-operative identity. *Journal of Co-operative Studies, 40*, 5–17.

Spear, R. (2004). Governance in democratic member-based organisations. *Annals of Public and Cooperative Economics, 71*, 33–59. http://dx.doi.org/10.1111/j.1467-8292.2004.00242.x

Syrjä, P., Sjögren, H., & Tuominen, P. (2012). Financial performance and effiency of consumer co-operatives and limited companies–agency theoretical approach. *Journal of Co-operative Accounting and Reporting*, *1*, 143–153.

Tuominen, P. (2012). *The purpose of consumer co-operation: implications for the management and governance of co-operatives*. Acta Universitatis Lappeenrantaensis, 487.

Tuominen, P., Jussila, I., & Kojonen, S. (2009). Overcoming Challenges to Governance of Consumer Co-operation: Analysing Reports of Key Representatives. *International Journal of Co-operative Management*, *4*, 22–35.

Tuominen, P., Jussila, I., & Rantanen, N. (2010). Managerial competence in consumer co-operatives: inducing theory from empirical observations. *International Journal of Co-operative Management*, *5*, 9–22.

Tuominen, P., Jussila, I., & Saksa, J. M. (2006). Locality and regionality in management of Finnish customer owned co-operatives. *International Journal of Co-operative Management, 3*, 9–19.

Watkins, W. P. (1986). *Co-operative principle: Today and tomorrow*. Manchester: Holyoake Books.

Zeuli, K., & Radel, J. (2005). Cooperatives as Community Development Strategy: Linking Theory and Practice. *The Journal of Regional Analysis & Policy, 35*, 43–54. Retrieved May 14, 2013, from https://www.s-kanava.fi/web/s-kanava-tietoa-s-ryhmasta/en/tietoa-s-ryhmasta

Zeuli, K., Freshwater, D., Markley, D., & Barkley, D. (2004). Cooperatives in rural community development: a

new framework for analysis. *Journal of the Community Development Society*, *35*, 17–35. http://dx.doi.org/10.1080/15575330409490130

Copyrights

Direct and Mediating Effects of Auditor Quality on Auditor Size and Performance

Yu-Shu Cheng[1], Yahn-Shir Chen[2] & Yu-Cheng Chen[3]

[1] Department of Accounting, Kainan University, Taiwan

[2] Department of Accounting, National Yunlin University of Science and Technology, Taiwan

[3] Department of Finance, National Chung Hsing University, Taiwan

Correspondence: Yu-Shu Cheng, Department of Accounting, Kainan University. No.1 Kainan Road, Luzhu Shiang, Taoyuan 33857, Taiwan. Tel: 886-5-341-2500 ext. 7915. E-mail: cyushu@gmail.com

Abstract

In defining audit quality, DeAngelo (1981) assumes no variation in auditor's technical competency in discovering a breach. Instead, we relax this assumption and utilize principal components analysis technique to extract auditor quality from human capital factors of an audit firm. With the auditor quality, this study examines the association between auditor size and performance. In terms of market segment, audit firms are divided into public company audit market firms (PCAMFs) and non-public company audit market firms (NCAMFs). Based on path analysis, we find that auditor size has direct effect on performance and indirect effect through auditor quality. Auditor quality associates with both auditor size and performance positively. In further, auditor size has more contribution to performance of PCAMFs than that of NCAMFs. Auditor quality of PCAMFs explains more variation of financial performance than do NCAMFs. The results indicate that PCAMFs earn more financial performance through the upgrade of auditor quality.

Keywords: path analysis, auditor quality, auditor size, performance, audit firms

1. Introduction

After Enron, the U.S. Public Company Accounting Oversight Board (PCAOB) pays much more attention to the oversight of quality control over audit firm. Its regular inspections include evaluation of the quality of audit tasks on a specific engagement and review of auditors' practices, operating policies and auditing procedures related to audit quality. In addition, the PCAOB inspections focus on the assessment of professional competency of auditor, assignment of responsibility, continuing professional education program. These inspections indicate that human resources management is an important determinant of audit quality. Further, the U.K. Financial Reporting Council (FRC) solicited the views of parties interested in the audit process with regard to identifying the relevant drivers of audit quality in November 2006. In the light of recent developments, regulators, academics, and investors are concerned more about the audit quality from the perspective of auditor and the role played by the human recourses in an audit firm.

In the original definition of audit quality, DeAngelo (1981) assumes that the probability of discovering a breach is positive and fixed, implying no variation in auditor's competency (Niemi, 2004). Auditor competency in fact varies over different audit firms. An audit firm with skillful and proficient employees will presumably be able to bring closer concordance of the reported earnings with GAAP and is perceived as a high auditor quality firm (Teoh & Wong, 1993). Consequently, this study relaxes DeAngelo's constant auditor competency assumption and assesses audit quality in terms of human capital of an audit firm. Watkins et al. (2004) indicate that auditor quality is equal to audit quality with the former an audit-firm specific attribute and the latter an audit-specific attribute. Based on Watkins et al. (2004), we term the audit-firm specific audit quality as auditor quality. Further, we maintain that audit firms with high auditor quality render quality service and are rewarded with superior performance. To examine the association between auditor quality and performance constitutes the first purpose of this study.

Prior studies indicate that larger audit firms have valid reputation for higher quality audits (Simunic & Stein, 1987; Francis & Wilson, 1988; Palmrose, 1988; DeFond, 1992) and large audit firms earn more fee premium

over small ones due to their brand name reputation (Francis, 1984; Gul, 1999; Taylor & Simon, 1999). Large audit firms own abundant resources, such as human capital and information technology, with which to upgrade service quality. Specifically, large firm hires employees with high educational level and much experience and devotes more resources in professional training to foster high auditor quality. Arguably, auditor size is positively associated with auditor quality. To examine the relation between auditor size and auditor quality constitutes our second purpose.

Traditionally, the association between auditor size and performance is positive due to existence of scale economies (Christenson & Greene, 1976; Darrough & Heineke, 1978; Gyimah-Brempong, 1987) or brand name reputation (Francis, 1984; Gul, 1999; Taylor & Simon, 1999). To retain existing clients and thus to earn economic quasi-rents in the long run, incumbent auditors have economic incentive to compromise with the clients and issue an unqualified audit report. Large audit firms with more clients have more client-specific quasi-rents at stake. They have incentive to resist to the pressure from individual client and thus provide quality audit (DeAngelo, 1981). Specifically, large audit firm owns high auditor quality to deliver quality services and thus rewarded with superior performance. Hence, the relation between auditor size and performance is mediated by auditor quality. Apart from its direct effect, we argue that auditor size affects performance indirectly through auditor quality. To examine the direct and indirect effects of auditor size on performance forms our third purpose.

Empirical data of this study are from 1989 to 2006 Census Report of Audit Firms in Taiwan, published by the Financial Supervisory Commission. Audit firms are divided into public company audit market firms (PCAMFSs) and non-public company audit market firms (NCAMFs) in terms of market segmentation. We utilize principal component analysis technique to extract auditor quality from audit firm's human capital related factors identified in earlier studies. Empirical results, based on path analysis, indicate that auditor size has direct effect on performance and indirect effect through auditor quality. Auditor quality associates with both auditor size and performance positively. Further, auditor size has more contribution to performance of PCAMFs than that of NCAMFs. Auditor quality of PCAMFs explains more variation in performance than does NCAMFs, indicating that the former earn more income through the enhancement of auditor quality.

With the findings and by extending prior researches, this study contributes to the auditing literature. First, previous studies examining the issues of audit quality indirectly estimate audit quality from various indicators of audit clients (Becker et al., 1998; Ghosh & Moon, 2005). Instead, we are the first to measure auditor quality directly from audit firms with results to fill the gap left by prior studies. Second, we document that use of auditor size to assess auditor quality by earlier studies is warranted. Third, our findings possess managerial implication, in particular, to the practitioners in audit firms providing services to public company. Specifically, upgrade of auditor quality leads to improvement of its performance.

The remainder of this study proceeds as follows. Section 2 presents literature review and hypotheses development. Methodology of this study appears in section 3. Section 4 reports the empirical results. We conclude in section 5.

2. Literature Review and Hypotheses Development

For long, there is no single agreed definition of audit quality that can be used as a standard against which actual performance can be assessed (FRC, 2006). As audit quality is unobservable, after DeAngelo (1981), researchers establish a variety of proxy variables instead.

The definition of audit quality in DeAngel (1981) incorporates two primary dimensions, technical competence of an auditor (discovery of any misstatement) and independence of the auditor (willingness to report client's misstatement once discovered) (Watts & Zimmerman, 1986; Deis & Giroux, 1992; Niemi, 2004). The technical competence and independence of the auditor de facto can be referred to as the monitoring strength of an audit (Watkins et al., 2004). Some earlier studies including DeAngelo (1981) focus on auditor independence and assume no variation in auditor competency (Niemi 2004; Goldman & Barlev, 1974; Nichols & Price, 1976). As no information about technical competency, Deis and Giroux (1992) noted, its influence on audit quality is difficult to disentangle.

Milgrom and Roberts (1990) indicate that the most important specialized input in partnerships is typically the knowledge and abilities of the workers, that is, their human capital. Audit quality hence can be measured from the attributes of human capital of an audit firm, which is suggested by some prior studies. For example, education of auditors is one of the five areas identified by the AICPA to improve the quality of government audits (Meinhardt et al., 1987). Incorporating the auditors' education to depict auditor's quality, Lee et al. (1999) analytically evaluate the effects of the 150-hour rule on the audit market. Investigating the common attributes of quality audits, Aldhizer et al. (1995) identify two human capital-related attributes which are strongly associated

with audit quality. This includes the in-charge auditor being a certified public accountant (a symbol of professionalism) and general audit knowledge and experience. FRC (2006) reports two human capital-related key drivers of audit quality, including the skill and personal qualities of partners and staffs, and continuous professional development given to audit personnel. After DeAngelo (1981), numerous studies examine issues related to auditor quality (Feltham et al., 1991; Teoh & Wong, 1993). To the extent that high-quality auditors assure a greater conformance of the financial report with generally accepted accounting principles (GAAP) and less discretion in management of accruals is permitted (Teoh & Wong, 1993). Namely, an audit firm with more skillful auditors will presumably be able to bring closer concordance of the reported earnings with GAAP and is perceived as a high auditor quality firm.

In practice, product differentiation and overall cost leadership are two commonly used marketing strategies with which to achieve a sustainable competitive advantage and earn abnormal rate of returns in a hostile environment (Hall, 1980; Porter, 1980). Although various product differentiation alternatives exist, superior quality is the most adopted approach to characterize this strategy (Kiechel, 1981). Differentiation by quality insulates a product from rivalry by lowering customer sensitivity to price and protecting the product from other competitive forces that reduce price-cost margins (Porter, 1980). Moreover, high quality products allow a firm to avoid profit-damaging competition based on price (Gale & Swire, 1977). That is, higher quality enables the firm to charge premium price and generate superior margins (Porter, 1980; Klein & Leffler, 1981; Shapiro, 1983). Consistent with the arguments above, previous studies report that product quality is positively associated with financial performance, such as return on investment (Schoeffler et al., 1974; Buzzell, 1978; Craig & Douglas, 1982; Phillips et al., 1983).

As a professional organization, audit firms render services by auditors. With higher auditor quality, the firms provide quality services to earn more fee premium, which serves either as an incentive to produce quality service continuously or as a return on their investment in reputation. Accordingly, this study expects a direct and positive association between auditor quality and performance and advances the following hypothesis.

H1: Auditor quality has a positive and direct effect on performance of an audit firm.

In theory, scale economies exist for an industry when its constituent firms can reduce their average cost or increase their average revenues by expanding firm size (Christenson & Greene, 1976; Darrough & Heineke, 1978; Gyimah-Brempong, 1987). Scale economies prevail in the public accounting industry (Banker et al., 2003) and large audit firms earn more fee premium over small ones due to their brand name reputation (Francis, 1984; Gul, 1999; Taylor & Simon, 1999). Further, earlier studies report a positive association between performance of audit firm and auditor size, measured either by number of partners (Rescho, 1987), number of full-time employees (Collins-Dodd et al., 2004) or by market share (Chen et al., 2008). Accordingly, this study expects a direct and positive relation between auditor size and performance and hypothesizes:

H2: Auditor size has a positive and direct effect on performance of an audit firm.

DeAngelo (1981) states that start-up and client switching costs enable the incumbent auditors to earn client-specific quasi-rents. They as a result have economic incentive to compromise with client by issuing an unqualified audit report. However, larger auditors with more clients have more client-specific quasi-rents at stake if a lack of independence or a low audit quality becomes known. To avoid loss of other quasi-rents, larger auditors have incentive to resist to the pressure from individual client and thus provide quality audit. Further, as an audit firm grows, it owns abundant resources, such as human capital and information technology, with which to upgrade its auditor quality. In addition, the public accounting profession sets up more requirements on auditors in large audit firm compared to that of in small firm. Take continuing profession education (CPE) as an example, partners in large audit firms providing audit services to public companies are required to take at least 100 CPE hours in every 3-year period in Taiwan and 120 CPE hours in some states of the U.S. (Elder et al., 2008). In contrast, the required CPE hours for partner in small audit firm are half of that in large audit firm. Earlier studies indicate that high level of professional training improves auditor's expertise (Grotelueschen, 1990), associates with efficient auditing practices (Wallace & Campbell, 1988) and task performance of audit judgment (Bonner & Pennington, 1991). Further, larger audit firms, such as Big international firms, are perceived as high auditor quality firms (Teoh & Wong, 1993) and have fewer litigation activities than other firms (Palmrose, 1988). In addition, prior studies report a positive association between auditor size and auditor quality (Krishnan & Schauer, 2000; Colbert & Murray, 1998; O'Keefe & Westort, 1992; Palmrose, 1988). Therefore, this study expects that the larger the auditor size the higher the auditor quality and establishes the following hypothesis.

H3: Auditor size has a direct and positive effect on auditor quality.

Public companies such as listed and OTC corporations are sizeable and always served by large auditors (Francis et al., 1999; Simunic & Stein, 1987). Venkataraman et al. (2008) use IPO setting to examine the relation between auditor exposure to legal liability and audit quality and audit fees. Their results suggest that both audit quality and audit fees are higher in a higher-litigation regime. To provide attestation services to public companies in Taiwan, an audit firm is required to have more than two partners and thus its size is relatively larger. Further, the Securities and Exchange Act imposes more civil and criminal liabilities on auditors rendering services to public companies to protect investors. Under a heavier legal liability environment, Taiwanese large audit firms devote more resources in the audit engagement to upgrade service quality and thus are rewarded with higher audit fees. As stated earlier, the association between auditor size and performance is positive. Furthermore, we expect that this relation is mediated by auditor quality. Specifically, large audit firm devotes more resources, such as professional training, to enhance auditor quality. Audit firms with high auditor quality render quality audit services and then bring about more businesses and superior performance. To the best of our knowledge, few studies examine the mediating role of auditor quality in the size-performance relationship. This study sets up the following hypothesis to articulate the above expectation.

H4: Auditor size has a significant indirect effect on performance of an audit firm through auditor quality.

3. Methodology

3.1 Path Analysis

This study applies path analysis to test our hypotheses. A path coefficient indicates the direct effect of a variable (cause) on another variable (effect). An indirect effect occurs when a variable affects an endogenous variable through its effect on some other variable (referred to as intervening variable) (Agresti & Finaly, 1997). In other words, for causal effects, there are effects that go directly from one variable to a second variable (direct effect) and effects between two variables that are mediated by one or more intervening variables (indirect effects). Sum of direct and indirect effects is the total effect of one variable on another.

Figure 1 presents the path diagram depicting the relationship among auditor size (*SIZE*), auditor quality (*AQ*) and financial performance (*PF*). Figure 1 posits that *SIZE* affects *PF* directly but also indirectly through *AQ*. Macro-economic indicator (*GDP*), an external environment effect on *PF*, is included as a control variable. Both *SIZE* and *GDP* are exogenous variables while *AQ* and *PF* are endogenous variables. The direct causal effects of the exogenous variables (*SIZE* and *GDP*) on the endogenous variable (*AQ* and *PF*) are shown with straight arrows. The relationship between *SIZE* and *PF* can be decomposed into two parts: direct effect and indirect effect through *AQ*. In addition, the effect of the residual term, r_u and r_v, is also included.
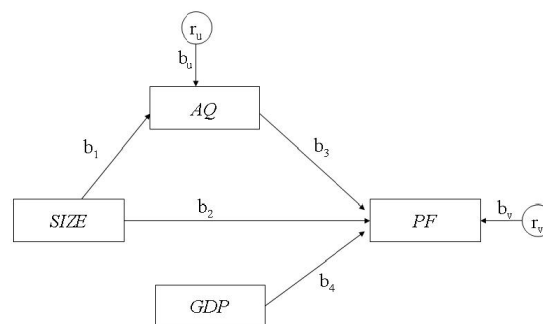
Figure 1. Relation among auditor size, auditor quality and financial performance

These causal relations result in two structural equations as follows:

$$AQ = b_1 SIZE + b_u r_u \tag{1}$$

$$PF = b_2 SIZE + b_3 AQ + b_4 GDP + b_v r_v \tag{2}$$

where b_1, b_2, b_3 and b_4 are parameter estimates, and r_u and r_v are two residual terms. In examining the H1, the association between auditor quality and financial performance, we expect a positive b_3. When testing H2, the

direct effect of auditor size on financial performance, this study predicts b_2 to be positive. We establish H3 to investigate the relation between auditor size and auditor quality and expect a positive b_1. As noted earlier, the relationship between *SIZE* and *PF* comprises direct effect stated in H2 and indirect effects depicted in H4. The indirect effect of auditor size on financial performance through auditor quality is computed by the product of b_1 and b_3, which is expected to be positive.

3.2 Definitions of Variable

This study defines dependent variable, financial performance (*PF*), as a natural logarithm of net profit per partner in an audit firm. We take natural log to normalize its distribution and allow the cross-sectional aggregation of observations. In accounting, net profit is defined as total revenues minus total expenditures. Partners are the owner and residual interest claimant of an audit firm. Their annual income comprises salary and sharing of net profit of the firm. Salary of the partner, weekly or monthly, is a part of total expenditures. According to the Certified Public Accountants Act, net profit of an audit firm should be allocated to the owner annually and cannot be kept as retained earnings. The more the salary of an owner, the less the net profit of the firm. It makes no difference to the partners whether they receive salary or not in terms of their total annual income. In addition, the criteria for salary payments to partners vary across firms. The salary expenses of partners are thus added back to net profit to reduce such an artificial noise. This study thus defines net profit of an audit firm as total revenues minus total expenditures plus the salary paid to the partners.

The first variable of interest in this study is the auditor quality (*AQ*) extracted by a principal components analysis technique from audit firm's human capital related factors. Meinhardt et al. (1987) summarize an AICPA task force report on the quality of audits of governmental units and indicate that education of auditors is an important area affecting the quality of auditor's work. One of the recommendations made by the task force to the education of auditors is the requirement of auditors to complete relevant continuing professional education programs. Aldhizer et al. (1995) report a 1992 survey findings by the AICPA federal assistance audit quality task force. Some human capital attributes related to auditor are strongly associated with audit quality, including whether an in-charge auditor is a certified public accountant (CPA) (professionalism) and general audit knowledge and experience. In November 2006, the FRC, an independent regulator for corporate reporting and governance in the U.K., issued a provocative discussion paper, *Promoting Audit Quality*. It identifies the drivers of audit quality in four areas including the skills and personal qualities of audit partners and staff. Specifically, the principal drivers of audit quality in this area include the skill (experience) base of partners and staff, the training given to audit personnel. Adapting Dye's (1993) model, Lee et al. (1999) analytically evaluate the effects of the 150-rule on the audit market and incorporate auditors' education and audit effort as joint inputs of audit quality. Auditors' human capital is one determinant of audit quality and education is a method for auditors to invest and the 150-hour rule is a minimum requirement (Liu, 1997).

Based on the preceding studies, this study extracts auditor quality from four human capital-related factors including educational level of auditors (Lee et al., 1999; Liu, 1997), work experience of auditors (Aldhizer et al., 1995; FRC, 2006), professionalism (Aldhizer et al., 1995), and continuing professional education of auditors (Meinhardt et al., 1987; FRC, 2006). Auditor with bachelor or master degree in accounting had completed at least 150 semester hours of college education to meet the requirement of professional standards (Whittington & Pany, 2003). Two indicators of educational level of auditors are used to extract auditor quality: number of auditors with bachelor degree (*BACHELOR*) and number of auditors with master or Ph.D degree (*MASTER*). Previous studies utilize age of auditor to assess work experience of auditors (Collins-Dodd et al., 2004; Brocheler et al., 2004; Fasci & Valdez, 1998; Chen et al., 2008). The practitioners argue that auditors older than 35 years old have worked in an audit firm over 10 years and are regarded as a much experienced employee. Three indicators of work experience are included, including number of auditors aged between 35–44 (*EXP_35–44*), number of auditors aged between 45–54 (*EXP_45–54*), and number of auditors aged above 55 (*EXP_over 55*). Passage of the uniform CPA examination together with experience and education requirements, an auditor is awarded with a CPA license and is legible for practicing as an independent auditor. Auditor with a CPA license is equipped with academic and professional expertise and work experience, a symbol of professionalism. This study estimates the professionalism by number of auditors with CPA license (*LICENSE*). Auditors must meet continuing education requirement to maintain their licenses to practice or as a condition for license renewal (Whittington & Pany, 2003). Public accounting profession provides continuing professional education to increase the likelihood of appropriate audit quality and to keep auditor stay current on the extensive and ever-changing body of knowledge in accounting, auditing, and taxes (Elder et al., 2008). We define continuing professional education (*CPE*) as natural logarithm of total training expenses incurred by an audit firm. Another variable of interest in this study is auditor size (*SIZE*) and is defined as natural logarithm of total

number of employees of an audit firm. Indicators of educational level of auditors, work experience of auditors, and professionalism are deflated by number of partners to control size of an audit firm. Operational definitions of the variables are summarized as follows.

BACHELOR	= (number of auditors with bachelor degree) / (number of partners);
MASTER	= (number of auditors with master or Ph.D degree) /(number of partners);
EXP_35-44	= (number of auditors aged between 35 to 44) / (number of partners);
EXP_45-54	= (number of auditors aged between 45 to 54) / (number of partners);
EXP_ over 55	= (number of auditors aged above 55) / (number of partners);
LICENSE	= (number of auditors with CPA license) / (number of partners).
CPE	= natural log of total training expenses of an audit firm;
SIZE	= natural log of total number of employees.

Sample period of this study is 17 years and spans over two centuries. As a professional organization, audit firms are affected by the local economy (Reynolds & Francis, 2001). A macro-economic indicator, Taiwanese gross domestic product (*GDP*), is included to control the effects of external environment on operating performance.

3.3 Data

Empirical data of this study are obtained from the 1989–2006 Census Report of Audit Firms in Taiwan. Market segmentation to some extent exists in the public accounting profession due to either varied government regulation or size of clients served (Defond et al., 2000; Ghosh & Lustgarten, 2006). Market segmentation refers to a group of consumers within a broader market who possess a common set of characteristics. Segmentation characteristics include demographic factors, geography, buyer's industry, and size of purchasing firm (Besanko et al., 2000). In terms of market segment, we partition total observations into two categories: public company audit market firms (PCAMFs) and non-public company audit market firms (NCAMFs). During the sample period, we delete firm-year observations (1) newly established in the survey year, (2) with dependent variable having value more than three standard deviations away from its mean, and (3) with no revenue or no expenditure. The final number of firm-year observation is 10,339, including 1,039 PCAMFs and 9,300 NCAMFs.

4. Empirical Results

4.1 Estimation of Auditor Quality

Table 1 reports the descriptive statistics and correlation matrix of variables used in extracting auditor quality. Panel A lists the results for the total sample while Panels B and C for PCAMFs and NCAMFs, respectively. When Panels B and C are compared, mean value of variables in the PCAMFs is higher than that in the NCAMFs except work experience (*EXP_35–44*, *EXP_45–54*, and *EXP_over55*). This indicates that PCAMFs own more auditors with master degree (mean *MASTER* of the PCAMFs and NCAMFs is 0.3110 and 0.0612) and with bachelor degree (mean *BACHELOR* of the PCAMFs and NCAMFs is 4.8862 and 1.5111). PCAMFs have more auditors with CPA license as compared with NCAMFs (mean number of *LICENSE* in the PCAMFs is 0.3494 and 0.0649 in the NCAMFs). Also, total training expenses of the PCAMFs are higher than that of NCAMFs (mean *CPE* for the PCAMFs and NCAMFs is 9.2814 and 5.3539, respectively). In sum, the PCAMFs, on average, have more auditors with higher academic education level and with CPA license. In addition, they devote more resources on the continuing professional education of auditors.

Because more factors determine auditor quality, this study employs a principal components analysis technique to extract it from the previous four human capital-related factors in an audit firm. The eigenvalue-greater-than-one rule suggests that three principal components are obtained and they cumulatively explain about 86% of total variance. By identifying the attributes of each component, we name the three components as education (including *MASTER*, *BACHELOR* and *LICENSE*), experience (including *EXP_35–44*, *STAF45–54*, and *EXP_over55*), and training (*CPE*). As more than one component is extracted, this study applies a linear combination to form a single auditor quality index on basis of the individual component's relative percentage explaining total variance. The linear-combined auditor quality is expressed as follows.

$$AQ = 0.4512 \text{ } Education + 0.3125 \text{ } Experience + 0.2363 \text{ } Training \qquad (3)$$

4.2 Descriptive Statistics of Variables Used in Path Model

Panel A of Table 2 presents the descriptive statistics for variables used in the path model and Panel B displays the testing results of variable differences in mean and median between PCAMFs and NCAMFs. As shown in

Panel B, *SIZE* of PCAMFs (mean=3.9402, untransformed mean=119; median=3.7377, untransformed median=42) is larger than that of NCAMFs (mean=2.0596, untransformed mean=10; median=0.1981, untransformed median=8) significantly (t=74.9696; z=47.8490). *AQ* in PCAMFs (mean=0.4485; median=2.0794) is larger than in NCAMFs (mean=-0.0501; median=-0.1513) statistically significantly at the 1% level (t =26.3468; z =22.2634). As the *AQ* is standardized (mean=0, standard deviation=1), we have negative *AQ* for the NCAMFs. Further, *PF* of PCAMFs (mean=14.2290, untransformed mean=1,512,086; median=13.9847, untransformed median=1,184,327) is superior to that of NCAMFs (mean=13.4875, untransformed mean=720,361; median=13.2272, untransformed median=555,242) significantly (t =29.0484; z =23.6323). In sum, the PCAMFs tend to be substantially larger in size, higher in auditor quality, and more profitable than NCAMFs.

Table 1. Descriptive statistics and correlation matrix of variables used to extract auditor quality

Panel A: Total sample (n=10,339)

	Mean	S.D.	MASTER	BACHELOR	EXP_35-44	EXP_45-54	EXP_over55	LICENSE	CPE
MASTER	0.0863	0.3866		0.1578***	0.0839***	0.0687***	0.0911***	0.3931***	0.1484***
BACHELOR	1.8503	2.5686	0.2595***		0.1546***	0.1300***	0.0860***	0.2797***	0.2365***
EXP_35-44	0.8078	1.2040	0.0436***	0.1460***		0.1135***	0.0617***	0.0600***	-0.0020
EXP_45-54	0.2459	0.6263	0.0190*	0.0335***	0.1543***		0.1412***	0.0405***	0.0093
EXP_over55	0.0573	0.2553	0.0304***	0.0031	0.0782***	0.1444***		0.0470***	0.0083
LICENSE	0.0935	0.4051	0.4815***	0.3278***	0.0469***	-0.0191*	-0.0016		0.1786***
CPE	5.7486	5.1600	0.1389***	0.2352***	-0.0268***	-0.0487***	-0.0364***	0.1307***	

Panel B: Public company audit market firms (PCAMF) (n=1,039)

	Mean	S.D.	MASTER	BACHELOR	EXP_35-44	EXP_45-54	EXP_over55	LICENSE	CPE
MASTER	0.3110	0.8818		0.3694***	0.1622***	0.1928***	0.2037***	0.5845***	0.3413***
BACHELOR	4.8862	2.2894	0.4589***		0.3243***	0.2142***	0.1556***	0.5036***	0.4331***
EXP_35-44	0.7214	1.1274	0.0988***	0.3448***		0.3135***	0.2110***	0.1592***	0.1378***
EXP_45-54	0.0936	0.2026	0.0628**	0.0923***	0.2031***		0.2336***	0.1325***	0.1160***
EXP_over55	0.0240	0.0886	0.0399	0.0045	0.1112***	0.1258***		0.1577***	0.1322***
LICENSE	0.3494	0.7689	0.7943***	0.5720***	0.1266***	0.0518***	0.0104		0.3546***
CPE	9.2814	5.0265	0.3412***	0.3506***	0.1149***	-0.0017	-0.0916	0.3439***	

Panel C: Nonpublic company audit market firms (NCAMF)(n=9,300)

	Mean	S.D.	MASTER	BACHELOR	EXP_35-44	EXP_45-54	EXP_over55	LICENSE	CPE
MASTER	0.0612	0.2704		0.0455***	0.0728***	0.0350***	0.0519***	0.2588***	0.0501***
BACHELOR	1.5111	2.0337	0.0146		0.1473***	0.1203***	0.0710***	0.1547***	0.1466***
EXP_35-44	0.8174	1.2119	0.0427***	0.1413***		0.0981***	0.0467***	0.0464***	-0.0217**
EXP_45-54	0.2629	0.6547	0.0459***	0.0815***	0.1544***		0.1268***	0.0102	-0.110
EXP_over55	0.0610	0.2673	0.0542***	0.0270***	0.0776***	0.1416***		0.0040	-0.0198*
LICENSE	0.0649	0.3291	0.1863***	0.1077***	0.0399***	-0.0067	0.0090		0.0600***
CPE	5.3539	5.0230	0.0300***	0.1262***	-0.0362***	-0.0328***	-0.0281	0.0260**	

Notes: 1. Pearson (Spearman) correlation coefficients are in the lower (upper) triangle.

2. *CPE* is deflated by consumer price index of the base year, 1989, and expressed in new Taiwan dollars.

3. n= number of observations. *** **, and * denote significance at the 1%, 5%, 10% level, respectively (two-tailed test)

4. *MASTER* =(number of auditors with master or Ph.D degree) / (number of partner); *BACHELOR* =(number of auditors with bachelor degree) / (number of partner); *EXP_35-44*= (number of auditors aged between 35 to 44) / (number of partner); *EXP_45-54* =(number of auditors aged between 45 to 54) / (number of partner); *EXP_over55* =(number of auditors aged over 55) / (number of partner); *LICENSE* =(number of auditor with CPA license) / (number of partner), and *CPE* =natural log of total training expense of an audit firm.

