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Contents

Solvency capital requirements for a Romanian non-life insurer under Solvency II and Risk-Based Capital frameworks

Aurora Elena DINA (MANOLACHE)
Bucharest University of Economic Studies, Romania
aurora_dina86@yahoo.com

Abstract. *The paper provides a theoretical assessment of the Solvency II and Risk Based Capital solvency regimes and a numerical evaluation based on the two important characteristics of the Risk Based Capital framework: accounting principles (book values) and risk parameters calibration (standard deviations for premium and reserve risk sub-module) following the Solvency II standard formula methodology for a Romanian non-life insurance company. The results of the numerical evaluation of two assumptions reveal a substantial impact in the overestimation/underestimation of the solvency capital requirements.*

Keywords: solvency capital requirements, Solvency II, Risk-Based Capital, non-life insurer, insurance regulation.

JEL Classification: G22, G28.

Introduction

In the recent years, many countries have either revised or are in the process of reforming their solvency regimes with the goal to assess the solvency capital requirements based on a more risk based approach, like in the European regime, Solvency II, which became effective on January 1st, 2016. Countries from Asia, America, Australia and Europe have already made or have started to make important updates to their solvency regulatory frameworks to be consistent with the current changes on the insurance markets.

The research is focused on the evaluation on the solvency position impact for a Romanian non-life insurance company if there are applied certain characteristics of the RBC solvency regime in the context of the Solvency II standard formula. The paper contributes to the financial literature by providing a theoretical assessment of the Solvency II and Risk Based Capital solvency regimes and a numerical evaluation based on the two important features of RBC solvency regime: accounting principles (book values) and risk parameters calibration (standard deviations for premium and reserve risk sub-module) following the Solvency II standard formula methodology. The goal of this article is not to confirm or validate that the Solvency II can be considered a better solvency framework than Risk-based-Capital. The main aim is to research which of the accounting principles valuation and risk parameters calibration (standard deviations for premium and reserve) can be considered suitable to forecast the potential loss of the future results in the context of the solvency capital requirements insurance regulation.

The article is set out as follows: a brief overview of the literature review is provided in the second section of the paper, the Solvency II standard formula methodology and the research assumptions are described in the third section of the article, the fourth section contains the qualitative evaluation of the Solvency II and RBC regimes and the results of the quantitative assessment, the fifth section outlined the conclusions and the sixth section summarised the bibliography.

Literature review

In the academic literature, the subject of the insurance solvency regulation has been analyzed by many researchers. The literature related to the solvency assessment of the insurance regulatory frameworks can be summarized in two strands of literature.

The first strand of literature provided a qualitative assessment among solvency regulations of the United States of America (Risk-Based Capital – RBC), European Union (Solvency II), Switzerland (Swiss Solvency Test – SST), New Zealand and China (China Risk Oriented Solvency System C-ROSS). Doff (2008) concluded that Solvency II system satisfies most of the criteria developed by Cummins et al. (1994). Cummins and Phillips (2009) showed that the Risk-Based Capital regime is out-of-date compared with Solvency II and Swiss Solvency Test and it is not an accurate predictor of the insurance companies insolvency. Eling and Holzmuller (2008) provided an overview and comparison of the regulatory insurance frameworks from United States, New Zealand, European Union and Switzerland. They show that the Solvency II and Swiss Solvency Test encourage the internal model development for a more accurate and individualized evaluation of an insurance company solvency situation compared to the standardized models like Risk-Based Capital. Holzmuller (2009) noted the need for reform of the Risk-Based Capital system compared with Solvency II and the Swiss Solvency Test which, satisfied generally the criteria developed by Cummins et al. (1994) and four additional criteria added. Fung et al. (2018) using the eleven criteria proposed by Cummins et al. (1994) and Holzmuller (2009)

concluded that C-ROSS is substantially better than RBC and less as good as Solvency II or SST systems. Siegel (2012) extended the literature on group solvency capital assessment (the previous studies have been focused on the solo-level comparison) and reveal that the group RBC regime implying future regulatory work, Solvency II is good and SST represents an innovative and solid group solvency model.

The second strand of literature concerns the quantitative studies. Braun et al. (2014) using a stylized balance sheet approach to capture the asset portfolio structure of European life insurers showed that Solvency II disproportionally penalizes the asset class of private equity compared to the Swiss Solvency Test. Laas and Siegel (2017) showed that Basel III charges higher capital for banks than Solvency II charges for insurers having the same asset portfolio. Liu et al. (2018) using three stylized asset portfolios and insurance portfolios for the nonlife US, the European Union and China insurance markets suggest that the effective solvency systems are market oriented, and the attempt to move the market-oriented SCRs towards a global consistent one may distort local regulation at costs.

Methodology

1. Sources of data

The research was carried out based on the fictitious data of a non-life insurance company that operating on the Romanian insurance market. The input data for the stylized insurance portfolio was build based on the annual reports of the five representative large Romanian non-life insurance companies at the reference date 31th of December 2017 available on their websites. The information with respect to the Romanian non-life insurance market was obtained from the industry reports provided by Romanian Financial Supervision Authority (ASF) and European Insurance and Occupational Pensions Authority (EIOPA).

2. Research analyzes assumptions

The paper research was performed with the goal to identify the solvency capital requirements differences for a non-life insurer if there are applied certain characteristics of the RBC solvency regime following the Solvency II standard formula methodology. The research was based on two analyzes: accounting principles (book values) and risk parameters calibration (standard deviations for premium and reserve sub-module) that have been applied distinct and combined (as a set of risk tests). To see the impact on these assumptions, firstly it was calculated the SCR in conformity with Solvency II standard formula methodology and then, the SCR has been recalculated taking into consideration the assumptions below:

2.1. Accounting principles

Following the accounting principle of the local market required by RBC solvency framework, the technical provisions have been estimated to the book (statutory) values and then there have been recalculated the solvency capital requirements of the insurer analyzed under Solvency II methodology. The estimation of the statutory values for the technical provisions was based on the differences in the technical provisions between Solvency II values and statutory values which are recorded by the two most important groups that carry out businesses on the Romanian insurance market: Allianz and Vienna Insurance Group. The proportion that has been used to approximate the statutory technical provision was calculated as average ratio of the differences in the technical provisions (Statutory minus Solvency II) and Solvency II values. The technical provision has been increased by 20%. This percentage applied to approximate the book values is realistic considering that the best estimate (consists of claims best estimate and premium best estimate), which represent the core part of technical

provisions being discounted and only the outstanding claim reserve receives around 10% discount for time value (Liu et al., 2018).

2.2. Parameter Calibration for premium and reserve risk submodule

The risk parameter represents the parameter (risk factors) used to calculate the solvency capital requirements in conformity with the predetermined equations of the solvency regulatory guidelines. Under the RBC and Solvency II solvency regimes, standard formula for premium and reserve risk components is factor-based (not risk-sensitive) and the solvency capital requirements are calculated for each line of business by multiplying risk factors by the volumes of premium or outstanding claim reserve. The two regulatory frameworks provide different risk factors for each line of business. The main purpose of this analysis was to see the differences among solvency capital requirements under the Solvency II methodology when applying the standard deviation for premium (σ_{prem}) and standard deviation for reserve required (σ_{res}) by RBC solvency framework for each of the four representative lines of business under all two solvency regimes: motor vehicle liability, motor other classes, fire and other property damage and third-party liability. This simplification to consider only these four lines of business was based on the structure of the Romanian non-life insurance industry (the four largest lines of business) at the end of 2017 year. Table 1 shown the standard deviation for premium and reserve in conformity with each regulatory system standard approaches.

Table 1. *Standard deviation for premium and reserve under Solvency II and RBC*

LOBs	Standard deviation for premium risk		Standard deviation for reserve risk	
	σ_{prem} **Solvency II**	σ_{prem} **RBC**	σ_{res} **Solvency II**	σ_{res} **RBC**
Motor vehicle liability	8.00%	5.37%	9.00%	3.80%
Motor, other classes	8.00%	3.07%	8.00%	2.83%
Fire and other property damage	6.40%	4.20%	10.00%	6.37%
Third-party liability	11.20%	8.00%	11.00%	8.13%

Source: adopted from Liu et al., 2018, p. 10.

3. Solvency II methodological framework

The research was performed according to the Solvency II Standard Formula based on the guidelines provided by regulatory authority: European Insurance and Occupational Pensions Authority (EIOPA). In conformity with the Solvency II framework, the capital requirements are known as Solvency Capital Requirement (SCR) and Minimum Capital Requirement (MCR) and the equity capital is known as own founds.

The Solvency II Standard Formula applied a modular structure to calculate the SCR. The overall risk exposure of the insurer is split up into five risk modules (market, default, underwriting, operational and intangible asset risk), which are divided into sub-risks and sub-sub-risks. For each risk/sub-risk module, SCRs are being calculated. Afterwards, these SCRs are aggregated into an overall SCR using a correlation matrix to consider the diversification discount effect.

Firstly, the SCRs for market are being calculated separately, counterparty default, and non-life underwriting risks and then are aggregated using the equation (1) with correlation coefficients provided by EIOPA, resulting the Basic Solvency Capital Requirement (BSCR).

$$BSCR = \sqrt{Corr_{(i,j)} \cdot SCR_i \cdot SCR_j} \qquad (1)$$

Where:
SCR_i, SCR_j – SCR for modules risk i respectively j;
$Corr_{(i,j)}$ – correlation factors.

The overall SCR is the sum between the Basic Solvency Capital Requirement and Operational Risk SCR without considering the diversification discount.

The SCR calculation methodology for each risk module is defined in the guidelines provided by EIOPA (principles of Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009, Commission Delegated Regulation (EU) 2015/35). In the paragraph below, it is presented the SCR calculation methodology of SCR for non-life underwriting risk module.

Results and discussions

Qualitative Assessment

Before conducting the quantitative assessment, there have been performed a general theoretical comparison of the two regulatory frameworks focused on four aspects: solvency capital requirements (SCR) calculation complexity, accounting principle, non-life underwriting risks module and trigger of regulatory intervention.

The calculation of the capital requirements differs substantially between the two solvency systems. Solvency II is a dynamic cash-flow-based model, in which a probabilistic risk measure (Value-at-Risk of the basic own funds of the insurance company to a confidence level of 99.5% over a one-year period) is applied to calculate the solvency capital requirements. The Solvency II standard formula is in general risk-sensitive except the operational risk, non-life and health underwriting risks which are factor-based charges. RBC formula is in general factor-based with some internal models (for example the capital requirement for variable annuities can be calculated using an internal model calibrated based on the expected shortfall to a confidence level of 90%). Under the RBC formula, the capital requirements are calculated by multiplying risk-factor charges by various balance sheet items. Consequently, the Solvency II formula is considered more complex than RBC formula.

Substantial discrepancies appear with regard to the accounting principles applied in the solvency evaluation of the insurance company. Under the Solvency II regime, the insurer solvency assessment is in conformity with the economic balance sheet (market-consistent valuation). Liabilities (except the technical provisions) and assets are evaluated at fair value, which are close to the IFRS (International Financial Reporting Standards). Under the RBC system, the solvency assessment is based on the book values in accordance with the SAP (Statutory Accounting Principles), which are based on the GAAP (Generally Accepted Accounting Principles), with rejects or differences in certain areas. The main part of the insurer's balance sheet liability is represented by technical provisions. In conformity with the Solvency II framework, the estimation of the technical provisions is based on their current exit value (the amount necessary to transfer contractual rights and obligations today to another insurer) and correspond to the sum of the best estimate of the liabilities and a risk margin (calculated based on the cost-of-capital method). In conformity with the Solvency II methodology, the reserves must be discounted while under the RBC not. Consequently, the solvency evaluation under the two regulatory regimes differs substantially: market valuation under Solvency II and book values under RBC. Therefore, the same insurance portfolio may lead to different solvency capital requirements under the same methodology, influenced by the accounting principles applied by each regulatory regime.

In the both regulatory regimes, insurance companies are exposed to several categories of risks such as: market risk, credit risk, underwriting risk and operational risk. Starting with 2017 year, as part of the Solvency Modernization Initiative (SMI), the operational risk and

catastrophe risk were included in the RBC formula. Under the Solvency II formula, the underwriting risk consists of premium and reserve risk, catastrophe risk, and lapse risk. Under the RBC, the underwriting risks (insurance risks) consist into R4 (outstanding claim) and R5 (premium risk) and catastrophe risk (that have introduced recently in property/casualty formula. In both systems, the solvency capital requirements for premium and reserve risk for non-life insurers are calculated by applying a factor – based formula, determined through the multiplication of the premiums and outstanding claim volume with specific risk factors, that are model-independent and independent of the insurer's risk volume exposures. The solvency capital requirements for catastrophe risk is calculated by applying a scenario-based approach. For the underwriting risk module, Solvency II offers the opportunities to reduce the capital requirements for both geographic area and line of business diversification, compared to the RBC which allows only discount for line of business diversification.

Depending on the ratio between available capital and capital requirements, different levels of regulatory intervention can be triggered. Under the Solvency II, three intervention levels are defined depending on the SCR ratio and MCR ratio: (1) SCR ratio larger than 100% – no intervention, (2) SCR ratio lower than 100% and MCR ratio larger than 100% (regulatory action level) – the regulator must take measures to restore the insurer solvability condition, (3) MCR ratio lower than 100% – the regulator must revoke the company's license followed by the liquidation of the in-force business and transfer of the company's liabilities to another insurer. Under the RBC, five intervention levels are possible depending on the ratio between total adjusted capital and capital requirements: (1) ratio larger than 200% no intervention, (2) ratio between 150-200% (insurer-action level) – the company must submit a report, (3) ratio between 100-150% (regulatory-action level) – the company must submit an action plan, (4) ratio between 70-100% (authorized-control level) – the regulator can require the liquidation of the company, (5) ratio lower than 70% (mandatory-control level) – the regulator must require the liquidation of the company. Consequently, no intervention level of the regulator is defined as the SCR ratio higher than 100% under the Solvency II system and a ratio between total adjusted capital and capital requirements larger than 150% under RBC regime.

Table 2 summarizes the results of the above qualitative assessment of the two insurance regulatory solvency systems:

Table 2. *Qualitative assessment of Solvency II and RBC*

	Solvency II	RBC
SCR calculation complexity	More complex (dynamic cash-flow model)	Less complex (factor risk model)
Accounting principle	Market value	Book value
Non – life underwriting risk module	premium and reserve risk factor based formula catastrophe risk scenario approach geographic area and line of business diversification	premium and reserve risk factor based formula catastrophe risk scenario approach only line of business diversification
Trigger of regulatory intervention	100%	150%

Source: Authors' own research.

Quantitative Assessment

1. Insurer initial solvency position

As a basis for the numerical comparison of the solvency capital requirements following the methodology assumptions, firstly it is presented the initial solvency position of the insurance company analyzed and the particularly characteristics of the portfolio structure.

With regard to the business activity, the insurer is engaged only in non-life insurance risks and operates exclusively on the Romanian insurance market. The main risk factor of the insurer risk profile is the highest share of the motor portfolio in the total underwriting business, especially the significant exposure on the motor third party liability (MTPL) that accounts for 73% of overall gross written premiums. The insurance portfolio structure of the company analyzed is similar with the Romanian non-life industry. At the end of 2017, the motor insurance business dominates the Romanian market, accounting for 75% of non-life gross written premiums, a much larger proportion than in the European market (43%), whereas the property and liability lines of business account for a small share (18%), much lower than in the European market (41%). This particularly of the Romanian insurance market (motor-dominated) is not expected to change significantly over the near term.

Initial solvency position of the non-life insurer's analyzed in thousand EUR thousand: Market risk (11.232), Non-life underwriting risk (32.109), Counterparty default risk (4.624), Diversification (-8.808), BSCR (39.157), Operational risk (5.768), SCR (44.925), MCR (17.033), Own funds (64.505), SCR ratio (144%) and MCR ratio (372%). The SCR is heavily weighted by the non-life underwriting risk module in amount of 32.109 thousand EUR (SCR premium and reserve risk: 30.903, SCR catastrophe risk 3.920, diversification: -2.715), which accounts for 67% of the BSCR due to the structure of the insurer's portfolio with a significant exposure to the motor third party liability insurance segment, that led to a high SCR for the premium and reserve risk sub-module. Therefore, this high concentration on the motor insurance business represents the main risk for the non-life insurance company analyzed.