Table 2. Descriptive statistics of variables used in the path model

Panel A   Descriptive statistics (n=10,339)

	Mean	S.D.	Maximum	Median	Minimum
SIZE	2.2486	0.9527	7.8014	2.1972	0.6931
AQ	0.0000	0.5976	5.3873	-0.1200	-0.7099
PF	13.5923	13.6722	15.8505	13.3199	-14.0513

Panel B   Uni-variate test

	Mean		Median		Difference	
	PCAMF	NCAMF	PCAMF	NCAMF	t-statistic	| z-statistic |
	(n=1,039)	(n=9,300)	(n=1,039)	(n=9,300)		
SIZE	3.9402	2.0596	3.7377	0.1981	1.8806[***] (74.9696)	3.5396[***] (47.8490)
AQ	0.4485	-0.0501	2.0794	-0.1513	0.4986[***] (26.3468)	2.2307[***] (22.2634)
PF	14.2290	13.4875	13.9847	13.2272	0.7415[***] (29.0484)	0.7575[***] (23.6323)

4.3 Parameter Estimates for Path Model

Table 3 presents the parameter estimates for equation (1) and (2) in the path model. Panel A lists the results for total sample. As can be seen, *SIZE* has a positive influence on *AQ* significantly (b_1=0.5140, t =60.9281) in equation (1). In equation (2), both *SIZE* and *AQ* have a significant effect on *PF* (b_2=0.3278, t =31.4792 and b_3=0.1447, t=13.9168, respectively). The control variable, *GDP*, is positively related to *PF* (b_4=0.0565, t =6.3305). Parameter estimates for PCAMFs are displayed in Panel B with similar results to that shown in Panel A except the effects of *GDP* on *PF*. Specifically, *SIZE* positively affects both *AQ* and *PF* significantly, and then *AQ* positively impacts *PF* significantly. Panel C reports the parameter estimates for NCAMFs, which is qualitatively the same as that shown in Panel A for total sample.

As a check on multi-collinearity, the tolerance factor and the variance of inflation factor (VIF) have been applied. The check indicates that all VIFs are less than 4, in econometrics, implying no serious multi-collinearity exists among the independent variables. Next, F statistics, significant at the 1% level, indicate that equation (1) and (2) are well specified. Further, explanatory power of model (adj. R^2) for PCAMFs locate between 0.3733 and 0.6783, higher than that of NCAMFs lying between 0.0649 and 0.1382.

Additionally, fitness of overall path model to the data (R_m^2) can be tested by computing the following generalized squared multiple correlations (Pedhazur, 1982):

$$R_m^2 = 1 - (1 - R_1^2)(1 - R_2^2) \cdots (1 - R_n^2) \tag{4}$$

where R_n^2 denotes the ordinary squared multiple correlation coefficients for the *n*-th regression equation in the model.

For total sample, the adjusted R^2 in equation (1) and (2) is 0.2642 and 0.1783, respectively. Therefore, R_m^2 in the path model can be computed as follows:

$$R_{total\,sample}^2 = 1 - (1 - 0.2642)(1 - 0.1783) = 0.3954 \tag{5}$$

Result above indicates that the overall path model has an obvious improvement of adjusted R^2 over their individual regression models, shown in Panel A of Table 3. This implies that the path model fits to the data used by this study. Similarly, R_m^2 of the PCAMFs is 0.7984 (=1-(1-0.6783)(1-0.3733)) and that of NCAMFs is 0.1941 (=1-(1-0.1382)(1-0.0649)), greater than their separate multiple regression models shown in Panels B and C of Table 3. Taken the results together, the overall path model has a very well goodness-of-fit.

Table 3. Standardized parameter estimates of path model

Panel A: Total sample (n=10,339)

Cause variable	Effect variable	Path coefficient	Estimated coefficient	t-statistic	V.I.F.	F-statistic	adj. R^2
SIZE	AQ	b_1	0.5140***	60.9281	1.0000	3712.2379***	0.2642
SIZE	PF	b_2	0.3278***	31.4792	1.3644		
AQ	PF	b_3	0.1447***	13.9168	1.3608	748.7467***	0.1783
GDP	PF	b_4	0.0565***	6.3305	1.0039		

Panel B: Public company audit market firms (PCAMF) (n=1,039)

Cause variable	Effect variable	Path coefficient	Estimated coefficient	t-statistic	V.I.F.	F-statistic	adj. R^2
SIZE	AQ	b_1	0.8236***	46.7642	1.0000	2186.8859***	0.6783
SIZE	PF	b_2	0.3473***	7.9977	3.3123		
AQ	PF	b_3	0.2938***	6.7686	3.1202	207.1321***	0.3733
GDP	PF	b_4	-0.0261	-1.0602	1.0048		

Panel C: Nonpublic company audit market firms (NCAMF)(n=9,300)

Cause variable	Effect variable	Path coefficient	Estimated coefficient	t-statistic	V.I.F.	F-statistic	adj. R^2
SIZE	AQ	b_1	0.3719***	38.6287	1.0000	1492.1803***	0.1382
SIZE	PF	b_2	0.2000***	18.4748	1.1659		
AQ	PF	b_3	0.0890***	8.2353	1.1623	215.9629***	0.0649
GDP	PF	b_4	0.0740***	7.3656	1.0049		

Table 4. Estimates of direct, indirect and total effects of path model

Panel A: Total sample (n=10,339)

Path (from → to)			direct effects (t-statistic)		indirect effects(t-statistic)		total effects(t-statistic)	
SIZE	→	AQ	0.5140***	(60.9281)			0.5140***	(60.9281)
SIZE	→	PF	0.3278***	(31.4792)	0.0744***	(13.5834)	0.4022***	(44.6419)
AQ	→	PF	0.1447***	(13.9168)			0.1447***	(13.9168)
GDP	→	PF	0.0565***	(6.3305)			0.0565***	(6.3305)

Panel B: Public company audit market firms (PCAMF) (n=1,039)

Path (from → to)			direct effects (t-statistic)		indirect effects(t-statistic)		total effects(t-statistic)	
SIZE	→	AQ	0.8236***	(46.7642)			0.8236***	(46.7642)
SIZE	→	PF	0.3473***	(7.9977)	0.2420***	(6.7142)	0.5893***	(23.4667)
AQ	→	PF	0.2938***	(6.7686)			0.2938***	(6.7686)
GDP	→	PF	-0.0261	(-1.0602)			-0.0261	(-1.0602)

Panel C: Nonpublic company audit market firms (NCAMF) (n=9,300)

Path (from → to)			direct effects (t-statistic)		indirect effects(t-statistic)		total effects(t-statistic)	
SIZE	→	AQ	0.3719***	(38.6287)			0.3719***	(38.6287)
SIZE	→	PF	0.2000***	(18.4748)	0.0331***	(8.0574)	0.2331***	(23.1318)
AQ	→	PF	0.0890***	(8.2353)			0.0890***	(8.2353)
GDP	→	PF	0.0740***	(7.3656)			0.0740***	(7.3656)

4.4 Estimates of Direct, Indirect and Total Effects of Path Model

Table 4 reports the estimates of the standardized direct, indirect, and total effects in the path model. As shown in Panel A for total sample firms, *SIZE* has a direct effect on auditor quality (*AQ*) significantly (b_1=0.5140, t=60.9281), which supports the H1. Additionally, both *SIZE* and *AQ* are directly and positively associated with *PF* (b_2=0.3278, t=31.4792 and b_3=0.1447, t=13.9168), which lends a support to the H2 and H3. As regards the indirect effect, the relationship between *SIZE* and *PF* is being mediated significantly by the *AQ* and the estimate of indirect effect is 0.0744 (t=13.5834). This indicates that auditor size has an indirect effect on financial performance through the upgrade of auditor quality and thus the H4 receives support.

This indirect effect estimate (0.0744) is calculated as product of the following two effects: the effect of *SIZE* on *AQ* (0.5140) and the effect of *AQ* on *PF* (0.1447). Therefore, the total effect of *SIZE* on *PF* (0.4022) is the sum of direct effect (0.3278) from *SIZE* to *PF* and indirect effect (0.0744) from *SIZE* through *AQ* to *PF*. That is, each 1 standard unit increase in *SIZE* increases/improves 0.4022 standard units of *PF*. Further, the direct effect of auditor size explains 81.50% (0.3278/0.4022) of the total variation in financial performance and the indirect effect of auditor quality explain 18.50% (0.0744/0.4022) only. This means that, ceteris paribus, of the one million dollars of financial performance, auditor size creates about $815,000 over the $185,000 created by auditor quality. In addition, the effect of *GDP* on *PF* is positive significantly (t=6.3305).

Panel B of Table 4 displays the results for PCAMFs**.** As shown, *SIZE* has a direct effect on *AQ* significantly (b_1=0.8236, t=46.7642), which supports the H1. Further, both *SIZE* and *AQ* are directly and positively related to *PF* (b_2=0.3473, t=7.9977, and b_3=0.2938, t=6.7686, respectively). This lends a support to the H2 and H3. Next, the relationship between *SIZE* and *PF* is being mediated significantly by the *AQ* and the estimate of indirect effect is 0.2420 (= 0.8236*0.2938) (t=6.7142). This indicates that auditor size has an indirect effect on financial performance through auditor quality. Therefore, the H4 is supported. Total effect of *SIZE* on *PF* (0.5893) is the sum of direct effect of *SIZE* on *PF* (0.3473) and indirect effect of *SIZE* on *PF* through *AQ* (0.2420). The 0.5893 total effect denotes that each 1 standard unit increase in auditor size increases (i.e. improves) 0.5893 standard units of financial performance. Also, it indicates that nearly 58.93% (0.3473/0.5893) of the total variation in financial performance of PCAMF can be accounted for by the direct effect of auditor size and about 41.07% (0.2420/0.5893) by the indirect effect of auditor quality. In addition, the effect of *GDP* on *PF* is negative but insignificant.

Estimates of direct, indirect, and total effects for the NCAMFs are listed in Panel C of Table 4. As can be seen, *SIZE* has a direct effect on *AQ* significantly (b_1 =0.3719, t=38.6287). This lends a support to the H1. Both *SIZE* and *AQ* are directly and positively related to *PF* (b_2=0.2000, t=18.4748 and b_3=0.0890, t=8.2353, respectively). Hence, both H2 and H3 receive support. Next, the relationship between *SIZE* and *PF* is being mediated significantly by the *AQ* and the estimate of indirect effect is 0.0331 (0.3719*0.0890) (t=8.0574). This indicates that auditor size has an indirect effect on financial performance through auditor quality and thus supports the H4. The total effect of *SIZE* on *PF*, 0.2331, denotes that each 1 standard unit increase in auditor size increases/improves 0.2331 standard units of financial performance. The total effect of 0.2331 consists of direct effect of 0.2000 and indirect effect of 0.0331. Around 85.80% (0.2000/0.2331) of the total variation can be accounted for by the direct effect of auditor size, and about 14.20% (0.0331/0.2331) of the total variation by the indirect effect of auditor quality. Moreover, the direct effect of *SIZE* on *PF* (0.2000) is greater than the direct effect of *AQ* on *PF* (0.0890). This result shows that auditor size plays a more important role in creating performance than auditor quality. Therefore, auditor size dominates performance creation in the NCAMFs. Like the result for total sample, the effect of *GDP* on *PF* is positive significantly (t=7.3656).

In short, our empirical results provide evidence to support the H1, H2, H3 and H4 for the total sample, PCAMFs and NCAMFs.

4.5 Additional Analysis

To ensure confidentiality of business transactions of audit firm, the Census Report provides no specific information on individual audit firm. Thus, samples used in this study are pooled data, in which both cross-sectional and time series data are combined. In econometrics, pooled data allow researchers to exploit the entire available samples and hence are used by more and more studies. As the results from pooled data reflect a mean effect of independent variables during the sampling period, in consequence, statistics obtained from pooled data are more accurate (Geletkanycz & Hambrick, 1997). However, pooled data are likely to violate the assumption of independent observations under the ordinary least square method. Error terms are likely to be serially correlated or possess cross-sectional dependence. The significance level of coefficients tends to be overstated. To overcome the conflicting situations, this study conducts an annual analysis of path model and

utilizes the statistics suggested to compare the coefficients between pooled regression results and yearly results. For the total sample, empirical results (not reported here) are the same as those reported earlier in 15 of the 17 years. For PCAMFs, we have the same findings (not reported here) as those reported earlier in 14 of the 17 years. In contrast, we have the same findings (not reported here) as those reported earlier in 12 of the 17 years for the NCAMFs. Based on the annual analysis, we argue that the empirical results reported previously are robust for the total sample, PCAMFs, and NCAMFs.

5. Conclusions and Discussions

5.1 Discussion of Findings

This study relaxes constant auditor competency assumption in the definition of audit quality by DeAngelo (1981). We extract auditor quality from the human capital related factors of an audit firm. Empirical results indicate that auditor size has direct effect on performance and indirect effect through auditor quality. Auditor quality associates with both auditor size and performance positively.

The finding of positive association between auditor quality and auditor size, displayed in Tables 3 and 4, justifies the use of size to surrogate audit quality by earlier studies (Simunic & Stein, 1987; Francis & Wilson, 1988; Palmrose, 1988; DeFond, 1992; Teoh & Wong, 1993). In this study, PCAMFs are defined as audit firms providing services to public company. As noted in the Table 2, auditor size of PCAMFs is larger than NCAMFs, consistent with evidence identified by Simunic and Stein (1987) and Francis et al. (1999).

The findings are qualitatively the same for either total sample firms, PCAMFs or NCAMFs. However, differences in degree of effect exist between PCAMFs and NCAMFs. To protect investors, Taiwanese Securities and Exchange Act imposes more civil and criminal liabilities on PCAMFs. In addition, public companies such as listed and OTC corporations are sizeable and always served by large auditors. PCAMFs render attestation services for their IPO, seasoned equity offering, and bank loan. Bankers, potential investors and the public community use the auditor's report for their decision-making. Recently, Taiwan passes the Securities Investor and Futures Trader Protection Act and establishes the Securities Investors and Future Trader Protection Center. The center on behalf of the investors engages in class action against auditors issuing inaccurate audit report. In consequence, more and more auditors are sued and they settle the litigation by paying the investors much money. PCAMFs operate in a relatively higher legal liability and litigation risk regime. To retain clients and competes for new customers, PCAMFs advance auditor quality to provide quality services and in turn are rewarded with superior performance. Table 2 reports that PCAMFs have higher auditor quality and performance than NCAMFs. As larger auditors have valid reputation for higher quality audits, they earn more fee premium over small ones due to brand name reputation. Hence, the above result coincides with prior studies (Francis, 1984; Gul, 1999; Taylor & Simon, 1999) and in particular with Venkataraman et al. (2008) stating that both audit quality and audit fees are higher in a higher-litigation regime.

For PCAMFs, the total effect of auditor quality on performance is 0.2938, which is higher than the 0.0890 in the NCAMFs. Auditor size of PCAMFs directly accounts for 58.93% variation in performance and 41.07% is explained by its indirect effect through auditor quality. In contrast, 85.80% variation in performance of NCAMFs is directly accounted for by auditor size and the indirect effect of auditor size through auditor quality explains 14.20% only. Further, one standard unit increase in auditor size of PCAMFs improves 0.5893 standard unit of performance. In NCAMFs, one standard unit increase in auditor size improves 0.2331 standard unit of performance.

The above results demonstrate that auditor quality of PCAMFs contributes more to the creation of performance compared to that of NCAMFs. Further, PCAMFs have higher degree of effect of auditor size on performance through auditor quality than do NCAMFs. Namely, PCAMFs produce superior performance through the upgrade of auditor quality directly and indirectly. We define auditor quality from the perspective of human capital in an audit firm. By definition, our earlier results imply that PCAMFs employ auditors with higher level of education and higher level of experience to render quality services and thus are rewarded with higher net profit per partner. In contrast, NCAMFs primarily offer services to small and medium-sized enterprises. Most of the services are rendered to meet the tax-law or regulatory requirement and in essence are routine jobs. Such services have homogeneous quality and hence needs similar auditor quality. Consequently, the auditor quality of NCAMFs contributes less to the creation of performance and has lower degree of effect of auditor size on performance through auditor quality compared to the PCAMFs.

5.2 Conclusion and Implication

The primary objective of this study is to examine the following research question: whether auditor size has a

direct effect or indirect effect through auditor quality on firm's performance; whether the extent of association varies between PCAMF and NCAMF. To estimate the indirect effect of auditor quality, a path model is built to identify the indirect links between auditor size and firm's performance mediated by auditor quality.

The empirical results presented in the preceding sections show that auditor size affects firms' performance both directly and indirectly through auditor quality. Of the two effects, both of them play a more important role in creating superior performance. Further, the evidence shows auditor size is positively related to auditor quality and the marginal contribution of auditor size on auditor quality for PCAMF is higher than NCAMF. From the interiors data of public accounting firm, these findings support auditor size is a suitable proxy for auditor quality and demonstrate DeAngelo's (1981) inference: the larger the auditor size, the higher the quality of the auditor. Finally, this study also finds the macro-economic indicator in the NCAMF has a greater influence than the PCAMF in explaining firm's performance, indicating the performance for the NCAMF is easily affected by the macro-economic indicator compared to the PCAMF.

This study contributes to the literature on auditor quality in a number of ways. First, to our knowledge, much less attention has been devoted to the interrelationship among auditor size, auditor quality and firm's performance. This study's major goal was to bridge this gap by presenting and empirically testing a conceptual model that ties up all of those relationships. Second, it has been proposed auditor size is associated with firm's performance. Our research findings provide stronger evidence to support this proposition from the interiors data of public accounting firm. Our findings suggest auditor size alone does not ensure superior performance. This fact does not imply the enlargement of auditor size is not an important factor in creating firm's performance. Rather, it suggests this factor alone is not sufficient to guarantee firm's performance. Only higher quality auditing and auditor size together can create a sufficient condition for superior performance. Third, from a management perspective, the increase and enrichment of the pool of human capital in the audit firm can improve auditor quality. An accounting firm can enhance auditor quality and avoid audit failure by hiring well-educated personnel, providing them with well-planed continuing professional development, encouraging them to acquire professional certificates, and maintaining them within the work environment so that the "best people stay in the profession." In conclusion, to ensure its viability and flexibility and its ability to meet the needs of investors, the audit firm needs to continue to attract, develop, educate and train auditors at all levels that are prepared to perform high quality audits in this dynamic environment. This will lead higher performance improvement. Finally, it should be noted top management should devote considerable efforts to improve their firm's human capital of auditors, in turn, leading to higher auditor quality and thus creating superior performance.

References

Agresti, A., & Finlay, B. (1997). *Statistical methods for the social sciences*. New Jersey: Prentice Hall.

Aldhizer, G. R., Miller, J. R., & Moraglio, J. E. (1995). Common attributes of quality audits. *Journal of Accountancy*, *179*, 61–68.

Banker, R. D., Chang, H., & Cunningham, R. (2003). The public accounting industry production function. *Journal of Accounting and Economics*, *35*, 255–281. http://dx.doi.org/10.1016/S0165-4101(03)00021-1

Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research, 15*, 1–24. http://dx.doi.org/10.1111/j.1911-3846.1998.tb00547.x

Besanko, D., Danove, D., & Shanley, M. (2000). *Economics of strategy*. New York, NY: John Wiley.

Bonner, S. E., & Pennington, N. (1991). Cognitive processes and knowledge as determinants of auditor expertise. *Journal of Accounting Literature*, *10*, 1–50.

Buzzell, R. D. (1978). *Product quality, Strategic*. Massachusetts: Planning Institute.

Chen, Y. S., Chang, B. G., & Lee, C. C. (2008). The association between continuing professional education and financial performance of public accounting firms. *The International Journal of Human Resources Management*, *19*, 1720–1737. http://dx.doi.org/10.1080/09585190802295363

Christensen, L. R., & Greene, W. H. (1976). Economies of scale in U.S. electric power generation. *Journal of Political Economy*, *84*, 655–676. http://dx.doi.org/10.1086/260470

Colbert, G., & Murray, D. (1998). The association between auditor quality and auditor size: An analysis of small CPA firms. *Journal of Accounting, Auditing and Finance*, *13*, 135–150.

Collins, D., Gordon, C. I., & Smart, C. (2004). Further evidence on the role of gender in financial performance. *Journal of Small Business Management*, *42*, 395–417. http://dx.doi.org/10.1111/j.1540-627X.2004.00119.x

Craig, S. S., & Douglas, S. P. (1982). Strategic factors associated with market and financial performance. *Quarterly Review of Economics and Business*, *22*, 101–112.

Darrough, M., & Heineke, J. (1978). *The multiproduct production cost function: The case of law enforcement agencies*. Amsterdam: North-Holland.

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, *3*, 183–199. http://dx.doi.org/10.1016/0165-4101(81)90002-1

Defond, M. L. (1992). The association between change in client firm agency costs and auditor switching. *Auditing: A Journal of Practice and Theory*, *11*, 16–31.

Deis, D. R., & Giroux, G. A. (1992). Determinants of audit quality in the public sector. *The Accounting Review*, *67*, 462–479.

Dye, R. A. (1993). Auditing standards, legal liability, and auditor wealth. *Journal of Political Economy*, *101*, 887–914. http://dx.doi.org/10.1086/261908

Elder, R. J., Beasley, M. S., & Arens, A. A. (2008). *Auditing and assurance services: an integrated approach*. New Jersey: Pearson Education.

Fasci, M. A., & Valdez, J. (1998). A performance contrast of male- and female-owned small accounting practices. *Journal of Small Business Management*, *36*, 1–7.

Feltham, G. A., Huges, J. S., & Simunic, D. A. (1991). Empirical assessment of the impact of auditor quality on the valuation of new issues. *Journal of Accounting and Economics*, *14*, 375–399. http://dx.doi.org/10.1016/0165-4101(91)90009-D

Francis, J. R. (1984). The effect of audit firm size on audit prices. *Journal of Accounting and Economics*, *6*, 133–151. http://dx.doi.org/10.1016/0165-4101(84)90010-7

Francis, J. R., Maydew, E. L., & Sparks, C. H. (1999). The role of big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory*, *18*, 17–34. http://dx.doi.org/10.2308/aud.1999.18.2.17

Francis, J. R., & Wilson, E. R. (1988). Auditor changes: A joint test of theory relating to agency costs and auditor differentiation. *The Accounting Review*, *63*, 663–682.

FRC, Financial Reporting Council. (2006). *Promoting audit quality*. London: FRC Press Releases.

Gale, B. T., & Swire, D. J. (1977). *The limited information report: A strategic planning tool for business decision making when information is difficult to obtain*. Massachusetts: Strategic Planning Institute.

Geletkanycz, M. A., & Hambrick, D. C. (1997). The External ties of tp executives: implications for strategic choice and performance. *Administrative Science Quarterly*, *42*, 654–681. http://dx.doi.org/10.2307/2393653

Ghosh, A., & Lustgarten, S. (2006). Pricing of initial audit engagements by large and small audit firms. *Contemporary Accounting Research*, *23*, 333–368. http://dx.doi.org/10.1506/927U-JGJY-35TA-7NT1

Ghosh, A., & Moon, D. (2005). Auditor tenure and perceptions of audit quality. *The Accounting Review*, *80*, 585–612. http://dx.doi.org/10.2308/accr.2005.80.2.585

Grotelueschen, A. D. (1990). *The effectiveness of mandatory continuing education for licensed accountants in public practice in the state of New York*. New York, NY: State Education Department.

Goldman, A., & Barlev, B. (1974). The auditor-firm conflict of interests: Its implications for independence. *The Accounting Review*, *49*, 707–718.

Gul, F. A. (1999). Audit prices, product differentiation and economic equilibrium. *Auditing: A Journal of Practice and Theory, 18*, 90–100. http://dx.doi.org/10.2308/aud.1999.18.1.90

Gyimah-Brempong, K. (1987). Economies of scale in municipal police department: The case of Florida. *Review of Economics and Statistics*, *69*, 352–356. http://dx.doi.org/10.2307/1927244

Hall, W. K. (1980). Survival strategies in a hostile environment. *Harvard Business Review*, *58*, 75–85.

Kiechel, W. (1981). Three (or four, or more) ways to win. *Fortune*, *104*, 181–189.

Klein, B., & Leffler, K. B. (1981). The role of market forces in assuring contractual performance. *Journal of Political Economy*, *89*, 615–641. http://dx.doi.org/10.1086/260996

Krishnan, J., & Schauer, P. C. (2000). The differentiation of quality among auditors: Evidence from the

not-for-profit sector. *Auditing: A Journal of Practice and Theory*, *19*, 9–25. http://dx.doi.org/10.2308/aud.2000.19.2.9

Lee, C. W., Liu, C. W., & Wang, T. C. (1999). The 150-hour rule. *Journal of Accounting and Economics*, *27*, 203–228. http://dx.doi.org/10.1016/S0165-4101(99)00010-5

Liu, C. (1997). *Legal liability, human capital investment, and audit quality*. Ph.D dissertation, University of National Taiwan University, Taiwan.

Meinhardt, J., Moraglio, J. F., & Steinberg, H. I. (1987). Governmental audits: an action plan for excellence. *Journal of Accountancy*, *164*, 86–91.

Milgrom, P., & Roberts, J. (1990). The economics of modern manufacturing. *American Economics Review*, *80*, 511–528.

Nichols, D. R., & Price, K. H. (1976). The auditor-firm conflict: An analysis using concepts of exchange theory. *The Accounting Review*, *51*, 335–346.

Niemi, L. (2004). Auditor size and audit pricing: evidence from small audit firms. *European Accounting Review*, *13*, 541–560. http://dx.doi.org/10.1080/0963818042000237151

O'Keefe, T. B., & Westort, P. J. (1992). Conformance to GAAS reporting standards in municipal audits and the economics of auditing: the effects of audit firm size, CPA examination performance, and competition. *Research in Accounting Regulation*, *6*, 39–77.

Palmrose, Z. V. (1988). An analysis of auditor litigation and audit service quality. *The Accounting Review*, *63*, 55–73.

Pedhazur, E. J. (1982). *Multiple regression in behavior research: Explanation and prediction*. New York, NY: Rinehart and Winston.

Phillips, L. W., Chang, D. R., & Buzzell, R. D. (1983). Product quality, cost position, and business performance: A test of some key hypothesis. *Journal of Marketing*, *47*, 26–43. http://dx.doi.org/10.2307/1251491

Porter, M. E. (1980). *Competitive strategy*. New York, NY: The Free Press.

Rescho, J. A. (1987). *Public accounting firm strategy and Innovativeness: A study of the adoption of product, technical, and administrative innovations using a strategic typology*. Ph.D dissertation, University of Mississippi, Oxford, Mississippi, United States.

Reynolds, J. K., & Francis, J. R. (2001). Does size matter? The influence of large clients on office-level auditor reporting decision. *Journal of Accounting and Economics*, *30*, 375–400. http://dx.doi.org/10.1016/S0165-4101(01)00010-6

Schoeffler, S., Buzzell, R. D., & Heany, D. F. (1974). Impact of strategic panning on profit performance. *Harvard Business Review*, *52*, 137–145.

Shapiro, C. (1983). Premiums for high quality products as returns to reputations. *Quarterly Journal of Economics*, *98*, 659–679. http://dx.doi.org/10.2307/1881782

Simunic, D. A., & Stein, M. T. (1987). *Product differentiation in auditing: Auditor choice in the market for unseasoned new issues*. Vancouver: The Canadian Certified General Accountants' Research Foundation.

Taylor, M. H., & Simon, D. T. (1999). Determinants of audit fees: the importance of litigation, disclosure, and regulatory burdens in audit engagements in 20 countries. *International Journal of Accounting*, *34*, 375–388. http://dx.doi.org/10.1016/S0020-7063(99)00017-5

Teoh, S. H., & Wong, T. J. (1993). Perceived auditor quality and the earnings response coefficient. *The Accounting Review*, *68*, 346–366.

Venkataraman, R., Weber, J. P., & Willenborg, M. (2008). Litigation risk, audit quality, and audit fees: Evidence from initial public offerings. *The Accounting Review*, *83*, 1315–1345. http://dx.doi.org/10.2308/accr.2008.83.5.1315

Watkins, A. L., Hillison, W., & Morecroft, S. E. (2004). Auditor quality: A synthesis of theory and empirical evidence. *Journal of Accounting Literature*, *23*, 153–193.

Watts, R. L., & Zimmerman, J. L. (1986). *Positive accounting theory*. New Jersey, Prentice Hall.

Wallace, W. A., & Campbell, R. L. (1988). State boards of accountancy: Quality review and positive enforcement programs. *Research in Accounting Regulation, 2*, 123–154.

Whittington, O. R., & Pany, K. (2003). *Principle of auditing and other assurance services*. New York, NY: McGraw-Hill.

Copyrights

Root Causes of Project Abandonment in Tertiary Institutions in Nigeria

Uket E. Ewa[1]

[1] Department of Accountancy, Cross River University of Technology, Ogoja Campus, Nigeria

Correspondence: Uket E. Ewa, Department of Accounting, CRUTECH, Nigeria. Tel: 234-0803-723-8061. E-mail: uketewa@yahoo.com

Abstract

This article explores the root causes of project abandonment in Tertiary Institutions in Nigeria. Structured questionnaires were distributed to targeted officials playing a role in the administration of project management in the Institutions, namely, bursars, internal auditors, directors of works, directors of physical planning, quantity surveyors in the physical planning and works Units. Four hundred and seventy five completed questionnaires returned were analyzed and tested using relative important index (R.I.I.) and simple percentages. The result from the study showed that the root causes of project abandonment in tertiary Institutions in Nigeria like any other government establishment are, the lack of articulated vision and objectives, lack of adequate planning for the project at inception, lack of adequate funds and budgetary allocation before projects are embarked upon, Inefficient and effective legal system, poor contract documentation, corruption and compromises, lack of municipal services, non release of government white papers on investigations carried out on abandonment of projects, lack of true leadership, lack of continuity and Institutions' long term strategic plans to drive the Institutions, ambiguity in contract documentations. The study concludes that any reason for project abandonment can be related directly or remotely to compromises on the above root causes.

Keywords: root causes, project abandonment, education policy, tertiary Institutions, white elephant

1. Introduction

1.1 Introduction of the Problem

The first official statement on African Education was issued in 1925 by the British government tagged "Memorandum on Education Policy in British Tropical Africa". This is the foundation of Nigerian educational development. Government has since then been a major player in the three levels of education in Nigeria; Primary, Secondary and Tertiary levels through the implementation of various intervention programs involving huge capital outlay. These intervention programs includes, the Universal Primary Education, the Universal Basic Education, award of scholarships, and establishment of Education Trust Fund now Tertiary Education Trust Fund (TetFund), mandatory contribution of 2% tax on profit by companies operating in Nigeria. Today Nigeria has 40 Federal Universities, 38 State Universities, 51 Private Universities, 35 Federal Tertiary Health Institutions, 26 Federal Polytechnics, 38 State Polytechnics, 19 Private Polytechnics, 21 Federal Colleges of Education, 46 State Colleges of Education, 33 Private Colleges of Education. There are over one million University alone student's enrolment as at 2012/2013 academic session. This phenomenal growth in education requires enormous capital outlay from the stakeholders in terms of infrastructural development. Enormous capital projects were thus embarked upon after the civil war of 1966 and the oil boom era that followed in the 1970s to enhance the education sector and accelerate economic growth and development.

1.2 Importance of the Problem

Despite the anticipated benefits of capital projects implementation, most projects exerted no economic impact on the economic of Nigeria and were tagged "White elephant projects" and many more which would have exerted economic impact on the economic were abandoned half way in almost all tertiary Institutions in Nigeria. The consequence of the above is inadequate infrastructures and laboratories in the tertiary institutions across the country. This has negatively manifested in the deteriorating state of Nigeria's higher educational standards. Thus, there is dearth of skilled manpower in the country as most of the science graduates have no practical knowledge

to operate optimally.

Various studies on causes of project abandonment in Nigeria generally has identified policy inconsistency, egoism of leadership on project conceptualization instead of impact on the citizenry, funding, lack of planning amongst others. This study is aimed at determining the major root causes for project abandonment and proffers solution to arresting the ugly trend in the future with a view to addressing the decay in higher education in Nigeria.

1.3 Objectives and Importance of the Study

Enormous reasons have been advanced in previous studies for project abandonment, this study focuses primarily:

1) To determine the major root causes that hinders the success of many capital projects in Tertiary Institutions in Nigeria.

2) To proffers solution to arresting the ugly trend in the future with a view to addressing the decay in higher education in Nigeria.

1.4 Literature Review

There is large number of studies written to pinpoint the causes of project failure and abandonment. In IT projects, a vast number of recognized risk factors that have been identified to be responsible for failure include, project leadership and management, organizational culture and structure, commitment and patterns of belief, user involvement and training, developer expertise, technology planning, scope and objectives setting, estimation and choice/use of methodology, McFarlan (1981) and Cusing (2002). Citing Fichter (2003), Al-Ahmad, Al-Fagih, Khanfar, Alsamara, Abuleil, and Abu-Salem (2009) stated that from an investigative study carried out by The Coverdale Organization, seven major factors were reported to play a tremendous role in putting an IT project in trouble. This they stated as follows: Poor planning, unclear goals and objectives, having objectives changed during project implementation, unrealistic estimation of time and resources and lack of executive support and user involvement. Indeed the failure to communicate and act as a team and inappropriate skills were spotted as having a negative effect on IT project success (Jenster & Hussey, 2005). This was collaborated by Ewa, (2005) who identified that many projects are conceived without a well defined objective in mind, poor costing, no specific start and end points, poor documentation of contract, lack of performance criteria and properly developed monitoring and evaluation template by supervising organizations, fluctuation in government policies, lack of planning, project mismatch, over-ambitious projects, political influence in establishing projects, the 'Nigerian Factor', disbursement constraints, failure for successive regimes to issue appropriate white papers on failed contracts and granting of injunctions under exparte motions by Nigerian courts.

Johnson, (2001) identified the lack of executive support, the lack of user involvement, the lack of experienced project managers, the lack of clear business objectives and the minimized scope as factors that could hamper the IT project success.

In knowledge management projects, Lam and Chua (2005), identified three main categories of causes of Knowledge Management project abandonment (KM project abandonment), namely poor project implementation, organizational mismatch and content deficiencies.

In public/government project abandonment, in an article on causes of abandoned projects in the Ministry of Housing and Local Government in Malaysia, New Straits Times Newspaper stated that the MHLG findings have shown that abandon projects are due to financial problems of developers, poor marketing and sales strategies, poor company management and disputes between developers and contractors or with landowners. In their comment on abandoned housing projects in Malaysia, National House Buyers Association attributed the increase in the number of abandoned housing projects on inadequacy of the enabling housing law of December 1, 2002. Akuta, (2011) posited that policy continuation is something lacking and contributing to project abandonment in Nigeria. He stated that once a new government takes over power, they usually abandon previous government policies or programs. This policy inconsistency is made worse by past frequent military interventions in Nigerian polity. This policy inconsistency can be seen from the following:

1) Obasanjo introduced Operation Feed the Nation (OFN) meant to boost agricultural productivity introduced in 1976–1979.

2) Alhaji Shehu Shagari abandoned the OFN and introduced Green Revolution campaign.

3) On his assumption to office, General Buhari abandoned the OFN and the Green Revolution schemes. He scraped the Federal Electoral Commission (FEDECO).

4) General Ibrahim Badamasi Babangida introduced Mass Mobilization for Social and Economic Reliance (MAMSER) which was also aimed at increasing agricultural productivity. He also introduced Structural Adjustment Program (SAP). Part of these entails the deregulation of the agricultural sector by abolishing the marketing boards and the elimination of price controls. In 1992, he established the National Electoral Commission (NEC) and established two political parties fully funded by the federal government. The wife started the Better Life Programme for Rural Women.

5) Upon assumption of office in 1993, General Abacha scraped the two political parties and the buildings and other infrastructures therein abandoned to waste in all the 774 local government council headquarters and 36 State capitals including Abuja in Nigeria. He also scraped the National Electoral Commission (NEC).

6) On his second coming in 1999 as head of state, Obasanjo cancelled most of the contracts/projects started by Abacha and Abdulsami Abubakar. His wife instituted Child Care Trust Project.

7) On assumption of office as president in 2006, Musa Yar Adua's wife abandoned Obasanjo's wife project and instituted Women and Youth Empowerment Foundation (WAYEF). Similarly, various state governors and Local government chairmen's wives have various pet projects which die with them on leaving office and classified under abandon projects in the country.

8) On the death of Musa Yar Adua and the subsequent assumption into office as president, Dr. Goodluck Jonathan's wife abandoned the WAYEF project of Yar Adua's wife and instituted her own tagged "Women for Change Initiative" thus abandoning all the projects concerning the WAYEF.

According to a report by Kotangora (1993), there are about 4,000 uncompleted or abandoned projects belonging to the Federal Government with an estimated cost of =N=300 billion which will take 30 years to complete at the present execution capacity of government. According to the report this issue of abandonment has been left without adequate attention for too long which is now having a multiplier effect on the construction industry in particular and the national economy as a whole. Over a decade after this report, the situation did not improve for better but for worse as in 2011, the Presidential Projects Assessment Committee (PPAC) reported that the Federal Government has spent over =N=7.78 trillion on 11,886 ongoing and abandoned projects nationwide as at June 2011. Singling out Ajaokuta Steel complex started over 30 years, the committee stated that the sum of $4.5 billion has been spent which is lying waste. The committee in their report stated that the actual number of ongoing federal projects could be 20% higher than the reported 11,886. Similarly the total sum expended on the projects could surpass the =N=7.78 trillion contained in the report to the neighborhood of =N=8 trillion. According to Akinolu (1980), delays and cost overruns have a knock on effect on the economy. This is collaborated by El-Rufia who attributed the reasons for project abandonment to poor planning, haphazard procurement practices, incompetent project management, lack of coherence and consistency with other programmes and pervasive lack of continuation in policies as occupiers of political offices change. Akindoyeni (1989) qualitatively reasoned that some of the causes of project abandonment in Nigeria are: deaths of client, inability of client to attract funds and lack of planning. However, Ayodele and Alabi (2011) in their quantitative approach to determining the causes of project abandonment, reasoned the causes to include: inadequate planning, inadequate funding/financing, inflation, bankruptcy of contractors, variation of project scope, political factor, death of client, incompetent project manager, wrong estimates, inadequate cost controls, faulty design and delays in payments. Many commentators adverse that most projects fail to deliver their expected benefits and eventually are abandoned because they exert no significant impact on the citizenry rather egoism comes to play. Osemenan (1987) in his article on project abandonment reported that Nigeria has become the world's junk-yard of abandoned projects worth billions of naira and it is greatly unthinkable that Nigeria blessed with so great potentials can experience such magnitude of project abandonment.

1.5 Research Questions

The following research questions will be address in this study:

a) Whether the University governing councils and top management teams have clear vision and objectives in mind before infrastructural projects are conceived in the University.

b) Whether the governing councils and top management teams have well articulated long term infrastructural strategic plans and undertake detailed and adequate planning for projects at inception before commencement.

c) Whether the extant Nigerian laws, sanctions for default and municipal services are very adequate to forestall project abandonment.

d) Whether the procedure in place in appointing Institution's management and governing councils enables the selection of people with excellent leadership qualities and integrity.

2. Methodology

2.1 Participants/Characteristics

The author explored the root causes of project abandonment from an inductive research paradigm based on empirical data. The possible causes of project abandonment as enumerated in various studies earlier conducted were presented in a structured four point likert scale instrument and administered to Bursars, Directors of Works, Directors of Physical Planning, Internal Auditors and Chief Engineers in Nigerian Universities, Polytechnics and Colleges of Education during the 2012/2013 academic session. The subjects were to individually ascertain in other of significance the most essential root cause(s) of project abandonment as it relates to their institutions. The participants in this study are professional technocrats directly responsible for capital project management in their various institutions. They are heads of departments involved in either disbursement of funds, design and or supervision of projects execution and or ascertaining value for money on the various capital projects executed or being executed in their institutions.

2.2 Sample Procedure/Sample Size

A total of five hundred questionnaires were administered to the respondents in the study. Four hundred and seventy five questionnaires were returned completed constituting 95% (ninety five percent) success rate. Based on the assertion by Moser and Kalton that the result of a survey could be considered as biased and of little value if the return rate was lower than 30–40%, the return rate of 95% is considered adequate. By its definition, abandon is a verb connoting "to leave behind empty; move out of or give up" English Word Dictionary (2012). A root cause is the most basic reason for an undesirable condition or problem (Wilson, Dell & Anderson, 1993).

The respondents rated each cause (factor) on a scale of 1–4. The four point scale was then transformed to relative importance indices for each of the causes (factors) of project abandonment. The completed and returned questionnaires were analyzed using simple percentages and Relative Importance Index (R.I.I) based on the work of Lim and Alum (1995).

R.I.I. = (4n4+3n3+2n2+n1)/4N

Where n4 = Most likely

n3 = Likely

n2 = Not likely

n1 = Most not likely

N = Number of respondents.

R.I.I. rate of 0.80 and above is considered critical root cause of project abandonment.

3. Results

Table 1. Causes of project abandonment (using percentages)

S/N	Causes	1	%	2	%	3	%	4	%	Total
1	Lack of clear or deficiency of well defined vision/objective	0	0.00	0	0.00	100	0.21	375	0.79	475
2	Poor/ Lack of Planning	0	0.00	50	0.11	175	0.37	250	0.53	475
3	Poor costing of projects	0	0.00	45	0.09	100	0.21	330	0.69	475
4	Incompetent project managers/poor supervision	0	0.00	45	0.09	120	0.25	310	0.65	475
5	Improper documentation/poor documentation of contract agreement	0	0.00	100	0.21	25	0.05	350	0.74	475
6	lack of direction in project management	0	0.00	150	0.32	0	0.00	325	0.68	475
7	Widespread institutional mediocrity	0	0.00	100	0.21	120	0.25	255	0.54	475
8	Change of priority	0	0.00	0	0.00	150	0.32	325	0.68	475
9	Lack of policy continuation.	0	0.00	0	0.00	90	0.19	385	0.81	475
10	Inflation	200	0.42	100	0.21	175	0.37	0	0.00	475

11	The effect of international economy.	0	0.00	150	0.32	200	0.42	125	0.26	475
12	Political factor	0	0.00	0	0.00	145	0.31	330	0.69	475
13	Peer Group Syndrome(Nigerian Factor)	0	0.00	0	0.00	200	0.42	275	0.58	475
14	Disbursement delays	0	0.00	0	0.00	200	0.42	275	0.58	475
15	Over ambition (Egoistic syndrome)	0	0.00	0	0.00	175	0.37	300	0.63	475
16	Failure or refusal for successive regimes to issue the appropriate white papers on various panels set up to investigate abandoned projects in Nigeria	0	0.00	0	0.00	150	0.32	325	0.68	475
17	The granting of injunction under exparte motions in the cause of trying to enforce sanctions on defaulting contractors	0	0.00	75	0.16	100	0.21	300	0.63	475
18	Inefficient/effective legal system	0	0.00	0	0.00	140	0.29	335	0.71	475
19	Corruption/Compromise	0	0.00	0	0.00	130	0.27	345	0.73	475
20	Inadequate/lack of budgetary allocations.	0	0.00	0	0.00	120	0.25	355	0.75	475
21	Poor coordination between government officials	0	0.00	0	0.00	140	0.29	335	0.71	475
22	Lack of adequate and efficient municipal services such as the provision of electricity, transport, security and water supply all of which the contractors have to arrange privately.	0	0.00	0	0.00	150	0.32	325	0.68	475
23	Project mismatch	0	0.00	0	0.00	150	0.32	325	0.68	475
24	Poor/Faulty designs	0	0.00	0	0.00	150	0.32	325	0.68	475
25	Variation of project scope	150	0.32	150	0.32	0	0.00	175	0.37	475
26	Unqualified/Inexperienced consultants	120	0.25	300	0.63	55	0.12	0	0.00	475
27	High cost of financing the capital projects	125	0.26	100	0.21	250	0.53	0	0.00	475
28	Lack of true leaders	0	0.00	0	0.00	120	0.25	355	0.75	475
29	Insider dealing and lack of due process in contract administration	0	0.00	100	0.21	200	0.42	175	0.37	475
30	There is lack of strategic plan to aid project planning	150	0.32	100	0.21	150	0.32	75	0.16	475

Table 2. Causes of project abandonment (using relative importance index)

S/N	Causes	1	2	3	4	R.I.I
1	Lack of clear or deficiency of well defined vision/objective	0	0	100	375	0.947
2	Poor/ Lack of Planning	0	50	175	250	0.803
3	Poor costing of projects	0	45	100	330	0.853
4	Incompetent project managers/poor supervision	0	45	120	310	0.842
5	Improper documentation/poor documentation of contract agreement	0	100	25	350	0.776
6	lack of direction in project management	0	150	0	325	0.684
7	Widespread institutional mediocrity	0	100	120	255	0.726
8	Change of priority	0	0	150	325	0.921
9	Lack of policy continuation.	0	0	90	385	0.953
10	Inflation	200	100	175	0	0.276
11	The effect of international economy.	0	150	200	125	0.579

12	Political factor	0	0	145	330	0.924
13	Peer Group Syndrome(Nigerian Factor)	0	0	200	275	0.895
14	Disbursement delays	0	0	200	275	0.895
15	Over ambition (Egoistic syndrome)	0	0	175	300	0.908
16	Failure or refusal for successive regimes to issue the appropriate white papers on various panels set up to investigate abandoned projects in Nigeria	0	0	150	325	0.921
17	The granting of injunction under exparte motions in the cause of trying to enforce sanctions on defaulting contractors	0	75	100	300	0.789
18	Inefficient/effective legal system	0	0	140	335	0.926
19	Corruption/Compromise	0	0	130	345	0.932
20	Inadequate/lack of budgetary allocations.	0	0	120	355	0.937
21	Poor coordination between government officials	0	0	140	335	0.926
22	Lack of adequate and efficient municipal services such as the provision of electricity, transport, security and water supply all of which the contractors have to arrange privately.	0	0	150	325	0.921
23	Project mismatch	0	0	150	325	0.921
24	Poor/Faulty designs	0	0	150	325	0.921
25	Variation of project scope	150	150	0	175	0.368
26	Unqualified/Inexperienced consultants	120	300	55	0	0.087
27	High cost of financing the capital projects	125	100	250	0	0.395
28	Lack of true leaders	0	0	120	355	0.937
29	Insider dealing and lack of due process in contract administration	0	100	200	175	0.684
30	There is lack of strategic plan to aid project planning	150	100	150	75	0.395

3.1 Data Analysis

Findings from the analysis of the data in table 1 and 2, 375 (79%) of respondents are of the view that a cause factor of lack of clear and well defined vision and objective or a deficiency of it altogether is most likely root cause of project abandonment in tertiary institutions in Nigeria while 100 (21%) of the respondents believe that it is likely root cause of the project abandonment. The cause factor has a relative important index of 0.947. This is in agreement with El-Rufai (2012) and PPAC (2011) who were of the opinion that well defined vision and objective precedes execution phase if the project is not to be abandoned along the way.

On the cause factor of poor or lack of planning, (250) 53% respondents are of the view that this cause factor is most likely root cause factor of project abandonment. (175) 37% of the respondents believe that it is only likely root cause factor of project abandonment. However, (50) 11% of the respondents are of the view that it is not likely the root cause factor of project abandonment. This has a relative important index of 0.803. This again is in agreement with Ewa, (2005) who quoting Prof. Stolpher, (1981) stated that planning without facts is planning to fail. This is also in agreement with El-Rufai (2012), Ayodele et al. (2011), PPAC (2011), Essenwa (2004), Adedeji (1998) and Opara (1986).

On poor costing of projects cause factor, (330) 69% respondents are of the view that it is the most likely root cause factor of project abandonment. Similarly, (100) 21% of the respondents believe that it is only likely root cause factor of project abandonment. However, (45) 9% of the respondents are of the view that it is not likely the root cause factor of project abandonment. Thus a relative important index of 0.853 is recorded. Most Nigerian projects are characterized with poor costing as the costing is done outside the locality where the project is to be cited without consideration of the environment. This again is in agreement with Ayodele et al. (2011), PPAC (2011) and Ewa (2005).

On incompetent project managers cause factor, (310) 65% respondents are of the view that it is the most likely root cause factor of project abandonment while (125) 25% of the respondents believe that it is the likely root cause

factor of project abandonment. However, (45) 9% of the respondents are of the view that it is not the likely root cause factor of project abandonment. Thus a relative important index of 0.842 is recorded. This is in agreement with the opinion of PPAC (2011) report, Ayodele et al. (2011) and Ewa (2005). On change of priority cause factor, (325) 68% respondents are of the view that it is the most likely root cause factor of project abandonment while (150) 32% respondents are of the view that it is the likely cause factor of project abandonment. This cause factor has a relative important index of 0.92. The lack of policy continuation by successive governments is another cause factor surveyed, (385) 81% of respondents are of the view that it is the most likely cause factor of project abandonment while (90) 19% respondents are also of the view that it is only likely cause factor of project abandonment. It has a relative important index of 0.953. On the effect of inflation on project management cause factor, (200) 42% of the respondents are of the view that it is most not likely cause factor of project abandonment, while (100) 21% respondents are of the view that it is not likely cause factor for project abandonment. However, (175) 37% respondents are of the view that it is likely cause factor for project abandonment. This cause factor had a relative important index of 0.276. On political factors influencing project abandonment cause factor, (330) 69% respondents are of the view that it is most likely cause factor for project abandonments while (145) 31% of the respondents are of the opinion that it is only likely cause factor for project abandonments. It had a relative important index of 0.924. Peer group syndrome (Nigerian factor) cause factor is a situation whereby contractors/officials are easily influenced by the action or inaction of their peers negatively. Here (275) 58% of respondents belief that this cause factor is most likely root cause of projects abandonment while (200) 42% of the respondents are of the belief that it is a likely root cause factor with a relative important index of 0.895. Disbursement delays are another cause factor that was considered in the study. (275) 58% of the respondents are of the belief that this is the most likely root cause factor of project abandonment while (200) 42% of the respondents are of the opinion that it is only likely root cause factor of project abandonment. This had a relative importance index of 0.895. Over-ambitious (egoistic) syndrome cause factor is a situation whereby management embarks upon gigantic projects for personal ego without much consideration to funding and relevance. (300) 63% respondents are of the belief that this is the most likely root cause factor of projects abandonments while (175) 37% are of the belief that this is only likely root cause factor of project abandonment. In general, this cause factor has a relative important index of 0.908. On the failure of successive regimes to issue the appropriate white papers on various panels set to investigate causes of abandoned projects in Nigeria as a cause factor, (325) 68% of the respondents are of the view that this is the most likely root cause factor of continuous projects abandonments while (150) 32% respondents also are of the view that this failure is the likely root cause factor of project abandonment. It had a relative important index of 0.921. On the issue of granting of injunctions under exparte motions in the cause of litigating to enforce sanctions on breach of contractual covenants, (300) 63% respondents are of the view that the granting of injunctions under exparte motions by the courts is the most likely root cause factor of encouragement to contractors to abandon projects while (100) 21% respondents are of the view that the granting of injunctions under exparte motions by the courts is the likely root cause factor of encouragement to contractors to abandon projects. However, (75) 16% respondents are of the view that the granting of injunctions under exparte motions by the courts is not the likely root cause factor of encouraging contractors to abandon projects but other factors. This factor has a relative importance index of 0.789. On the effectiveness and efficiency of the Nigerian legal system to address contract disputes, (335) 71% respondents are of the view that legal system is the most likely root cause factor of project abandonment by its actions and operations while (140) 29% of the respondents are of the view that the legal system is the likely root cause factor of project abandonment. This has a relative importance index of 0.926. Corruption and compromise by officials is another cause factor of project abandonment considered in the survey. (345) 73% of the respondents are of the view that it is the most likely root cause factor of project abandonment while (130) 27% respondents are of the view that it is the likely root cause factor of project abandonment. This had a relative importance index of 0.932. Inadequate/lack of budgetary allocations by Institutions' on the given financial years is another cause factor considered in the survey. (355) 75% respondents are of the view that it is the most likely root cause factor for project abandonment while (120) 25% respondents are of the view that it is the likely root cause factor for project abandonment. This has a relative importance index of 0.937. Another cause factor of project abandonment surveyed in this study is poor coordination between government officials supervising projects. (335) 71% respondents are of the opinion that it is the most likely root cause factor for project abandonment in the Institutions. (140) 29% respondents are of the opinion that it is rather the likely root cause factor for project abandonment. This has a relative importance index of 0.926. On the lack of adequate and efficient municipal services, (325) 68% respondents are of the view that this is the most likely root cause factor for project abandonment while (150) 32% respondents are of the view that this is the likely root cause factor for project abandonment in the Institutions. This again has a relative importance index of 0.921. Project mismatch occurs when there is no clear vision on how the project can be useful to the organization. Project

mismatch is thus another cause factor that was reviewed in the study, (325) 68% respondents are of the view that this is the most likely root cause factor of project abandonment while (150) 32% respondents are of the view that this is the likely root cause factor of project abandonment in the Institutions. This again has a relative importance index of 0.921. Another cause factor reviewed is poor and faulty designs in project implementation, (325) 68% respondents are of the view that this is the most likely root cause of project abandonment while (150) 32% respondents are of the view that this is the likely root cause of project abandonment in the Institutions. This again has a relative importance index of 0.921. On variation of project scope, (175) 37% respondents are of the view that variation of the project scope is most likely root cause of project abandonment. However, (150) 32% respondents are of the view that variation of the project scope is most likely not the root cause of project abandonment while (150) 32% respondents are of the view that it is likely not the root cause of project abandonment. This again had a relative importance index of 0.368. The lack of true leadership as a cause factor was also surveyed. (355) 75% of respondents are of the view that this is the most likely root cause of project abandonment in higher institutions in Nigeria while (120) 25% respondents felt it is only a likely root cause of project abandonment. The factor had a relative importance index of 0.937. Insider dealings and lack of due process by officials of the Institution in contract administration is another cause factor surveyed in this study. (175) 37% respondents are of the view that this is the most likely root cause of project abandonment in the Institutions while (200) 42% respondents are of the view that this is only a likely root cause factor for project abandonment. But (100) 21% respondents completely disagreed that this is a root cause factor for project abandonment in higher Institutions in Nigeria. Generally the factor had a relative importance index of 0.684. Also surveyed is the perceived lack of strategic plan by the Institutions to aid project planning cause factor. (75) 16% respondents are of the view that this is a most likely root cause of project abandonment while (150) 32% respondents are of the view that it is rather a likely root cause factor. However, (150) 32% completely disagreed that it is the root cause of project abandonment while (100) 21% equally disagreed that it is a root cause of project abandonment in higher Institutions in Nigeria.

4. Discussion

The result of the study with Relative Importance Index of 0.947 affirms the notion that one of the root causes of project abandonment in Tertiary Institutions in Nigeria is the lack of clear and well defined vision and objective by the successive managements of the Institutions. Projects are conceived based on extraneous pecuniary reasons. This is in agreement with El-Rufai (2012) and PPAC (2011) who were of the opinion that well defined vision and objective precedes execution phase if the project is not to be abandoned along the way.

Similarly, the result of the study with a relative importance index of 0.803 shows that poor or the lack of planning by Institutions management teams is another root cause of project abandonment in tertiary Institutions in Nigeria. This again is in agreement with Ewa (2005) who quoting Prof. Stolpher (1981) stated that planning without facts is planning to fail. This is also in agreement with El-Rufai (2012), Ayodele et al. (2011), PPAC (2011), Essenwa (2004), Adedeji (1998) and Opara (1986).

Another root cause of project abandonment identified in the study is poor costing of projects by Institution's management with a relative important index of 0.853. Most Nigerian projects are characterized with poor costing as the costing is done outside the locality where the project is to be located without consideration of the environment. This affirms the hypothesis that top management of the Institutions does not undertake detailed and adequate planning before projects are contracted. This is in agreement with Ayodele et al. (2011), PPAC (2011) and Ewa (2005).

Another cause factor which is seen as a root cause of project abandonment in tertiary institutions in Nigeria is incompetence of project managers supervising the projects. The survey revealed a relative importance index of 0.842. The officials saddled with the responsibility of supervising the projects most times do not effectively supervise the projects. This is in agreement with the opinion of PPAC (2011) report, Ayodele et al. (2011) and Ewa (2005).

Change of priority in project execution is another cause factor surveyed in the study which is seen as a critical root cause factor for project abandonment in Tertiary Institutions in Nigeria with a relative important index of 0.92. Similarly, the lack of policy continuation by successive governments is also seen a root cause factor with a relative important index of 0.953. Change of priority and lack of policy continuation by successive governments creates lack of coherence and consistency in project management and execution. This is in agreement with El-Rufia (2012), Akuta (2009) and Ewa (2005) who opined that pervasive lack of continuation in policies as occupiers of political offices change creates the emergence of abandoned projects.

Whereas some commentators are of the belief that the root cause of project abandonment is the effect of inflation, the study revealed otherwise. (200) 42% of the respondents are of the view that it is most not likely cause factor of

project abandonment, while (100) 21% respondents are of the view that it is not likely cause factor for project abandonment. However, (175) 37% respondents are of the view that it is a likely cause factor for project abandonment. The cause factor thus has a relative important index of 0.276.

Another cause factor that is adjudged as a root cause factor for project abandonment in tertiary institutions in Nigeria is political influence factor with a relative important index of 0.924. Contracts are awarded based on political consideration and not competence. Also Political factors influence the establishment of projects as against economic consideration thus ending up as 'white elephant' projects. Also enforcement of execution of contract projects awarded are hampered by political considerations. Followed closely is peer group syndrome (Nigerian factor). This is another cause factor considered a critical root cause factor for project abandonment in tertiary institutions in Nigeria with a relative important index of 0.895. This relates to contractors intentionally abandoning the execution of their projects because fellow contractor(s) is (are) doing same and is (are) not reprimanded. The general conception of government project and government funds is 'our' funds. This is in agreement with Ewa (2005).

Disbursement delays is another cause factor considered critical with a relative importance index of 0.895. This has even made many contractors not ready to commit their personal funds on projects but only work within the release sums. Default by contracting organizations to disburse progress payments on time to contractors causes them not to keep to credit terms with their bankers and thus incur interest charges on loans Ewa (2005). This is echoed by PPAC (2011) on their report when they stated that 'consistent delays in payment to contractors lead to massive claims for overhead costs, interests and additional costs'.

Some projects are conceived based on over-ambitious (egoistic) tendencies. Here management embarks upon gigantic projects for personal ego without much consideration to funding and relevance. This is considered another root cause of project abandonment with a relative important index of 0.908. Similarly, the failure of successive regimes to issue the appropriate white papers on various panels set to investigate causes of abandoned projects in Nigeria is also seen as a root cause factor for project abandonment with relative important index of 0.921. Management and contractors are not bothered by non performance as previous defaulters have never been reprimanded by government. This failure or refusal for successive regimes to issue the appropriate white papers on various panels set up to investigate abandoned projects identified previously causes current contractors and officials to belief they will never be brought to book over their actions or inactions. This is in agreement with El-Rufia (2012), Ayodele et al. (2011), Akuta (2009), Ewa (2005), Omoniyi (1996) and Onikute (1988).

Granting of injunctions under exparte motions on contract transactions between contractee and contractor is another cause factor considered critical in project abandonment in tertiary institutions in Nigeria. This is a situation whereby defaulting contractors approach the courts and seek to constrain the Institutions from enforcing default covenants in the contract agreement. Ewa (2005) posited that easy granting of injunctions under exparte motions in the cause of enforcement of sanctions on defaulting contractors by the courts encourages default. Also the effectiveness and efficiency of the Nigerian legal system to address contract disputes is x-rayed. Considering its sensitivity, it has a relative importance index of 0.926. The study revealed that many contractual cases are allowed pending in the courts for years unattended to and end up frustrating the litigants. Ewa (2005) avers that the delay in the discharge of breach of contractual agreement cases in Nigerian courts accelerates the rate of abandoned projects in Nigeria. On corruption and compromise by officials, this was collaborated by PPAC (2011) that stated that corruption in the handling of projects by many self seeking officers and contractors has led to massive inflation of cost and undermined the legitimacy of their monitoring and supervision responsibilities. This is also collaborated by Ewa (2005) who cited a case of a contractor altering the specifications of a project on the connivance of organization's management which ended up not suitable for the purpose it was meant to serve and thus abandoned. Inadequate/lack of budgetary allocations by Institutions' on the given financial years is another root cause factor surveyed. This critical factor is collaborated in the PPAC (2011) report in which they stated that as a matter of routine, contracts are awarded without securing the required funds in the annual budget to ensure their timely execution. This is also in agreement with El-Rufia (2012) who stated that contract awards should be guided by the procurement act which among others stated that funds must be available before contract is awarded. Other root cause factors surveyed are poor coordination between government officials supervising projects and the lack of adequate and efficient municipal services. The lack of adequate and efficient municipal services such as the provision of electricity, transport, security and water supply is considered critical with a relative importance index of 0.921 and 0.926 for poor coordination. This is in agreement with PPAC (2011), Ewa (2005) reports that stated that in the absence of these municipal services, contractors have to arrange privately for these services and any obstacle therein can cause project abandonment. The widespread institutional mediocrity and poor coordination between government officials creates loopholes which 'smart' contractors use to frustrate projects thus leading to

abandonment. PPAC (2011) in their report stated that contractors were allowed to draft contract agreements which not unexpectedly they did in their favour against the interest of government. This is in agreement also with Ayodele et al. (2011) and Ewa (2005).