2. Numerical evaluation results

This section presented the results of each assumptions presented in the methodology section separately and aggregated. The objective of the analysis is the impact of applying certain characteristics of the RBC solvency regime such as accounting principles (book values) and risk parameters calibration (for premium and reserve sub-module) on the company's solvency position (SCR, MCR, own funds, SCR ratio and MCR ratio).

2.1. Accounting principles impact

Figure 1 presents the summary of the empirical results obtained by applying the book values of the technical provisions in the solvency capital requirements calculation of the non-life insurer analyzed under the Solvency II methodology.

Figure 1. *Accounting principles results*

	Market risk	Counter party default risk	Non-life underwriting risk	BSCR	Operational risk	SCR	MCR	Own funds	Own funds SCR	Own funds MCR
Solvency II values	11.232	4.624	32.109	39.157	5.768	44.925	17.033	64.505	64.505	62.937
Book values	11.232	4.708	34.355	41.348	6.147	47.496	18.413	48.148	48.148	46.580
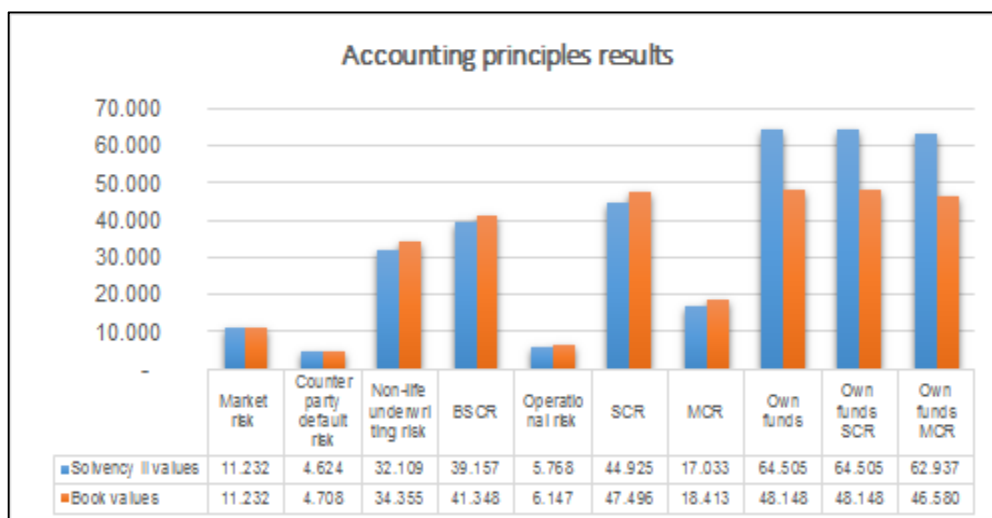
Source: Authors' own research.

The results suggest that the application of the statutory accounting principles in the technical provision evaluation have a materially impact on the company's solvency position. The most affected SCR modules by this change of the accounting principles' assessment of technical provisions are non-life underwriting risk (premium and reserve risk sub-module) and operational risk modules, due to the factor-based formula for these SCRs calculation in which premiums and reserves are used as a volume exposure. The non-life underwriting risk SCR increases by 7% up to 34, 55 million EUR and operational risk SCR increases by 6,57% up to 6.14 million EUR. After the aggregation of all SCRs changes for counterparty, non-life underwriting, and operational risk modules and then considering the diversification discount among some of these risk modules, the overall SCR increased by 5.72% up to 47.5 million EUR. Also, the impact of this accounting principles' assessment of technical provisions change in the own founds is significant, due to the large weight of the technical provisions in insurer's balance sheet liability, resulting in a devaluation of own funds by 25.36% up to 48.14 million EUR. MCR is calculated independently of the SCR using a linear factor-based formula applied to the volume of the best estimate of technical provisions and written premiums and therefore the impact of applying this change is represented by a growing of MCR by 8.10% up to 18.41 million EUR. The figure below presented the high impact on the SCR ratio and MCR ratio: a drop in SCR ratio by 29.40%, but the insurer is still solvable, SCR ratio exceeding the threshold of 100% (101.37%) and a drop in MCR ratio by 30.95%.

Figure 2. *Accounting principles impact on SCR ratio and MCR ratio*
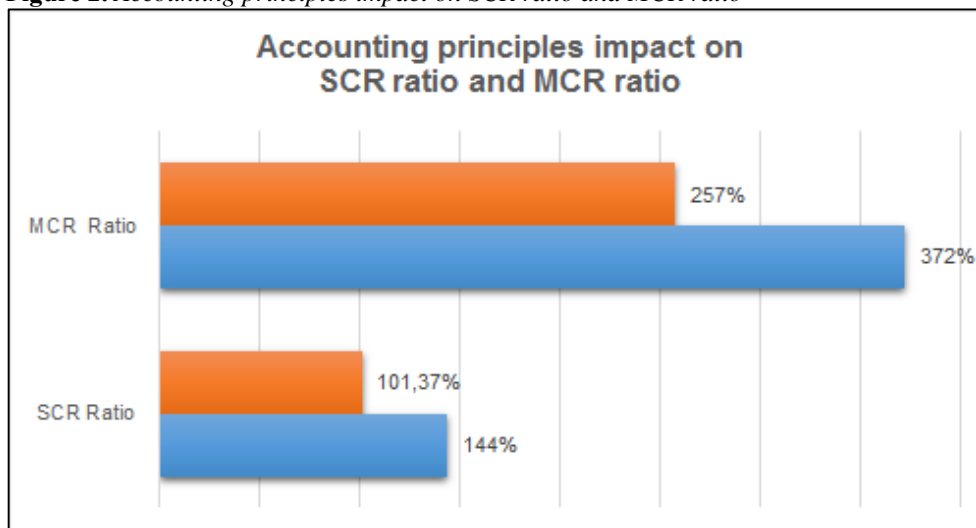
Source: Authors' own research.

2.2. Parameters Calibration for premium and reserve risk submodule impact

Table 3 presents the summary of the empirical results obtained by applying the standard deviations for premium and reserve required by RBC solvency framework for each of the four representative lines of business under all two solvency regimes: motor vehicle liability, motor other classes, fire and other property damage and third-party liability in the calculation of the solvency capital requirements for premium and reserve risk submodule.

Table 3. *Parameters calibration results*

SCR for Premium and reserve submodule split to: SCR Premium risk and SCR Reserve risk	Solvency II Parameters SCR Premium risk	RBC Parameters SCR Premium risk	Solvency II Parameters SCR Reserve risk	RBC Parameters SCR Reserve risk	Solvency II Parameters SCR Premium and reserve risk	RBC Parameters SCR Premium and reserve risk
Motor vehicle liability	12.753	7.387	8.522	4.937	21.275	12.324
Motor, other classes	5.411	2.063	1.756	670	7.167	2.733
Fire and other property damage	1.079	711	199	131	1.278	842
Third-party liability	582	424	369	269	951	694

Source: Authors' own research.

The numerical results suggest that the application of standard deviation for premium and reserve required by RBC regime have a substantial impact on the solvency capital requirements, overall the SCR under Solvency II parameters are always the highest for each line of business, due to the standard deviations that are lower under RBC. The application of the RBC standard deviation parameters led to a decrease of premium and reserve submodule SCR by 45.5% and after the aggregation with SCR for non –life catastrophe risk submodule and diversification discount, the non-life underwriting risk module decreased by 43.3% up to 18.2 million EUR. The impact in the overall SCR after the aggregating of the all SCRs modules and considering the diversification discount is similar: decrease by 28.5% up to 32.1 million EUR. The impact of this assumption is the significant growing of SCR ratio by 8.10%. The figure below presented the solvency capital requirements for non-life underwriting risk module, SCR and SCR ratio if there are applied the Solvency II standard deviations parameters, respectively the RBC standard deviations parameters under the premium and reserve risk submodule.

Figure 3. *Parameters calibration impact on non-life underwriting risk module, SCR and SCR ratio*
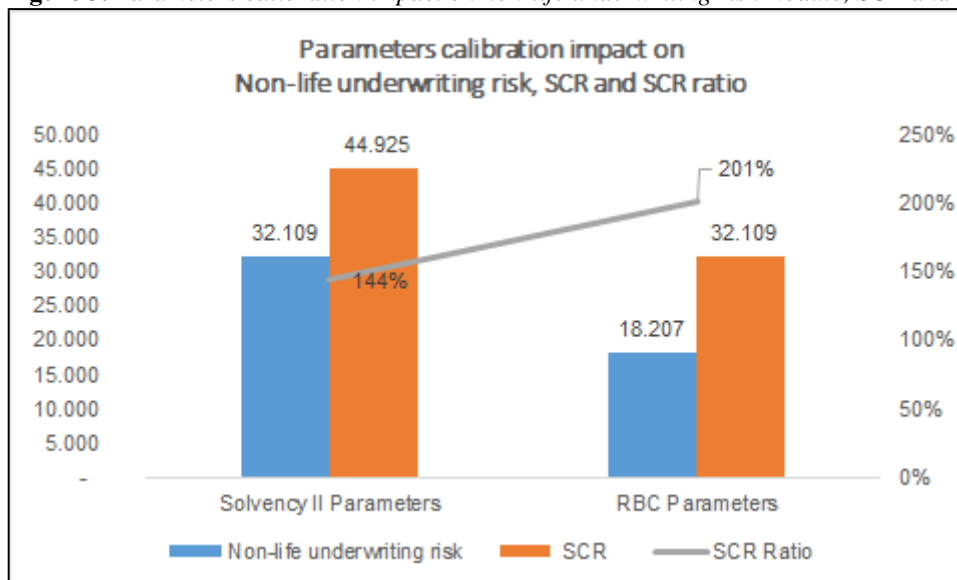
Source: Authors' own research.
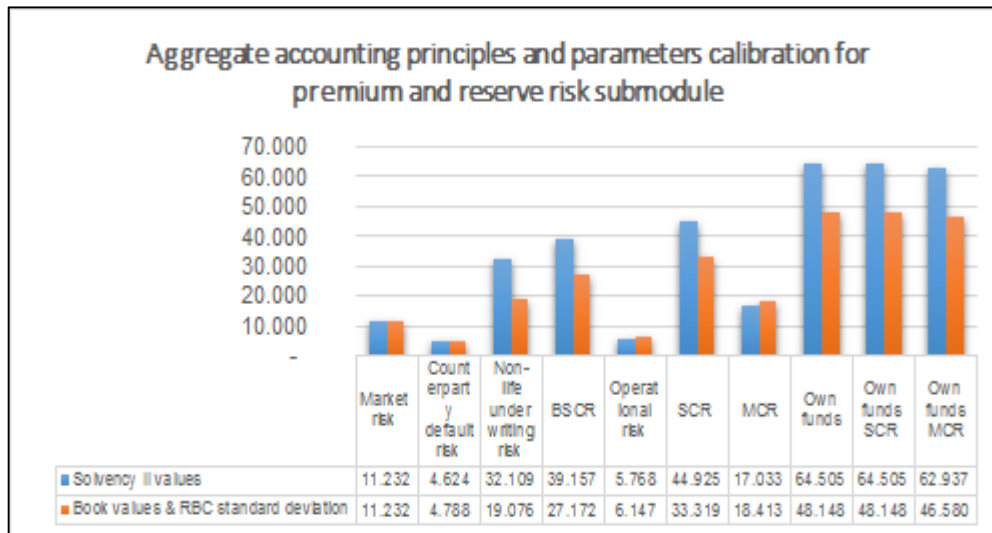
2.3. Aggregate accounting principles and parameters calibration for premium and reserve risk submodule impact

Figure 4 presents the summary of the empirical results obtained by applying the book values of the technical provisions and standard deviation for premium and reserve required by RBC solvency framework for each of the four representative lines of business: motor vehicle

liability, motor other classes, fire and other property damage and third-party liability for premium and reserve risk submodule in the solvency capital requirements calculation of the non-life insurer analyzed under the Solvency II methodology. The two assumptions: technical provision book values and RBC standard deviation have been applied combined (as a set of risk factors).

Figure 4. *Aggregate accounting principles and parameters calibration for premium and reserve risk submodule results*

Aggregate accounting principles and parameters calibration for premium and reserve risk submodule

	Market risk	Count erpart y default risk	Non-life under writing risk	BSCR	Operat ional risk	SCR	MCR	Own funds	Own funds SCR	Own funds MCR
Solvency II values	11.232	4.624	32.109	39.157	5.768	44.925	17.033	64.505	64.505	62.937
Book values & RBC standard deviation	11.232	4.788	19.076	27.172	6.147	33.319	18.413	48.148	48.148	46.580

Source: Authors' own research.

The results suggest that the combined application of the two assumptions have an immaterially impact on the company's solvency ratio. SCR ratio growth is only 1%. Similar as in the distinct assumptions, the most affected is the SCR for premium and reserve risk sub-module, which decreased by 42.6% and after the aggregation with SCR for non –life catastrophe risk submodule and diversification discount, the non-life underwriting risk module decreased by 40.3% up to 19 million EUR and the overall SCR drop by 25,8% up to 33,3 million. The impact in the SCRs for operational and counterparty risk modules and own founds it is the same as in the accounting principles' assumption.

Conclusions

The results of the numerical evaluation of two assumptions: technical provisions book values and RBC standard deviations for premium and reserve submodule risk under Solvency II standard formula methodology reveal that both assumptions have a substantial impact in the solvency capital requirements: overestimation of SCR when applying the book values of technical provisions and underestimation of SCR for premium and reserve risk submodule when applying RBC standard deviations.

The lower RBC standard deviations parameters under the Solvency II standard formula lead to a significant decrease of the solvency capital requirements (underestimation). The RBC standard deviations of premium risk depend on the expense ratio and thus differ from company to company, therefore are not risk sensitive. The standard deviations parameters under Solvency II are estimated by the value-at-risk approach, are provided by EIOPA and are larger when regulator assess the risks as higher to certain insurance LOBs than to others. Thus, the risk factors show the relative riskiness of the underlying exposure in the view of the regulator. The premium and reserve risk submodule is heavily weighted to the MTPL risk, due to the structure of the company's portfolio with a significant exposure to this segment and for MTPL the Solvency II standard deviation for reserve is 2,36 higher than RBC standard

deviation for reserve, thus charge a higher SCR for MTPL risk. The factor-based calculation of the RBC standard deviations parameters "rewards" insurance companies holding lower standard deviations parameters, having a higher risk of insolvency, with relatively lower capital requirements. The standard deviations parameters under Solvency standard formula are risk-sensitive, higher risk exposures lead to higher capital requirements. Consequently, the standard deviations parameters set by Solvency II can be considered more suitable to forecast the potential loss of the future results in the context of the solvency capital requirements than RBC standard deviations parameters.

The factor-based calculation of the non-life premium and reserve risk submodule, which use premiums and reserves as volume indicators, provides incentives to insurance companies to charge lower premiums/reserves to reduce their solvency capital requirements. Considering that, the insurance liabilities represent the core part of an insurer's balance sheet, the reliability of their valuation is the very basis to assess the solvency position of an insurance company. The valuation principles of the technical provisions are more complex under Solvency II than statutory principles. Technical provisions shall be calculated in a prudent, reliable and objective manner valuation principles. Insurance companies have to demonstrate the appropriateness of the level of their technical provisions, considering both statistical methods and data used. Therefore, the Solvency II valuation principles of the technical provisions are more accurate to be used in the solvency capital requirements than the Statutory Accounting Principles.

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Bancassurance between MiFID II and IDD

Elda MARZAI (ABLIZ)
Bucharest University of Economic Studies, Romania
elda.abliz@yahoo.com

Abstract. *The development of international markets, changing customer behaviors has led to the creation of new financial products, such as Bancassurance. Bancassurance is an insurance distribution channel through banks. Bancassurance is the main distribution channel for life insurance, the distribution of non-life insurance is less developed (e.g. France, Italy, Spain, Austria), and in Portugal the share goes up to over 80%.*
The financial crisis has highlighted deficiencies in the functioning and transparency of financial markets. The evolution of financial markets has led to the need to strengthen the regulatory framework for financial instruments markets, in order to increase transparency, investor protection, confidence, addressing unregulated areas, and to give the supervisory authorities adequate powers to carry out their tasks. This article proposes to present a classification of European regulatory measures for the implementation of Bancassurance.