Other cause factors also considered critical are; project mismatch, poor and faulty designs in project implementation and the lack of true leadership. Project mismatch is using short term funds to finance long term projects. It is evident in the study that most Institutions used short term funds to finance long term projects. The resultant effect of this is dearth of cash flow to fund the projects. This is in consonance with the affirmation of Ayodele et al. (2011) Odenyinka and Yusuf (1997) that stated that owner's cash flow problem is a major factor responsible for abandonment of projects. The cause factor of poor and faulty design is in agreement with PPAC (2011) which stated that there is widespread institutional mediocrity, deficiency of vision and the lack of direction in project management which resulted in poor conceptualization, poor design and faulty execution. Ewa (2005) also stated that many project designs are prepared without visits to the project sites and thus site topography not taken into consideration during design stage. On true leadership, this was collaborated by Akuta (2009) who stated that when true leadership emerges, the interest of the masses will be taken into consideration when starting projects that are meant for them.

5. **Conclusion**

Considering the outcome of the study, there are critical cause factors (root causes) of project abandonment which if addressed will drastically reduce the effects of project abandonment in tertiary institutions in Nigeria. Tertiary Institutions management should clearly articulate their visions and objectives. This vision and objective should drive their project conceptualization. They should undertake an adequate planning for any given project at inception based on detailed design, costing and timelines and ensuring adequacy of funds and budgetary allocation in compliance with the Public Procurement Act.

Nigeria government should review its legal system with a view to addressing the loophole of exparte motions that frustrates litigation of culprits in breach of contracts agreements, corruption and compromise as well as provide municipal services to reduce the burden on contractors. Well trained project managers should be used in project supervision. Nigeria government should endeavor to release on time administrative white papers on investigations carried out on abandonment of projects and erring officials sanctioned to serve as a deterrent to others who may be tempted to acting fraudulently.

People with true leadership qualities should be appointed as heads of Institutions so that the interest of the stakeholders is paramount in implementing programs and projects as against egoism, political consideration and self interest. Every tertiary Institution should have a five to ten year strategic plan which should not be altered on the assumption of a new administration to ensure continuity in project/program management.

Contract documents should be detailed enough to avoid ambiguity and should not be prepared by the contractors. Advance payment bond as well as performance bond should be compulsory for all contract jobs and their validity should be throughout the gestation of the contract. There should be a monthly progress review of all contracts by a committee consisting of the bursar, the internal auditor, the works officer and the physical planning officer. Their report should be one of the reports to be considered in the governing Councils of the Institutions. Sanctions should be placed on erring officers of the Institution supervising projects in case of default.

Prompt payment of contract bills as may be recommended through quantity surveyors valuation and architect's certificates and once contract is awarded, funds for the contract should be set aside from the Institutions' funds to ensure availability of funds during the project period.

References

Adedeji, A. O. (1998). Inflation of production planning techniques on the performance of construction firms in Nigeria. *Journal of the Federation of Building Contractor in Nigeria, 13*(1), 3–24.

Akindoyeni, A. (1989). The management of abandoned project. *Journal of Nigeria Institute of Building, 1*(2), 27.

Akinolu, E. O. (1980). Professional Indemnity Insurance. *Federal Ministry of Finance and National Planning, 2*(7), 6–8.

Akuta, C. V. (2009). Inconsistent Policies and High Rate of abandoned government projects. *Nigeria News*. Retrieved February 14, 2011, from http://www.ngex.com/news/public/article.php?ArticleID=1343

Al-Ahmed, W., Al-Fagih, K., Khanfar, K., Alsamara, K., Abuleil, S., & Abu-Salem, H. (2009). A taxonomy of an IT project failure: Root causes. *International Management Review, 5*(1).

Bunu, I. (2011). Presidential Project Assessment Committee Report, *The Punch Newspaper*.

Cusing, K. (2002). *Why projects fail.* Retrieved June 17, 2013, from http://www.computerweekly .com

El-Rufai, N. A. (2012). The tragedy of abandoned projects. *Nigeria Intel.* Retrieved from http://www.nigeriaintel.com

Essenwa, F. O. (2004). *Project procurement method in Due Process or How to Execute Capital Projects Efficiently. Department of Physical Planning and Development.* National Universities Commission, Abuja. Nigeria.

Ewa, U. E. (2005). The Budgetary process and educational development-Emphasis on how to avoid abandoned projects. Education Tax Fund workshop on financing education in Nigeria.

Fichter, D. (2003). *Why web projects fail, 27*(4), 43. Retrieved October 6, 2007, from http://www.Questia.com

Glaser, J. (2004). Management's role in IT project failures. *Healthcare Financial Management.*

Inman, M. L (1997). Project management and project teams. *ACCA Students Newsletter.*

Jenster, P., & Hussey, D. (2005). Create a common culture between IT and business people to reduce project failures. *EBSCO Host, Computer Weekly of March, 22,* 34.

Johnson, J., Boucher, K. D., Connors, K., & Robinson, J. (2001). Collaborating on project success. Retrieved from http://www.softwaremag.com/

Kotangora, O. O. (1993). Project abandonment. *Nigerian Tribune.*

Lam, W., & Chua, A. (2005). Knowledge management project abandonment: An exploratory examination of root causes. *Communications of the Association for Information Systems, 16*, 723–743. Retrieved February 17, 2011 from http://aisel.aisnet.org/cais/vol16/35/

Lim, E. C., & Alum, J. (1995). Construction Productivity issues encountered by contractors in Singapore. *International Journal of Project Management, 13*(1), 51–58. http://dx.doi.org/10.1016/0263-7863(95)95704-H

McFarlan, F. W. (1981). Portfolio approach to information systems. *Harvard Business Review, 59*, 5.

Moser, C. A., & Kalton, G. (1971). Survey methods in social investigation. UK: Heineman Educational.

National House Buyers Association (2006). Causes of abandoned projects, *New Straits Times Newspaper of May 13, 2006.*

Nduka, O. (1975). *Western education and Nigerian cultural background.* Ibadan: Oxford Press.

Odeyinka, H. A., & Yusuf, A. (1997). The causes and effects of construction Delays on cost of housing projects in Nigeria. *Journal of Financial Management and Property and Construction, 2,* 31–41.

Okebukola, P. (2004). The state of Nigerian universities. *Nigerian University System Chronicle, 12*(1).

Olusegun, A. E., & Michael, A. O. (2011). Abandonment of construction projects in Nigeria: causes and effects. *Journal of Emerging Trends In Economics and Management Sciences, 2*(2), 142–145.

Omoniyi, M. I. (1996). A critical analysis of abandonment of projects. *Journal of Building Sciences and Management. 11*(1), 4–10.

Onikute, A. B. (1988). Effects of contract termination on the cost of building project. *Builders Magazine, 5*(19), 5–18.

Onochie, V. O. (2003). *Transparency and Accountability in Governance: The Nigerian Experience.* ICAN (MCPE).

Opara, N. (1986). Construction Management control and planning. *Construction Economics, 3,* 12–15.

Osemena, I. (1987). Project abandonment. *New Watch Magazine, 1,* 15.

Wilson, P. F., Dell, L. D., & Anderson, G. F. (1993). *Root Causes Analysis: A Tool for Total Quality Management.* Milwaukee, Wl: ASQC Quality Press.

Copyrights

Adverse Selection Revisited in the Context of Food Safety

Yukichika Kawata[1]

[1] Department of Animal and Food Hygiene, Obihiro University of Agriculture and Veterinary Medicine, Japan

Correspondence: Yukichika Kawata, Department of Animal and Food Hygiene, Obihiro University of Agriculture and Veterinary Medicine, Inada-cho, Obihiro, Hokkaido 080-8555, Japan. Tel: 81-155-49-5424. E-mail: ykawata@obihiro.ac.jp

Abstract

Adverse selection is expected to occur with agricultural products because they are credence goods with respect to food safety. However, these products' safety levels are usually higher than the safety standards set by public agencies. This study suggests reasons for this phenomenon through theoretical examinations and numerical simulations, producing several results. First, even if we suppose that the cost functions of firms producing higher-quality products are in the upper regions, not only can firms producing the lowest-quality products remain in a 'market for lemons' but other firms can as well. Second, if we relax the above assumption about cost functions, even firms producing the highest-quality products can remain in a lemon market, while firms producing middle-quality products can increase their sales. Moreover, the WTP at some stage can be more than the initial WTP.

Keywords: adverse selection, credence goods, food safety, market for lemons

1. Introduction

A fundamental function of food is providing nutrition. Humans once needed to ensure a minimum calorie intake under income constraints. Rising income levels made it easier to acquire the necessary calories (Pritchett & Summers, 1996). Later, humans purchased additional values such as taste and other qualities (Drewnowski, 1997; Blaylock, Smallwood, Kassel, Variyam & Aldrich, 1999). For example, individuals spent their extra money on higher-quality foods (e.g., by shifting from pork to beef). Currently, after satisfying taste and other qualities, emphasis is being placed on food safety.

Economists usually categorise foods into search goods, experience goods, and credence goods (Nelson, 1970; Darby & Karni, 1973). Many foods are affected by problems such as asymmetric information (e.g., when sellers have more information about goods than consumers) and imperfect information (e.g., when consumers cannot inspect the safety of vegetables) (Traill & Koenig, 2010). This can produce a 'market for lemons' or an adverse selection (Akerlof, 1970).

Standard economics literature describes a market for lemons as one from which high-quality goods are eliminated because they are less profitable, leaving only low-quality goods. Akerlof explains the adverse selection mechanism by citing the used-car market as an example: used cars cannot be evaluated until after their new owners have driven them for a few days, and information on their sellers is limited because they are regular citizens who infrequently sell a small number of used cars. Used cars are thus categorised as 'experience goods'. Buying another used car (after experiencing mechanical problems, for example) is difficult because even used cars are relatively expensive. Thus, the trade between seller and consumer usually happens only once, and identifying the sellers of low-quality used cars is difficult.

The situation is somewhat different in food markets, such as that for agricultural products (e.g., vegetables and fruits). Degrees of food safety variability are often difficult for consumers to detect because the relevant factors are classified as 'credence quality' attributes (Henson & Traill, 1993; Latvala & Kola, 2002). However, public agencies can test for residual pesticides and uncover regulation violations. Food safety levels might vary among producers, but information on average (or prevailing) food safety levels and on substandard products is easy to find on the Internet and other media. We can therefore assume consumers are increasingly aware of the average food safety levels. It follows that they will purchase products when their willingness to pay (WTP) is, at most, as high as their willingness to pay for average quality products. Therefore, firms producing high-quality products

should exit the market, and food safety levels should fall to the level defined by the safety standards set by public agencies. Product prices should also continue to fall.

Previous studies of this topic have introduced various systems for preventing adverse selection and securing food safety levels. Such systems have included a public certification system (Crespi & Marette, 2001; Jahn, Schramm & Spiller, 2005; Albersmeier, Schulze, Jahn & Spiller, 2009), HACCAP (Starbird, 2005), safety standards systems (Hammoudi, Hoffmann & Surry, 2009), and traceability systems (Sykuta, 2005; Starbird & Amanor-Boadu, 2006; Starbird & Amanor-Boadu, 2007). In addition, researchers have examined the most appropriate methods with which to implement these systems (for example, Farina, Gutman, Lavarello, Nunes & Reardon, 2005; Cho & Hooker, 2007).

However, food safety levels rarely fall to the level of existing safety standards, especially in developed countries where most firms satisfy the food safety standards set by public agencies to varying degrees. Further, despite the additional costs required to improve food safety (driven by the need for additional equipment and/or testing) and as reduced pesticide use increases the risk of disease and insect damage, products that offer higher safety levels are still being marketed, and at a price that does not fall. One possible explanation of this fact is an implicit assumption that firms in a market for lemons are homogeneous. Moreover, the possible reasons why adverse selection is not occurring in the agricultural products market include differences in cost structure, an inadequately examined issue. This paper is intended to fill this knowledge gap.

This paper examines the following two cases. First, while assuming that the cost functions of firms producing higher-quality products are high, we examine whether all firms but those producing the lowest-quality products will exit from a market for lemons. Second, we examine whether firms producing higher-quality products can increase their sales if we relax our assumption about cost functions.

The remainder of this paper is structured as follows. Sections 2 and 3 examine these questions theoretically in the context of a normal market and a market for lemons. Section 4 describes the numerical simulations for the selected cases. Finally, section 5 concludes the paper.

2. Normal Market

2.1 Cost Functions

Suppose there are three competitive markets in which a single agricultural product with varying quality levels is sold. Product quality level is divided into high, middle, and low (H, M, and L, respectively). Quality differences are observable in the market during purchase through the products' labels; thus, products H, M, and L appear similar, but are easily distinguishable by their labels. Countless homogeneous firms operate in each competitive market. Of these, we shall refer to one of these firms in market H, M and L as 'firm H', 'firm M', and 'firm L', respectively.

Suppose a difference in quality means a difference in food safety, when other attributes are identical. As firm L in market L does not pay special attention to food safety, its total costs can be described as follows:

$$TC(x_L) = V(x_L) + F \tag{1}$$

where $V(x_L)$ and F are the variable and fixed costs, respectively, and x_L denotes the amount of product L. The marginal cost is then specified as the following equation:

$$MC(x_L) = v(x_L) \tag{2}$$

where $v(x_L) = \dfrac{dV(x_L)}{dx_L}$

Firms M and L in markets M and L pay more attention to the safety of their products. Therefore, let us suppose the marginal costs of firms H and M can be specified as follows:

$$MC(x_H) = v(x_H) + \alpha_H \tag{3}$$
$$MC(x_M) = v(v_M) + \alpha_M \tag{4}$$

where x_H and x_M denote the amount of products H and L, respectively and $v(x_i) = dV(x_i)/dx_i$, $i = H$, M.

Assumption 1

Let us suppose $\alpha_H \geq \alpha_M \geq 0$ and $v(x_H) \geq v(x_M) \geq v(x_L)$.

2.2 Demand Functions and Market Equilibrium

The demand functions for products H, M, and L can be specified as follows:

$$p_H = WTP_H = WTP_L + \alpha_H \tag{5}$$

$$p_M = WTP_M = WTP_L + \alpha_M \tag{6}$$

$$p_L = WTP_L \tag{7}$$

where α_is are interpreted as the price premium when it is possible to distinguish product quality. Market equilibrium will be attained when $MC(x_i) = p_i$, $i = H$, M, L. Therefore, we have the following conditions:

$$v(x_i) = WTP_L, \quad i = H, M, L. \tag{8}$$

For the sake of simplicity, we suppose $v(x_i) = k_i x_i$ ($i = H$, M, L) and $k_i > 0$ ($i = H$, M, L) are constants. We then have the following condition:

$$x_i = \frac{v(x_i)}{k_i} = \frac{WTP_L}{k_i} \tag{9}$$

Let us denote the sales by firms H, M, and L as $x_H^0 > 0$, $x_M^0 > 0$, and $x_L^0 > 0$, respectively. If $k_H = k_M = k_L$, then $x_H^0 \leq x_M^0 \leq x_L^0$ because cost function $MC(x_M)$ locates equal to or higher than $MC(x_L)$ and the same relationship holds between $MC(x_H)$ and $MC(x_M)$.

3. Market for Lemons

3.1 First Stage

Some of the assumptions above are modified in a market for lemons. Section 2 mentioned the labelling system that allows consumers to determine product quality and established that there are three competitive markets. In this section, however, we suppose that there is no such labelling system and that products H, M, and L are sold in the same competitive market (i.e. the market for lemons). Although countless firms operate in this market, we simplify by concentrating on three firms selling products that look similar, but have different food safety levels.

Here again, a difference in quality means a difference in food safety. For the sake of simplicity, let us suppose that the number of sales for firms H, M, and L at the beginning of the first stage are x_H^0, x_M^0, and x_L^0, respectively and that products H, M, and L are distributed uniformly in the market. It follows that the market shares of these firms are $x_H^0/x^0 : x_M^0/x^0 : x_L^0/x^0$, where $x^0 = x_H^0 + x_M^0 + x_L^0$. We also suppose that consumers know these two facts (market shares and distribution). A consumer's willingness to pay for products in this market for lemons in the first stage can then be calculated as follows:

$$WTP_{lemon}^0 = [WTP_L + \alpha_H]\frac{x_H^0}{x^0} + [WTP_L + \alpha_M]\frac{x_M^0}{x^0} + WTP_L \frac{x_L^0}{x^0} \tag{10}$$

$$= WTP_L + \frac{1}{x^0}[\alpha_H x_H^0 + \alpha_M x_M^0]$$

Note that $x_i^0 = WTP_L/k_i$ ($i = H$, M, L) holds based on eq. (9).

3.2 Firm M in the First Stage

In a market for lemons, firm M sells $x_M = x_M^1$ in the first stage, which can be calculated as follows. Because $MC(x_M) = WTP_{lemon}^0$, we have the following equation:

$$x_M^1 = \frac{1}{k_M}\left\{WTP_L + \frac{1}{x^0}[x_H^0(\alpha_H - \alpha_M) - x_L^0 \alpha_M]\right\} \tag{11}$$

If $x_H^0(\alpha_H - \alpha_M) - x_L^0 \alpha_M = 0$, from eqs. (9) and (11), $x_M^1 = WTP_L/k_M = x_M^0$. Here, equation $x_H^0(\alpha_H - \alpha_M) - x_L^0 \alpha_M = 0$ implies that firm M's total fixed cost for improving food safety is the same as the sum of the total fixed costs of firms H and L for their food safety improvement. For ease of notation, we denote $G_M^0 = x_H^0 \alpha_H + x_L^0/x_H^0 + x_L^0$ and obtain the following result:

$$
\text{If } \begin{Bmatrix} \alpha_M > G_M^0 \\ \alpha_M = G_M^0 \\ \alpha_M < G_M^0 \end{Bmatrix}, \qquad \text{then } \begin{Bmatrix} x_M^1 < x_M^0 \\ x_M^1 = x_M^0 \\ x_M^1 > x_M^0 \end{Bmatrix} \tag{12}
$$

3.3 Firm H in the First Stage

Firm H sells $x_H = x_H^1$, which can be calculated as follows. Because $MC(x_H) = WTP_{lemon}^0$, we have the following equation:

$$
x_H^1 = \frac{1}{k_H}\left\{WTP_L + \frac{1}{x^0}\left[x_M^0(\alpha_M - \alpha_H) - x_L^0\alpha_H\right]\right\} \tag{13}
$$

Because $x_M^0(\alpha_M - \alpha_H) - x_L^0\alpha_H$ is negative, it follows that $x_H^1 < x_H^0$.

3.4 Firm L in the First Stage

Firm L sells $x_L = x_L^1$, which can be calculated as follows. Because $MC(x_L) = WTP_{lemon}^0$, we have the following equation:

$$
x_L^1 = \frac{1}{k_L}\left\{WTP_L + \frac{1}{x^0}\left[\alpha_H x_H^0 + \alpha_M x_M^0 + x_L^0\right]\right\} \tag{14}
$$

Because $\alpha_H x_H^0 + \alpha_M x_M^0 + x_L^0$ is positive, it follows that $x_L^0 < x_L^1$.

3.5 Second and Subsequent Stages

In the second stage, the sales of firms H, M, and L are x_H^1, x_M^1, and x_L^1, respectively, and products H, M, and L are distributed uniformly in the market. It follows that the market shares of these firms are x_H^1/x^1 : x_M^1/x^1 : x_L^1/x^1, where $x^1 = x_H^1 + x_M^1 + x_L^1$. Therefore, a consumer's willingness to pay for a product is modified as follows:

$$
WTP_{lemon}^1 = [WTP_L + \alpha_H]\frac{x_H^1}{x^1} + [WTP_L + \alpha_M]\frac{x_M^1}{x^1} + WTP_L\frac{x_L^1}{x^1} \tag{15}
$$

$$
= WTP_L + \frac{1}{x^1}\left[\alpha_H x_H^1 + \alpha_M x_M^1\right]
$$

Using the same procedures presented in subsections 3.2 to 3.4, we can easily show $x_H^2 \leq x_H^0$ and $x_L^2 \geq x_L^0$. The magnitude of the relationship between x_M^0 and x_M^2 is not conclusive. Therefore, the preposition below holds.

Proposition 1

In any stage t, the following relationships hold under assumption 1:

$$
x_H^0 \geq x_H^{t+1}, \text{ and } x_L^0 \leq x_L^{t+1}.
$$

Corollary 1

Under assumption 1, the WTP at any stage t is less than the initial WTP.

4. Numerical Simulations

4.1 Incomplete Market for Lemons

Although removing assumption 1 produces interesting findings, qualitative results are difficult to derive. Therefore, in this section, we conduct numerical simulations to examine three cases, some of which have assumption 1 removed. We use MS Excel for these numerical simulations. As mentioned in detail below, we set the parameter values and initial values of the sales by firms H, M, and L and calculate the dynamics of sales for 20 stages.

First, we examine the case where all three firms have the same cost functions except α_i as follows:

$$
MC(x_i) = kx_i + \alpha_i, i = H, M, L. \tag{16}
$$

We set $k = 2$, $\alpha_H = 4$, $\alpha_M = 2$, $p_H = 9$, $p_M = 7$, and $p_L = 5$. Among the distinct competitive markets,

the sales for firms H, M, and L are 2, 2, and 2, respectively. Therefore, we use these values as the initial sales values for each firm in the market for lemons.

In this case, product H diminishes to zero at $t = 2$, while product M and L remain in the market in the long run (see Figure 1). The sales of product M decrease, whereas those of product L increase. The numerical simulation suggests that, not only the firm producing the lowest-quality product, but also the other firms producing higher-quality products would remain in the market, even if the cost functions are the same but for term α_i.
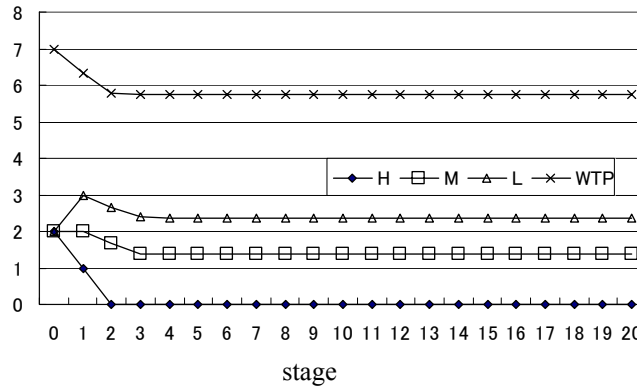

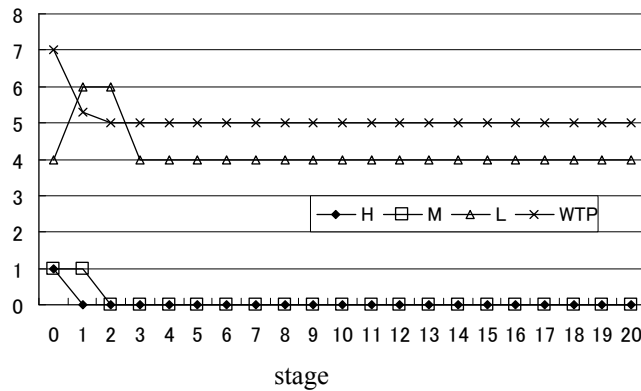Figure 1. Example of an incomplete market for lemons

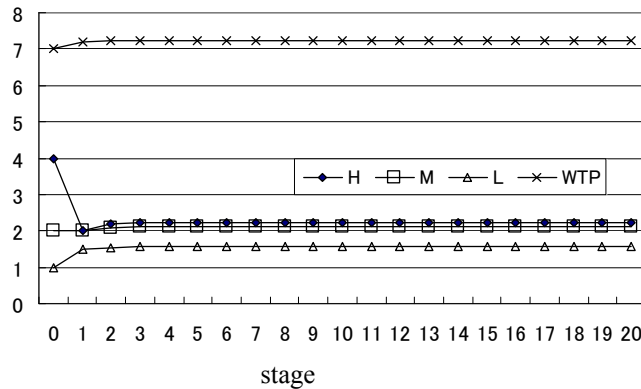Figure 2. Example of a typical market for lemons

Figure 3. Example of an inconsistent case in a market for lemons

4.2 Typical Market for Lemons

Next, we modify the cost function as follows:

$$MC(x_i) = k_i x_i + \alpha_i, \quad i = H, M, L. \tag{17}$$

Let us suppose $k_H \geq k_M \geq k_L$. We set $k_H = 4$, $k_M = 4$, $k_L = 1$, $\alpha_H = 4$, $\alpha_M = 2$, $p_H = 9$, $p_M = 7$, and $p_L = 5$. In this case, assumption 1 is satisfied. In the competitive markets, the sales for firms H, M, and L are 1, 1, and 4, respectively. Therefore, we use these values as the initial sales values for each firm in the market for lemons.

In this case, products H and M diminish to zero at $t = 1$ and 2, respectively, while product L remains in the market (see Figure 2). This result is consistent with the assertion that higher-quality products exit a market for lemons.

4.3 Inconsistent Case as the Market for Lemons

Finally, we set $k_H = 1$, $k_M = 2$, $k_L = 4$, $\alpha_H = 4$, $\alpha_M = 2$, $p_H = 9$, $p_M = 7$, and $p_L = 5$. In the competitive markets, the sales for firms H, M, and L are 4, 2, and 1, respectively. Therefore, we use these values as the initial sales values for each firm in the market for lemons. This is an interesting case because the firms producing higher-quality products have more cost-effective production technologies (when ignoring α_i).

The results are shown in Figure 3. They suggest that firms producing higher-quality products can increase their sales even in a market for lemons. It follows that, if the firms producing higher-quality products have cost-effective production technologies, they can increase their sales even in a market for lemons. Thus, the WTP in stage t in the market for lemons may be higher than the initial WTP, as Figure 3 shows.

Proposition 2

If we remove assumption 1, the following relationship may hold for $t > 1$:

$$x_H^{t+1} \geq x_H^t, \quad x_M^t \geq x_M^0 \quad \text{and} \quad x_L^0 > x_L^t.$$

Corollary 2

If we remove assumption 1, the WTP at some stage t may be more than the initial WTP.

This result suggests that adverse selection does not occur among agricultural products even without a labelling system, possibly because the cost functions of the firms producing lower-quality products are in the upper ranges.

5. Brief Discussion

In sections 2 and 3, we revisited adverse selection in the context of food safety in our setting (assumption 1) and showed that the sales of firm H always decrease or are stable, while those of L increase or are stable and those of firm M are not uniquely determined (Table 1). In section 4, we treated the special case of a usual market for lemons, where not only the sales of firm L but also those of firm M remain in the long run (subsection 4.1). Then, we demonstrated the typical case of a market for lemons, where only the sales of firm L remain in the market (subsection 4.2). Finally, we then removed assumption 1 and showed that the sales of H, M, and L all remain in the market in the long run (subsection 4.3).

As suggested in the Introduction, food safety levels rarely fall to the level of existing safety standards. Our results suggest that this occurs because not only the firm that produces the lowest-quality products but others can remain in the market. We further showed that even firms that produce the highest-quality products can increase their sales when we relax our assumption about cost function. It is often pointed out that a market for lemons will occur in food markets, but we do not necessarily observe this issue in real food markets, especially those in developed countries. Indeed, the present paper explained the gap between traditional explanations and real market behaviour.

Table 1. Comparison of the results

Conditions	Results
Assumption 1	$x_H^0 \geq x_H^{t+1}$, and $x_L^0 \leq x_L^{t+1}$ (Preposition 1)
Special case (sec. 4.1)	$x_H^t = 0$, $x_M^t = x_M^0$, and $x_L^t = x_L^0$ for $t \geq 3$ (Figure 1)
Typical case (sec 4.2)	$x_H^t = 0$, $x_M^{t+1} = 0$, and $x_L^{t+2} = x_L^0$ for $t \geq 1$ (Figure 2)
Removing assumption 1(sec. 4.3)	$x_H^{t+1} \geq x_H^t$, $x_M^t \geq x_M^0$, and $x_L^t > x_L^0$ (Figure 3)

6. Conclusions

This study's theoretical examinations and numerical simulations have explored why adverse selection in the food safety context does not seem to occur in the agricultural products market even when no labelling system is used. Food safety information is provided by public agencies and can be easily accessed and understood. Motivated by this information, consumers are willing to pay for products with average food safety levels. Although one expects adverse selection in the food safety context to occur in food markets, the food safety levels of agricultural products often remain higher than those mandated by public agencies' safety standards.

This study's theoretical examinations and numerical simulations indicate the following. First, let us suppose that the cost functions of firms producing higher-quality products are in the upper ranges. Our theoretical analysis showed that the magnitude of the relationship between x_M^0 and x_M^t is not conclusive. Our numerical simulation indicates that firm M can remain in a market for lemons: the WTP at any stage t is less than the initial WTP.

Second, we show that even firms producing the highest-quality products can remain in the lemon market and that firms producing middle-quality products can increase their sales if we relax our cost function assumption. Moreover, the WTP at some stage t can be more than the initial WTP.

The literature posits that adverse selection occurs in a market for lemons. However, when we explicitly consider the difference in cost functions, not only can firms producing the lowest-quality product remain in the market, but others can as well, indicating that a market for lemons is not inevitable. These results, produced by theoretical analyses and numerical simulations, must be confirmed through research on real firms. This is a task for future research.

References

Albersmeier, F., Schulze, H., Jahn, G., & Spiller, A. (2009). The reliability of third-party certification in the food chain: From checklists to risk-oriented auditing. *Food Control*, *20*(10), 927–935. http://dx.doi.org/10.1016/j.foodcont.2009.01.010

Akerlof, G. A. (1970). The market for "lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, *84*, 488–500. http://dx.doi.org/10.2307/1879431

Blaylock, J., Smallwood, D., Kassel, K., Variyam, J., & Aldrich, L. (1999). Economics, food choices, and nutrition. *Food Policy*, *24*(2–3), 269–286. http://dx.doi.org/10.1016/S0306-9192(99)00029-9

Cho, B. H., & Hooker, N. H. (2007). Voluntary vs. mandatory approaches to food safety: Considering heterogeneous firms. *Foodborne Pathogens and Disease*, *4*(4), 505–515. http://dx.doi.org/10.1089/fpd.2007.0007.

Crespi, J. M., & Marette, S. (2001). How should food safety certification be financed? *American Journal of Agrcultural Economics*, *83*(4), 852–861. http://dx.doi.org/10.1111/0002-9092.00214

Darby, M. R., & Karni, E. (1973). Free competition and the optimal amount of fraud. *Journal of Law and Economics*, *16*(1), 67–88. http://dx.doi.org/10.1086/466756

Drewnowski, D. (1997). Taste preferences and food intake. *Annual Review of Nutrition*, *17*, 237–253. http://dx.doi.org/10.1146/annurev.nutr.17.1.237

Farina, E. M. M. Q., Gutman, G. E., Lavarello, P. J., Nunes, R., & Reardon, T. (2005). Private and public milk standards in Argentina and Brazil. *Food Policy*, *30*(3), 302–315. http://dx.doi.org/10.1016/j.foodpol.2005.05.008

Hammoudi, A., Hoffmann, R., & Surry, Y. (2009). Food safety standards and agri-food supply chains: an introductory overview. *European Review of Agricultural Economics*, *36*(4), 469–478. http://dx.doi.org/10.1093/erae/jbp044

Henson, S. J., & Traill, W. B. (1993). The demand for food safety: market imperfections and the role of government. *Food Policy*, *18*(2), 152–162. http://dx.doi.org/10.1016/0306-9192(93)90023-5

Jahn, G., Schramm, M., & Spiller, A. (2005). The reliability of certification: Quality labels as a consumer policy tool. *Journal of Consumer Policy*, *28*(1), 53–73. http://dx.doi.org/10.1007/s10603-004-7298-6

Latvala, T., & Kola, J. (2002). Demand for and value of credence characteristics: Case beef, presented at the 10th Congress of the European Association of Agricultural Economists, Zaragoza, Spain, August 28–31, 2002. Retrieved from http://ageconsearch.umn.edu/bitstream/24841/1/cp02la04.pdf

International Business Research

Nelson, P. (1970). Information and consumer behavior. *Journal of Political Economy*, *78*(2), 311–329. http://dx.doi.org/10.1086/259630

Pritchett, L., & Summers, L. H. (1996). Wealthier is healthier. *Journal of Human Resources*, *31*(4), 841–868. http://dx.doi.org/10.2307/146149

Starbird, S. A. (2005). Moral hazard, inspection policy, and food safety. *American Journal of Agricultural Economics*, *87*(1), 15–27. http://dx.doi.org/10.1111/j.0002-9092.2005.00698.x

Starbird, S. A., & Amanor-Boadu, V. (2006). Do inspection and traceability provide incentives for food safety? *Journal of Agricultural and Resource Economics*, *31*(1), 14–26.

Starbird, S. A., & Amanor-Boadu, V. (2007). Contract selectivity, food safety, and traceability. *Journal of Agricultural & Food Industrial Organization*, *5*(1). http://dx.doi.org/10.2202/1542-0485.1141

Sykuta, M. (2005). Agricultural organization in an era of traceability. *Journal of agricultural and applied economics*, *37*(2), 365–377.

Traill, W. B., & Koenig, A. (2010). Economic assessment of food safety standard: Costs and benefits of alternative approaches. *Food Control*, *21*, 1611–1619. http://dx.doi.org/10.1016/j.foodcont.2009.06.018

Copyrights

Activity Based Costing System and Nigeria's March towards VISION 20: 2020

Amaechi Patrick Egbunike[1], Chinedu Francis Egbunike[1] & Meduoye Olamide Mofolusho[2]

[1] Department of Accountancy, Faculty of Management Sciences, Nnamdi Azikiwe University, Nigeria

[2] First Bank of Nigeria, Ltd. Nigeria

Correspondence: Chinedu Francis Egbunike, Department of Accountancy, Nnamdi Azikiwe University, P.M.B. 5025, Awka, Anambra State, Nigeria. Tel: 234-813-285-0409. E-mail: chineduegbunike@rocketmail.com

Abstract

The paper examines the need to develop Activity Based Costing Systems (ABC) in accounting practices among manufacturing firms in Nigeria as a tool for product costing as Nigeria marches to the top 20 economics of the World come 2020. With the aid of a structured questionnaire, a total of 50 copies of questionnaires were administered to a cross-section of Accountants, Managers and Auditors in the manufacturing sector but only 45 copies were returned. T-test of difference between means was used to statistically test hypotheses one, two and three. Based on these, the study found among other things that there is extreme low adoption of ABC among manufacturing firms in Nigeria, possibly because of low level of ICT. Secondly, ABC improves efficiency, reduces operational costs, and properly cost products better than traditional cost accounting systems. The implication of these on the study is that in this era of Advanced Manufacturing Technology (AMT) and ICT development, traditional cost accounting systems used decades ago when the manufacturing sector was labour intensive and less automated may no longer give the required result. This should give way to Activity Based Costing system, an offshoot of the new manufacturing innovation with capabilities to cost product properly, recognizing causality and transactions involved. Consequent upon these, the study recommends that with expectations of the country to march towards a vision of attaining the height of top 20 economies of the world, Activity Based Costing systems are the challenges we need to face now. The system is in tandem with progressive ideas and new way of thinking in accounting in the manufacturing sector.

Keywords: Activity Based Costing (ABC), VISION 2020, cost driver

1. Introduction

Nigeria's quest to join the league of the top 20 economies of the world by 2020 can only materialize if the country enthrones structures and systems that are appropriate for economic development (Egbunike, 2009). Vision 20:2020 document came with a surfeit policy thrust that will help Nigeria and her leaders navigate the years of hope to the dawn of lived dreams. Growth is essentially a means to an end, the end being good life for Nigerians where goods and services are cheaper and have affordable prices.

Activity-Based Costing Systems (ABC) are accounting practices that this Nation must adopt by all product costing practitioners to attain this dream in the wake of the global influence on trade liberalization and competition in the expected march to the vision, our hearts' desires dreams and hopes. This is because ABC is often claimed in the literature to be superior to traditional cost accounting methods. It reflects causality between the cost object and how the cost occurs. In essence, ABC provides a framework that deconstructs costs traditionally seen as fixed, thereby explaining diseconomies of scope. This deviates from traditional cost accounting which tends to group costs in more heterogeneous cost pools with less emphasis on causality (Kaplan, 2006).

In the light of this, it becomes increasingly impossible to march to the envisaged Vision 2020 with the traditional cost accounting practices that does not recognize causality and transactions involved in costing. This practice has been found to be in heavy use in arriving at product costing among manufacturing firms in Nigeria. This may not be adequate in the present milieu having been in use over 60 years ago. Thus, Goldratt (1983) believed that it is:

Too late, too aggregated and too distorted. Additionally, these measures fail to consider important aspects of

operating environment especially the presence of committed costs and related capacity limitations (Sheu, et al., 2003).

Considering these issues probably are the reasons why costs of certain products in Nigeria seem overpriced than goods and services of higher sophistications produced in industrialized Nations. Appropriately therefore, ABC represents a new way of thinking. They carry with them a set of questions completely different from the conventional traditional costing systems such as:

➢ What activities would be performed within organization?

➢ How much it would cost in order to carry out such activities.

➢ Why the organization would need to organize enterprise activities and processes.

➢ What will be the starting point or amount required from each activity—products, services and customers. (Kaplan & Cooper, 1990, quoted by Rivero & Emblemsavg, 2007)

Consequent upon this, this paper seeks to examine the nexus of Activity Based Costing System as an appropriate costing technique and Nigeria's march towards Vision 2020; specifically it addressed the following objectives:

1) To examine whether there is a statistical difference in the level of Activity Based Cost Accounting practice adopted by accountants in Nigerian firms and accountants who adopt traditional cost accounting systems.

2) To examine whether the ABC approach of charging cost to products based on activities causality is significantly better than production volume alternative.

3) To determine the extent ABC would help improve efficiency, reduce operational costs and therefore propel industries in achieving the Vision 2020 agenda.

2. Review of Related Literature

2.1 Traditional Cost Accounting System

This approach is still widely used today in product costing in Nigeria by manufacturing firms. It developed in the early part of the century to deal with product costing in a typical factory fashion which then existed (Adeniji, 2004). Industry then was labour intensive, there was no automation, product variety was small and overhead in manufacturing firms were generally very low compared to today. This is why Sheu et al., (2001) observed that in the industry then, direct labour costs were variable and accounted for as major portion of production costs. Standards were developed for tracing and controlling direct labour activity and indirect cost were allocated across product units. Those measures were appropriate for organizations that mass produced a narrow range of products and incurred mostly variable costs.

However, labour now is largely fixed and indirect costs have become a large part of total cost in most organizations. On accounts of these reasons, and more traditional cost accounting systems which were used then, have been called everything from Number 1 enemy of production and question whether, it is an "asset or liability" have been raised (Lucey, 2003).

We are not arguing that the traditional costing systems do not work but that the world it was designed for is rapidly disappearing. This was captured by Lucey, 2003 when he quoted Kaplan (1996):

… Traditional accounting practices … simply the wrong measures. They move the company in the wrong direction, reward managers for damaging business and provide incentives for improvement. The best we can do is to switch them off, just stop driving them.

Collaborating with this statement, Goldratt (1983), observed that cost accounting was a powerful solution. It did change the behavior and performance of industrial companies. Then technology pulled the rug from underneath cost accounting. The assumption on which cost accounting was then based is no longer valid. Many companies are already facing the disaster from following an obsolete solution. Production is continually changing, there is constant drive for improvement and batch quantities are low because goods are made to meet demand, not to move into stock. It is demand pull-system rather than production push. Care must be taken not to use inappropriate and out-modeled cost accounting systems and techniques which were developed to suit earlier and superseded conditions (Lucey, 2003). To meet these challenges, Nigeria's quest to march towards Vision 2020 should follow a high technological arrangement suited to improve quality and appropriately cost product in the right direction, thus results in improved decisions and information needs of the firms. The answer to these challenges is Activity based costing systems. These are new realities.

2.2 Activity Based Costing System

Martin (2007) observed that Activity based costing logic is based on the idea that designing, producing, distributing products and services require many activities to be performed and performing these activities require resources to be incurred and using these resources cause costs to be incurred. This is unlike traditional accounting cost system where costing is based on production volume.

Osisioma and Enahoro (2006) explain that ABC is an alternative cost accounting model which identifies cost pools or activity centres in an organization, and assigns costs to products and services (cost drivers) based on the number of events or transactions involved in the process of providing a product or services as a result. They opined that activity based costing can support managers to see how to maximize shareholders value and improve corporate performance. ABC is a full absorption costing method that has gained ground than conventional methods due to its more accurate cost assessments and superb training of costs. Conventional costing systems earlier explained cannot trace cost. Overhead costs are simply distributed as butter on bread. As it were without estimating the effect of all the complexities and identifying the root causes of costs, (Hardy & Habbard, 1992; Rivero & Emblemsvag, 2007). ABC differs greatly from the traditional costing systems in two major ways. This was observed by Rivero and Emblemsvag, (2007 when they quoted Copper, 1990).

- In ABC system, it is assumed that cost object products, services etc. consume activities while the conventional systems assume that a cost object consumes resources. By this, ABC acknowledges that one cannot manage costs; one can only manage what is being done (activities). Cost management practices should focus on the process management and not virtually solely on structure and organization.

- An ABC system utilizes drives on several levels (unit, batch, product and factory level), while the conventional system uses on unit level characterizations called allocation bases. Roughly speaking, an allocation base is an arbitrary, unit-level driver. In this sense, cost driver try to establish precise causal relations between products and consumption of activities. The problem is to choose the most suitable cost driver to undertake the allocation process. In general, this problem could be solved by choosing between the following requirements:

a)   To represent the existing cause and effect relations between costs, activities and products as well as possible, and;

b)   To be the most cost effective to measure and to observe (Sheu et al., 2001)

Despite the differences discussed above, it is important to note the point emphasized by Lucey, (2003) and Maher, (2005).

- Different cost allocation methods result in different estimates of a product cost.

- It provides realistic product costs most especially in Advanced Manufacturing Technology (AMT) factories where support overheads are significant proportion of total cost.

- It enhances the tracing of overheads to the products. In modern factories, there is growing number of non-factory floor activities. ABC is concerned with all activities.

- It is flexible to trace cost to process, customers, areas of management responsibility as well as product costs.

- ABC can help marketing people select and price each product by providing more accurate product numbers.

- Implementing ABC requires teamwork among accounting, production, marketing, management and others.

- It recognizes the complexity and diversity of modern production by the use of multiple cost drivers, many of which are transaction based rather than being based solely on production volume.

- Activity cost driver rates reflect the practical capacity of the resources supplied; measuring, creating and managing unused capacity is at the heart of ABC. It gives managers insight into the existence, creation, and deployment of capacity both used and unused (Cooper & Kaplan, 1999, quoted by Sheu, 2003).

In the circumstance, obviously ABC is an acceptable costing techniques needed for our march for vision 2020.

2.3 Factors that Lead to the Development of Activity Based Costing Systems

A number of factors have made it imperative to embrace ABC logic. It includes:

➢   Direct labour cost which have high proportion of total product cost have been recently reduced considerably. Absorption rates that related to labour cost are increasingly becoming misleading.

➢   There has been growth in the cost of service support function which assists the efficient production of a range of high quality products—schedule, set-up, handling, production control and industrial engineering. This posed two implications:

1) The magnitude of overhead cost has gone up.

2) The nature of these costs has also changed and it is noticed that overhead costs are largely unaffected by production volume; instead, they vary in longer term according to the range and complexity of products manufactured rather than simple volume of output.

- In recent times, manufacturing has become complex with computer aided designs-(CAD), computer aided manufacture-(CAM), flexible manufacturing systems (FMS), and short product lifecycle with customers' demanding higher quality standards. All these result in increase in overhead costs.

- With market place becoming more and more competitive for manufacturing and services. It is more advantageous to stay ahead of your competitor at reduced overhead costs. (Adeniji, 2004).

2.4 Steps for Implementing Activity Based Costing System

1) Identify and define activities and activity cost pools—There may be too many activities which should be grouped together under five different activity levels—Unit, Batch, product customer and organization level activities – sustaining activity, material handling, purchasing, reception, dispatch machining and assembly etc.

2) Identify factors which determine the cost of an activity known as cost drivers:

Number of Purchase orders;

Number of Received orders;

Number of Setup.

3) Assign costs to activity cost pools—Activity cost pools are "buckets" in which costs are accumulated that relate to a single activity measure in ABC systems. It is equivalent to cost centres as we have it in conventional systems. This is often classified as first stage

4) Calculate activity rates/cost driver rates for each cost pool.

$$\frac{Total\ cost\ for\ each\ activity}{Total\ Activity} \Big/ Activity\ Drivers$$

5) Assign the activity cost driver rates to cost objects (product, customer, orders) to arrive at an activity based product cost. This is referred to as the 2nd stage allocation.

6) Prepare Management Report—In this, the overhead costs computed are combined with direct material, labour and ultimately deducted from revenue to show the profit level of the organization under study (Garrison, 1999).

2.5 VISION 20:2020

Nigerian's quest to join the league of the top 20 economies of the world by 2020 is a strategic vision of then Head of State, His Excellency, Alhaji Umaru Yar' Adua whose critical elements of moving the nation forward centered on 7-point agenda of energy, education, agriculture, wealth creation and poverty alleviation, land reforms and security.

The Vision became a front burner when it was noticed that inspite of abundant human and natural resources, Nigeria is still behind less endowed nations that were at par at independence such as Malaysia, Singapore, Indonesia, Brazil and South Korea. The Vision was crafted to accelerate Nigeria's economic development to catch up with the above economies using the following parameters as engine:

1) Moving the economy from oil dominated to a more diversified economy.

2) Changing from public sector-dominated to private sector-led economy.

3) Integrating local with global economy.

4) Transforming the pervasive oil industry to more proactive one and

5) Restructuring the economy from centralized federalism to a more decentralized one (Abdullali, 2008; quoted by Okwoli, 2010).

The Vision 2020 was informed by the series of studies by Goldman Sachs economic research that Nigeria is projected to be the 20th largest economy by the year 2025 (ahead of Egypt, Bangladesh etc), and as well, could be the 12th largest economy in the world by 2050 (ahead of Korea, Italy, Canada, etc). These projections on Nigeria were based on conservative statistics of its initial conditions (GDP, growth Environment score). This is

believed that Goldman Sachs projections on Nigeria may have informed the belief of Yar' Adua government to think that it is achievable in a shorter period by 2020 as against 2025 projection (Okeke, 2009). Currently, Nigeria is the 48th largest economy in the world but in terms of GDP per capita Nigeria occupies 165th position in the world and 33rd position in Africa and achieving this feat might require that the economy grows at annual rate aimed rate of 13 percent steadily for the next 12 years (IMF/world Bank, 2006).

- Goldman Sachs paper highlighted that Nigeria requires a large amount of work to do if it should have a serious claims in achieving the potential growth outlines in the new 2025 projections.

- However, Soludo (2006) is of high spirit and optimistic that we can attain such height given our commitment to greatness. These he captured in philosophical manner when he quoted that:

Put differently, Nigeria seems destined for greatness but whether and when it achieves it remains an open question.

- Achieving this vision from now remains challenging and demanding, entailing lots of political will and commitment on part of our leaders; But this appears no problem judging by the Vision 2020 Kuru declaration:

To build a truly great African democratic country, politically united, integrated and stable, economically prosperous, socially organized, with equal opportunities for all, and responsibility from all, to become the catalyst of (African) Renaissance and making adequate all-embracing contributions sub-regionally, regionally and globally (NEED, 2005).

This confirms the achievability of the vision, offered, the historical Marshall plan which rebuilt the West European societies from the ruins of the 2nd World War took only four years to operate from April, 1948. So it is achievable provided we do what we ought to do. Undoubtedly, one of the issues that face the nation in addressing the attainment of Vision 2020 is industrialization especially in the manufacturing sub sector. Economic development in any Nation is a major catalyst for transformation and an engine of growth for modern economies. This is why it is often described in the literature as the heartbeat of the economy. Therefore moving the nation forward to achieve the expectation of the vision will heavily anchor on industrialization. The G20 or top 20 economies of the world are not just largest economies but highly industrialized economies as well. This is captured more recently by Chinweizu (2008):

In any case, this ambition cannot be taken seriously because Yar' Adua and his team do not even know what they are aspiring to join. They think that the G20 is simply the group of the largest economies in the world. However, a critical little fact that escape their inattention … The G20 members are all seriously industrialized economies each with a substantial manufacturing sub-sector. The G20 actually is the group of the largest industrialized economies.

The issue of Industrialization has to be addressed squarely to move the nation forward. A serious scenario is painted when one notices the very low level of manufacturing Value-Added/GDP ratio where in 1981–1986, it was at 9.1 and 9.2 percent but quickly declined steadily very long declined level.

It is only when the manufacturing subsector is raised from slumber that we start to conceive how to cost products and services from such endeavor. To this we are saying that Activity Based Costing Systems is available waiting to help take us to the next level.

2.6 ABC Implications for VISION 2020

Undoubtedly, Activity Based Costing system resulting from the advanced manufacturing technology are the challenges and practices that will help us usher in a new dawn in product costing. This may be possible when the enabling environment in manufacturing subsector is created. Activity based costing system have changed the manner in which data and information are collected, measured, analyzed, and disseminated within and between organizations. To cope with the turbulence and uncertainty in manufacturing—market place environment, organizations need to adapt themselves with appropriate responses to the new threats and opportunities and ensure that they design and use appropriate control systems for this purpose. This has led to the development of new management accounting techniques such as Activity based costing.

Manufacturing firms in Nigeria need to live up to this global changes and challenges to stay afloat and be able to deliver goods and services to its esteemed Nigerian population as and when due. This they must accomplish by constantly reviewing and revisiting their manufacturing strategies as they march to Vision 2020. Among the strategies to review and develop to achieve these competitive instinct is to abandon the old ways of accounting for products as they are backward in accuracy and product costing and embrace a new dawn offered by ABC, the appropriate tool to aid product costing which ultimately ensures that products are costed properly and our

manufacturers are sure of survival and continuity, without which we cannot get to our Vision.

These implications point to the need for new management accounting practices which will meet the challenges of the new manufacturing system.

3. Methodology

A survey was conducted to determine whether Activity Based Costing system is an appropriate accounting tool to propel the country in the attainment of the Vision 2020. 50 copies of questionnaire were administered to a cross-section of Managers, Accountants and Auditors in quoted manufacturing firms, only 45 copies of questionnaire were returned and used for the study. The collected data was analyzed using mean scores. The questions were based on the five point Likert scale with the following options: Strongly agreed, Agreed, Disagree, Strongly disagree and No idea with associated weights of 5, 4, 3, 2 and 1 respectively. The questions were distributed to Managers, Accountants and auditors who are in practice, thus 25 were for those practicing ABC while 20 are for those who are practicing traditional cost accounting systems. Three hypotheses were formulated and tested using t-test of difference of means.

3.1 Analysis of Data

This focused on the presentation and analysis of data generated from the study. A summary of the mean scores is presented below.

Table 1. Questionnaire items response and mean score calculation

S/No	Statements	Mean Scores
1	Activity Based costing (ABC) affects changes in cost structure in such a way that products are realistically and properly costed	4.15
2	ABC improves efficiency, reduces operating costs, improves delivery cost, better than traditional accounting costing system	4.88
3	ABC practice among Nigerian firms is extremely lower than traditional accounting cost systems	4.73
4	Traditional accounting cost system is the answer to product costing needs for attaining vision 2020.	2.97*
5	Using traditional accounting cost system, overhead costs are charged to products based on production volume with direct labour or machine hours rather than activity cost pools	4.33
6	Use of Advanced manufacturing technology has changed the way accounting practices are executed	3.60
7	Significant activities are identified and overhead costs are assigned to activity cost pools in line with the way resources are consumed by the activities under the ABC costing system	4.22
8	Vision 2020 can be achieved if Nigeria reviews and revisits its manufacturing accounting practices	4.53
9	With increase in market competition, customers are more likely to purchase at affordable prices	4.44
10	Use of traditional cost accounting techniques is a major drawback to the vision 2020	2.80*

Source: Field Survey (2011).

3.2 Test of Hypothesis

H$_1$: The level of ABC practice among Nigeria firms is extremely low when compared with traditional accounting cost systems.

To test this, the respondents were asked the following question.

Question: To what extent is ABC practice implemented in Nigerian firms when compared to traditional cost accounting system?

Table 2. The level of ABC practice among firms in Nigeria compared to traditional accounting cost system

Activity Based Cost System (ABC)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	19	95	0.32	0.10	0.19
Agree	4	4	16	-0.68	0.46	1.85
Disagree	3	2	6	1.68	2.82	8.46
Strongly disagree	2	0	0	-2.68	7.18	0
No idea	1	0	0	-3.68	13.54	0
Total		25	117			10.5

Traditional Accounting Cost System (TCAS)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	3	15	1.3	1.69	5.07
Agree	4	12	48	0.3	0.9	10.80
Disagree	3	2	6	0.7	0.49	0.98
Strongly disagree	2	2	4	1.7	2.89	-5.78
No idea	1	1	1	2.7	7.29	7.29
Total		20	74			29.92

Source: Field Survey (2011).

$$\bar{x} = 4.68 \qquad \bar{x} = 3.70$$
$$S_1^1 = 0.42 \qquad S_1^1 = 1.99$$
$$n = 25 \qquad\quad n = 20$$

$$t = \frac{4.68 - 3.70}{\sqrt{\frac{(25-1)(0.42)+(20-1)(1.49)}{25+20-2}\left(\frac{1}{25}+\frac{1}{20}\right)}}$$

$$= 4.92$$

Decision: Since the t-computed $4.92 \geq$ t-critical value of 1.68, the hypothesis is accepted. This implies that ABC practices among Nigerian firms are low compared to a more popular Traditional Accounting cost system.

H$_2$: The ABC approach of charging cost to products based on activities causality is significantly better than the production volume alternative of traditional accounting cost system.

Table 3. Benefits of ABC as an accounting tool

Activity Based Cost System (ABC)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	21	105	0.08	0.01	0.21
Agree	4	3	12	-0.92	0.85	2.53
Disagree	3	2	6	-1.92	3.68	7.40
Strongly disagree	2	0	0	-2.92	8.53	0.00
No idea	1	0	0	-3.92	15.37	0.00
Total		25	123	-		10.14

Traditional Accounting Cost System (TCAS)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	9	45	0.9	0.81	7.29
Agree	4	6	25	-0.1	0.01	0.06
Disagree	3	3	9	-1.1	1.21	3.63
Strongly disagree	2	2	4	-2.1	4.41	8.82
No idea	1	0	0	-3.1	9.61	0
Total		20	82			19.80

Source: Field Survey (2011)

$$\bar{x} = 4.92 \qquad \bar{x} = 4.10$$
$$S_1^1 = 0.41 \qquad S_1^1 = 0.99$$
$$n = 25 \qquad n = 20$$

$$t = \frac{4.92 - 4.10}{\sqrt{\frac{(25-1)(0.41)+(20-1)(0.99)}{25+20-2}\left(\frac{1}{25}+\frac{1}{20}\right)}}$$

$$= 4.82$$

Decision: Since the t-computed $4.82 \geq$ t-critical value of 1.68, the hypothesis is accepted. This implies that ABC adequately improves efficiency and reduces operational costs better than traditional cost systems.

H3: ABC would help improve efficiency, reduce operational costs and therefore propel industries in achieving the Vision 2020 agenda.

Table 4. Reviewing accounting practices in achieving VISION 2020

Activity Based Cost System (ABC)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	20	100	0.36	0.13	2.59
Agree	4	2	8	0.64	0.41	0.82
Disagree	3	2	6	1.64	2.69	5.38
Strongly disagree	2	1	2	2.64	6.97	6.97
No idea	1	0	0	3.64	13.25	0
Total		25	116			15.76

Traditional Accounting Cost System (TCAS)

Responses	Scores (x)	Frequency (f)	Fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
Strongly agree	5	5	25	1.15	1.32	6.61
Agree	4	10	40	0.15	0.02	0.23
Disagree	3	3	9	0.85	0.72	2.17
Strongly disagree	2	1	2	1.85	3.42	3.42
No idea	1	1	1	2.85	8.12	8.12
Total		20	77			20.55

Source: Field Survey (2011).

$$\bar{x} = 4.64 \qquad \bar{x} = 3.85$$

$$S_1^1 = 0.63 \qquad S_1^1 = 1.03$$
$$n = 25 \qquad n = 20$$

$$t = \frac{4.64 - 3.85}{\sqrt{\frac{(25-1)(0.63)+(20-1)(1.03)}{25+20-2}\left(\frac{1}{25}+\frac{1}{20}\right)}}$$

$$= 4.17$$

Decision: Since the t-computed 4.17 ≥ t-critical value of 1.68, the hypothesis is accepted. This implies that Vision 2020 can be achieved only when we review and revisit modern accounting practices which costs products cheaply and affordable.

4. Summary of Findings, Conclusion and Recommendations

Based on the analyses above, it was found that:

1) There is extreme low adoption of ABC among manufacturing firms in Nigeria. Because of low level of ICT, traditional accounting systems are applied heavily in product costing. Hypothesis one—clearly attests to this statement.

2) ABC improves efficiency, reduces operational costs, and properly cost products better than traditional cost accounting systems.

3) ABC identifies significant activities and assigns overhead costs to activity cost pools in line with the way resources are consumed by the activities.

4) Continual use of traditional cost accounting system is a drawback. Markets are globalised and accounting with traditional costing system in this era of ICT is unwarranted since it will put costs on products and make them less competitive internationally.

Nigeria needs to revolutionize its manufacturing subsector to imbibe the needed advanced manufacturing technology that promotes Activity based costing system where products are properly and cheaply costed with high degree of quality. Dependency on traditional manufacturing practices with the attendant traditional accounting practices will not take us to the promised height of top 20 economies of the world by 2020. Activity Based Costing System holds the key to the future, the time to lay the foundation is now. This in place among our firms will march to the vision 2020 with accomplishments.

Consequently, the study recommended that with an expectation to move the country towards attaining top 20 economies of the world, manufacturing firms in Nigeria should adopt accounting practices based on Activity Based Costing System since it costs products realistically and properly and makes such products stand a chance for global competitiveness. Secondly, ABC is an offshoot of Advanced Manufacturing Technology (AMT). This requires frequent power supply but where it is in short supply it will hinder mass production and ultimately curtail cheapness in product costs. We need to move beyond this in achieving the envisaged vision 2020.

References

Adeniji, A. A. (2004). *An Insight into Management Accounting*. Lagos: Value Analysis Consult Publishers.

Chinweizu, H. (2008). Can Nigeria make it into G20? *Nations Newspaper*, Oct. 30.

Cooper, R. (1990). ABC: A Need, Not an Option. *Accountancy,* September.

Cooper, R., & Kaplan, R. (1999). *The Design of Cost Management Systems* (2nd ed.). Prentice Hall: Upper Saddle River.

Egbunike, P. A. (2009). Imperatives of Advanced manufacturing Technology in Nigeria: Implications for Management Accounting practices. *Journal of Association of National Association of Nigeria, 17*(3).

Godralt, E. M. (1983). Cost Accounting: the number one enemy of productivity. 1983 APICS International Conference proceedings.

Isa, C. R., & Foong, S. U. (2005). Adoption of Advanced Manufacturing Technology (AMT) and Management Accounting Practices: Case Study of Manufacturing Firms from Malaysia. *World Review of Science, Technology and Sustainable Development*, *2*(1), 35–45. http://dx.doi.org/10.1504/WRSTSD.2005.006726

Lucey, T. (2003). *Management Accounting*. Great Britain: Bookpower.

Maher, M. W. (2005). Activity Based Costing and Management. In Weil, R. L., & Maher, M. W. (Eds.), *Handbook of Cost Management,* Hoboken, Nj: John Wiley and Sons.

Martin, J. R., (2002). Activity Based Costing: Management concepts, Techniques and Controversial Issues. Retrieved June 1, 2011, from http://www.maaw.info

Okeke, T. C. (2009). *A Structural Analysis of Nigeria's Gross Domestic Product (GDP): Implication for 2020.* Seminar paper presented to the faculty of management sciences, Nnamdi Azikiwe University in partial fulfillment of the requirements for MKT 791.

Okwoli, A. A. (2010). The Role of Audit Institution in the attaining of the Vision 20:2020 Objection. *Journal of Business and Financial studies, 2*(1), 96–112.

Osisioma, B. C., & Enahoro. (2006). *Activity Based Costing: Journal of Global Accounting*. Department of Accounting Nnamdi Azikiwe University.

Rivero, E. J. R., & Emblemsavg, J. (2007). Activity Based Lifecycle Costing in the Long-Range Planning. *Review of Accounting and Finance*, *6*(4), 371–373. http://dx.doi.org/10.1108/14757700710835041

Sheu, C., Chem, M. H., & Stacy, K. (2003). Integrating ABC and TOC for Better Manufacturing Decision Making. *Journal of Accounting and Finance, 14*(5), 433–435.