Introduction

Bancassurance is the activity of brokerage of insurance products, which are complementary to the products of credit institutions and non-banking financial institutions, carried out through the network of these institutions. Bancassurance is a banking insurance distribution channel in many countries around the world, but its spread is not uniform, in some countries being the most popular model for distributing financial products, while others are totally excluded. Since Bancassurance covers different sectors of the financial services industry (banking, investment and insurance), it is generally subject to several sectoral legislation simultaneously and to a variety of regulatory regimes. While the Bancassurance distribution channel is being implemented in more than one country, regulators have been concerned with market share issues, risk concentration, and financial services focus on consumer interest. Asymmetries in the development of the Bancassurance model around the world stem from differences in industry structure, consumer requirements, and legal regulations.

In Europe, Bancassurance emerged in the 1980s and became a common product in many financial sectors across countries. Although France is the first country to develop this product, in countries like Spain, Italy and Portugal, Bancassurance has the highest percentage of implementation.
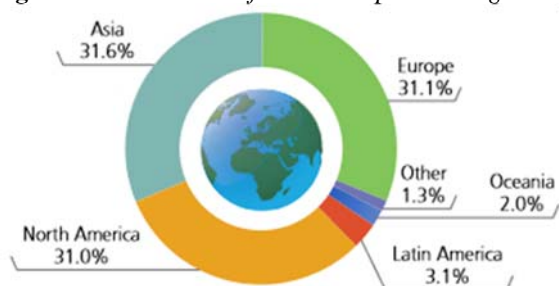
Table 1. *Evolution of Gross Written Premiums in period 2015-2016*

	Gross written premiums (€bn) at current exchange rates		Nominal growth	
	2015	2016	Current exchange rates	Constant exchange rates
Life	739	696	-5.9%	-2.2%
Health	128	129	1.5%	2.4%
Property & casualty (P&C)	349	363	-1.2%*	2.0%*
Motor	133	136	1.1%*	3.8%*
Property	93	99	-1.6%*	1.6%*
General liability	37	40	-9.7%*	-5.8%*
Accident	35	35	0.1%*	0.9%*
Total	**1 216**	**1 189**	**-3.7%***	**-0.4%***

Source: Insurance Europe, retrieved at https://www.insuranceeurope.eu/sites/default/ files/ attachments/WEB_European%20Insurance%20in%20Figures%20-%202016%20data.pdf/data extraction Jan 2019.

Globally, premiums have risen by 2.9%, to $ 4,732 billion in 2016, after a 4.3% increase over the previous year. Global volumes have risen as a result of a 10.5% increase in Asian premiums and an increase of 2.4% in North America. The volume of premiums fell to Latin America (-7.7%), Oceania (-4.6%) and other parts of the world.

Figure 1. *Distribution of insurance premiums globally*

Source: Insurance Europe, retrieved at https://www.insuranceeurope.eu/sites/default/ files/ attachments/WEB_European%20Insurance%20in%20Figures%20-%202016%20data.pdf/, data extraction Jan 2019.

Source: Insurance Europe, retrieved at https://www.insuranceeurope.eu/sites/default/ files/ attachments/WEB_European%20Insurance%20in%20Figures%20-%202016%20data.pdf/, data extraction Jan 2019.

The insurance distribution channels are: insurers, insurance brokers, agencies and bancassurance. The use of the various distribution channels varies depending on the market, the insurance product and the needs and preferences of the consumer.

Figure 2. *Distribution channels of life insurance premiums (% GDP)*
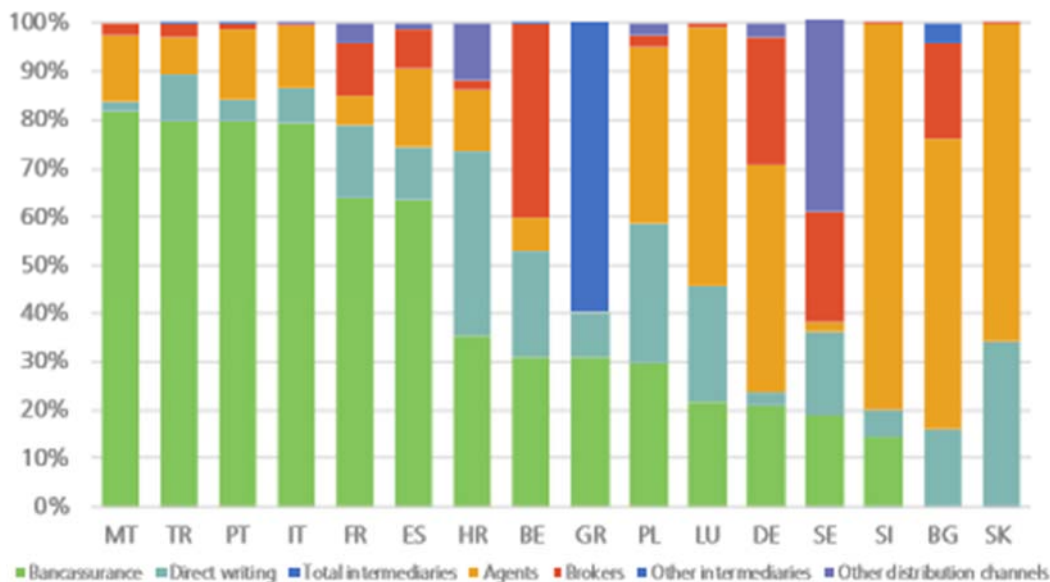

Source: Insurance Europe, https://www.insuranceeurope.eu/sites/default/files/attachments/WEB_European% 20Insurance%20in%20Figures%20-%202016%20data.pdf

Regulatory reforms

The origin of the regulatory reforms that influence the implementation of Bancassurance can be differentiated in prudential problems and business conduct problems.

1. Prudential reforms

The central focus of prudential reforms in Europe was to strengthen the resilience of financial conglomerates to systemic risks, in the form of Basel III and Solvency II, which have been specifically implemented to cover the capital and liquidity positions of banks and insurers.

Basel III is a set of measures adopted internationally by the Basel Committee on Banking Supervision in response to the financial crisis of 2007-2009. The measures are aimed at strengthening the regulation, supervision and risk management of banks. The initial phase of the Basel III reforms focused on strengthening the following components of the regulatory framework: improving the quality of the regulatory capital of the bank; raising the level of capital requirements to ensure that banks are resilient enough to resist losses in times of stress; adding macro-prudential elements to the regulatory framework by: (i) the introduction of capital buffers that are built in good times and can be drawn in times of stress to limit pro-cyclicality; (ii) establishing a high exposure regime that mitigates systemic risks arising from interconnections between financial institutions and concentrated exposures; and (iii) the implementation of a capital buffer to address the externalities created by systemically important banks; specifying a minimum leverage requirement in order to limit the excess leverage in the banking system and to complement the risk-weighted capital requirements; and the introduction of an international framework to mitigate the excessive transformation of liquidity and maturity risk through the liquidity coverage ratio and the stable funding rate.

According to BASEL III, banks must strive to improve their capital in order to comply with the new regulations. Here banks have a wide range of options to significantly mitigate the impact of Basel III: Banks can optimize the scope of their consolidated capital, for example by buying minority stakes (in line with the global portfolio strategy) or by reducing capital surplus of bank branches. In addition, banks can optimize their holdings in financial institutions, for example by reducing unconsolidated investments below the thresholds set by the regulator for capital deductions. However, this should be done with caution: such a step could trigger changes in the structure of bancassurance transactions whereby an insurer could work with several banking institutions to distribute insurance via the bancassurance channel, thus allowing participating banks to hold a smaller holding.

Solvency II aims to establish a unitary set of rules at European level that will become applicable to all insurers, reinsurers and supervisors in the European internal market. The main objective is to increase the protection of policyholders by harmonizing the regulation and supervision of the sector in order to increase the contribution to economic development. Solvency II is a supervisory regime based on principles and objectives, among other things, and: the assessment and quantification of risks for the calculation of capital in order to increase the quality of the capital items available to insurers and reinsurers; the calculation of the Solvency Capital Requirement; harmonization and uniformization of supervisory practices at internal market level; maximum accountability of the members of the Board of Directors/Supervision, the management and executive management of the insurance companies in compliance with the legislation, including by ensuring the professional quality and the moral profile of the persons in the executive management and other execution functions.

Solvency II is designed to prevent the accumulation of excessive risks in the financial system and to anticipate macroprudential unfavorable developments. Solvency II will track the potential impact of insurers' decisions on financial stability and lead to an increase in the quality of available capital items for insurers and reinsurers.

The European Financial Conglomerates Directive (2002/87/EC) aims to increase the effective supervision of financial conglomerates – large financial groups (banking groups, insurance groups, investment groups) active in different financial sectors, often cross-border. The objective of this Directive is to contribute to greater financial stability and consumer protection.

The Directive sets out specific requirements: on solvency, in order to prevent the same capital from being repeatedly used as risk protection in different entities within the same conglomerate ("overcapital capital") and to prevent the use of the "downstream effect" by parent companies, which implies the issuance of debt securities and the subsequent use of income as equity for its own regulated subsidiaries ("excessive leverage"); on the adequacy and professionalism of the conglomerate management; to ensure adequate management of the risks and internal control systems of the conglomerate; Designate a single supervisory authority to coordinate the general supervision of a conglomerate, which may involve many different authorities responsible for different parts of the conglomerate's activities; or the exchange of information and cooperation between supervisors (including those from non-EU countries) of regulated entities in a financial conglomerate.

2. Business conduct reforms

Regulatory bodies at the international level unanimously agree that corporate governance weaknesses in several financial institutions, including the lack of effective control mechanisms within them, have been one of the determining factors of the financial crisis. As a result, the conduct of banks and financial conglomerates is usually the objective of regulatory intervention. This intervention aims to protect clients from the abuse or poor conduct of financial service providers. On a large scale it mainly concerns the provision of advice, the disclosure of information to customers, the pricing of products and the remuneration of intermediaries. In order to address the potential damage caused by the weaknesses of corporate governance mechanisms, Directive 2004/39/EC should be complemented by more detailed principles and minimum standards. Those principles and standards should be applied having regard to the nature, size and complexity of the investment companies. Financial Sector Leadership in Europe is reformed through the MiFID and the Insurance Distribution Directive (IDD). The common objectives of both Directives are to increase competition and protect consumers in the field of investment and insurance services and to harmonize business conduct rules across Europe.

MiFID II in Europe

MiFID has been transposed into Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU. In addition to regulated markets and multilateral trading systems, MiFID II introduces a new trading venue: the Organized Trading System (OTF). MiFID II further promotes transparency and conflict of interest rules for all trading venues across the European Union.

In order to facilitate access to capital markets for small and medium-sized enterprises, the Directive lays down rules for the creation of a market segment for SMEs, through which SMEs can more easily access capital market resources. Adaptation to technology innovations – MiFID II introduces new requirements for algorithmic and high frequency trading activities, which considerably increased trading speed and new systemic risks arose. The new measures refer to the obligation imposed on all algorithmic traders to be regulated, to the introduction of provisions that prevent them from increasing their volatility by migrating from one market to another.

Improving investor protection – Building on the set of well-defined rules promoted by MiFID I, the new directive sets more stringent requirements for portfolio management, investment advice and complex financial products such as structured products. In order to prevent a possible conflict of interest, independent consultants and portfolio managers will be forbidden to make or receive payments or other earnings to or from third parties. Corporate governance rules and rules on managers' responsibility for all investment firms are introduced. As far as insurance

intermediaries are concerned, MiFID II focuses on additional requirements for conflicts of interest between insurance intermediaries.

It is necessary for all insurance companies to identify and take all measures to avoid conflicts of interest or in case they can not be avoided, the insurance intermediary has the obligation to communicate clearly to clients before concluding any insurance policies. The Directive also emphasizes the general principles of acting honestly, fairly and professionally, as well as informing clients, fully, clearly and correctly about insurance products. The new legislation will reshape the entire insurance distribution market, will have a major impact on all parties involved in this activity. The directive puts the customer in focus, with the regulations being developed to support and protect the customer. The major points of influence in MiFID II as well as in the IDD approach are: the advisory process, product approval and monitoring, remuneration and conflict of interest.

Consulting process

The key requirement for the consultative process in both regulations is to provide an appropriate and targeted advisory service to ensure a high level of customer protection.

The key requirement for the consultative process in both regulations is to provide an appropriate and targeted advisory service to ensure a high level of customer protection.

In the advisory process, the product portfolio and the type of deliberate advisory services must be communicated to the customer in a timely manner prior to the actual sale process. In addition, product costs need to be revealed strictly before the sales process – and in the case of MiFID II, the costs of service provision must also be presented. If the customer requests, a detailed presentation of the insurance product is provided. Under IDD, it is specified that the insurance distributor must recognize and document the requirements and needs of the client and these requirements and needs are reflected in the product selection during the consultation process.

Approval and monitoring the products

In both regulations, it is specified that it is necessary to identify and recommend the most appropriate product for the customer during the consultation process, despite the possible benefits obtained by recommending an insurance company's product. The IDD foresees that products need to be developed for a specific target market. If there are signs of lack of need for a product, the fact that a product no longer meets the needs and requirements of customers, it is necessary to review and re-establish the product.

Product review process need to be conducted at least once a year, in line with market and customer requirements and needs. Smaller products not only lead to clearer review processes, but also to the reduced training needs of sales staff. In addition, a less complex product can also be recommended in a simpler way and is additionally suitable for a possible online sale. The requirements for approval and monitoring of MiFID II products are very similar to IDD. It is therefore advisable that banks selling insurance products unify the requirements of both regulations, taking into account insurance products and integrating their specificity into defining a target market model.

Remuneration. In order to prevent conflicts of interest and thus improve the quality of customer service, the new regulations lay down remuneration systems. As a consequence, IDD and MiFID II will change the entire remuneration system for sellers of products (banks, insurance companies and asset managers). While IDD requires the remuneration system to have no negative impact on the quality of the service provided to the client, MiFID II provides for much stricter regulations, especially with regard to incentives. Under MiFID II, incentives in the context of providing investment services are only allowed if the advisory service is intended to enhance the quality of the relevant service to the client.

Under the legal provisions in force, it is forbidden for insurance distributors to be remunerated, to assess their performance in a way incompatible with the obligation to act in accordance with the best interests of the clients. Also, insurance distributors should not recommend to customers a particular product, to the detriment of its needs, in order to achieve the sales goal, to obtain an incentive or remuneration. Insurance intermediaries can not advertise or pay for the products of insurance companies.

In the case of the sale of insurance policies through the bancassurance distribution channel, when an insurance product is provided with a credit product within a package or the same cord, the insurance distributors inform customers about the possibility of separate purchase of the various components. If so, insurance distributors provide an adequate description of the various components of the agreement or package and a separate record of costs and expenses for each component.

Where the insurance risk or coverage resulting from such an arrangement or package is different from that associated with the components taken separately, the insurance distributors shall provide an adequate description of the different components of the agreement or package and how the interaction between them changes the risk; or insurance coverage.

Implementation of IDD has a significant impact on insurance companies, insurance distributors, consumers and the competitive environment. Regarding the consumer, following the implementation of IDD, it will be more thoroughly documented on the process of closing the insurance before signing the contract, which will lead to the improvement of consumer financial education.

Given that the duration of the professional qualification program is at least 50 hours of effective teaching, the duration of the continuous professional training program is at least 20 hours of effective teaching, the banks and the insurance companies will invest more in the professional training of the employees directly involved in the sales activity, which will lead to higher costs.

Conclusions

Strengthening the regulatory framework through the implementation of the Directives: The Financial Market Instrument Directive (MIFID) and the Insurance Distribution Directive, leads to the creation of a more transparent and fairer environment that puts the investor and the consumer in the spotlight. It is necessary to create the most comprehensive legislative framework in order to reduce the costs and long-term implementation efforts, offering the opportunity to improve the business model and to increase the satisfaction of the clients. Also, honest practices in favor of consumers can contribute to the long-term growth of the insurance market in Romania and the development of other insurance segments.

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Does the world need an international investment organization to battle climate change?

Hilmar Þór HILMARSSON
School of Business and Science
University of Akureyri, Iceland
hilmar@unak.is

Abstract. *Climate change is among the most challenging problems that the world has faced and the needs for investment in clean energy projects are vast. Those needs can only be met if financial resources are pooled from different sources, including public and private, as well as bilateral and multilateral donors. This is especially true for capital intensive activities such as geothermal and hydropower projects. While government funds are important, many developing and emerging countries that control clean energy sources do not have the tax base to fund large, capital intensive, long term projects. International financial institutions (IFIs) such as the World Bank Group (WBG) and the regional development banks can help with capital mobilization for clean energy projects and facilitate cooperation with the private sector. An important obstacle in scaling up clean energy projects today is that no comprehensive multilateral agreement on foreign investments exists. No multilateral institution is engaged in cross border investments in the same way as the World Trade Organization (WTO) does for cross border trade. This is an obstacle for global efforts to promote cross border climate friendly investment and an impediment for private sector flows to fund clean energy investments.*

Introduction

Climate change is among the most serious problems the world has ever faced. This is a global issue that has the potential to become a fundamental threat to economic development and human well-being on the earth. Urgent and immediate action is needed.

Natural scientists are not the only ones expressing concern about climate change. Economists, financial analysts and political scientists, among others, are now also increasingly engaged in this field. The problem is no longer only one for geoscientists and engineers. Climate change can have serious economic, financial and political consequences. Sir Nicholas Stern, a former chief economist at the World Bank Group, led a panel to review the evidence for climate change and to assess its economic implications. The Stern Commission's key message was that: "An overwhelming body of scientific evidence now clearly indicates that climate change is a serious and urgent issue. The Earth's climate is rapidly changing, mainly as a result of increases in greenhouse gases caused by human activities." (Stern Commission, 2006, p. 2).

The Intergovernmental Panel on Climate Change states that "The human influence on the climate system is clear and is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system."[1] In his book *Earth – A Tenant's Manual*, Rhodes states that "These increases in greenhouse gases are the clear result of human activity, reflecting the growing emissions produced by increased industrialization, transport, deforestation, intensive agriculture, urbanization, and growing population. And the gases have long atmospheric lifetimes..." (Rhodes, 2012, p. 172). Political scientists are also increasingly turning their attention to the problem. Princeton professor Robert Keohane has published extensively on the global politics of climate change. According to him the scientific consensus on the seriousness of the climate threat has increased (Keohane, 2015, p. 20).

Finally, the World Bank recently stated that "science is unequivocal that humans are the cause of global warming, and that major changes are already being observed" (World Bank, 2015, p. 18).

Although the consensus on the seriousness of the climate threat has increased in recent years, some debate still remains about the influence of human activity on climate change. Rhodes, for example, states that: "Because records of high greenhouse gas concentrations show [a] strong correlation with higher temperatures in ice cores, these increases are assumed to compound natural temperature increases. There is no significant disagreement in the scientific community on this point. The debate, rather, is about the degree of impact and future scale and timing of human influence on global warming" (Rhodes, 2012, p. 172). A small number of skeptics can still be found among natural scientists about the causes of climate change but this article will not discuss this debate in any detail.

The consequences of climate change can become dramatic. In his book, The Climate Casino – Risk, Uncertainty, and Economics for a Warming World, Nordhaus, for example, states that these include sea-level rise, more intense hurricanes, losses of species and ecosystems, acidification of the ocean, as well as threats to the natural and cultural heritage of the planet (Nordhaus, 2013). Currently the most striking evidence of climate change perhaps comes from the shrinking coverage of polar ice as can be seen in Greenland and Iceland, for example.

When discussing the effective response to climate change, the Stern Review states that: "Climate change is the greatest market failure the world has ever seen, and it interacts with other market imperfections. Three elements of policy are required for an effective global response. The first is the pricing of carbon, implemented through tax, trading or regulation. The second is policy to support innovation and the deployment of low-carbon technologies. And the third

is action to remove barriers to energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change" (Stern Review, 2006, p. viii)

The objective of the article is to analyze the global cross border investment regime to see how its structure may influence investment in renewable energy sources especially in developing and emerging economies. The focus is especially capital intensive clean energy sources such as geothermal and hydropower. Among the sources of evidence used for analysis is secondary data, including analytical reports and scholarly literature (see for example Yin, 2009).

Some theoretical considerations

In economic theory pollution is considered a negative externality.[2] It is a by-product of human activity and pollutants cause damage to innocent bystanders. Emission of carbon dioxide and other greenhouse gases is causing damage now and will do so in the future. These gases negatively impact global climate change. As Yale professor William Nordhaus put it "The problem is that those who produce the emissions do not pay for that privilege, and those who are harmed are not compensated" (Nordhaus, 2013, p. 17) and "governments must step in and regulate or tax activities with significant harmful externalities" (Nordhaus, 2013, p. 19).

One can distinguish between local and global externalities. Emission of carbon dioxide can for example adversely impact the health of people in the country they live in and can thus be called negative local externality. But carbon dioxide emissions not only affect local communities. They also have a negative impact on the entire global community that stands to lose from increased carbon dioxide emissions. This is because carbon dioxide emissions from one country affect all countries through their impact on global climate. Human activity thus imposes long lasting costs on bystanders without compensation. This is the essence of the market failure.

Any solution to the problem of climate change must be a global solution. Piecemeal solutions will not do. The participation and leadership of all major powers, most notably the United States, the European Union (EU), China, and India is required. As Frank Rhodes states: "The United States…has about 5 percent of the world's population but produces about a quarter of all [greenhouse gas emissions]. Though China now slightly exceeds the U.S. total emission, it has a population of four times that of the United States, and its level of [greenhouse gas emissions] is growing rapidly" (Rhodes, 2012, p. 181). The battle against climate change thus requires cooperation and coordination among developing, emerging and high income countries.

This article focuses on investment in clean renewable energy sources that are capital intensive. This is because investment in renewable energy sources can help shift the world away from high-carbon fossil fuels. Its focus is on investment in developing and emerging markets, currently the fastest growing economies in the world in terms of GDP growth, energy use and emissions. Most of the future increase in energy demand will be in developing and emerging markets. This is also where most clean energy sources are located.

It is widely believed that global warming will have more serious consequences in developing countries than in high income developed countries. We know that developing countries currently possess vast underutilized clean energy resources. Why are these resources not used on a larger scale and what needs to be done to take advantage of those resources to help remedy the problems of climate change for those countries and, indeed, for the whole world?

Many challenges are related to increased use of renewable sources such as geothermal and hydropower. As the World Bank has stated: "Capital intensive infrastructure projects have a number of distinctive features:
(i)   they require significant upfront capital and take many years to payback;

(ii)   output is typically sold on a basis of long term contracts;
(iii) and permitting risks can be significant" (World Bank, 2012, p. 3). And furthermore: "low-emission projects tend to have higher upfront costs; produce less output per unit of capacity; and have higher perceived risks than conventional infrastructure projects."

The geothermal sector is currently a market niche that has a substantial global market opportunity with significant growth rates in coming years. In fact, according to the International Financial Corporation: "Around 40 countries worldwide, including several low and middle income countries, have the potential to meet a sizeable proportion of their electricity demand through geothermal power, at a relatively low cost (around $.08 per kilowatt hour)" (International Financial Corporation, 2014, p. 52). One can say that geothermal is like an infant that has not been taken care of. The need is to step up local and global efforts. This article is also relevant for large hydropower projects built in a challenging business and investment environment[3] to show how the international community can help make such investments available with the appropriate lending and risk mitigation instruments. This requires the cooperation, coordination and commitment of many different players, including host governments, the international community via international financial institutions, bilateral agencies and donors as well as the private sector. The World Bank recently stated that it "is working to leverage both public and private sources of climate finance to support climate-smart policy and investments and help countries and business adapt to a changing climate" (World Bank, 2015, p. 18).

The global warming externality can be eliminated by setting an appropriate price for carbon. But further action is needed. Indeed, simultaneous multiple action is required, including:
(i)   the pricing of carbon (implemented through tax, trading or regulation);
(ii)   policy to support innovation and the deployment of low-carbon technologies, and
(iii) action to remove barriers to energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change. This includes clean energy investments. As Nordhaus has argued, "…if other policies fail, development of low-carbon technologies is the last refuge for achieving our climate goals" (Nordhaus, 2013, p. 289).

Global primary energy consumption

Renewables account for only a small share of global primary energy consumption, which is still dominated by fossil fuels: about 30 percent each for coal and oil and 25 percent for natural gas (see Table 1). Progress in the development of renewables could be fragile if fossil fuel prices are low for long. Low prices for oil, gas and coal can slow down innovation and adoption of cleaner technology. Policymakers should not allow this to happen.

Table 1. *Share of Primary Energy Consumption (percentage points)*

	Oil*	Natural Gas**	Coal**	Nuclear Energy	Renewables
World	33	24	30	4	9
United States	36	30	20	8	5
China	18	6	66	1	10
European Union	37	22	17	12	13
*Oil is mostly to power transportation. **Coal and natural gas are mainly used for electricity generation.					

Source: Arezki and Obstfeld, 2015[4].

In 2016 nations from around the world gathered in Paris for the United Nations Climate Change Conference, with the goal of a universal agreement on reducing greenhouse gas emissions. The Paris climate summit[5] adopted a new agreement. It does not ensure or spell out the end of fossil fuels or assure that temperatures will not rise more than two degrees. Nevertheless, the Paris

Agreement has the potential to mark a historic shift in how the world negotiates cooperation on climate change. Only time will tell if the full promise of the Paris Agreement will ever be achieved. The exit of the USA and uncertain re-entry greatly weakens the agreement[6] and its re-entry remains uncertain.

Utilizing additional funds for clean energy investment is not only a national effort but also an international effort. It is a test for developing and emerging market countries but also for international financial institutions (IFIs) to assist those countries make the transition. So far IFIs, including the World Bank and the regional development banks have been slow to respond (See for example Hilmarsson, 2013 and 2017). Those institutions can for example offer loans, guarantees and provide equity to support clean energy projects but they do not provide a comprehensive solution for the problem.

Is an International Investment Organization needed?

The absence of a global government makes global warming is a challenging problem to manage. Very broad participation is needed to fully address the global "tragedy of the commons" that results when countries fail to take into account the negative impact of their carbon emissions on the rest of the world. Furthermore, free riding by non-participants, if sufficiently widespread, can undermine the political will to action of participating countries (Arezki and Obstfeld, 2015).

The lack of a comprehensive foreign investment regime also makes risk management for cross border clean energy investments more difficult. No comparable international organization exists to deal with cross border investments in the same way as the WTO does for trade. The lack of an international framework for cross-border investment makes political risk mitigation challenging. Cross border investment is less likely to take place unless proper risk mitigation is possible, feasible and fair for all parties involved.

Robert O. Keohane and David G. Victor (2011) have examined the international climate regime. They argue that "[t]he international institutions that regulate issues related to climate change are diverse in membership and content. They have been crafted at different times, and by different groups of countries. They have been crafted in a context of diverse interests, high uncertainty, and shifting linkages. They are not integrated, comprehensive, or arranged in a clear hierarchy. They form a loosely-linked regime complex rather than a single international regime" (Keohane and Victor, 2011, p. 20). Keohane and Victor argue that "The infeasibility of a strong comprehensive regime makes climate change a very difficult international problem to manage" (Keohane and Victor, 2011, p. 20).

Furthermore "The failure of efforts to develop a comprehensive, integrated climate regime reflects resistance to costly policies in rich countries, such as the United States, and in developing countries alike" (Keohane and Victor, 2011, p. 8). They conclude that "At the present juncture, however, both political reality and the need for flexibility and diversity suggest that it is preferable to work for a loosely linked but effective regime complex for climate change" (Keohane and Victor, 2011, p. 20). However, it is not clear how a loosely linked regime would operate and how it would differ from the current system that has not yet produced favorable results.

Currently about 3000 bilateral investment treaties are in force. As professor Jeswald Salacuse at the Fletcher School of Law and Diplomacy (2010) states, this emerging regime for international investment significantly differs from other international regimes. Three of the most important are that:
(1) the regime has largely been constructed bilaterally, rather than multilaterally;

(2) it gives broad scope to private and decentralized decision making; and

(3) no multilateral international organization supports the investment regime (Salacuse 2010, p. 463).

In fact, if one considers Keohane's definition of cooperation as the "co-ordinated mutual adjustment of states policies yielding benefits to participants"[7] one can also argue that institutionalized cooperation in the field of foreign investment does not exist.

The current investment regime has been founded on the assumption that it will increase international investment, which will then lead to increased prosperity and economic development (Salacuse 2010, p. 468). However, it has been questioned whether investment treaties have in fact increased investment flows to poor countries. The World Bank, for example, has stated that "[e]ven the relatively strong protections in [bilateral investment treaties] do not seem to have increased flows of investment to signatory developing countries" (World Bank, 2003, p. xvii).

Given the fragmented investment regime, it is difficult to identify the specific hegemon that has advanced and maintained the investment treaty system. As Salacuse (2010) has argued "…capital-exporting countries have acted as a collective hegemon to create and maintain the investment regime and thereby maintain their global economic advantage, particularly in relation to developing, capital-importing nations" (Salacuse, 2010, p. 434). Indeed, capital-exporting countries have been the primary force driving negotiation of bilateral investment treaties on which the current investment regime is based. Part of the reason is that after World War II capital-exporting countries felt the need to protect the investments of their nationals. The need for such protection was heightened during the decolonization of territories that had previously been under the control of capital-exporting states.

Why have the nations of the world been willing to negotiate bilateral investment treaties in such large numbers over the last fifty years instead of negotiating global agreements? From a technical perspective it is of course less complicated to negotiate a bilateral agreement than a global treaty that must accommodate the interests of many countries. From a political perspective, given the asymmetric nature of bilateral negotiations between a strong developed country and a usually much weaker developing country, the bilateral setting allows the developed country to use its power more effectively than does a multilateral setting. For example, in multilateral negotiations, developing countries have the opportunity to cooperate with like-minded states to increase their power in negotiations. This would be impossible in bilateral negotiations (Salacuse, 2010, p. 464).

When discussing international investors' efforts to manage political risks, Harvard Professor Louis T. Wells (2005) considers four options: (i) international arbitration, (ii) official political risk insurance, (iii) home government support, and (iv) finally, official credit.

In the absence of a global investment agreement such as the General Agreement on Tariffs and Trade and later the World Trade Organization, investors have turned to piecemeal solutions when protecting their rights in risky countries. According to Wells, "[t]hese agreements set out rules for trade, but they provided few rules for investment... They did nothing to manage the political risks that could hinder foreign investment. Starting with the aborted International Trade Organization of the immediate post-World War II era, several efforts to create a similar global framework for investment came to naught. The history of failure did not encourage renewed efforts to create a comprehensive approach" (Wells, 2005, pp. 89-90).

Furthermore, Wells states that "[t]he resulting system, however, was not the product of any grand design but the result of uncoordinated steps by various parties. Certainly, some of the problems of the new system derive from the lack of a single framework; even more important

problems can be attributed to the lack of explicit negotiation and mutual acceptance among the affected parties" (Wells, 2005, pp. 89-90).

This failure described by Wells is especially serious if one considers clean energy projects that tend to be large, capital intensive and long term. An additional challenge is that energy resources are to a large extent located in developing and emerging countries that are also currently growing faster than high income industrialized countries, both in terms of Gross Domestic Product and population, and thus also energy use. When host governments in developing and emerging countries cannot make credible long term commitments to foreign investors, those investors will tend to avoid these projects. This becomes especially troubling during times when a global need exists for transition to clean energy projects. As Wells points out, "[t]he need to satisfy the demand for security grew as the international community became increasingly eager to encourage private foreign investors to build infrastructure – roads, power plants, water systems – in the developing world" (Wells, 2005, p. 89). "Without external protection, direct investors in these industries would have to be very brave, or perhaps ignorant, to enter these industries, where they would have little bargaining power once their capital was committed" (Wells, 2005, p. 89).