Soludo, C. S. (2006). *Can Nigeria be the China of Africa?* Lecture delivered at the Founders Day of the University of Benin, Benin City, Nov. 23.

Copyrights

Implications of HR Outsourcing for HR Practitioners Work Behaviors: Evidence from the Mobile Telecommunication Industry in Ghana

Samuel Howard Quartey[1]

[1] Central Business School, Central University College, Ghana

Correspondence: Samuel Howard Quartey, Department of Human Resource Management, Central Business School, Central University College, P. O. Box 2305, Accra, Ghana. E-mail: squartey@central.edu.gh/ shquartey@gmail.com.

Abstract

This study examined the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry in Ghana. The assumptions of the resource-based theory served as a lens for providing an understanding into the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors. This study was a descriptive study design which sought to investigate the implications of Human Resource outsourcing for Human Resource Practitioners' work behaviors. The mobile telecommunication industry in Ghana was purposively chosen for its socioeconomic relevance to the Ghanaian economy. Twelve Human Resource Practitioners' consisting of Human Resource Officers and Human Resource Managers from the six mobile telecommunication industry were selected to participate in this study. The results from the descriptive analysis indicated that Human Resource Management functions such as recruitment, employee training, employee health and safety management and human resource information system and activities (such as payroll administration and social security) were more likely to be outsourced. The results further showed that Human Resource outsourcing activities had insignificant effect on Human Resource Practitioners' work behaviors such as job satisfaction, organisational commitment and turnover intentions. Therefore Human Resource outsourcing practices do not have significant implications for Human Resource Practitioners work behaviors. Although Human Resource outsourcing has insignificant effects on Human Resource Practitioners work behaviors, it is highly recommended that managements in the mobile telecommunication industry must reduce their overdependence on financial rewards and rather implement job enrichment and enlargement strategies in making their employees committed, satisfied and stay.

Keywords: human resource outsourcing, human resource practitioners, work behaviors, resource-based theory, mobile telecommunication industry, Ghana

1. Introduction

Studies on Human Resource outsourcing in developed and developing countries abound. However, there are few studies on the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors. This study is an attempt to investigate the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the telecommunication industry in a developing country like Ghana. Human Resource outsourcing as an organisational strategy has increased substantially over the last decades. In recent times, organisations' strategic intent is to operationally adjust in order to achieve competitive advantage. As a result, many organisations have resorted to the formulation and implementation of organisation-wide strategies that guarantee competitive advantage. Organisation-wide strategies commonly implemented by these organisations include, re-engineering, downsizing, internationalisation, technological advancement and just-in-time manufacturing practices (Freeman & Cameroon, 1993). One of the most frequent and common if not pervasive organisational strategies sharply implemented by organisations is the Human Resource outsourcing (Cooke, Shen & McBride, 2005). Understanding Human Resource outsourcing as a concept is imperative for its practice. The concept can be understood as a practice of contracting out specific Human Resource functions or activities to a third party with a controlled and flexible relationship (Chaffey, 2003). Since in every contractual relationship there is an exchange of valued resources and rewards, Human Resource outsourcing as a contractual relationship seems to promise a lot of rewards for outsourcing organisations.

Many have argued that organisations outsource their Human Resource Management functions for many reasons. Some scholars suggested that organisations outsource their Human Resource Management functions due to the need to cut cost, focus on core businesses, ensure greater business flexibility, increase speed and use specialized expertise (Cooke, 2005; Ward, 2004). Other researchers have also argued that the practice is vital for a number of strategic and operational reasons such as to increase capacity, improve quality, increase profitability, increase productivity and improve overall financial performance and growth (Bartlett, 2004; Farrell, 2004; Jasper, 2003). These underlining reasons constitute the motivation for Human Resource outsourcing practices in many organisations today. Apart from the reasons for outsourcing Human Resource Management activities, many researchers have argued that organisations are willing to outsource almost every activity that is transactional in nature. Armstrong (2003) indicated that the Human Resource Management functions that are mostly outsourced include; recruitment and selection, performance appraisal and management, reward or compensation management, health and safety, training and management development, change management and other administrative activities. More empirical evidences also exist to suggest that outsourcing HR functions are prevalent. A cross-national study by AMA (1997) suggested that many organisations have outsourced some of their Human Resources Management functions with an increasing trend in Europe, Asia and Africa.

The trend and growth of Human Resource (HR) outsourcing have indeed been greatly explored. Morgan (2001) argued that, in recent times, many multinational companies including the mobile telecommunication companies are well noted for Human Resource outsourcing practices. Due to the proliferation of Human Resource outsourcing practices, Wright (2008) predicted that the HR outsourcing market would be worth over $160 billion by 2012. Since Wright's prediction, there has been an exponential growth in the use of external providers for Human Resource Management functions in almost every industry and country (Hirschman, 2000).

Human Resource outsourcing practices have now become very ubiquitous in the developing and developed economies (Sethi & Sethi, 2011). Consequently, the fastest growing business process outsourcing services in many countries today is the HR outsourcing (Dell, 2004). Nevertheless, Drucker (2002) argued that outsourcing the entire Human Resource administrative functions which ten years ago barely existed is now growing at a rate of 30% a year. The above observations suggest that Human Resource outsourcing in multinational companies is increasing exponentially and even so more rapidly in the telecommunication industry. These observations also support the predictions of Wright (2009) that activity of letting out Human Resource functions perhaps may never cease. Human Resource outsourcing (HRO) activities will continue to be part of business strategy for companies of all sizes, ownership and locations.

Besides the motivations, reasons, trend and growth of HR outsourcing practices as an organisation-wide strategy, few researchers and practitioners have actually questioned its implications for employees, particularly for those whose jobs are mostly at risk. That is, we know a lot about the motivations, reasons, trend and growth of Human Resource outsourcing practices but little do we know about the effect that Human Resource outsourcing practices have on employees in the Human Resource Departments in various telecommunication companies. The repercussions of Human Resource outsourcing are not only limited to unemployment issues (Engardio, 2006; Dobbs, 2004) but may also lead to several attitudinal and behavioral aberrations such as low employee commitment, job dissatisfaction and high employee turnover for employees (Marquez, 2007b; KPMG, 2006; Benson, 2002) which consequently affect the development and maintenance of psychological contract in those organisations (Kennedy, Holt, Ward & Rehg, 2002).

Recent studies have actually focused more on the business case for Human Resource outsourcing than on the human aspects of Human Resource outsourcing. These suggest that Human Resource outsourcing practices have several consequences for Human Resource Professionals (Leverett, Megley & Kamery, 2004). The above justifications are consistent with the suggestion of Purcell (1996) that we lack the research to make definite statements on the effect of Human Resource outsourcing on employees, particularly those whose jobs are outsourced. He further indicated that what has been conspicuously missing in much of the research is the insider's perspective. The voices of employees on how Human Resource outsourcing practices impact their work behaviours in their organisations. This study aims to fill this research gap by investigating the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry in Ghana. In particular, this study seeks to address the following questions:

- Which Human Resource Management functions are more likely to be outsourced by the mobile telecommunication industry?
- What are the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry?

1.1 Theoretical Perspectives on Human Resource Outsourcing

Human Resource outsourcing suggests the practice of obtaining Human Resource Management services from an external vendors or consultancy firms (Brown & Wilson, 2005). Outsourcing Human Resource Management functions must be done within the context of controlled and flexible relationship. Empirical evidence exists to show that a controlled and flexible contractual relationship guarantees cost-effectiveness, quality and speed, otherwise, outsourcing organisations may not benefit from this contractual agreement of "buying" Human Resource Management services from an external party (Linder, 2004; Reed, 2001). It is expected that in any business transaction the "seller" must provide quality and speedy services at a reduced price (cost). Without reduced price, it would be a strategic business decision for outsourcing organisations to rather look inside for Human Resource Management services. In this case, Human Resource Practitioners in organisations are required to take the task of providing quality and speedy Human Resource Management services at a reduced cost. This is consistent with the position of Greer et al. (1999) that Human Resource outsourcing connote letting out Human Resource Management activities that would otherwise be performed in-house. Thus, most of these Human Resource Management services can be provided internally through capacity building (Greer et al., 1999).

Cooke et al. (2005) argued that organisations, practitioners and academics could apply both the resource-based and institutional-based theories when making Human Resource outsourcing decisions. This study focuses on the resource-based theory (RBT) to understanding how Human Resource outsourcing activity can best gain competitive advantage. The resource-based theory (RBT) is often used to shed light on the benefits and implications of HR outsourcing as well as the typologies of HR functions mostly and frequently outsourced (Klass, McClendon & Gainey, 2001). This theory was first propounded by Penrose (1959); then rediscovered by Wernerfelt (1984) and finally developed into a more robust theory by Barney (1991). The basic assumption of this theory is that organisations can gain competitive advantage by concentrating on their core internal resources (abilities, skills, knowledge, capabilities and competencies). These core internal strengths can be properly developed through internal investment than simply saying "where can we buy them". Barney (1991) has argued that organisations can achieve sustained competitive advantage by implementing those strategies that utilize their internal strengths which demand an appropriate level of response to their environmental opportunities while neutralizing their external threats and avoiding internal weaknesses. Arguably, it is strategically insufficient for organisations to outsource their Human Resource functions with the aim of building internal strengths. It is further recognized that responding to the environmental opportunities and threats through Human Resource devolution is cheaper in the short term but costly in the long term. Since the basic tenants of this theory are building capabilities and creating value, it would be extremely difficult for organisations to build internal capabilities and create value by losing its internal strengths, experts and their expertise through Human Resource outsourcing (Kakabadse & Kakabadse, 2002).

This theory argues that investing in strategic training and development can help build internal capabilities and capacities and create internal value rather than buying competencies and capabilities externally. Therefore, the ideology of out letting Human Resource services to external parties obviously may have implications for the corporate citizenship behaviors of employees such as organisational commitment, employee turnover, employee job involvement and job satisfaction. The above theoretical perspectives provide a lens for analyzing the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry.

1.2 Current Development in Human Resource Outsourcing in Ghana

Business Process Outsourcing (BPO) has become a crucial part of service industries worldwide. This rapidly growing organisational strategy has not yet escaped most African countries. Business Process Outsourcing can be conceptualized as the transferability of business processes from an organisation to an external service provider (Duening & Click, 2005). One major Business Process Outsourcing activity that is greatly deployed by organisations is the Human Resource outsourcing. Subsequently, one African country where HR outsourcing is growing rapidly in size and numbers is Ghana (McCormick, 2011; Barnum, 2001). Consequently, Ghana is now considered as the number one destination for Human Resource outsourcing in Sub-Saharan Africa (Kearney, 2009) as well as and the thirteenth in the top outsourcing countries in the world today (Sourcingline, 2011). There are several factors responsible for the booming Human Resource outsourcing practices in Ghana. It is against this background that Hallard (2011) argues that Ghana has recently become an attractive destination for European and American Human Resource outsourcing firms because of its strategic position on the equator by sharing the same time zone with other developed countries. It is believed that this has contributed greatly to the huge foreign direct investments (FDIs) in Ghana.

Currently, Human Resource outsourcing is an evolving service industry in Ghana. However, with more and more mobile telecommunication companies looking to rationalize employees on their payroll sheets, the concept has now become a new buzzword. The country's socio-economic profile and stable democratic nature has drawn huge foreign direct investments including Human Resource outsourcing services (Babou, 2010; Kaufmann et al., 2008). The country is also considered as one of the friendliest countries in the world for foreign investors (Forbes Magazine, 2011). The low corporate tax rate of 15% compared to China (25%) and India (34%) has attracted a lot of foreign firms into the country (KPMG, 2009). The multilingual nature of the country has also increased the influx and growth of multinational and Human Resource outsourcing firms (Parveez, 2009).

Many have also argued that Ghana's huge investments in Information and Communication Technologies (ICTs) and internet infrastructures (Osiakwan & Foster, 2004); increasing access to broadband internet bandwidth (Malcom, 2006); stable electricity power grid and favorable regulatory environment (Ghana Energy Commission, 2005; Obour, 2010) have contributed to the growth of Human Resource outsourcing firms and activities in the country. Obviously, the above factors have attracted a lot of Human Resource outsourcing firms and mobile telecommunication firms into the country. Further, in terms of control and ownership, majority of the mobile telecommunication companies in Ghana are multinational companies from North America, United Kingdom and East Asian countries.

1.3 Outsourced Human Resource Management Functions

Current arguments in Human Resource (HR) outsourcing literature have focused on which Human Resource functions are frequently and commonly outsourced instead of which Human Resource functions must be outsourced by organisations (Finn, 1999). Fortunately, the resource-based theory provides insight on which Human Resource functions must be outsourced. This theory suggests that outsourcing Human Resource functions must be underpinned by strategic reasons. According to this theory, whether the Human Resource functions outsourced are core or non-core, transformational or transactional, there is the need to create value for outsourcing organisations, employees, customers and investors (Ulrich, 1998). Recently, a lot of Human Resource functions are outsourced in many organisations. Several empirical evidence exist to suggests that benefits administration, recruitment, payroll, talent and human capital outsourcing, training and staff development and workforce consulting constitute the major HR functions that are mostly outsourced (Brown & Wilson, 2005).

Mahoney and Brewster (2002) and Eleanna and Papalexandris (2005) argued that many organisations outsource Human Resource activities such as recruitment and selection, training and development, pay and benefits, mergers and outplacement, performance appraisal systems, Human Resource planning, organisational climate and culture management activities. Armstrong (2003) argued that the wide range of different Human Resource functions that come under the heading of Human Resource outsourcing are training, recruitment, health and safety monitoring and advisory, employee welfare and counseling activities, payroll management and administration, specialist legal advisory services and performance management. Hall and Torrington (1998) also argued that training, management development, recruitment, selection, outplacement, health and safety, quality initiatives, job evaluation and reward strategies are more likely to be outsourced.

In addition, Datar (2003) and Maidment (2003) confirmed that the two most common and often outsourced HR activities are the recruitment and selection activities. A study by Hewitt Associates (2007) and Klaas et al. (2001) found that the most often outsourced HR functions are payroll administration, recruitment and selection, training and development, and performance management including the administrative functions of the Human Resource Departments. There are no universally accepted HR functions that must be outsourced. Empirical evidence exists to suggest that the five main Human Resource Management activities that are frequently outsourced include: attracting, developing, appraising, rewarding and retaining activities.

1.4 Implications of HR Outsourcing for HR Practitioners Work Behaviors

Despite the rising popularity of Human Resource outsourcing, the practice has several implications for employees. Literatures have found several implications of Human Resource outsourcing for employees' turnover. While some level of employee turnover is considered appropriate, high levels of employee turnover is simply unacceptable. Beechler and Woodward (2009) observed that the rate of employee turnover is rising due to job cuts as a result of increasing outsourcing activities. Tarique and Schuler (2010) also found that there is a dramatic increase of employee turnover between 30% and 50% among Professionals including Human Resource Professionals. Others have found that employees in the Human Resource Departments readily "jump the fence" for the reason of outsourced job duties. Kiplinger (2009) and Kennedy et al. (2002) found that Human Resource outsourcing creates higher levels of job dissatisfaction which subsequently lead to employees leaving their jobs.

In the same vein, Deery and Kinnie (2004) found that HR outsourcing creates minimal job security as many Human Resource Executives lose their jobs at the end of their employment contracts. Permanent employment contracts for Human Resource Officers have now become "a dream" to be achieved since casual employment contracts have now become acceptable employment standards (Crolius, 2006; Charna, 2004). Many outsourcing organisations also embark on structural changes which result in losing permanent employment opportunities with devastating consequences for their employees. Charara (2004) further argued that the overall economic benefits of Human Resource outsourcing disadvantage employees especially those whose jobs are outsourced. Human Resource outsourcing connotes a unilateral violation of psychological contract which eventually leads to employees feeling betrayed and subsequently leaving their employers (Baruch & Hind, 1999). In this study, turnover intentions are considered as the most consistent predictor of actual turnover (Barak, Levin, Nissly & Lane, 2006).

Human Resource outsourcing has serious implications for employees' job satisfaction. Declining levels of job satisfaction have been reported as another demerit of outsourcing Human Resource functions (Dessler, 2008; Ivancevich, 2007; Reilly & Williams, 2006). The idea and practice of Human Resource outsourcing is positively correlated with job dissatisfaction among employees (Kabst & Giardini, 2008). Several studies have also found that Human Resource outsourcing strategy is often characterized by low morale, job insecurity and low motivation which successively lead to job dissatisfaction (Kennedy et al., 2002; Cooper, 1999; Worrall & Cooper, 1997). Gregory (2005) explains that outsourcing creates culture of fear, anxiety, mistrust and disloyalty which eventually leads to job dissatisfaction. Studies by Cheng and Chan (2008) and Nelson et al. (1990) have found that there are lower levels of job satisfaction among Human Resource Managers and Human Resource Officers due to Human Resource outsourcing.

Empirical evidences exist to suggest that outsourcing Human Resource functions has been noted for its adverse effects on organisational commitment. These evidences also argued that organisational commitment whether affective, normative and calculative can be influenced by the increasing rate of "buying HR services" from an external agent. According to the literature, employees' commitments to their organisations have been partial and inconsistent as a result of losing their job roles (Tsui, Pearce, Porter & Tripoli, 1997) as a result of Human Resource outsourcing. According to Tsui et al. (1997) outsourcing reduces training and development activities which eventually reduce employee organisational commitment. Others have also argued that since outsourcing leads to mistrust between employees and their employers, such climate of untrustworthiness and insecurity create lower levels of organisational commitment (Lepak & Snell, 1999; Bigley & Pearce, 1998). Obviously, Human Resource outsourcing adversely affect the Human Resource Practitioners' commitments to their employer organisations (Lieven & De-Corte, 2008).

2. Methodology

2.1 Sample and Data Collection

The mobile telecommunication industry was the subject of the data collection. This industry is one of the most important industrial sectors of the Ghanaian economy. The industry was chosen for several reasons. The socioeconomic importance of the mobile telecommunication industry cannot be underestimated. The industry constitutes one of the fastest growing industries in the Ghanaian economy. The industry has contributed so much to the socioeconomic development of Ghana by way of employment, taxes and levies as well as foreign direct investments (GSS Annual Reports, 2010). State Industry Survey conducted by Ghana Statistical Service (GSS) reported that the annual taxes and levies of the industry was 10% (i.e., $299 million dollars) of government revenue (GSS Annual Reports, 2010). The same survey showed that the industry employs 1.5 million workers and contributes 2% to GDP and accounts for 7% of national investments. Another State Industry Survey by the National Communications Authority (2012) indicates that the level of penetration for the industry was about seventy-four percent (74%). The mobile telecommunication industry serves approximately over 23 million customers across the whole country.

Recently, this industry is characterised by intense competition which requires huge internal capabilities through sound Human Resource Management practices. However, HR outsourcing as an organisation-wide strategy in this industry is largely under-researched in terms of its implications for Human Resource Professionals work behaviors. This study was a descriptive study which aimed at investigating the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry. The study purposively selected the six major companies from the mobile telecommunication industry namely: Company A, Company B, Company C, Company D, Company E and Company F. These companies were invited to participate in the study and they agreed. The sample element consisted of employees in the Human

Resource Departments in the mobile telecommunication industry in Ghana. Thus, randomly sampling technique was used to sample two (2) Human Resource Practitioners from each Human Resource Department in the mobile telecommunication industry. Categorically, they were Human Resource Officers and Human Resource Managers. This sampling technique was chosen because it offered each participant an equal chance of being selected for the study. The study used questionnaire as the data collection instrument. Therefore, questionnaires were distributed by personal visits to all the mobile telecommunication companies and their Human Resource Departments. Since the study concerns only employees in the Human Resource Departments, Human Resource Officers and Human Resource Managers were given the questionnaire to complete. Twelve questionnaires were returned within one month.

The data was analysed using descriptive statistics. The descriptive analysis provided the sample characteristics consisting of respondents' gender, age, education, tenure and professional category. The results showed that, 50% of the respondents were male while 50% were female. The average age of the respondents was 37.24 years and they have been working for their companies for an average of 3 years. Of the respondents, 33.3% were first degree holders while 58.3% had postgraduate degrees. Regarding their professional category, 50% of respondents were HR Officers while 50% were HR Managers.

2.2 Measures

Organisational commitment was measured using the organisational commitment scale developed by Porter, Steers, Mowday and Boulian (1974). Although this scale was criticized by O'Reilly and Chatman (1986) due to the overlap of some of the items, the selected items were properly edited and few items were removed to help meet the research objectives. The scale drew upon Angle and Perry's (1981) classification of commitment into two (2) namely the affective and calculative commitments. The affective commitment refers to employees' emotional attachment to their organisations whiles the calculative commitment refers to employees' economic analysis of their contributions as against the inducement given by their organisations (Gainey, 2003). Respondents' organisational commitment was measured using an 11 item scale (α 0.75). Using a five point scale (1-Strongly Disagree, 5-Strongly Agree) respondents rated their commitment to their organisations.

Turnover intentions were measured using Lyon's propensity to leave scale designed by Lyons (1981). This scale was thoroughly edited and few items removed. Respondents' intention to quit was measured using a 10 item scale (α 0.69). Using a five point scale (1-Strongly Disagree, 5-Strongly Agree) respondents rated their likelihood of staying at their current jobs or quitting their current jobs. Job satisfaction was also measured using the Macdonald and Macintyre's (1997) generic job satisfaction scale. Respondents' job satisfaction was measured using an 11 item scale (α 0.82). Using a five point scale (1-Strongly Disagree, 5-Strongly Agree) respondents rated their satisfaction with their current jobs. These scales were used because their reliability coefficients were high, with a reliability of 0.75 for organisational commitment, 0.69 for intention to quit and 0.82 for job satisfaction.

Further, respondents were asked to indicate whether their companies have outsourced any of the following HR functions: recruitment, selection, employee training, management development, employee health and safety and human resource information systems (including payroll administration and social security). According to the literature, these constitute some of the Human Resource Management activities that are more likely to be outsourced (Armstrong, 2003; Brown & Wilson, 2005).

2.3 Data Analysis

The response rate was 100% and a special attention was paid to the validity and reliability of the measures. The validity was controlled by examining the content and construct validity of the items and all results were satisfactory. With the help of the Statistical Package for Social Sciences (Version 17), descriptive statistics was used in analysing the data. Frequencies and percentages were helpful in presenting respondents personal characteristics such as gender, age, education, tenure and professional category. Mean values and standard deviations were also used for interpreting respondents' job satisfaction, turnover intentions and organisational commitment as a result of HR outsourcing. In the following sections, the results obtained in this study are provided in tables. Reliability in this study was tested using Cronbach's alpha. This method was chosen because it is the most commonly accepted method of assessing the internal consistency of a multi-item measurement scale and can help overcome problems that may arise from using other methods such as split halves and test-retest methods (Dillon, Madden & Firtle, 1990).

3. Results

3.1 Human Resource Management Functions Outsourced

The results for Human Resource Management functions that are more likely to be outsourced by the mobile telecommunication industry are presented below in Table 1.

Table 1. Outsourced human resource management functions

HR functions	Frequency	Percentage (%)
Recruitment	5	29.4
Selection	2	11.9
Employee training	3	17.6
Management development	1	5.9
Employee health and safety	3	17.6
HR information system	3	17.6
Total	17	100

Source: Field data (2012).

As shown in Table 1, the results show that 29.4% of the respondents indicated that recruitment activities are more likely to be outsourced. The respondents further agreed that employee health and safety management (17.6%), employee training (17.6%) and human resource information system (17.6%) are also more likely to be outsourced by the mobile telecommunication industry.

3.2 Implications of Human Resource Outsourcing for Human Resource Practitioners Work Behaviors

The results regarding the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors are presented in Table 2, 3 and 4 below. These results provide the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors such as organisational commitment, job satisfaction and turnover intentions.

Table 2. Mean and standard deviation regarding organisational commitment

Responses	N	Mean	SD
Proud to be part of the company	12	3.58	1.38
Uphold and defend the vision and objectives	12	4.17	.39
Do anything to stay in the company	12	3.17	1.19
Feel loyal to the company	12	1.83	1.11
Good company to work for	12	3.75	.75
Good place to work	12	3.83	.72
Proud to belong to my department	12	4.25	.45
Morale in the company is high	12	3.00	1.28
Not much to gain by staying here	11	1.91	1.04
Never considered moving to another company	12	2.67	1.15
Glad to work in this company	12	3.83	.83

Source: Field data (2012).

As can be seen in Table 2, the results show that Human Resource outsourcing has an implication for Human Resource Practitioners' organisational commitment. According to the results, there is a significant difference between the mean scores and standard deviations for almost all the items relating to Human Resource Practitioners'

organisational commitment. The results further revealed that there is a significant difference between the mean score and standard deviation for employees being proud to belong to their companies (M=3.17, SD=1.19). Significance difference also exist between the mean score and standard deviation for employees who were proud to belong to their various departments (M=3.58, SD=1.38). These results imply that Human Resource outsourcing does not have significant impact on Human Resource Practitioners' organisational commitment.

Table 3. Mean and standard deviation regarding job satisfaction

Responses	N	Mean	SD
I enjoy my work all the time	12	3.67	1.07
My job is interesting and challenging	12	3.8333	.94
Satisfied with my job	12	3.58	1.24
I am noticed when I do good job	12	3.42	1.08
Understand my job expectations	12	4.00	.74
Feel my colleagues treat me with respect	12	4.08	.67
Feel my views count in my department	12	4.0	.69
Job uses my skills and knowledge	12	3.92	.90
Doing a worthwhile job	12	3.75	.87
I feeling accomplished	12	3.83	1.03
Supervisor gives me help	11	3.73	1.10

Source: Field data (2012).

Table 3 shows the results regarding the implications of HR outsourcing for HR Practitioners' job satisfaction. As can be seen in Table 3, there is a significant difference between the mean scores and the standard deviations for almost all the items for job satisfaction. The results revealed that there is a significant difference between the mean score and standard deviation for employees being satisfied with their jobs (M=3.58, SD=1.24). There is also a significance difference between the mean score and standard deviation for employees who feel their jobs use their skills and knowledge (M=3.92, SD=0.90). This means that Human Resource outsourcing does not have significant impact on Human Resource Practitioners' job satisfaction.

Table 4. Mean and standard deviation regarding turnover intentions

Responses	N	Mean	SD
Want to quit my current job	12	3.17	1.34
My job is not secure	12	3.00	1.21
Happy about the nature of my work	12	3.00	1.21
Happy about my salary	12	3.00	1.28
Stressed with my work	11	3.09	1.14
Working hours unsatisfactory	12	3.00	1.35
Working environment is unsatisfactory	12	3.17	1.27
Internal pressures are causing me to leave	12	2.83	1.27
I Feel redundant in my Department	12	2.17	1.11
I cannot meet my expectations	12	2.33	1.44

Source: Field data (2012).

Table 4 shows the results regarding the implications of Human Resource outsourcing for Human Resource Practitioners' turnover intentions. As can be seen in Table 4, there is a significant difference between the mean

scores and the standard deviations for almost all the items for turnover intentions. The results indicated that there is a significant difference between the mean score and standard deviation for employees who want to quit their jobs (M=3.17, SD=1.34). A significance difference also exist between the mean score and standard deviation for employees who also feel redundant in their departments as a result of HR outsourcing activities (M=2.17, SD=1.12). This suggests that Human Resource outsourcing does not have significant impact on Human Resource Practitioners' turnover intentions.

4. Discussion

This study investigated the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors in the mobile telecommunication industry in Ghana. The study also tried to identify the Human Resource Management functions that are more likely to be outsourced and the implications of Human Resource outsourcing for Human Resource Practitioners' work behaviors such as organisational commitment, job satisfaction and turnover intentions. According to the findings, firms in the mobile telecommunication industry are more likely to outsource their recruitment activities as well as employee training, employee health and safety management and human resource information system activities. This finding is consistent with the findings from previous studies like Armstrong (2003), Datar (2003), Maidment (2003), Vernon et al. (2000), and Hall and Torrington (1998) who had similar findings to suggest that recruitment activities, employee training, employee health and safety and human resource information system activities (such as payroll administration and social security) are more likely to be outsourced. This finding is likely to suggest that many mobile telecommunication companies consider these Human Resource Management activities as time consuming and expensive to provide internally. Possible explanation may also be that these companies may want to outsource these Human Resource Management functions in order to concentrate on core businesses and thus depend on external expertise for these services (Cooke et al., 2005).

Although unpredictable, the findings also suggested that Human Resource outsourcing activities do not have significant impact on Human Resource Practitioners' organisational commitment. This finding is quiet surprising and inconsistent with previous findings from (De-Corte & Lieven, 2008; Lepak & Snell, 1999; Bigley & Pearce, 1998) who highlighted lower levels of organisational commitment among employees as a result of Human Resource outsourcing. The findings suggested that Human Resource Practitioners are still committed to their current employers even though some of their core jobs are being outsourced. However, it is possible that Human Resource Practitioners exhibit partial and inconsistent commitment to their employer organisations in order to keep their jobs (Tsui, Pearce, Porter & Tripoli, 1997). Outsourcing alone may not constitute the ground for lower levels of organisational commitment among employees. Probably, the increasing unemployment situation among graduates may explain why employees are still committed to their employers despite the perceived implications of Human Resource outsourcing.

Contrary to the expectations, this study found that outsourcing Human Resource Management activities does not lead to job dissatisfaction among HR practitioners. The present finding suggests that Human Resource outsourcing does not have significant impact on Human Resource Practitioners' job satisfaction as many employees are still happy about their working conditions and consequently satisfied with their jobs. However, this finding is inconsistent with the previous findings that low levels of job satisfaction exist among employees as a result of Human Resource outsourcing activities (Kabst & Giardini, 2008; Dessler, 2008; Ivancevich, 2007; Reilly & Williams, 2006). This finding provides insight into thinking that perhaps these mobile telecommunication companies rely heavily on extrinsic motivational strategies than intrinsic motivation to make employees satisfied. Since unemployment is increasingly exponentially in many economies, it is possible also that employees' would want to keep their jobs by exhibiting positive feelings toward their employers and jobs.

The study further found that Human Resource outsourcing activities do not have significant impact on Human Resource Practitioners' turnover intentions. This finding demonstrates that outsourcing Human Resource Management activities does not lead to employees' quitting their jobs.

According to this finding, many Human Resource Practitioners' are still interested in working with their current employers despite the increasing rate of Human Resource outsourcing in their firms. This finding is also inconsistent with the findings from the previous studies that high levels of turnover intentions are associated with Human Resource outsourcing (Beechler & Woodward, 2009; Tarique & Schuler, 2010; Charara, 2004; Dobbs, 2004; Deery & Kinnie, 2004; Kiplinger, 2009; Kennedy et al., 2002; Nelson et al., 1995). However, due to the increasing global unemployment, graduates are not willing to lose their jobs just because some of their roles are outsourced. More importantly, it is imperative to note however that these findings are not context-free. The findings from this study need to be considered in the Ghanaian context. It is believed that national context with

its cultural values and beliefs may moderate the effect of Human Resource outsourcing activities on employees' attitudinal and behavioral outcomes (Beauregard & Henry, 2009).