As mentioned above, Wells (2005) noted four options when discussing international investors' efforts to manage political risks:
(i) international arbitration;
(ii) official political risk insurance;
(iii) home government support, and
(iv) official credit.

From the point of view of project investors, option (i), international arbitration, faces the objection that engaging in cross border investment and relying on favorable international arbitration in the event of dispute is not a predictable means of mitigating political risks for foreign investors, but it allows them to escape domestic courts. This can be a lengthy and costly process both for the host country and the foreign investor. The World Bank Group-sponsored International Centre for Settlement of Investment Disputes (ICSID)[8] is for example a leading international arbitration institution devoted to international investment dispute settlements. ICSID only facilitates resolution of investor-state disputes. In the case of energy projects, the Energy Charter Treaty organization and secretariat whose concern is trade and investment in the energy sector also provides for an investment dispute settlement mechanism.[9] The Energy Charter Treaty applies to all types of energy, including geothermal energy projects. However, the Energy Charter Treaty can only be used in relation to investors of states and host states that have ratified/acceded to it and it does not enjoy global membership. Arbitration can also be based on bilateral investment agreements that include an arbitration clause.

Option (iii), home government support, may be viable for investors from large countries such as the USA or e.g. larger EU member states but faces the objection that home government support does not sound as promising for investors from less powerful countries such as Iceland. In fact, being an investor from a small country only adds to the risks as small countries can only be expected to wield limited leverage in the event of a dispute with a host government in a developing country that could be a much larger country. Options (ii) i.e. official political risk insurance and (iv) i.e. official credit could be a possibility for investors from smaller as well as larger countries to consider when making a foreign investment decision, if feasible venues for cooperation with, e.g., IFIs and export credit agencies[10] can be found.

If official political risk insurance is chosen from a multilateral institution such as the World Bank's Multilateral Investment Guarantee Agency (MIGA)[11] or from a bilateral insurer such

as the USA's Overseas Private Investment Corporation,[12] it is important that the insurance policy truly helps the private sector mitigate against risks as this can facilitate capital flows to places where funding is needed. But in addition to the interest of the insured one also needs to consider the interests of the host country and the behavior of the insurer.

From the point of view of the host country as well as the insurer, some issues exist to be concerned about, including two types of moral hazard. First, in the event of a dispute, an insured investor has less incentive to renegotiate a contract than an investor without insurance. The investor may be tempted to walk away from a project without considering adjustment to the terms of the contract in the host country and simply claim the insurance. This can be a serious problem for a host country that is for example faced with a financial crisis such as the regional crisis in Asia in 1997/98 or the global crisis in 2008/09.

Second, the insurer may have an incentive to pay a claim to a foreign investor since its next move can be to make a claim on the host country and collect its money. The World Bank as insurer is often in a strong position *vis-à-vis* the host country since it may be supporting other projects and programs that will be affected if the host country does not reimburse the bank that just paid out a claim.

But where is the international investment regime heading? One can argue that the world is gradually moving towards an international arrangement on cross border investments. This started with bilateral investment treaties (currently about 3000), then with regional arrangements such as the EU and the North American Free Trade Agreement that have provisions for cross border investments. The next step in this evolution is an inter-regional agreement such as the Trans-Pacific Partnership (TPP)[13] and the Transatlantic Trade and Investment Partnership (TTIP).[14] TPP did not take effect because of exit of the USA from the agreement and was replaced by the Comprehensive and Progressive Agreement for Trans-Pacific Partnership without US participation.[15] The USA did not terminate the TTIP.[16]

It is possible to view the move from bilateral to regional agreements and then inter-regional agreements as a way to proceed toward a global investment regime like the General Agreement on Tariffs and Trade and then the World Trade Organization on trade. However, one could also view this as four stage evolution: (i) bilateral, (ii) regional, (iii) inter regional, (iv) global as taking the attention away from global efforts. The different language used in different agreements can make consolidation of those agreements into a global arrangement difficult.

What could the reasons be for lack of progress towards a global arrangement? One reason could be that it is easier to negotiate with a smaller number of countries participating in regional agreements such as the North American Free Trade Agreement, the Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership than in a global setting. Geo-political tensions can play a role.

Multilateral investment agreements can be beneficial to developing countries for several reasons including greater availability of the appeals process (e.g. if one compares some bilateral investment treaties with proposals for the Transatlantic Trade and Investment Partnership) as well as consistency of language. Developing countries could also secure a better deal in a multilateral arrangement that involves more than one rich country. This is because rich capital exporting countries will be protecting themselves against cases involving other rich capital exporting countries. This could imply better agreements for developing countries than a bilateral agreement between a rich and a poor country. In other words, rich countries are not as likely to dominate in regional negotiations that include several rich countries or in a global setting where many rich countries are participating.

In addition to the current trend for more multilateral arrangements (regional and inter-regional) another possibility is that bilateral agreements will improve. Cases of countries such as Indonesia withdrawing from the bilateral investment treaty system suggest that as a consequence we might achieve better agreements where multilateral arrangements such as the Transatlantic Trade and Investment Partnership might serve as a model for better bilateral investment treaties.

Conclusions

Climate change is among the most serious challenges the world has ever faced. This is a global problem that is a threat to economic development and human well-being on the earth. Urgent action is needed. The battle against climate change requires international cooperation and coordination. Strong incentives exist for individual countries to free ride and the absence of a global government, or a strong international organization to enforce cuts in emissions, make this battle a sharply challenging problem to manage.

Rich countries have preferred to sign bilateral investment treaties with developing and emerging countries rather than having a global investment regime supported by an international organization. This makes long term clean energy investments in developing and emerging markets more problematic. IFIs tend to serve investors from rich countries rather than the interests of developing host countries. Self-interest and short-sighted (in)action on the part of rich countries make climate change a very difficult problem to manage. Weak institutions and governance problems in developing and emerging countries only add to this problem.

Part of the strategy in the battle against climate change ought to be transition to clean energy sources. This requires infrastructure investment to utilize these sources on a larger scale. This is currently not happening fast enough and investment in developing and emerging markets is often challenging because of underdeveloped business and investment environments. Emerging and developing countries have the largest underutilized clean energy sources in the world and they also have the strongest demand given both current economic and population growth. Clean energy investments like geothermal and hydropower, are large, capital intensive, and long term. Those projects often need sponsorship and funding from public, private and donor sources. This requires international cooperation and coordination, cooperation between the public and the private sector, as well as a fair sharing of risks and rewards.

The success of the WTO in preserving the long term benefits of an open global trading system is notable. One can argue that the GATT that later became the WTO is the most successful international organization ever established. In contrast, the current investment regime is mostly bilateral, with decentralized decision making, and no international organization supports the regime: no WTO is available for cross border investments.

In the absence of a global investment agreement, like the GATT and subsequently the WTO on trade, investors have turned to piecemeal solutions when protecting their rights in risky countries. This failure to create a global framework for investment is especially serious if one considers capital intensive clean energy projects. The current investment regime seems mainly to be concerned with protecting investors from rich countries against government action in poor countries.

The failure to create a global investment regime traces all the way back to the Bretton Woods conference. In fact, one can hardly talk about any institutionalized cooperation on cross border investments on a global scale. Some regional agreements and interregional agreements address cross border investment but it is unclear yet if those will eventually result in a global

arrangement supported by an international organization. Rich countries may be better off with the current arrangement, i.e. the interests of capital exporting countries can continue to dominate developing and emerging countries.

IFIs can be important partners not only with direct funding, i.e. loans and equity investment, but also increasingly through risk mitigation instruments. However, the insurance and guarantee instruments offered by IFIs to promote cross border investments are piecemeal solutions that could nevertheless be useful to leverage funding for clean energy investments. While they have not been used much to support cross border clean energy projects, some signs suggest that e.g. the World Bank Group may be stepping up its efforts. IFIs can also make important contributions via policy dialogue and technical assistance.

Increased investment in clean energy projects can only be part of the solution in the battle against climate change. Nevertheless, it is an important part of the strategy. Investment in infrastructure creates jobs and profits and can thus provide the right incentives for global action. Any global climate agreement needs to construct a finance regime that supports low-carbon development in developing and emerging countries. The climate finance regime should incentivize decarbonization and IFIs should give priority to clean energy investments.

The international community needs to ask two questions:
1) How can we make the global investment regime more effective, especially in promoting clean energy investment in developing and emerging markets?
2) How can we reform the IFIs to make them more effective in responding to the climate crisis?

Notes

[1] See Intergovernmental Panel on Climate Change, Fifth Assessment Report, see https://www.ipcc.ch/report/ar5/index.shtml
[2] Externality can be defined as a consequence of an industrial or commercial activity which affects other parties without this being reflected in market prices, see for example: http://www.oxforddictionaries.com/definition/english/externality
[3] For evaluation of different business and investment environments see World Bank, 2017.
[4] The Price of Oil and the Price of Carbon, see http://blog-imfdirect.imf.org/2015/12/02/the-price-of-oil-and-the-price-of-carbon/
[5] Also known as COP 21.
[6] See https://www.theguardian.com/environment/2017/jun/01/donald-trump-confirms-us-will-quit-paris-climate-deal
[7] Robert Keohane, The Analysis of International Regimes, in Regime Theory, *supra* note 21, at 23.
[8] The International Centre for Settlement of Investment Disputes (ICSID) is an autonomous international institution established under the Convention on the Settlement of Investment Disputes between states and nationals of other states. It currently has more than 140 member states. The convention sets forth ICSID's mandate, organization and core functions. The intended purpose of ICSID is to provide facilities for conciliation and arbitration of investment disputes. ICSID is one of five institutions that make up the World Bank Group (World Bank, 2015).
[9] The Energy Charter Treaty contains a comprehensive system for settling disputes on matters covered by the Treaty. The two basic forms of binding dispute settlement are state-state arbitration on the interpretation or application of almost all aspects of the Treaty (except for competition and environmental issues), and investor-state arbitration for investment disputes. See http://www.energycharter.org/what-we-do/dispute-settlement/overview/
[10] For discussion about export credit agencies see Dinh (2012), Hilmarsson (2013) and Dinh and Hilmarsson (2014).
[11] The Multilateral Investment Guarantee Agency (MIGA) is one of the five organizations included in the World Bank Group. Established in 1988, its intended mission is to promote foreign direct investment into developing and emerging market countries by providing risk insurance/guarantees and credit enhancement and thereby to help support economic growth, reduce poverty, and improve people's lives. MIGA's operational strategy in

intended to attract investors and private insurers into difficult operating environments. MIGA is intended to focus on insuring investments in the areas where it can make the greatest difference: (i) countries eligible for assistance from the International Development Association, (ii) fragile and conflict-affected environments, (iii) complex projects that can be transformational, especially in infrastructure and extractive industries, and (iv) middle-income countries where the agency can have an impact. MIGA offers coverage for five non-commercial/political risks. Coverage can be purchased individually or in combination: (i) currency inconvertibility and transfer restrictions, (ii) expropriation, (iii) war, terrorism and civil disturbance, (iv) breach of contract and (v) nonhonoring of financial obligations (World Bank, 2015).

[12] For Political Risk Insurance offered by the Overseas Private Investment Corporation, see https://www.opic.gov/what-we-offer/political-risk-insurance

[13] Trans-Pacific Partnership, see https://ustr.gov/tpp/ https://www.mfat.govt.nz/en/trade/free-trade-agreements/free-trade-agreements-concluded-but-not-in-force/trans-pacific-partnership-agreement-tpp/

[14] Transatlantic Trade and Investment Partnership, see http://ec.europa.eu/trade/policy/in-focus/ttip/

[15] Comprehensive and Progressive Agreement for Trans-Pacific partnership. See for example https://www.tpp.mfat.govt.nz/

[16] See https://www.bloomberg.com/news/articles/2018-03-29/trump-willing-to-reopen-ttip-amid-eu-u-s-trade-spat-ross-says and https://www.cnbc.com/2017/05/30/exclusive-wilbur-ross-says-hes-open-to-resuming-ttip-negotiations.html

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Defining the concept of risk applied in entrepreneurship. Conceptual delimitation risk – entrepreneurial uncertainty

Andrei Alexandru TĂRĂBÎC
West University of Timișoara, Romania
andrei.tarabac@e-uvt.ro
Gabriel MORAR
West University of Timișoara, Romania
gabriel.morar@e-uvt.ro

Abstract. *Even though in many cases the terms of risk and uncertainty are similar, but they have to be delimited to understand the meaning of each individual as accurately as possible. The two terms are combined in different situations. No matter how well the risk is managed, uncertainty can not be removed because all possible situations and interdependencies can not be taken into account. Thus, a source of risk can be considered uncertainty in itself if it is based on poor quality information about the actual internal or external situation of the company. Also, in my conclusion, traditional financial theory distinguishes between systematic risk and the particular risk, which reaches the company's overall risk. Investors can reduce total risk with the two primary risk management instruments, namely diversification and asset allocation.*

Keywords: entrepreneur, risk, uncertainty, SME's.

JEL Classification: D81, L26.

1. Introduction

The evolution of risks can have a significant effect on profits, even on the survival of the company, so it is very important to try to keep them under control. The risk is the result of the use of resources, through which the entrepreneur can suffer probable losses or will have lower incomes than planned. The concept of risk when referring to an investment can be perceived not only as the danger of not reaching the desired level, but also as a probability of going beyond what is desired. Managing it can mitigate the negative effects it can have on business, and success can only be achieved through a proper risk-benefit assessment.

Entrepreneurs may have a perception of risk, which may be different from what determines them to make a decision. A cause of this issue is the concern of managers to present risk by value-added, without using modern methods of estimating it (statistical, probabilistic calculation). Another aspect is the preference of describing the risk to the detriment of its quantification, considering only partially possible events, instead of considering the results as a whole. Risks that an economic entity has to manage give arise to two approaches or cultures of risk: one that rejects the risk and another that accepts it (Griffiths, 2005). The culture that rejects the risk is characterized by stability, experience, centralized management, and the needs of the clients being put in second place after the efficiency of the internal organization of the activities.

On the other hand, this perception of risk gives rise to the lack of initiative of the employees, leading to the lack of strategies, and the lack of innovation leads to skepticism. The culture that accepts the risk is exactly the opposite of the other: open to innovation, the determinants being novelty, motivation, exploitation of specific opportunities.

Decisions are passed on to all employees, customers are at the forefront, and the continuous change in strategies reflects adaptation to existing circumstances. The two cultures are characteristic of the following types of risk management: culture that rejects risk is characteristic of traditional risk management; culture that accepts risk is characteristic of modern risk management.

2. Theoretical background

The term is derived from the French risque of the 17th century and is defined by the French explanatory dictionary Le petit Larousse as a danger, the more or less likely inconvenience to which we are exposed or exposure to a hazard, loss or failure. The explanatory dictionary of the Romanian language defines it as "the possibility to reach a danger... or to bear a damage: a possible danger" (Coteanu, 1998, p. 929).

A research of early financial literature shows many discussions about risk, but only a few definitions. There are two trends specific to the 20th century in defining risk: subjective probability and operationalism. The most famous definition of risk is that of Frank Knight in 1921 in his paper Risk, Incertitude and Profit. *The definition given by Knight is as follows: To preserve the distinction between measurable uncertainty and unmeasurable uncertainty, we can use the term to designate the prime and the uncertainty term for the latter* (Knight, 1921: 233). The given definition quantifies risk through objective probability and uncertainty through subjective probability.

When it comes to the risks that can affect an organization's activity, namely economic risks, its classification is known by numerous criteria. We will list some criteria for their classification:

1. The nature of the risks may be:
- pure risks are events that can not be controlled, representing insurable events (natural calamities, wars, etc.);
- speculative risks in which there is probability of both loss and gain. These are manageable through management techniques.

2. According to their location, there are:
- macroeconomic risks;
- sectoral risks;
- microeconomic risks.

3. According to their foreseeability the risks may be:
- predictable risks, which are generated by predictable factors;
- unpredictable risks from unanticipated factors.

4. According to the phenomenon belonging:
- internal risks, which are the result of the company's activity;
- external risks, which depend on the environment in which the company operates.

5. Depending on the consequences of the risks may be:
- exploitation risks, which reflect the variation in the result when changing the conditions of the activity;
- financial risks, which reflect the variation of the result according to the financing policy;
- bankruptcy risks that show the company's solvency through its ability to meet its current payment obligations.

The terminology of risk varies from one organization to another, so practitioners working in different organizations may use distinct terms to refer to the same risk or the same nomenclature for different risks.

There are five types of different classifications used by the various regulatory bodies and insurance companies listed below (Kelliher et al., 2011, p. 21):
- The Book of the Financial Services Authority of the United Kingdom (FSA).
- German Federal Financial Regulatory Authority (BaFin).
- The Lloyds Bank Group.
- UK Life and Financial Services Prudential plc.
- Working Group of Statistical Professionals in Risk Classification.

3. Methodology

The theoretical and methodological approach of the studied issue has as reference the current and the reference research in the field and the information activity provided information that can highlight the concepts and processes existing in the literature and in the practice of organizations. At national level, there are works that deal with cost-benefit issues by using, in particular, traditional cost-effectiveness analysis indicators. The issue addressed in the case study by using modern indicators of profitability, in correlation with those of risk, is not the subject of the empirical studies conducted in our country up to this point. Treating the two approaches in parallel – using modern and traditional indicators – highlights the differences between the two studies, delivering results that can meet any company goal, from maximizing profits, lowering costs, etc. to increasing value.

4. Findings

The approaches of other theorists from this period refer to subjective interpretations (probabilities are human convictions) and objectives (probability is real, estimated by statistical analysis) of probability.

According to subjective interpretations, probabilities are not intrinsic to nature, but they characterize their own uncertainty (Holton, 2004, p. 19). Knight's definition provides an objective perspective on risk and refers to the intrinsic probability of a sentence being true or false by determining the likelihood (subjective process) in two ways: the a priori probabilities that are derived from the pure risk and the statistical probabilities obtained on based on homogeneous data. The definition given by Knight is as follows: To preserve the distinction between measurable uncertainty and unmeasurable uncertainty, we can use the term risk to designate the first and the uncertainty term for the latter (Knight, 1921, p. 233).

The given definition quantifies risk through objective probability and uncertainty through subjective probability. A critique of this definition is that it is not a definition of risk in reality. According to common use, the risk involves both uncertainty and possible consequences of exposure. Harry Markovitz, the researcher who developed the modern portfolio theory, states in his PhD thesis: "The concepts of yield and risk appear frequently in the financial literature. If the term yield was replaced by the expected return or expected return, the term of risk with the variation in profitability would result in a small change of meaning." (Haslett, 2010, p. 117), suggesting that the change in profitability is close to identifying the risk.

The economic risk is defined as:
- "An unsafe event or process that is likely to cause damage, loss in an activity, operation or economic activity." (Niţă, 1999, p. 408).
- "A future event and probably the production of which could cause some losses. It can be predictable when factors ... can be anticipated and unpredictable, determined by situations whose possibility ... is totally uncertain." (Pantea et al., 2012, p. 39).
- "Risk is the chance that the current return on investment will be different from the expected outcome. The risk includes the probability of losing some or all of the initial investment." (Gallatti, 2012, p. 191).
- "The uncertainty of a result, taking the form of a positive opportunity or of a negative threat to actions or events, must be managed in the light of a combination of the possibility of something happening and the impact that it would bring to materialize possibilities." (Treasury, 2004, p. 9).
- "The possibility of an event occurring and adversely affecting the achievement of objectives." (COSO, 2004).

There is an evolution in the definition of risk, moving from the probability of a loss, predictable or unpredictable, to another possible form – the opportunity, from its impact that may affect an activity, operation, to hindering the achievement of the objectives. If risk connotation is generally negative, recently, the notion of risk also includes the significance of better outcomes than expected, because risk can show opportunities to improve the objectives of a project.

The risk has the following features:
- is a possible, predictable or unpredictable event – the risk originates in uncertainty;
- is a generally negative event, whose definitions contain the terms of uncertainty and loss, but can also refer to the term of opportunity, denoting a positive connotation;
- is an event in all human activities, whose effects can no longer be removed;

- represents the distribution of the expected results;
- is the result of choices made.

5. Conclusions

In conclusion, traditional financial theory distinguishes between systematic risk and the particular risk, which reaches the company's overall risk. Investors can reduce total risk with the two primary risk management instruments, namely diversification and asset allocation. Also theoreticians and practitioners with modern visions of profitability and risk consider a fundamental issue how the boards of directors are addressing risk measurement. The boards of directors focus on the framework accounting and do not take into account the associated risk to its true size. Net profit, established as the primary objective, should result in a return on capital higher than the post-tax credit rate. Gross profit, set as the sole objective, has as a single condition a capital return greater than zero. Adapting the accounting framework to create an apparent view of effectiveness leads to important adjustments of financial indicators that create a false picture of the economic and financial situation.

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Effects of changing the balancing formula
of Romanian local budgets

Attila GYÖRGY
Bucharest University of Economic Studies, Romania
attila.gyorgy@fin.ase.ro

Abstract. *Local budget balancing rules in Romania were unique and predictable until 2014. Starting with the budget of 2015, yearly rules were introduced with yearly derogatory character by the annual budget law. This paper proposed to assess all these changes and their effects from a financial point of view on the local budgets. The county level analysis pointed out which regions were benefited more, respectively less, by applying the new balancing rule. The research has in view correlation with economic and geographic factors.*

Introduction

Local budgets represent the most important financial tool of Romanian administrative-territorial units. The financial capacity at local level is strongly related with the resources local budgets can attract, knowing that a very strong constraint should be applied: no deficit is accepted (local public finance law no. 273/2006 imposes that expenses should be covered by revenues or past surpluses). Increasing and diversifying revenues permits development of public services and infrastructure, while limiting financial resources of local authorities and real financial autonomy creates difficulties in implementation (Chirculescu, 2016: 125).

The central administration is supporting local budgets with important amounts, by transferring them financial resources from the state budget. In average, 85-90% of local revenues are relocated by central administration to local level. An important component of these transfers are for budget balancing.

The size local budgets should have vs. size of state budget, repartition criteria between county level and municipality level, and repartition criteria between municipalities remain ever green discussion points. No perfect repartition method was invented, this is why any attempt will have supporters, but also critics. All the more so since there are no two identical local communities from the point of view of own resource collecting capacity and public service portfolio offered to population.

In this paper we will analyse in which manner different balancing formulas impacted at county level. In this paper's approach effects of balancing rules based on law no. 273/2006 will be compared with the effects of annual balancing rules approved between 2015 and 2017. The conclusions could help political decision makers to better understand which the expected results of new balancing methodologies are.

Balancing Romanian local budgets in last decades

The evolution of the Romanian balancing system

In post-communist Romania, the role of local budgets increased once a new public finance law was approved in 1991 (Law no. 10/1991). According to article 52 from this law, transfers could have been approved, in a case by case basis, for those local budgets where their own revenues were not enough to cover local expenditures.

In 1996, a new public finance law was approved in which the mechanism of balancing local budgets was extended to quotas and amounts from certain revenues of the state budget (article 23). In each year, through the annual budget law, criteria should had been established in order to distribute the amounts to local budgets. During the short life of the special provisions regarding local finances in this law, the above-mentioned balancing system was not used.

Law no. 72/1996 was abolished by Law no. 189/1998 on local public finance. It was the first time when a special law was dedicated to local public finances. The new regulation retains only the amounts from certain revenues of the state budget to be used to balance local budgets (article 10). The annual budget law should deliver supplementary guidance related to the distribution rules. For example, in 1999, Law no. 36/1999 introduced as distribution criteria the population, length of roads, number of houses, length of sewerage system, number of pupils in schools, number of children in placement centres, number of territorial-administrative units, and the financial capacity.

Once Emergency ordinance no. 45/2003 was approved, the balancing instruments were extended by constituting a fund representing 17% of the income tax (article 28). Starting with

2004, the repartition criteria were the same in each year and predictable, being established directly in the emergency ordinance no. 45/2003.

Starting with 2007, Law no. 273/2006 came into force. This regulation preserves the two balancing mechanisms used in the previous years. The mechanism legislated by the law guaranteed "a minimum revenue per inhabitant out of the tax on income at least at the level of the average per county" (Ștefan et al.: 15). The changes are related to the quantum of the resources which were subject for balancing local budgets. In his way the predictable way of balancing local budgets was continued.

However, during the parliamentary discussions on the state budget for 2015, a derogatory rule was introduced for one year which replaced the traditional balancing methodology. This new rule was based on totally different principles than the traditional rules, generating important gaps between expectations and prognosis forecasted having in regard the traditional rules, on one hand, and the new derogatory provisions, on the other hand.

In the following years (2016-2019), derogatory rules were maintained, but each year new provisions were approved. In this way the uncertainty regarding the future balancing resources of local budgets was preserved.

At the beginning, the budgetary revenues which should be distributed to budgets according to the above-mentioned quotas were separately paid in by taxpayers. Afterwards, the payment method was simplified in the sense that tax payers are asked to pay the whole amount in a single account associated with the state budget, from which the fiscal authority is redirecting the quotas to the local budgets. Gorea et al. (2017: 19) propose and sustain that income tax should enter the local budget, from where shares to the county are to be transferred (for balancing the differences between the localities of that county) and to the state budget (for balancing the differences between counties). In our opinion such a change would be detrimental and would generate syncope.

Balancing criteria between 2011 and 2014

The first period of this analysis (2011-2014) was characterized by a unique and predictable balancing rule, introduced in 2004 and slightly modified during the upcoming decade. Changes were mainly due to the need of balancing central vs. local resources from the income tax, and due to the changes in the income tax quota.

The first balancing resource was a fund created as a percentage from the income tax deducted from the physical persons' incomes. Until 1st of January 2012, this fund was constituted from 21% of income tax. Afterwards, the quota was reduced with 2.5 percentage points to 18.5%.

The second balancing resource was allotted directly from VAT. Each year, the Parliament established the amounts which should be transferred from state budget to local budgets in order to contribute to reaching a balance of local budgets. The total amounts available at national level were distributed to counties taking into account the financial capacity (70%) and the surface of the county (the remaining 30%). The financial capacity indicator has larger values for poor counties (comparing the actual income tax per capita with the average value) and large counties (because it takes into account the population).

The funds available for balancing local budgets at county level were assigned to the local budget of the county (27%) and to local budgets of municipalities (the remaining 73%). In the case of municipalities, 80% of the amounts were distributed taking into account population, surface of the urban aria and financial capacity. The remaining 20% were apportioned by the county councils to municipalities in order to increase the financial resources to pay arrears, local development programs and local infrastructure. This 20% component was frequently criticized

because in many cases political arguments prevailed in the process of creating the list of beneficiaries and the amounts they would have received. This way of distribution combines clear criteria with flexibility from political perspective. Bunescu and Cristescu (2011: 203) correctly appreciated that "although the payments distribution is mathematically made according to the financial capacity of each county, it does not exclude subjective interpretations".

Balancing criteria between 2015 and 2017

Starting with 2015, in each year, new rules regarding local budget balancing were established. These rules were legislated in the annual state budget. Approved as exceptions, their application was limited to a single year. A comeback to a stable balancing rule is expected when the Parliament will discuss and approve the Local Public Finance Code.

For 2015, minimum levels of own revenues for each category of administrative units were introduced through Law no. 186/2014. These levels were: 1,500,000 lei for communes, 6,000,000 lei for towns, 20,000,000 lei for cities, 50,000,000 lei for cities which are county centres, and 80,000,000 lei for counties. After reaching these levels, the remaining funds dedicated to balancing local budgets were allotted by taking into account: population (55%), surface of the urban area (15%), local tax collecting rate (15%), EU project implementation (15%). Based on these rules, some local communities increased their budgets several times, while others experienced reductions even more than 50%, jeopardizing their current activities. This is why, at the budget rectification (by Ordinance no. 20/2015 and Emergency ordinance no. 47/2015) substantial supplementary amounts were approved for balancing purposes, which were distributed primordially to help all local communities reach at least the balancing amounts from the previous year.

In 2016 and 2017 a new balancing rule was applied (being introduced by Law no. 339/2015 and Law no. 6/2017), this time without any minimal levels of revenues. Similar with the rules applied before 2015, 27% of the amounts went to county councils and the rest to municipalities. The novelty comes from the repartition criteria for municipalities, this time the legislator opting to help more those local communities which have arrears and loans (20%), large surface of the urban area (20%), and low-income tax revenues per capita (60%).

All the described balancing rules were introduced during the parliamentary discussions. This is why no official explanation or justification was offered. Comparing these rules with those in force before 2015 we can easily conclude that supplementary resources were thought to be necessary for small and poor local authorities.

The Impact of Changing the Balancing Formula of Romanian Local Budgets

Methodology

The analysis of local budget balancing will start with highlighting the importance for local budgets of state budget resources transferred with different reasons. In the second part of the research we proposed to compare, at county level, the changes that occurred by applying the new balancing formula. For this purpose, the comparison will be made using the weight of balancing resources in the total local revenues. The comparison base will be the average value of the period 2011-2014 because in this period of time a single and predictable formula was in force. Starting from this reference value, we will compare the achievements of the next period (2015-2017) to see if the new formula was more advantageous or disadvantageous to each county.

Transfers from state budget to local budgets

Local budgets continue to remain dependent of the resources transferred from the state budget under different forms (quotas from income tax, amounts from VAT, subsidies etc.). Data presented in graph no. 1 for the period 2011-2017 shows that the local budgets' dependency from the state budget remains over 80%, even exceeding 90% in 2016.

Figure 1. *Local budgets' revenues: transfers from state budget vs. other revenues (2011-2017)*
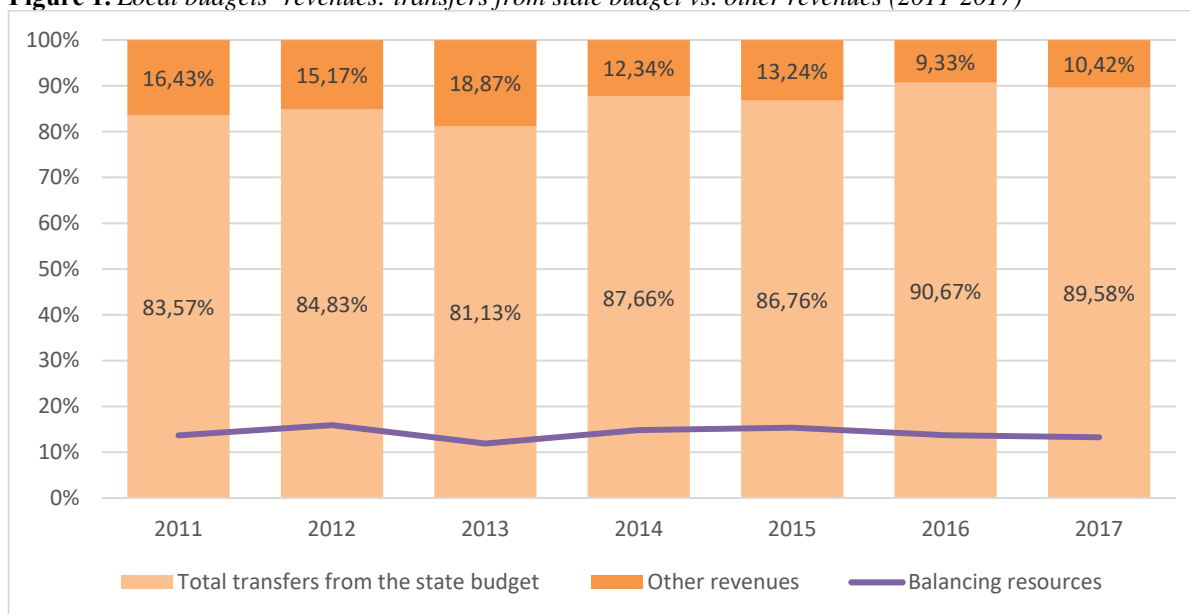
Source: data provided by MDRAP (http://dpfbl.mdrap.ro/sit_ven_si_chelt_uat.html).