Particularly, Spector et al. (2007) argued that national cultures can affect the intensity of the relationships between organisational practices and their effects on job satisfaction, organisational commitment and turnover intentions. As a collectivist culture, Ghanaians are more inclined toward building a sense of belonging which may not permit unnecessary intentions to quit among employees. These cultural values and beliefs together with graduates' unemployment may reinforce some level of organisational citizenship behaviors. Therefore, these findings must be considered in the context of the current global economic crisis. Further, the unemployment among graduates makes employees willing to accept any employment conditions established by employers. In addition, it is observed that high unemployment rates may discourage bad organisational citizenship behaviors such as high levels of turnover intentions, low levels of organisational commitment and job satisfaction among employees. Consequently, the exponential growth of Human Resource outsourcing may not necessarily lead to negative organisational citizenship behaviors among Human Resource Practitioners.

5. Conclusion

This study has made several contributions to the current literature about the resource-based theory (RBT) of the firm as well as the Human Resource outsourcing. The resource-based theory provided a theoretical lens for examining the implications of Human Resource outsourcing for Human Resource Practitioners work behaviors. This was vital if a better understanding was to be developed about the implications of Human Resource outsourcing for Human Resource Practitioners. This study has contributed to closing the literature gap in Human Resource outsourcing in Ghana. The study has provided enough evidence that recruitment, employee training, employee health and safety management and human resource information system activities are more likely to be outsourced by mobile telecommunication firms. It was also evident that Human Resource Practitioners job satisfaction, organisational commitment and turnover intentions are not greatly influenced by Human Resource outsourcing activities alone. The study explains that the global economic crisis with its increasing unemployment and financial crises as well as the differences in national cultures can moderate the impact of Human Resource outsourcing activities for Human Resource Practitioners work behaviors.

At the practical level, this study has several managerial implications since the findings provide understanding for those management decisions required to support and facilitate positive organisational behaviors. First, although Human Resource outsourcing activities did not have any significant impact on Human Resource Practitioners work behaviors, management teams must commit to reinforce positive employee work behaviors through both intrinsic and extrinsic motivational factors. Second, firms in the mobile telecommunication industry must focus on internal investment on their Human Resources. This is because commitment to invest in strategic training and development build sufficient internal strengths for distinctive and sustained competitive advantage. This is because internal skills, knowledge, abilities and capabilities when built can create value which underpins the assumptions of resource-based theory.

Like every research, this study has its own limitations. One obvious limitation of a descriptive survey methodology is that the results are based on self-reports which may bias the findings. Qualitative research methodologies could have provided a better understanding of the results since quantitative data alone may provide limited understanding of employee work behaviors. Finally, the sample size was small and moreover this research is industry-specific and country-specific which limit the generalisation of the results to other industries and countries. These limitations can be addressed in future studies. It would be interesting for future research to use qualitative research methodologies to provide better understanding of Human Resource outsourcing and employee work behaviors. This would help elicit in-depth information about Human Resource outsourcing and Human Resource Practitioners work behaviors from the target population. Future line of research could also conduct a longitudinal study that examines the changes in employee commitment, job satisfaction and intention to quit as a result of Human Resource outsourcing over a period of time. Finally, future researchers might investigate how national cultures and national economic situations mediate the impact of Human Resource outsourcing on Human Resource Practitioners' work behaviors.

References

American Management Association. (1997). Outsourcing: The AMA survey. *AMA Research Report*. New York: AMA.

Angle, H. L., & Perry, J. L. (1981). An empirical assessment of organizational commitment and organizational effectiveness. *Administrative Science Quarterly, 26*(1), 1–14. http://dx.doi.org/10.2307/2392596

Armstrong, J. S. (2001). *Principles of forecasting: A handbook for researchers and practitioners*. United States of America: Kluwer Academic Publishers. http://dx.doi.org/10.1007/978-0-306-47630-3

Armstrong, M. (2003). *A handbook of human resource management practices* (9th ed.). London: Kogan Page.

Armstrong, M. (2006). *A hand book of human resource management practices* (10th ed.). London: Kogan Page.

Kearney, A. T. (2009). *The shifting geography of offshoring*. Chicago, IL: AT Kearney Inc.

Babou, C. A. (2010). Decolonization or national liberation: Debating the end of British colonial rule in Africa. *The ANNALS of the American Academy of Political and Social Science, 632*(1), 41–54. http://dx.doi.org/10.1177/0002716210378647

Barak, M. E., Levin, A., Nissly, J. A., & Lane, C. J. (2006). Why do they leave? Modeling child welfare workers turnover intentions. *Children and Youth Services Review, 28*, 548–577. http://dx.doi.org/10.1016/j.childyouth.2005.06.003

Barney, J. B. (1991b). The resource-based view of a strategy: Origins, implications and prospects. *Journal of Management, 17*, 197–211. http://dx.doi.org/10.1177/014920639101700107

Barnum, S. N. (2001). Network security-guarding against the digital age bad guys. *ABN Ambro Investment Analysis Report.*

Bartlett, B. (2004). How outsourcing creates jobs for American. *National Center for Policy Analysis.*

Baruch, Y., & Hind, R. (1999). Perpetual motion in organizations: Effective management and the impact of the new psychological contracts on survivor syndrome. *European Journal of Work and Organizational Psychology, 8*(2), 295–306. http://dx.doi.org/10.1080/135943299398375

Beauregard, T. A., & Henry, L. C. (2009). Making the link between work-life balance practices and organizational performance. *Human Resource Management Review, 19*, 9–22. http://dx.doi.org/10.1016/j.hrmr.2008.09.001

Beechler, S., & Woodward, I. C. (2009). The global war for talent. *Journal of International Management, 15*, 273–285. http://dx.doi.org/10.1016/j.intman.2009.01.002

Benson, J., & Littler, C. (2002). Outsourcing and workforce reductions: an empirical study of Australian organizations. *Asia Pacific Business Review*, *8*(3), 16–30. http://dx.doi.org/10.1080/713999154

Brown, D., & Wilson, S. (2005). *The black book of outsourcing: How to manage the changes, challenges and opportunities*. New York: John Wiley & Sons, Inc.

Chaffey, D. (2003). *E-business and e-commerce management: strategy, implementation and practice*. Harlow: Financial Times Prentice Hall.

Charara, J. (2004). Impact of outsourcing lasts years. *People Management, 2*(4), 15–18.

Cheng, G. H. L., & Chan, D. K. S. (2008). Who suffers more from job insecurity? A Meta-Analytic review. *Applied Psychology: An International Review, 57*(2), 272–303. http://dx.doi.org/10.1111/j.1464-0597.2007.00312.x

Cook, J., & Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology, 53*, 39–52. http://dx.doi.org/10.1111/j.2044-8325.1980.tb00005.x

Cook, M. F. (1999). *Outsourcing human resource function: Strategies for providing enhanced HR services at lower cost*. New York: AMACOM.

Cooke, F. L., Shen, J., & Mcbride, A. (2005). Outsourcing human resources as a competitive strategy? A literature review and an assessment of implications. *Human Resource Management, 44*(4), 413–432. http://dx.doi.org/10.1002/hrm.20082

Cooper-Harkim, A., & Viswesvaran, C. (2005). The construct of work commitment: Testing an integrative framework. *Psychological Bulletin, 131*(2), 241–259. http://dx.doi.org/10.1037/0033-2909.131.2.241

Crane, D. (1999). Renewed focus on financial performance. *Outsourcing Journal*. Retrieved from http://www.Outsourcing-Journal.com/issues/

Crolius, R. W. (2006). America's workforce crisis. *American Ceramic Society, 2*, 8.

Datar, R. (2003). BPO adoption in Asia Pacific: A demand-side perspective. *Gartner Research.*

Deery, S., & Kinnie, N. (2004). Introduction: The nature and management of call centre work. In Deery, S., & Kinnie, N. (Eds.), *Call centres and human resource management: A Cross National Perspective* (pp. 1–22). Basingstoke: Palgrave Macmillan.

Dell, D. (2004). *HR outsourcing: Benefits, challenges and trends*. New York: The Conference Board.

Dessler, G. (2008). *Human resource management* (25th ed.). Singapore: Pearson Prentice Hall.

Dobbs, L., & Wadhwani, S. (2004). Is outsourcing killing jobs? *Optimize,* 19–21.

Drucker, P. F. (2002). *Managing in the next society*. New York: St. Martin's Press.

Duening, T. N., & Click, R. L. (2005). Essentials of business process outsourcing. Retrieved May 13, 2011, from http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471655775.html http://dx.doi.org/10.1002/9781118386279

Dillon, R. W., Madden, J. T., & Firtle, H. N. (1993). *Essentials of Marketing Research*. Irwin Homewood, Boston.

Eleanna, G., & Papalexandris, N. (2005). Outsourcing of human resource management service in Greece. *International Journal of Manpower, 26*(94), 382–396.

Engardio, P. (2006). The future of outsourcing: How it's transforming whole industries and changing the way we work. *Business Week*, *39*(69), 50–58.

Farrell, D. (2004). A richer future for India. *The MeKinsey Quarterly*. Retrieved from http://www.mckinseyquarterly.com/article_page.aspx?ar=1440&L2+7&L 3=10&srid=6&g

Finn, W. (1999). The ins and outs of human resources. *Director*, *53*, 66–67.

Forbes Magazine. (2011). *The world's friendliest countries.* Retrieved July 10, 2011, from http://blogs.forbes.com/bethgreenfield/2011/04/08/the-worlds-friendliest-countries/

Freeman, S. J., & Cameron, K. S. (1993). Organizational downsizing: A convergence and reorientation framework. *Organization Science*, *4*, 10–29. http://dx.doi.org/10.1287/orsc.4.1.10

Gainey, T. W. (2003). The outsourcing of training and development: Factors impacting client satisfaction. *Journal of Management, 29*(2), 207–229. http://dx.doi.org/10.1177/014920630302900205

Ghana Energy Commission. (2005). *Strategic national energy plan (2005-2025)*. Retrieved June 26, 2010, from http://www.energycom.gov.gh

Ghana Statistical Service. (2010). Ghana's economic performance (2009) in figure. *Government Report: Accra: Ghana Statistical Service.*

Ghana Telecommunications Report. (2012). Retrieved from http://www.marketresearch.com/Business-Monitor-International-v304/Ghana-Telecommunications-Q4-657 4272/

Greer, C., & Youngblood, S. A. (1999). *Human resource management outsourcing: make or buy decision.* Department of Management, College of Business Administration, University of Texas at Arlington.

Haines, R. (2009). Organizational outsourcing and the implications for human resource management. In Collings, D. G., & Wood, G. (Eds.), *Human resource management: A critical approach*. Oxon: Routledge.

Hall, L., & Torrington, D. (1998). The human resource function: The dynamics of change and development.

Hallard, K. (2011). *The advent of nearsourcing.* Retrieved July 11, 2011, from http://www.outsourcingyearbook.com/wpcontent/uploads/./oy2011_04_13.pdf

Hewitt Associates. (2007). *LLC SWOT Analysis*. 1–8.

Hirshman, B., Cords, R., & Hunter, B. (2005). Strategic direction. *Airline Business, 21*(10), 59. Retrieved July 11, 2011, from http://www.bpovoice.com/profiles/blogs/is-ghana-the-next-bpo-hotspot

Human Resource Outsourcing Survey Report. (2004, July). 12–34.

Ivancevich, J. M. (2007). *Human resource management* (2nd ed.). New York: McGraw-Hill.

Jasper, W. (2003). Your job may be next. *The New American*, *19*(5), 28–29.

Kabst, R., & Giardini, A. (2008). Recruitment process outsourcing (translated title): Eine Szenariostudie zur Akzeptanz von Outsourcing-Maßnahmen in Der Personalauswahl [Electronic Version]. *Zeitschrift für Personal for schung*, *22*(4), 370–388.

Kakabadse, N., & Kakabadse, A. (2002). Trends in outsourcing: Contrasting USA and Europe. *European Management Journal, 20*(2), 189–198. http://dx.doi.org/10.1016/S0263-2373 (02)00029-4

Karen, B., & Gregory, G. (2004). Sourcing strategies for the transnational organization. *Journal of International Human Resource Management*, *8*(4).

Kaufmann, D., Kraay, A., & Mastruzz, M. (2008). *Governance matters VI: Aggregate and individual governance indicators: 1996–2006*. Retrieved July 10, 2011, from http://info.worldbank.org/governance/wgi/pdf/govmatters6.pdf http://dx.doi.org/10.1596/1813-9450-4654

Kennedy, J. F., Holt, D. T., Ward, A. W., & Rehg, M. T. (2002). The Influence of outsourcing on job satisfaction and turnover intentions of technical managers. *Human Resource Planning, 25*(1), 23–31

Kiplinger's Personal Finance. (2009). *On the job and feeling guilty*, September, 5–8.

Klaas, B. S., McClendon, J. A., & Gainey, T. W. (2001). HR outsourcing and its impact: The role of transaction costs. *Personnel Psychology, 52*, 113–136. http://dx.doi.org/10.1111/j.1744-6570.1999.tb01816.x

KPMG International. (2006). *Asian outsourcing: The next wave*. Australia: The Economist Intelligence Unit Ltd.

Lepak, D. P., & Snell, S. A. (1999). Virtual HR: Strategic human resources in the 21 century. *Human Resource Management Review, 24*, 31–48.

Leverett, H. M., Megley, J. E., & Kamery, R. H. (2004). Outsourcing evolution and effect on the U.S. economy. *Proceeding of the Academy of Legal, Ethical and Regulatory Issues, 8*(2), 175–180.

Lievens, F., & De Corte, W. (2008). Development and test of a model of external organizational commitment in human resources outsourcing. *Human Resource Management*, *47*(3), 559–579. http://dx.doi.org/10.1002/hrm.20232

Linder, J. C. (2004). Transformational outsourcing. *Sloan Management Review*, 45(2), 52–58.

Lyons, T. F. (1981). Propensity to leave scale of 1971. In Cook, J. D., Hepworth, S. J., Wall, T. D., & Warr, P. B. (Eds), *Experience of work: Acompendium and review of 249 measures and their use*. New York: Academic Press.

Macdonald, S., & Macintyre, P. (1997). The generic job satisfaction scale: Scale development and its correlates. *Employee Assistance Quarterly, 13*(2). http://dx.doi.org/10.1300/J022v13n02_01

Mahoney, C., & Brewster, C. (2002). Outsourcing the human resource function in Europe. *Journal of Professional Human Resource Management, 27*, 23–28.

Maidment, F. H. (2003). *Human resources* (13th ed.). The United States of America: McGraw Hill/Dushkin.

Malcolm, M. (2005). Telstra dives as $10bn plans unveiled. *The Age*, Retrieved 30 April 2011.

Marquez, J. (2007b). Not in for outsourcing. *Workforce Management*, *86*(3), 1–5.

McCormick, T. (2011). Outsourcing onshore or offshore? *Accountancy Ireland*, *43*(2), 74–82.

National Communication Authority. (2012). *Communications infrastructure (communication tower) Licence*. Retrieved from http://www.nca.org.gh/downloads/TOWER_LICENCE.pdf

Nelson, D. L., Quick, J. C., Hitt, M. A., & Mosel, D. (1990). Politics, lack of career progress and work-home conflict: Stress and strain for working women. *Sex roles*, *23*(3/4), 169–185. http://dx.doi.org/10.1007/BF00289864

O'Reilly, C., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification and internalization on prosocial behavior. *Journal of Applied Psychology, 34*, 487–516.

Obour, S. K. (2010). *Ghana's electricity palaver*. Retrieved June 26, 2011, from http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=181-688

Osiakwan, E., & Foster, W. (2004). *Negotiating the Net: the Case of Ghana*. Retrieved June 27, 2011, from http://www.cidcm.umd.edu/ntn/

Parveez, N. (2009). *Is Ghana the next BPO hotspot?* Retrieved July 11, 2011, from http://www.bpovoice.com/profiles/blogs/is-ghana-the-next-bpo-hotspot

Penrose, E. (1959). *The theory of the growth of the firm*. New York: Wiley.

Porter, L., Steers, R., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction and turnover among psychiatric technicians. *Journal of Applied Psychology, 59*, 603–609. http://dx.doi.org/10.1037/h0037335

Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York: Free Press.

Purcell, J. (1996). Contingent workers and human resource strategy: Rediscovering the core periphery dimension. *Journal of Professional Human Resource Management*, 16–23.

Reed, A. (2001). *Innovation in human resource management: Tooling up for the talent wars*. London: CIPD house.

Reilly, P., & Williams, T. (2006). *Strategic HR: Building the capability to deliver*. Great Britain: Gower Publishing Limited.

Sethi, M., & Sethi, D. (2011). Human resource outsourcing: Analysis based on literature review. *International Journal of Innovation, Management and Technology, 2*(2), 127–135.

Sourcing line. (2011). *Global sourcing and outsourcing locations: Ghana.* Retrieved July 10, 2011, from http://www.sourcingline.com/outsourcing-location/ghana

Spector et al. (2007). Cross-national differences in relationships of work demands, job satisfaction and turnover intentions with work-family conflict. *Personnel Psychology*, *60*, 805–835. http://dx.doi.org/10.1111/j.1744-6570.2007.00092.x

Tarique, I., & Schuler, R. S. (2010). Global talent management: Literature review and integrative framework, and suggestions for further research. *Journal of World Business, 45*(2), 122–133. http://dx.doi.org/10.1016/j.jwb.2009.09.019

Tsui, A. S., Pearce, J. L., Porter, L. W., & Tripoli, A. M. (1997). Alternative approaches to the employee-organization relationship: Does investment in employees pay off? *Academy of Management Journal*, *40*, 1089–1121. http://dx.doi.org/10.2307/256928

Ulrich, D. (1998). Measuring human resources: An overview of practice and a prescription for results. *Human Resource Management, 36*, 303–320. http://dx.doi.org/10.1002/(SICI)1099-050X(199723)36:3<303::AID-HRM3>3.0.CO;2-#

Ward, S. (2004). Outsourcing research: What is your position? *Business Information Review*, *21*. SAGE Publication.

Wernerfelt, B. (1984). A Resource-based view of the firm. *Strategic Management Journal*, 5. http://dx.doi.org/10.1002/smj.4250050207

Worall, L., & Cooper, C. (1997). *Quality of working life: 1997 survey of manager's changing experiences*. Institute of Management, London.

Wright, C. (2008). Reinventing human resource management: Business partners, internal consultants and the limits to professionalization. *Human Relations*, *61*(8), 1063–1086. http://dx.doi.org/10.1177/0018726708094860

Copyrights

The Effects of Public Enterprise Management Evaluation on Business Performance: Focusing on the Incheon International Airport Corporation

Yung-Kil Lee[1], Ki-Woong Kim[1] & Jin-Woo, Park[1]

[1] Department of Business Administration, Korea Aerospace University, South Korea

Correspondence: Jin-Woo, Park, Associate Professor, Department of Business Administration, Korea Aerospace University 200-1, Hwajeon-dong, Deokyang-gu, Goyang-si, Gyeonggi-do, 421-791, South Korea. Tel: 82-2-300-0354. E-mail: jwpark@kau.ac.kr

Abstract

This paper seeks to investigate the cause-effect relationships between public enterprise management evaluation and the improvement of business performance. For this study, a research model was proposed by applying the principal-agent theory and path analysis of the structural equation model with maximum likelihood estimator was applied to data collected from 312 employees at the Incheon International Airport Corporation (IIAC). The results revealed that the influential factors suggested in the current study explained 68.03% of the business performance, which represents a high explanatory value. The influential factors, mediation variable, and moderation variable that are indicated in this study predicted the cause-effect relationships between the business performance of the airport enterprise and other variables. This study provides insights for a new possibility of observation from the perspective of an airport enterprise and public enterprise management evaluation.

Keywords: airport, business performance, evaluation, moderator, mediator

1. Introduction

The Incheon International Airport Corporation (IIAC) has been growing at a remarkable pace, sustaining strong business practices, and helping Korea further its development. By the year 2017, over one million passengers and ten million ton will be transported through IIAC. It is believed that IIAC's successful achievements and its potential will provide opportunities to extend its businesses and increase the amount of employment in the near future. Therefore, there is a need to better understand the improvement of IIAC's business performance as a public airport enterprise.

The purpose of this study is to examine the cause-effect relationships between public enterprise management evaluation and airport enterprise business performance and to provide implications and insights for the growth and development of the airport enterprise. Previous studies on public enterprise management evaluation have mostly used secondary data to investigate evaluation systems from the evaluator's perspective. However, less attention has been given to the need for research from the performer's perspective, which comes from current employees. Therefore, it is important to investigate the cause-effect relationship between public enterprise management evaluation and business performance by conducting an empirical study using survey data collected from employees at the airport enterprise.

This study proposes to answer four research questions as follows. First, what theory does this study intend to extend? Second, is the mediation effect of public enterprise management evaluation statistically significant? Third, is the moderation effect of the incentives resulting from public enterprise management evaluation statistically significant for the improvement of airport enterprise business performance? Fourth, how well do influential factors for airport enterprise business performance explain business performance? In order to answer these questions, the principal-agent theory as a conceptual model is discussed next.

2. Conceptual Background

The proposed conceptual model is presented in Figure 1. The conceptual model considers four factors. Two internal factors—leadership and system—and two external factors—public enterprise management evaluation

and incentive—are proposed. The proposed conceptual model presents leadership as an internal factor for business performance and performance management system as an external factor. In addition, the conceptual model presents public enterprise business management evaluation as a mediator and incentives as a moderator.

The conceptual model is based on a review of previous research that looked at the principal-agent theory, public enterprise management evaluation, leadership, performance management systems, public enterprise management evaluation, incentives, and business performance. The following review presents an overview of the related literature that led the present authors to the development of the conceptual model.
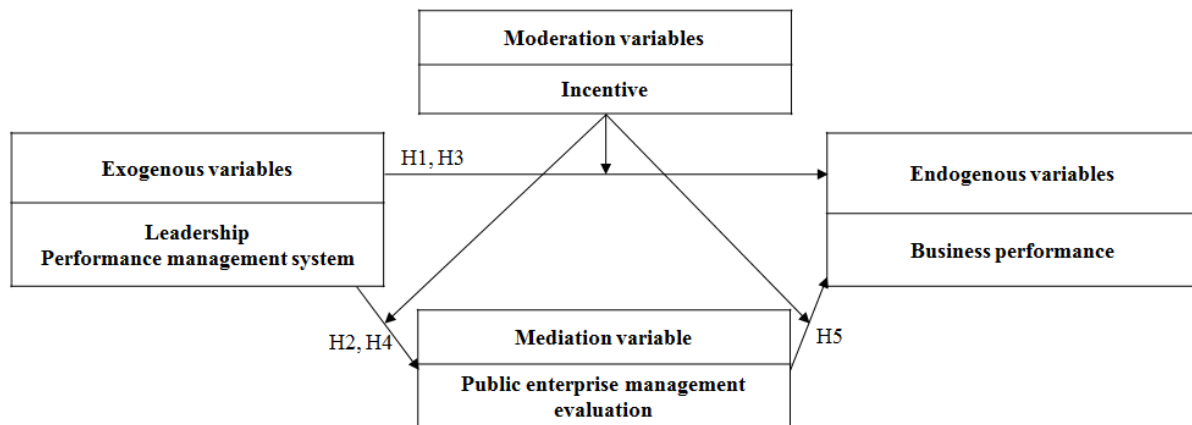

Figure 1. Proposed conceptual model

2.1 Principal-Agent Theory

The principal-agent theory applies neoclassical economic behavioral theory to cooperative organizations. For example, if a government/congress is a principal and a cooperative organization that provides services on behalf of the government/congress plays the role of an agent, the original information about services and costs associated with the services offered by the cooperative organization belong to the agent. In this respect, the principal and agent may share asymmetric information. Such asymmetry of information may cause ineffectiveness, resulting from imperfect motivation and outcome. According to the principal-agent theory, benefits take place when the principal strengthens its control over the agent. Specifically, the principal operating the agent performance management includes financial management, consumer and user management, and business management for the national management reinforcement (Vickers & Yarrow, 1988). Based on the principal-agent theory the main goals of performance management are to solve outcome-centered effectiveness and information unbalance, which includes artificial, competitive work environment, incentive system, and performance orientated personnel management.

2.2 Public Enterprise Management Evaluation

Research on public enterprise management evaluation has focused on the scientific management system since the beginning of the 20th century in the United States. Performance measurement and performance management have been investigated in an effort to improve organizational efficiency and responsibility in the public sector since the 1980s (Kravchuk & Schack, 1996). As the outcome-centered government innovation movement increased in the 1990s, the performance management system was developed (Robert, 1997). In this system, outcomes are the primary topic for public enterprise research (Lynn et al., 2000). According to Orville (1971), when it comes to government activity, evaluation is perceived as essential for the management process. Jones (1982) emphasizes that the business performance evaluation system results in many problems with respect to public enterprises in the diverse conditions that appear from country to country. Business or resources investigated in organizations have been used to measure the efficiency and responsibility of the public sector (Hatry, 1999; Behn, 2003; Kathryn, 1997). As more attention has been put on the public sector, there has been a greater need for the attainment of transparency regarding the public sector and the effective use of natural resources. In other words, public enterprise business performance evaluation is considered as an important means for public sector business management.

2.3 Leadership

The needs of consumers have become diverse in the digital era of the 21st century. In order to operate in this business environment, leadership that guides the organization to the right path is required. According to Koontz and O'Donnell (1980), leadership exerts influence on others to reach corporate goals. Davis and Luthans (1979) highlight that leadership affects activities including ordering employee tasks and demanding performance, as well as motivating employees in order to effectively achieve the organization's goals. Leadership implies that a leader attentively manages performance (Davenport, 1998). According to Wilson (2000), leadership suggests a future direction and vision for the cooperative organization, creates a work environment where all organizational members achieve their goals, and actively participates in activities to improve business performance. Based on the previous studies, the following hypotheses are proposed:

H1: Leadership has a positive effect on business performance.

H2: Leadership has a positive effect on public enterprise management evaluation.

2.4 Performance Management Systems

A performance management system refers to a management system that improves organizational and employee performance to maximize the ultimate goals and business performance of a cooperative organization. A performance management system is used as a means to securing the dominant position for competition as well as to confirm and evaluate the completive position (Glendinging, 2002). Williams (2002) notes that a performance management system consists of stages such as plan, implementation, evaluation, and feedback, of which many scholars consider to be the common characteristics of a performance management system. When organizational members carry out a plan, monitoring and adequate coaching should be secured (Fahnestock, 1984). Roger (1990) insists that the process of a performance management system needs to be planned out by linking to the management evaluation procedure and incentive system. That is, a performance management system includes establishing the goals and performance criteria about organizational policy and recourse, evaluating the performance objectively on a regular basis, and linking individual performance and organizational performance to an incentive system. Based on the previous studies suggesting that a performance management system is influential for business performance and public enterprise management evaluation, the following hypotheses are proposed:

H3: A performance management system has a positive effect on business performance.

H4: A performance management system has a positive effect on public enterprise management evaluation.

2.5 Public Enterprise Management Evaluation

According to Kim (2001), as part of a public enterprise performance evaluation, leadership and the performance management system should be reinforced to increase efforts and motivate behavioral changes for the improvement of business performance. Park (2006) reports that introducing the management performance evaluation of government-investigated institutions results in increases on public enterprise management task and organizational competency. Kwak's (2003) research on a public enterprise management evaluation system reveals that promotion of management innovation, management efficiency, and organizational productivity are influential factors for business performance. Although it is not easy to find empirical studies on public enterprise management evaluation systems from international research, similar research on public management systems can be found. From a theoretical perspective, Lynn et al. (2000) propose an analysis model to empirically test the operation performance of a public management system. They divide performance into organizational and individual levels and analyze the system of operation performance based on influential factors such as environmental, consumer, organizational structure, and manager factors. Similarly, O'Toole and Meier (1999) also discuss an analysis model for the operation performance of a public management system. On the basis of these studies, the following hypotheses are proposed:

H5: Public enterprise management evaluation has a positive effect on business performance.

H6: Public enterprise management evaluation mediates the relationship between leadership and business performance.

H7: Public enterprise management evaluation mediates the relationship between a performance management system and business performance.

2.6 Incentives

Incentives play a key role in motivating behavioral changes necessary for accomplishing business performance. Park (2010) argues that incentives resulting from public enterprise management evaluation function as an

important method to secure management efficiency. Chio et al. (2008) highlight that as the management assessment compensation system increases, management evaluation scores also go up. That is, incentives play a motivational factor for performance improvement, because incentives generate employee behavioral changes necessary for public enterprise management evaluation. Incentives enhance public enterprise management evaluation and business performance. As a result of the above discussion, the following hypothesis is proposed:

H8: The moderating effect of incentives has a positive effect on the influence of business performance.

3. Research Methodology

3.1 Questionnaire Design and Measurement

A pilot test was conducted to examine the vocabulary of the recruitment letter and survey questionnaires, as well as comprehension probability for the materials. Under a researcher's supervision, 30 employees of a public airport enterprise participated in the pilot test. The participants were asked to examine the accuracy of the survey questionnaires, evaluate their comprehensive understanding of the survey, and make suggestions for improvement. Prior to the survey data collection, a minor revision was made based on the pilot test.

Multiple items were used to measure variables in the survey questionnaire. All of the survey items were created based on previous studies. Measurement included interval scales and nominal scales. A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used for 19 interval scale items, except for the measure of incentives. One of the incentives measures used a nominal scale with the response option of high and low.

Table 1. Operational definition and measurement items

Factor	Operational Definition	Measure Items	Reference
Leadership	Leading the organization for business performance	Taking the initiative and setting an example (LS1)	Davenport (1998)
		Evaluation and compensation (LS2)	Wilson (2000)
		Policy creditability (LS3)	Davis(1979)
		Expertise (LS4)	Koontz(1980)
System	System to manage and support performance	Establishing a performance management system (SY1)	Fahnestock (1984)
		Supporting performance management (SY2)	Williams (2002)
		Monitoring and feedback (SY3)	Glendinging(2002)
		Educating and training employees (SY4)	Roger(1990)
Public Enterprise Management Evaluation	Level of employees' awareness of public enterprise management evaluation	Setting plans and goals for management evaluation (FD1)	Kravchuk(1996)
		Effort to achieve goals for management evaluation (FD2)	Robert(1997)
			Lynn(2000)
		Understanding of approaches to management evaluation (FD3)	Orville(1971)
			Hatry(1999)
		Examination of management evaluation (FD4)	
Business Performance	Outcomes as a result of management activities	Innovation and creativity for improvement (FD5)	Fahnestock (1984)
		Levels of awareness of performance criteria (FD6)	Kim (2001)
		Increase on profits (PE1)	Williams (2002)
		Implementation of government recommended policy (PE2)	
		Increase on productivity (PE3)	
		Consumers' satisfaction improvement (PE4)	
Incentives	Performance compensation as a result of public enterprise management evaluation	Employees' job satisfaction (FD5)	Park(2010)
		High	Choi(2008)
		Low	

Measurement items were modified for the purpose of this study. Items for leadership and system were modified to appropriately address the context of this study. Operational definitions and measurement items are presented in Table 1.