A significant part of the above-mentioned transfers from the state budget to local budgets are represented by the resources let at local authorities' disposal to balance their own local budgets. The level of these resources varied in time, but the multiannual tendency remains on an ascendant path, as it can be concluded from the graph below. The reasons for having variations from one year to another (even decreases in some cases) are linked to the oscillation of collected income tax and VAT, but they also reflect the pressure of discontent local authorities to change the balancing rules which affected their local budgets.

Figure 2. *Balancing resources for local budgets in Romania (2011-2017)*
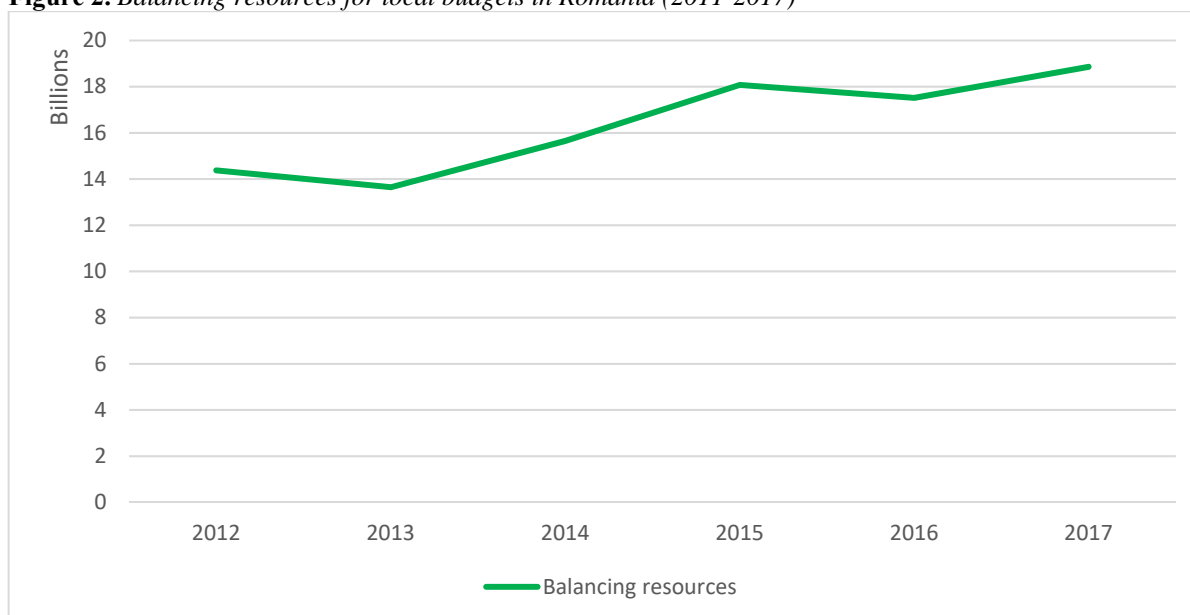
Source: data provided by MDRAP (http://dpfbl.mdrap.ro/sit_ven_si_chelt_uat.html).

Balancing resources offered to local budgets are meant to sustain financially the local projects prioritized by local councils in order to be financed from local public resources. The absence of an imposed destination makes this resource a very convenient one because it can really contribute to the development of the region.

As we presented above, during that time different balancing approaches were used. The effect of these approaches was a decrease of the share of balancing resources in some counties, while in other counties an increase was registered.

Map 1. *Counties with changed share of balancing resources in 2015-2017 vs. 2011-2014*

County with no increased share of balancing resources between 2015-2017 in comparison with 2011-2014
County with increased share of balancing resources in one year between 2015-2017 in comparison with 2011-2014
County with increased share of balancing resources in two years between 2015-2017 in comparison with 2011-2014
County with increased share of balancing resources in three years between 2015-2017 in comparison with 2011-2014

Source: own calculation based on data provided by MDRAP (http://dpfbl.mdrap.ro/sit_ven_si_chelt_uat.html).

As the above map shows, the most developed counties faced the most severe and long-lasting reduction of the balancing resources (as share in their total revenues). These 7 counties (Argeş, Bucureşti, Dolj, Hunedoara, Ilfov, Prahova, and Timiş) are on the list of the richest 50% of counties (having in regard the GDP per capita for 2016 as it was announced by Eurostat), 4 of them being in Top 10.

In the case of the beneficiaries, the situation is more heterogeneous because the 11 counties can be identified in the top of the richest counties between 5th and last position. In fact, the poorest counties were the direct beneficiaries of new balancing methods only in exceptional cases.

The above-mentioned findings show that rich counties (Top 10 counties assessed having in regard the GDP per capita indicator) were most exposed to reduced balancing resources, new methods becoming disadvantageous for them. The other 32 counties benefited differently from the effects of the new rules. In this second case, we cannot identify a clear correlation between the county's GDP per capita and the share of balancing resources.

The above presented map clearly shows that the main winners of the balancing mechanisms were the counties from the northern part of the country. In the case of counties in Moldavia, almost all of them benefited from more resources at least two years from the three-year analysed period. In the case of Transylvania, the situation is similar. It is very interesting that these two regions include both poor and rich counties in terms of GDP per capita.

No southern county benefited from the increase of the share of balancing resources in total revenues, although numerous counties have GDP per capita less or equal to €5600 (Teleorman, Mehedinți, Olt, Călărași, and Giurgiu). Meanwhile, all the counties which experienced constant reductions in their balancing resources are in the southern part of the country (mainly in Valachia and Southern Transylvania).

An extension of the analysed period in which new and unpredictable formulas were used could be subject of farther research, as the new statistic data become available. As well, a deepening of the current analysis can be done by considering more detailed data (at administrative-territorial unit level).

Conclusions

Local budgets continue to remain dependent from the financial resources transferred from the state budget. A significant part of these resources are offered to balance local budgets, permitting the implementation of more projects and investments decided by the local councils (from municipalities and counties).

Since 2015, Romanian local finances faced unpredictable balancing formulas for local budgets. Beyond unpredictability, changing formulas generated variations in the resources allotted to different counties.

The effect of applying new balancing rules was a new distribution of amounts to administrative-territorial units. The analysis showed that most rich counties were constantly disadvantaged by the new rules, while in the case of other counties the effects were quite varied (without having a clear correlation between their GDP per capita and the share of balancing resources).

From a geographical point of view the situation is clearer. The North was undoubtedly advantaged in comparison with the South. This is a very interesting situation because both Northern Romania and Southern Romania have poor and rich counties.

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Inherent inefficiencies of the financial system in Romania

Andrei STĂNCULESCU
Faculty of Finance and Banking
Bucharest University of Economic Studies, Romania
andrei.stanculescu@fin.ase.ro

Abstract. *The financial system is a very broad concept, which summarizes the forms of financial relationships that exist between economic agents in a certain territory, namely a country or a state. From a broader point of view, the financial system may be defined as a totality phenomenon, consisting of: financial funds, monetary flows, public budgets, financial instruments, etc. How this totality actually functions in a certain country, be it Romania, may be studied by the observable effects on the economy, which are positive or negative, and eventually influence the general welfare. This paper brings arguments and emphasizes many of the effects of the financial system in Romania, by showing facts that prove this specific financial system is working inefficiently.*

Misinformation perpetuated through financial products

First of all, a definition for the financial system is required. According to specialized literature (Văcărel (coord.), 2003, p. 74), the term "financial system" implies four different meanings:

1) a system of *economic relationships*, which imply the transfer of financial resources, produced under certain circumstances;
2) a system of *financial resources funds*, which are formed within the economy and are used for precisely determined purposes;
3) a system of *financial plans*, which reflect certain processes expected to occur in the economy over a specified period of time;
4) a system of *institutions*, which take part in organizing the relationships, in collecting and allocating funds, as well as in the developing and controlling of the financial plans.

To this respect, the financial system of any country includes the funds and flows that characterize the general consolidated budget (state budget, state social security budget, local budgets, etc.), banking operations, insurance and reinsurance operations, stock exchange operations, the activity of commercial companies and individuals (natural persons). And, obviously, this system has two spheres of manifestation: public finance and private finance.

On the one hand, public finances are associated with the state, the administrative-territorial units, as well as with the public institutions. On the other hand, private finances are associated with corporations, banks, insurance and reinsurance companies, companies within the organized capital market, etc. Thus, in this latter section of the financial system, an individual, a potential investor, is faced with a multitude of investment alternatives, many of them cumulating the attributes of financial assets, "promising" to yield passive income.

Nowadays, any investor has to choose between classical securities and several types of modern, innovative assets. In any case, firstly, one has to carefully analyze the past in order to understand the present better and so to be better prepared for what the future will bring. Then one has to come up with a strategy that will work both in the situation where things evolve in the "right" direction and otherwise. Unfortunately, the financial market from today instills a lot of "traps" for the unsavvy investor; this is done by aggressive marketing, advertising, and implies misinforming the investor.

Without disclosing the real coordinates of this example, a savvy investor should ask himself (or herself) why a company would borrow money at an interest rate of 9%, by issuing *corporate bonds*. There is cheaper credit offered by banks. Unless the company under discussion lacks financial soundness. This implies a high risk for the bond investor.

The investor is lured by *hedge funds* that operate on the international capital market. Let us not forget about online *mutual funds aggregators* that would allow investors to reach up to a 10% return, with moderate risk. There[1] are tools available to help with identifying, researching, and tracking mutual funds, making the entire process easier and more profitable.

Another modern alternative is *peer to peer investment*. This implies investing money in notes issued by borrowers who are requesting loans without going through a traditional financial intermediary and who are not known by the investor. This is a very risky alternative in Romania. This is carried out normally by a website. What about *cryptocurrencies*? They dropped by 90% last year. And let's mention the ETFs, in the end of this argument. These *exchange traded funds* depict one of the most innovative securities[2]. Usually, an ETF reproduces an index or a commodity. It resembles a typical stock market share and its price changes during a day as a result of changes in supply and demand.

To sum up, in our opinion, the multitude of innovative securities have the quality of misinforming and confusing the ordinary investor. These financial instruments should be better regulated, by the appropriate institutions part of the financial system, from our country.

Improper allocation of public expenditure

This is a big subject and has been part of the headlines of media outlets for the past decades, ever since the Romanian Revolution. The moment the public finances of our country became "public", the manner in which public budgets are spent involved many debates, both at government level and at micro level, as well. Because, at the end of the day, all of us are beneficiaries of public financial resources funds.

In order to meet the general needs of society, it is imperative to set up money funds at the disposal of public authorities. Formed on a quota of the GDP, these funds are to be allocated and used to finance social needs of national or local importance. The funds (Văcărel (coord.), 2003, pp. 56-57) under discussion are formed based on the transfer of value that is purchasing power, from different individuals or legal entities to the disposal of the state government, represented by central and local governing bodies. From these funds, transfers of purchasing power are made to different beneficiaries. At present moment, public expenditure is extremely diverse.

Government (public) expenses are approved by law in the form of *budgetary credits,* which represent the maximum approved limit up to which public or social needs can be financed. The existence of budgetary credits[3] involves financing mechanisms that imply crediting the accounts of public resources consumers, at the level of public institutions. The actual usage of budgetary credits implies the competence and responsibility of the *public loan managers*. These are the ministers, the leaders of the specialized bodies of central public administration, the heads of the autonomous public institutions, as well as the leaders of other public authorities. They are obliged to commit and to utilize the budgetary credits only within the limit of the approved provisions and destinations.

In our country, from the restoration of free market economy and until nowadays, we witnessed the improper allocation of government spending. This allegation is supported by the improper financing of a crucial destination (objective) for public money: the ***social-cultural expenses***. This underfinancing is proved by its visible effects on the economy and social life. The four main categories of social-cultural expenditure are common knowledge:
a) education;
b) healthcare;
c) culture, recreation and religion;
d) social security and social protection.

They all had been underfinanced, in our country (Moşteanu (coord.), 2005, p. 85). The observable effects of this improper financing can be immediately identified by anyone: poorly trained students, chronic illness and diseases, illiteracy[4] and disadvantaged social categories.

The way in which the government uses public finance, the use of financial instruments by authorities for intervening in economy, social life or politics, ultimately shapes the financial policy of the state over a certain period of time (Toma and Alexandru, 2003, p. 31). Unfortunately for our country, the financial policy had never been oriented for satisfying basic social needs, for unprivileged citizens. But this is a big problem because ***within the modern state, the welfare state, the individual needs of orphans, the elderly, people with disabilities or on very low incomes, should fall under the responsibility of the community***. They should be taken care of.

With a general consolidated budget deficit of almost 3% of GDP, for 2018, with poorly funded social welfare, Romania has an inefficient financial system, with regards to public funds allocation. In particular, social protection benefits are ridiculously small.

The influence of corruption on public finance

Corruption is a widespread phenomenon around the world. But when it is involving public money, based on resources gathered from the community, it is a far greater issue. Because a corrupt individual is "stealing" now from the community, not from a distinct capital owner or business venture. We believe the "deed" is much worse in this case.

In society, the conduct of any activity involves the formation and perpetuation of a complex of actions and relationships, formal or informal, between individuals, groups of individuals, institutions, communities. Society's activity is based on *formative processes* (production of goods, generation of information, provision of services, etc.) that produce *transfer flows*. The latter are justified by the argument that individuals, groups, economic entities are constantly seeking to satisfy their primary needs: consumption, information, culture, socializing, etc. To this line of thought, a formative process (Stroe and Armeanu, 2004, p. 12) calls for the existence of certain means that the process initiator uses to achieve the followed objective. If the means are not found in the initiator's patrimony, then they have to be gathered by a transfer flow. The object of the transfer flow may also be the goods, services or information generated by the formative processes. Both the means used and the goods obtained can be expressed physically, materially, in informational terms and in value. This is the general framework from behind the financial system, showing its most natural mechanisms.

When corruption appears, it is like a "disease" that spreads within this system and penetrates its fabric. There are a lot of cases of corruption involving public spending, which were reported daily even, by means of media outlets. But yet no direct measures are taken, no considerable punitive actions were recorded[5]. At least none that we as researchers are aware of, or which were made public, along with the required financial details. This constitutes a major defect of the financial system in Romania, regarding the public finances. According to reputable sources, our country "scored" 47 points out of 100 on the 2018 Corruption Perceptions Index, as reported by Transparency International. Corruption Index in Romania averaged 36.52 Points from 1997 until 2018, reaching an all-time high of 48 Points in 2016 and a record low of 26 Points in 2002[6]. This has to be dealt with!

Intricated fiscal code

This is a major problem in our country, as an intricated, complicated, entangled fiscal code is obviously discouraging free initiative, small businesses and even individuals.

Foreign investors are also deterred by the intricacy of the fiscal regulations in our country. Here, all companies, including branches and subsidiaries have to be aligned with the following basic tax requirements: the corporate tax rate is set at 16% on profits generated in Romania with the mention that a 5% ratio is applicable in certain circumstances and for different activities; interest[7], dividends, and royalties are levied with withholding tax rates of 10% and 5%; the VAT rate is set at 19% for goods and services for sale purposes, and at 9% for foodstuff and other categories; the reinvested profits of a company in Romania are not subject to taxation since 2018. These are just elemental coordinates of taxation in Romania.

The main problem is these taxes are too high[8], and there is an intricated justification to all of them, on which the average individual is in fact powerless in expressing disaccord. The law is the law, right? But the correct way would be for the *fiscal authority*, namely the government, to *make sure every economic agent is properly informed on the volatility of the tax code* in our country. There are lots of means for this matter to be properly addressed. At local level, dissemination may be undertaken by the *local public administration authorities*: the local councils of communes, towns, municipalities, sectors of Bucharest Municipality, county councils and the General Council of Bucharest Municipality, as *deliberative authorities,* and the mayors, presidents of the county councils and the Mayor General of Bucharest Municipality, as *executive authorities.* They govern territorial-administrative units.

Also, there is variability in intricacy. Two years ago, the Romanian government was discussing the introduction of a taxation system which is very similar to the American one. They were discussing a *household tax*. Fortunately, this "idea" was abandoned. The chronic inconsistency of NAFA would only have made things worse in society. We believe that, regarding income taxes, NAFA should have campaigned more for source taxation/collecting rather than for voluntary compliance and income tax declaration (see anaf.ro); the latter has the "ability" to reduce tax collecting and to create chaos.