3.2 Survey

To collect experimental data that allowed the research hypotheses to be tested, employees at the public airport enterprise were targeted as research participants. Based on a random sampling method, employees who received the research recruitment letter voluntarily participated in the survey. Survey questionnaires were provided in Korean language. Data was collected from March 11th to March 25th in 2013. A total number of 312 survey responses were used for the analyses. The survey responses were self-reported. Participants consisted of 212 males (67.9%) and 100 females (32.1%), which indicate a higher participation rate of male employees. In terms of age, there were 144 employees in their thirties, which was the highest proportion (46.2%). With regard to years of employment, 133 employees (42.6%) reported less than 20 years of employment; this also represented the highest proportion. When it comes to years of employment in the current division, there were even distributions; less than one year (n = 76, 24.4%), less than two years (n = 75, 24%), less than three years (n = 67, 21.52%), less than five years (n = 63, 20.2%). Levels of work position also appeared evenly; entry-level employees (n = 67, 21.5%), deputy manager (n = 80, 25.6%), manager (n = 71, 22.8%), deputy general manager (n = 67, 21.5%).

4. Results

4.1 Dimensionality Test

A dimensionality test was conducted to test the sample adequacy and exploratory factor analysis. Kaiser-Meyer-Olkin (KMO) and Barlett's sphericity test (Meyer, 2006) were employed to test sample adequacy and goodness of fit for factorial analysis. It was found that KMO was .924 and Bartlette's sphericity test was 3.517, p <. 000. The results indicated that sample adequacy and the goodness of fit for factorial analysis were statistically valid. For a factor extraction, varimax rotation was employed to simplify principal component analysis and factor loadings. The criteria for the factor extraction include an eigenvalue above 1.0 and factor loadings above 0.4, p < .001. The overall pattern of rotated factor loadings suggested a four-dimensional patternas follows: "leadership" (eigenvalue = 4.329), "system" (eigenvalue = 3.159), "public enterprise management evaluation" (eigenvalue = 2.769), and "business performance" (eigenvalue = 2.670). All of the factor loadings were above 0.4, which was statistically valid (See Table 2). The cumulative distribution of the four factors was 68.03%, which showed a high level of explanation in the model. Thus, each of the factors held unique explanations respectively, which avoided the issue of unidimensionality in the measurements. Results of the exploratory factor analysis and cumulative distributions of each factor are shown in Table 2.

Table 2. Dimensionality, reliability and convergent validity statistics

Construct (no. of items)	Mean	SD	Factor loadings dimensionality model (EFA)	Factor loadings measurement model (CFA)	Factor loadings structural model (SEM)	α	CR	AVE
Leadership (4)	5.74	.76	.69 .77 .72 .66	.75 .78 .75 .70	.74 .76 .76 .72	.83	.98	.936
System (4)	5.57	.82	.68 .74 .73 .63	.74 .83 .79 .75	.74 .82 .77 .77	.86	.98	.942
Performed Degree (6)	5.63	.81	.64 .72 .73 .78 .80 .69	.76 .75 .78 .79 .84 .77	.78 .76 .78 .77 .83 .78	.90	.98	.944
Business Performance (5)	6.19	.65	.78 .83 .77 .71 .54	.69 .80 .76 .71 .60	.64 .76 .76 .74 .66	.83	.98	.924

Note: Performed Degree: Performed Degree of Public Enterprise Management; SD: Standard Deviation; CR: Composite Reliability; AVE: Average Variance Extracted; three decimal points were rounded to two decimal points.

4.2 Measurement Model

A confirmatory factor analysis was employed to test the measurement model. AMOS 18.0 with the maximum likelihood estimator method was used for the measurement model. Reliability, goodness of fit for the measurement model, convergent validity, and discriminant validity were examined. Cronbach's alpha, (α),

composite reliability (C.R.), and average variance extracted (AVE) were calculated (See Table 2). In terms of reliability, Cronbach's alpha of leadership (α = .833), system (α = .858), public enterprise management evaluation (α = .904), and business performance (α = .834) were above 0.8 (Nunally, 1978). These results confirmed the validity and credibility of the measurement. Second, the goodness of fit for the measurement model was confirmed based on the criteria (χ^2 = 464, p = .000, d.f. = 146, CMIN/DF = 3.183, RMR = .060, GFI: .861, NFI = .871, IFI: .908, TLI: .891, CFI: .907, RMSEA: .084). Convergent validity was evaluated by testing composite reliability. As a result, all of the composite reliabilities were above 0.8, which was higher than the criteria of 0.7 (Hair, 1998). Lastly, discriminant validity was examined. Discriminant validity is confirmed when the square of correlation coefficients (r^2) is lower than AVE (Fornell, 1981). The results indicated that the square of correlation coefficients (r = .731, r^2 = .534) was lower than the value of AVE 0.942, which validated the discriminant validity (See table 3). Therefore, all of the criteria for the measurement model were met (Eigenvalue > 1.0, factor loadings > 0.4, Cronbach's alpha > 0.8, composite reliability > 0.7, AVE > 0.5). Based on these validations of reliability, goodness of fit for the measurement model, convergent validity, and discriminant validity, a structural model was analyzed next.

Table 3. Discriminant validity: AVEs versus cross-construct squared correlations.

Construct	Leadership	System	Performed degree	Business performance
Leadership	.936			
System	.679	.942		
Performed degree	.638	.731	.944	
Business performance	.484	.453	.432	.924

Note: the bold score (diagonal) are the AVEs of the individual constructs, and off-diagonal scores are the squared correlations between the constructs.

4.3 Structural Model

The purpose of the structural model is to test the relationships between latent variables and observed variables, as well as to examine a path analysis among latent variables. The path analysis examines the research hypotheses based on the path coefficient criteria (p < .05). A structural equation model (SEM) with a maximum likelihood estimation method was used to conduct a path analysis and examine the research hypotheses. The various fitness indices for the proposed conceptual model indicated that the conceptual model provided an excellent fit to the data (CMIN/d.f. = 2.254, RMR = .044, GFI = .906, NFI = .914, RFI = .893, IFI = .950, TLI = .937, CFI = .950, RMSEA = .064). Based on these goodness of fit validations, research hypotheses were tested. The SEM analysis supported four of the research hypotheses—H1, H2, H4, and H5—whereas the analysis rejected H3. Path coefficient information and the results of research hypothesis testing are presented in Table 4.

Table 4. Results of research hypothesis testing

Hypothesis	Path	Estimate	CR	P	Result
H1	Leadership → Business Performance	.152[***]	2.049	.040	Supported
H2	Leadership → Public Enterprise Management Evaluation	.297[***]	2.697	.007	Supported
H3	Performance Management System → Business Performance	.042	.609	.542	Rejected
H4	Performance Management System → Public Enterprise Management Evaluation	.601[***]	6.275	.000	Supported
H5	Public Enterprise Management Evaluation → Business Performance	.159[***]	2.399	.016	Supported

Note: [***]p < .01.

4.4 Mediation Effect

Although mediation variables are influential for endogenous variables, which are similar to exogenous variables, mediation variables are located between exogenous variables and endogenous variables in the path analysis model. Therefore, mediation effects refer to the direct effect of mediation variables on endogenous variables and/or the indirect effect of exogenous variables via mediation variables. The mediation effect analysis proceeds as follows. First, the goodness of fit for the model is tested. The goodness of fit of the total effect model (Model I), full mediated model (Model II), and partial mediated model (Model III) are examined. The results indicated that Models I, II, and III satisfactorily met the goodness of fit requirements (See Table 5).

Table 5. Comparisons of goodness of fit among mediation models

Model	Goodness of Fit
Model I	χ^2=139.187, DF=57, p=.000, CMIN/DF=2.442, RMR=.042, GFI=.936, AGFI=.898, NFI=.933, RFI=.908, IFI=.959, TLI=.944, CFI=.959, RMSEA=.068
Model II	χ^2=312.718, DF=139, p=.000, CMIN/DF=2.250, RMR=.045, GFI=.906, AGFI=.871, NFI=.913, RFI=.893, IFI=.950, TLI=.938, CFI=.949, RMSEA=.063
Model III	χ^2=311.070, DF=138, p=.000, CMIN/DF=2.254, RMR=.044, GFI=.906, AGFI=.871, NFI=.914, RFI=.893, IFI=.950, TLI=.937, CFI=.950, RMSEA=.064

Second, the path analysis should be in the expected direction with the statistically significant path coefficients (Holyele & Smith, 1994). The path coefficient directions of Models I, II, and III were found to be valid (See Table 6). All of the path coefficients, except a path from performance management system to business management in Model III, were statistically significant.

Table 6. Analysis results for total effects

Model	Path	Estimate	CR	Total Effect	Direct Effect	Indirect Effect
Model I	Leadership → Business Performance	.209	2.620	.352	.352	-
	Performance Management System → Business Performance	.150	2.347	.303	.303	-
	Leadership → Public Enterprise Management Evaluation	.337	3.204	.292	.292	-
	Performance Management System → Public Enterprise Management Evaluation	.572	6.218	.594	.594	-
Model II	Public Enterprise Management Evaluation → Business Performance	.349	6.144	.724	.724	-
	Leadership → Business Performance	-	-	.211	-	.211
	Performance Management System → Business Performance	-	-	.430	-	.430
	Leadership → Public Enterprise Management Evaluation	.297	2.697	.256	.256	-
	Performance Management System → Public Enterprise Management Evaluation	.601	6.275	.627	.627	-
Model III	Public Enterprise Management Evaluation → Business Performance	.159	2.399	.329	.329	-
	Leadership → Business Performance	.152	2.049	.356	.272	.084
	Performance Management System → Business Performance	.042	.609	.297	.091	.206

Third, the indirect effect should be statistically significant. To test the indirect effect in the present study, the bootstrapping for model comparison technique was used (Arbuckle, 2009). Indirect effects are considered statistically significant if the range between the maximum value and minimum value does not include zero for

the indirect effects of Models II and III (Shrout & Bolger, 2002). Public enterprise management evaluation was found to significantly mediate the relationships between leadership, performance management system, and business performance. As a result, the indirect effects were found to be statistically significant based on the findings, indicating that the range between the maximum value and minimum value did not include zero from Models II and III (See table 7).

Table 7. Analysis results for indirect effects

Mediation Variable	Model	Path	Leadership	Performance Management System
	Model II	Effect Size	.211[***]	.430[***]
		Upper Interval	.397	.558
Public Enterprise		Lower Interval	.054	.266
Management Evaluation	Model III	Effect Size	.084	.206
		Upper Interval	.255	.492
		Lower Interval	.008	.012

Note: [***]p < .01.

Fourth, to examine the full mediation and partial mediation, the difference of chi-square values between Models II and III are compared. Full mediation is found if the variation of the difference of chi-square values ($\Delta\chi^2.05(1)$) between two models is below 3.841 with 1 degree of freedom and p < .05. Partial mediation occurs if the variation of the difference of the chi-square values ($\Delta\chi^2.05(1)$) between two models is above 3.841 (Holmbeck, 1997). The variation of the difference of the chi-square values between Models II and III were below 3.841 with 1 degree of freedom and p < .05. That is, the analysis revealed that the chi-square value of Model II was 312.718 (d.f. = 139, p = .000) and the chi-square value of Model III was 311.070 (d.f. = 138, p = .000). The variation of the difference of the chi-square values ($\Delta\chi^2.05(1)$) between the two models was 1.648 (p = .000), with 1 degree of freedom. The results indicated that public enterprise management evaluation was fully mediated between the hypothesized relationships.

Lastly, as a result of research hypothesis testing for the mediation effect, the mediation effect of public enterprise management evaluation on the relationships between leadership, performance management system, and airport enterprise business performance were found statistically significant and fully mediated. These results showed interesting findings, because predictions of the hypothesized model were strongly supported in this study. In other words, leadership and performance management system can increase airport enterprise performance management through public enterprise management evaluation. Therefore, research hypotheses H6 and H7 were supported.

4.5 Moderation Effect

Considering that the effect from the causal relationship between two variables differs based on the effect size or characteristics of the third variable, moderation variables are the third variable that moderates the relationship between other two variables. In this study, the incentives resulting from public enterprise management evaluation were suggested as a moderation variable.

To test the moderation effect, this study used the analysis method developed by Jaccard and Wan (1996). The moderation effect was analyzed as follows. First, to distinguish between different groups, data using nominal scales were categorized into high and low groups. As a result, first, it was found that there were 115 individuals (36.9%) in the high group, whereas there were 197 individuals (63.1%) in the low group (See Table 8).

Second, research hypothesis testing for the moderation effect was conducted to analyze the two structural models. One model was freed, which did not restrict relationships among potential factors, whereas the other model was constrained by fixing relationships among potential variables equally in order to compare the difference of the chi-square values among the constraint models. It is believed that if the constraint model's variation of the difference of the chi-square values ($\Delta\chi^2.05(5)$) is statistically significant to a greater degree than the chi-square criteria threshold, the research hypothesis is accepted (Matsuno et al, 2002). As a result of testing the difference of the chi-square values between the free model and constraint model, the constraint model was χ^2=681.591 (d.f.

= 283, p = .000), whereas the free model was χ²=658.674 (d.f. = 278, p = .000). The constraint model's variation of the difference of the chi-square values (Δχ².05(5)) was 22.917. This result was found to be more statistically significant than the chi-square criteria threshold, χ².05(5) = 11.070. The finding suggested that incentives were a motivational factor for improving airport enterprise performance management. Therefore, research hypothesis H8 was supported in that the incentives resulting from public enterprise management evaluation were found to have a statistically significant moderation effect for the improvement of airport enterprise performance management. The results of research hypothesis testing for the moderation effect are presented in Table 8 and Figure 2.

Table 8. Results of research hypothesis testing for moderation effect

Model	Chi-square	d.f.	Moderation Effect			Research Hypothesis Testing
			$\Delta\chi^2_{.05(5)}$	$\Delta\chi^2_{.05(5)}$	p-value	
			Criteria Threshold Variation			
Constraint Model	681.591	283	11.070	22.917	.000	
Free Model	658.674	278			.000	
			Moderation Variable (Incentives)			
Path			High Group (n=115)		Low Group (n=197)	
			Estimate	CR	Estimate	CR	
Leadership → Business Performance			.278	3.190[***]	-.306	-.901	Supported
Leadership → Public Enterprise Management Evaluation			.229	3.302[***]	.789	3.440[***]	
Performance Management System → Business Performance			.030	.207	.641	3.557[***]	
Performance Management System → Public Enterprise Management Evaluation			.866	9.038[***]	.191	1.826	
Public Enterprise Management Evaluation → Business Performance			.191	1.520	.466	1.582	

Note: [***]p < .01.

5. Discussion

The present study proposes to examine the causal relationships between public enterprise management evaluation and the improvement of airport enterprise business performance. According to the current study's findings, the results were consistent with Wilson's (2002) research findings indicating that leadership creates a work environment wherein employees achieve their goals by providing a future direction and vision for the corporative organization, and a leader exerts influences on business performance by taking the lead and setting an example. These findings were also consistent with research results from Koontz and O'Donnell (1980) and Davis and Luthans (1979). Influences on achieving the corporate goals and leadership assign organizational members tasks to accomplish the organizational goals and furthermore motivate employee work performance.

Second, it was found that the direct effect of performance management system on business performance was weak. However, there was a strong effect on business performance through public enterprise management evaluation. That is, a performance management system functions as a management tool for the improvement of business performance, rather than a performance management system having a direct effect on business performance. The findings were consistent with the view held by many scholars and researchers that a performance management system is used as a management method to achieve performance. Down and Larkey (1986) and O'sborn and Gaebler (1992) perceive public enterprise management evaluation as a key component for a performance management system.

Third, the mediation effect of public enterprise management evaluation was statistically significant. In other words, leadership and a performance management system improve airport enterprise business performance through public enterprise management evaluation. The study presented very interesting
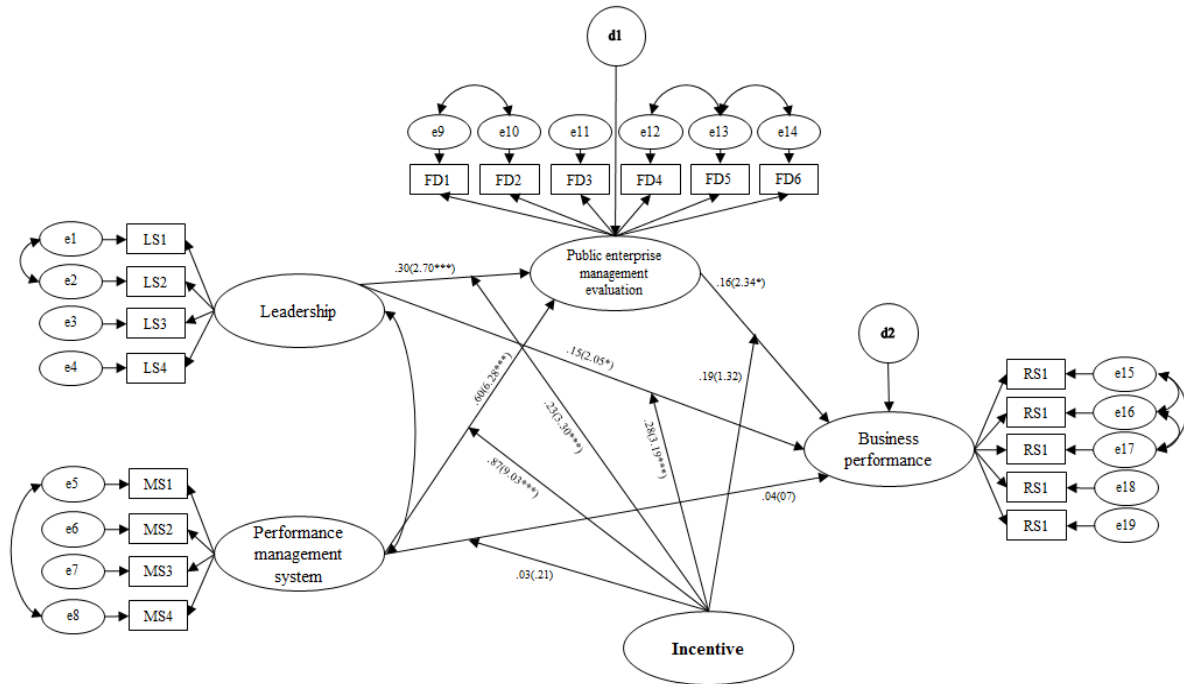
Figure 2. Paths of structural model

Note) * p<0.05, ** p<0.01, *** p<0.001; Parenthesis is C.R (Critical Ratio); Path coefficients are not standardized and three decimal points are rounded as two decimal points.

findings because the results were empirically tested. The results provide evidence for future research and further contribute to activating research on management evaluation.

Fourth, the moderation effect of incentives resulting from public enterprise management evaluation was found to be statistically significant on the relationships among leadership, performance management systems, public enterprise management evaluation, and business performance. That is, incentives motivate public enterprise management evaluation and reinforce business performance. Choi, Kim, and Jeong (2008) agreed that incentives result in behavioral changes that are necessary for business performance. Based on the discussion about the research findings, the research implications are presented next.

6. Research Implications

This study suggests empirical findings which indicate that airport enterprise business performance can be improved through public enterprise management evaluation. In this respect, theoretical contributions and practical implications are discussed as follows.

The current study contributes to applying the principal-agent theory to an airport enterprise. According to the principal-agent theory, the principal measures the agent business performance to secure efficiency and responsibility. If the agent performs many work tasks, rewards are given to the agent corresponding to his/her performance. If the agent does not complete business performance, s/he faces consequences. Such behavioral evidence exists through performance evaluation. The present study makes a contribution to continuing research activation on public enterprise management evaluation from the airport enterprise perspective, which has received relatively less attention. The study's findings are also valuable as theory-based empirical research data providing evidence for future research.

The present study suggests practical implications as follows. First, according to the study's findings, a leader needs to recognize the important role of leadership because it is important for managers to perform the role of leader in circumstances in which the airport enterprise requires a high level of dependence on intelligence. More investment and interest are needed to develop leadership training programs that are appropriate for airport enterprise characteristics.

Second, a performance management system has an indirect effect on business performance through public enterprise management evaluation, rather than the direct effect of performance management system on business

performance. There is a need to educate and train organizational members with management techniques regarding performance to better understand performance management systems as a management means.

Third, creativity for innovation and improvement activity associated with public enterprise management evaluation is required. That is, it is helpful to understand the performance goals of public enterprise management evaluation, to share employees' innovative mindset, and to approach to creative task performance.

Fourth, a system is needed to objectively and fairly evaluate and reward employees based on incentives resulting from public enterprise management evaluation. In other words, the incentives play a key role to motivate behavioral changes for the improvement of task performance and business performance of public enterprise management evaluation.

7. Conclusions

The purpose of this study is to examine the cause-effect relationship between public enterprise management evaluation and airport enterprise business performance and to provide research implications and insights for the growth and development of the airport enterprise. First, the study's findings contribute to research activation on airport enterprises, which have received relatively less attention, by conducting empirical research on public enterprise management evaluation based on the principal-agent theory from the performer's perspective using empirical data. Second, as a result of an analysis of the mediation effect, public enterprise management evaluation was fully mediated. That is, airport enterprise business performance can be improved through public enterprise management evaluation. Third, the moderation effect of incentives resulting from public enterprise management evaluation is found to be statistically significant. In other words, the incentives motivate behavioral changes for the improvement of business performance. Fourth, influential factors significantly explain airport enterprise business performance. The hypothesized research model strongly confirms predictions of influential factors.

There exist some limitations and additional research areas for future research. This study was limited in that it was only conducted at the Incheon International Airport Corporation. Future research should explore research on management evaluation of other international airports, which differ in terms of airport management characteristics. In addition, this study limited variables to five dimensions. Using various observed variables, a multi-dimensional, empirical study needs to be conducted in the future. In spite of the limitations, the present study can be helpful for airport managers in South Korea as well as airport managers in other countries, particularly in terms of growth and development with respect to the improvement of management evaluation and business performance. The study is also useful for policy on the management evaluation of government-investigated institutions and corporative organizations.

Acknowledgements

References

Arbuckle, J. L. (2009). *AMOS 18 User's Guide*. Crawfordville, Florida: SPSS Inc.

Behn, R. D. (2003). Why Measure Performance? Different Purposes, Different Measure. *Public Administration Review*, *63*(5), 586–606. http://dx.doi.org/10.1111/1540-6210.00322

Choi, K. J. (2008). *Factors Influencing Public Agency Management Performance*. Korea Association for Public Administration, 2008 Summer Conference Proceedings, No. 4.

Davenport, T., Prusak, L. (1998). *Working Knowledge How Organizations Manage What They Know* (pp. 123–143). Boston: Harvard Business School Press.

Davis, T. R. V., & Luthans, F. (1979). Leadership Reexamined: A Behavior Approach. *Academy of Management Review*, *4*(2), 237–248. http://dx.doi.org/10.5465/AMR.1979.4289022

Downs, G. W., & Larkey, P. D. (1986). *The Search for Government Efficiency: from Hubris to Helplessness*. Philadelphia: Temple University Press.

Fahnestock, C. M. (1984). One Utility's System in Management Planning and Performance Review. *Public Utilities Fortnightly*, *114*, 33–36.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39–50. http://dx.doi.org/10.2307/3151312

Hair, J. F., Anderson, R. E., Tatam, R. L., & Black, W. C. (1998). *Multivariate Data Analysis* (5th ed.). Upper Saddle River, New Jersey: Prentice-Hall International.

Hatry, H. (1999). *Performance Measurement, Getting Results*. Washington, DC: Urban Institute Press.

Hatry, & Harry. (1999). Mini-symposium on Intergovernmental Comparative Performance Data. *Public Administration Review*, *59*(2), 101–104. http://dx.doi.org/10.2307/977629

Hoyle, R. H., & Smith, G. T. (1994). Formulating Clinical Research Hypotheses as Structural Equation Models: A Conceptual Overview. *Journal of Consulting and Clinical Psychology*, *62*(3), 429–440. http://dx.doi.org/10.1037/0022-006X.62.3.429

Holmbeck, G. N. (1997). Toward Terminological, Conceptual and Statistical Clarity in the Study of Mediations and Moderators: Examples From the Child-Clinical and Pediatric Psychology Literatures. *Journal of Consulting and Clinical Psychology*, *65*(4), 599–610. http://dx.doi.org/10.1037/0022-006X.65.4.599

Jaccard, J., & Wan, C. K. (1996). *LISREL Approaches to Interaction Effects in Multiple Regression*. Thousand Oaks, California: Sage.

Jones, L. P. (1982). *Public Enterprise in Less-Developed Countries*. Cambridge, Massachusetts: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511752988

Kathryn, E. (1997). *Using performance Measurement to Improve Public and Nonprofit Programs*. San Francisco: Jossey-Bass Publishers.

Kwak. (2003). The Inefficiency of the Government Investment Agency for the Control of Management Evaluation System role and Operational Performance. *Public Journal*, *15*(1), 49–91.

Kim. (2001). *Evaluation of the Public Enterprise and Internal Audit of the Connectivity*. Ph.D. Dissertation, Chonnam National University.

Koontz, H., & O'Donnell, C. (1980). *Principle of Management* (2nd ed.). New York: McGraw-Hill Book.

Kravchuk, R. S., & Schack, R. W. (1996). Designing Effective Performance-Measurement Systems under the Government Performance and Results Act of 1993. *Public Administration Review*, *56*(4), 348–358. http://dx.doi.org/10.2307/976376

Lynn, L. E., Heinrich, C. J., & Hill, C. J. (2000). Studying Governance and Public Management: Why? How? In Heinrich, C. J., & Lynn, L. E. (Eds.), *Governance and Performance: New Perspectives* (pp. 1–33). Washington, DC: Georgetown University Press.

Matsuno, K., Mentzer, J. T., & Ozsomer, A. (2002). The Effect of Entrepreneur Proclivity and Market Orientation on Business Performance. *Journal of Marketing*, *66*(3), 18–32. http://dx.doi.org/10.1509/jmkg.66.3.18.18507

Allen, N. J., & Meyer, J. P. (1990). The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization. *Journal of Occupation Psychology*, *63*(1), 1–18. http://dx.doi.org/10.1111/j.2044-8325.1990.tb00506.x

Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). New York: McGraw-Hill.

Poland, O. F. (1971). Why does public Administration Ignore Evaluation? *Public Administration Review, 31*(2), 201–202.

Osborne, D., & Gaebler, T. (1992). *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector.* Massachusetts: Reading, Addison-Wesley.

O'Toole, L. J., & Meier, K. J. (1999). Modeling the Impact of Public Management Implications of Structural Context. *Journal of Public Administration Research and Theory*, *9*(4), 505–526. http://dx.doi.org/10.1093/oxfordjournals.jpart.a024421

Park. (2006). Performance Management and Organizational Capacity of the Public Sector. *South Korea Secured Administration*, *40*(3), 219–244.

Park. (2010). *Theory of Public Enterprise*. Seoul: Dasan Publishers.

Roberts, A. (1997). Performance-based organization: Assessing the Gore Plan. *Public Administration Review*, *57*(6), 465–478. http://dx.doi.org/10.2307/976958

Rogers, S. (1990). *Performance Management in Local Government*. Harlow, London: Longman.

Shrout, P. E., & Bolger, N. (2002). Mediation in Experimental and Non experimental Studies: New Procedures and Recommendations. *Psychological Methods*, 7(4), 422–445. http://dx.doi.org/10.1037//1082/989X.7.4.422

Vickers, J., & Yarrow, G. K. (1988). *Privatization: An Economic Analysis*. Cambridge Massachusetts: MIT Press.

Williams, R. S. (2002). *Managing Employee Performance: design and implementation in organizations*. London: Thomson Learning.

Wilson, D. D., & Collier, D. A. (2000). An Empirical Investigation of the Malcolm Baldrige Nation Quality Award Causal Model. *Decision Sciences*, 31(2), 361–383. http://dx.doi.org/10.1111/j.1540-5915.2000.tb01627.x

Copyrights

Call for Manuscripts

International Business Research (*IBR*) is an international, double-blind peer-reviewed, open-access journal published by the Canadian Center of Science and Education. The journal focuses on the following topics: business, marketing, management, finance, economics, accounting and relevant subjects. It provides an academic platform for professionals and researchers to contribute innovative work in the field. *IBR* carries original and full-length articles that reflect the latest research and developments in both theoretical and practical aspects of international business. This journal is published monthly in both print and online versions, and the online version is free to access and download.

We are seeking submissions for forthcoming issues. All manuscripts should be written in English. Manuscripts from 3000–8000 words in length are preferred. All manuscripts should be prepared in MS-Word format, and submitted online, or sent to: ibr@ccsenet.org

Paper Selection and Publishing Process

a) Upon receipt of a submission, the editor sends an e-mail of confirmation to the submission's author within one to three working days. If you fail to receive this confirmation, your submission e-mail may have been missed.

b) Peer review. We use a double-blind system for peer review; both reviewers' and authors' identities remain anonymous. The paper will be reviewed by at least two experts: one editorial staff member and at least one external reviewer. The review process may take two to three weeks.

c) Notification of the result of review by e-mail.

d) If the submission is accepted, the authors revise paper and pay the publication fee.

e) After publication, the corresponding author will receive two hard copies of the journal, free of charge. If you want to keep more copies, please contact the editor before making an order.

f) A PDF version of the journal is available for download on the journal's website, free of charge.

Requirements and Copyrights

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the authorities responsible where the work was carried out, and that, if accepted, the article will not be published elsewhere in the same form, in English or in any other language, without the written consent of the publisher. The editors reserve the right to edit or otherwise alter all contributions, but authors will receive proofs for approval before publication.

Copyrights for articles are retained by the authors, with first publication rights granted to the journal. The journal/publisher is not responsible for subsequent uses of the work. It is the author's responsibility to bring an infringement action if so desired by the author.

More Information

E-mail: ibr@ccsenet.org

Website: www.ccsenet.org/ibr

Paper Submission Guide: www.ccsenet.org/submission

Recruitment for Reviewers: www.ccsenet.org/reviewer

International Business Research
Monthly

9 771913 900008   11   >