Anyway, no fiscal contributor should be hold accountable for not being up to date to the intricacy of the fiscal code. This is immoral. And this is no way to conduct public finance.

Financial education in Romania

Another key aspect which shows the improper function of the financial system in our country is the inadequate level of financial literacy. Of course, finance is taught in school, but unfortunately teachers insist on the mathematical facet of finance, and not on the intrinsic economic essentials. For example, a basic concept such as compounded interest is poorly taught and, as a consequence, poorly understood by students, which are future investors or financial actors. Their (future) decisions will be "poor" or "poor man" decisions.

Any individual should understand the basic dichotomy: *assets* versus *liabilities*. This stems from the accounting method of double entry, and can be actually applied in personal finance. In corporate finance, the accounting dualism may be viewed as discriminating between different forms of capital, with differentiation of content and contribution to the pursuit of the objectives of the corporate activity, generated by the many relationships that are born in the economic circuit of capital. It is precisely because of these elements that we have to take into consideration the special role (Drăgan, 1993, p. 29) of the ways and sources of capital formation. It is important to understand that the forms of existence, as well as the sources of financing of the working capital of economic agents, as well as the employment state in which it exists at a certain moment in time, may admit very different configurations.

Regarding personal finance, the individual (potential investor) should understand that an *asset* is bringing money (or producing cash in-flow) to your "pocket", while a *liability* is taking money (or producing cash out-flow) out of your pocket. This is shown by prominent entrepreneur Robert Kiyosaki. According to him, debt and credit may be used in business to make a lot of money, but most of the investors are too risk-adverse to acknowledge this. They are too afraid. And they are missing big opportunities because of "fear". Unfortunately, the educational system of any country, including Romania, prepares students to be employees and not investors. Also, a lot of people do not comprehend (Kiyosaki, 2011, p. 43) that "in life, it's not how much money you make. It's how much money you keep".

In our opinion, any potential investor should be able to assess financial products, whether we are talking about stocks, stock ETFs, bond ETFs, individual bonds or other more complex instruments. One has to understand the financial contract: what it actually "is"; how it may create added value for the investor; when does it pay the dividend, the coupon, etc.; the operating rules; what are the associated risks, etc.

Cash-flow informational asymmetry

Cash-flow informational asymmetry is a genuine concept we would like to introduce via this paper. It basically refers to the fact that certain people have a steady cash-flow, and they detected a reproducible model for obtaining it, regularly, whilst others do not. Of course, this may be reduced to competitive advantage, but we believe there is more to this. We believe this partially ties into the corruption from within the financial system, i.e. the economic system in general. This is a crucial topic of discussion.

For example, on the labor market, there are certain requirements for a future model employee. These include: education, work related experience, IT savviness, IT programming savviness, etc. But all of these do not necessarily assure a fair wage, as remuneration may vary from one activity field to another. There are less educated individuals that earn more. There are "wise guys", correct? This is cash-flow asymmetry, and it is specific to every country around the world. The state government should produce legislation that has the quality of reducing to the minimum this type of asymmetry.

As we stated in a previous work, this phenomenon is present in contemporary times corporations. We proposed a different approach to corporate governance (Stănculescu, 2018, pp. 45-48), a model in fact, which emphasizes the importance of the employees in any corporation, and in which remuneration cash-flow is correlated to the "energy" flow, implying the "energy" provided by means of labor, by the employees, i.e. the workforce. Because, obviously, all the employees bear asymmetric "eyes" to cash-flow. To simplify this, they don't know the moment they get paid if their pay is the "fair pay". This is a rich area of future study.

Lack of public information about private wealth

Lastly but not leastly, the financial system of Romania and (of any country for this matter) lacks the means of producing **statistical archives regarding private wealth**. Of course, these archives should be available for public consultation.

Why? Well, wouldn't any economic actor or agent be interested in such a statistic? Knowing who has an individual net worth greater than 100 000 euro or 500 000 euro, for example. Why would there be any problem, as long as the money was earned legally? This statistics would have to be exhaustive. Data is regularly collected by the state government, via NAFA; economic agents are complied, under law, to submit financial statements to the Ministry of Public Finance. Thus, analyses and correlations can be easily made.

This statistic should be about *natural persons*, individuals. Not legal persons. Of course, some statistics are already being made available by financial media. But they are not exhaustive. According to such a source, in 2018, more than 35.000 Romanians had bank deposits with a value exceeding 100.000 euro. The cumulated value of these deposits totals approximately 8 billion euro (www.zf.ro, Bănci și Asigurări). Obviously, there are a lot of wealthy individuals in our country, that the majority of us know nothing about.

Conclusion

This paper encapsulates, details and emphasizes a lot of negative aspects regarding the financial system of Romania. These inefficiencies are to be analyzed by the government and eliminated, gradually, in order to assure a fair financial environment, in which society may steadily evolve to a superior form of expression.

Notes

[1] See mutualfunds.com, Education - Mutual Fund Education.
[2] See https://www.xtb.com, Ofertă - ETF-uri.
[3] See Law no. 500/2002 on public finances.
[4] See https://basilica.ro, Social - Raport Eurostat: România, pe ultimul loc în UE la cheltuieli pentru religie, cultură și recreație, 2017.
[5] Sindicatul Academica - Academia de Studii Economice din București: Protest (către Guvernul României), no. of recording 14/22.04.2016.
[6] Tradingeconomics.com, Romania - Corruption Index.
[7] Romanian-accountants.com, Tax Code in Romania.
[8] Sindicatul Academica, Academia de Studii Economice din București: Protest (către Guvernul României), no. of recording 14/22.04.2016.

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Determinants of public debt.
The case of the European Union countries

Bogdan Florin FILIP
"Al. I. Cuza" University of Iași, Romania
bogdan.filip@feaa.uaic.ro

Abstract. *Starting from the idea that public debt can be necessary for countries' development but beyond a certain threshold it becomes a burden and affects their future, this study aims to identify which are the major determinants of public debt and how are they changing its level. We have analysed the 28 countries from EU during the period 1995 – 2017 and reached the conclusion that the debt to GDP ratio is significantly and positively influenced by the previously accumulated public debt, but also by unemployment and population size, while real GDP growth, FDI inflows, gross capital formation and trade balance have significant impacts on limiting the public debt.*

Keywords: public debt, economic growth, unemployment, gross capital formation, trade.

JEL Classification: B22, C23, H63.

Introduction

The accumulation of public debt is normally and mainly the result of the deliberate decisions of the governments to borrow usually substantial amounts of money in order to cover their deficits. However, these decisions are driven at last either by some specific needs of the population, which would be difficult to surpass on short term, or by specific aims of the governments to be fulfilled as part of their long-term strategies for development.

Depending on how it is used and administrated by governments, we consider that public debt may be used as an instrument for sustaining long term development of the countries or, on the contrary, it may become at some point a serious burden for a country and its population and also may affect the creditors, as the recent sovereign crisis has proven for some countries. In this regard, as Reinhart and Rogoff (2009) pointed out, beyond a certain threshold the accumulation of public debt is likely to determine financial crises, more severe as the level of such debt increases. On the other hand, as Cukierman and Meltzer (1989) sustain, public debt creates for governments the possibility to smooth and redistribute tax burdens over time and across generations.

From our point view, both the bright side of the public debt, that of instrument for enhancing the general development of a country, but also the dark one, affecting the citizens of the borrowing country and the creditors, are influenced significantly not only by the initial decisions to appeal to sovereign loans and of their terms, but also by determinants coming from internal and external sources, that manifest themselves also during the repayment process and may lead to supplementary accumulation of public debt.

On the background of the recent sovereign debt crisis, but also as part of the current general financial policy, the accumulation of public debt and the determinants of such process are representing major issues for all the governments, especially of those from the European Union. Therefore, based on the above considerations, and considering especially the major concerns regarding the possibility that under certain circumstances and specifically beyond a certain threshold the public debt may become dangerous both for the debtor country and for its creditors we analyse in this paper the major possible determinants for the accumulation of public debt in the European Union actual countries, between 1995 and 2017.

Literature review

Public debt was subject of various studies that may be found in literature, most of them analysing the connection between it and the economic growth (e.g. Eichengreen and Portes, 1986; Manmohan and Woo, 2010; Omrane and Omrane, 2017), but not so many looking to emphasize which are the major factors that determine its dimension (e.g. Ellis and Schansberg, 1999; Sinha et al., 2011; Bittencourt, 2015). Moreover, while some of the studies aiming to identify the determinants of public debt dimension are conducted on a specific country (e.g. Calvo et al. 2003; Aizenman and Marion, 2009; Dumitrescu, 2014) there are also studies analysing this issue for groups of countries (e.g. Bandiera, 2008; Forslund et al., 2011; Bittencourt, 2015).

The origins of public debt accumulation can be found in the need of the governments to cover their deficits forcing them to appeal to borrowing the necessary amounts of money from third parties. In addition, almost all studies (e.g. Sinha et al., 2011; Pîrtea et al., 2013; Gargouri and Ksantini, 2016) agree that the level of the current public debt of a specific country depends of its previous level and on the dimension of the current public deficit. However, we must highlight that while part of the current public deficit might be determined by the expenses of the government to be made for repaying the previous loans and the interest and other costs related with them scheduled for the current year, the other part of the public deficit is generated

especially by the macroeconomic conditions characterising the country. Therefore, literature agrees that, depending on the macroeconomic conditions in which the national and also global economy are evolving, but also on the structure of the public debt and the terms of its repayment, the dimensions of the current public debt are influenced by macroeconomic determinants such as economic growth, trade openness, inflation, exchange rate, interest rate, investments, unemployment etc. In addition, beside such reasonable determinants' literature shows that there can be considered also institutional or political factors driving the level of a country's public debt (Süssmuth and Weizsäcker, 2006; Guscina, 2008).

The relationship between public debt and economic growth was largely approached in literature many authors finding dependencies in both ways between the two indicators. However, while economic growth is able to ensure higher revenues in the economy, this should lead to higher tax revenues for government and further to lower budgetary deficit or even surplus, determining in the end either a reduction of the public debt or at least a reduction of its growth, but almost surely a decrease in the debt to GDP ratio. In this regard, it is not surprisingly that Hall and Sargent (2010) found out that between 1946 and 1974 the economic growth in United States of America has determined a reduction of debt to GDP ratio. Moreover, analysing a group of South American countries, Bittencourt (2015) draw the same conclusion regarding the negative impact of GDP growth on public debt. Similarly, Krugman (1988), Claessens (1990) and Globan and Matosec (2016) demonstrated a negative correlation between economic growth and public debt and GDP growth rate seemed to be one of the most important factors impacting on public debt.

Inflation represents another macroeconomic determinant of the dimension public debt considered by most of the existing studies. While inflation erodes the value of money, it leads also to the erosion of the value of the debts, including of public debt. Such an idea was proved also by the results of Aizenman and Marion (2009), Hall and Sargent (2010), Swamy (2015) or Bittencourt (2015) that found a negative influence of inflation on public debt.

On the other hand, unemployment leads to the loss of revenues of the former employees, meaning also the loss of taxes for the government, but also the need of social security expenses to be made by it, both of them enlarging the public deficit and usually determining an increase of public debt. In this regard, Barro (1979) noted that the increase of unemployment makes necessary social safety measures of governments, partially financed by appealing to public debt.

The level of investments is also considered in literature (Sinha et al., 2011; Swamy, 2015; Globan and Matosec, 2016) as an important determinant of the dimension of public debt. In this regard, foreign direct investments and capital formation appear to have significant effects on public debt.

Foreign direct investments (FDI) were found in most of the studies (Sinha et al., 2011; Swamy, 2015) to be a factor that reduces the level of public debt, because if the country is attractive for the foreign investors and they are willing to use their own money to develop the economy, their financial effort replaces the government one. Therefore, while the government is not so pressed to involve itself in financing activities needed by its citizens, it avoids such public expenses and to cover them by borrowing.

On the other hand, capital formation plays also a role in creating the conditions for a country or an economy development. However, depending on the proportion in which the private sector or the government involve themselves in sustaining the capital formation, it may lead either to decreasing the level of public debt or to increasing it. This explains also why Swamy (2015) found a positive effect of gross fixed capital formation on public debt, while another study (Omrane and Omrane, 2017) found an opposite impact. If the private sector involves itself more than the government in the formation of the gross capital, the effect would be normally similar to the one of the FDI, but if the government finances such actions this will enhance public debt.

The openness of a country, approached in literature in terms of trade (Calvo et al., 2003; Swaray, 2005; Swamy, 2015), is also considered to have an important impact on public debt. However, in our opinion, by cumulating the total exports and imports, using trade openness makes difficult to clarify the importance of the imbalances between the two components and their specific effects, which normally should be opposite. Some studies have analysed them as separate determinants and revealed that imports have significant positive effects on public debt (Gargouri and Ksantini, 2016), while exports have negative, but insignificant impact. On the other hand, without disregarding the analysis of the impacts of exports and imports as separate determinants of public debt, we consider more appropriate to use as a much reliable determinant the trade balance, following other studies that used similar indicators, as the balance of payments (Süssmuth and Weizsäcker, 2006) or current account balance (Sinha et al., 2011). Such an approach should allow us to observe the combined effects of the export and import operations and we expect a positive impact of the trade balance on the level of public debt.

Beside the above-mentioned macroeconomic determinants on the level of public debt, but in accordance with other papers (Bittencourt, 2015; Swamy, 2015), we consider that the dimension of the population is also an important determinant of the level of public debt. While the government's essential role is to satisfy the collective needs of its citizens it is obvious that the higher the population the more numerous actions will be claimed to be financed by the governments leading to higher public expenses and normally to the need of increasing the public debt for financing them.

Our study aims to offer a new image on the macroeconomic determinants of public debt within the group of the 28 countries members of the European Union for a period of 22 years, which means a sample significantly larger than the ones used previously in other papers analysing European countries (e.g. Fernandes and Mota, 2011; Globan and Matosec, 2016).

Data and methodology

Starting from the previous considerations and from the findings in the literature concerning public debt and its determinants, we will focus our further research in this paper on studying the concrete effects of several determinants on the accumulation of public debt, using as sample the yearly data, on the period starting from 1995 until 2017, for the 28 countries, still members of the European Union at the beginning of in 2019.

The methodology we will use in this study consist in using statistic tools such as Pearson correlations and linear regression models in order to analyse the impact of some specific determinants on the public debt accumulation. In this regard, following other previous studies, we use the indicator Government consolidated gross debt as percentage of GDP, named also debt to GDP ratio, as proxy for the public debt and also as dependent variable, while the considered determinants and independent variables at the same time are proxied by other indicators, as described in Table 1.

Table 1. *Determinants of public debt accumulation*

Independent variable/ Determinant	Indicator name	Indicator symbol	Expected influence (+/-)	Source
Previous Public Debt	Government consolidated gross debt (% of GDP) in previous year	DEBT_G (-1)	+	World Bank database
Trade Balance	External balance on goods and services (% of GDP)	BALE_G	-	World Bank database
Exports	Exports of goods and services (% of GDP)	EXP_G	-	World Bank database
Imports	Imports of goods and services (% of GDP)	IMP_G	+	World Bank database
Gross Capital Formation	Gross capital formation (% of GDP)	GCF_G	-/+	World Bank database

Independent variable/ Determinant	Indicator name	Indicator symbol	Expected influence (+/-)	Source
Foreign Direct Investments	Foreign direct investment, net inflows (% of GDP)	FDI_NI_G	-	World Bank database
GDP growth	Real GDP growth (annual, %)	GDPGR	-	World Bank database
Inflation	Inflation, consumer prices (annual, %)	INFL	-	World Bank database
Unemployment	Unemployment, total (% of total labour force)	UNEM	+	World Bank database
Population	Natural logarithm of total Population	lnPOP	+	World Bank database

We have gathered the data for all the 28 countries analysed in this study and for all the indicators use as proxies either for the dependent variable or for the independent ones from the World Bank's database, namely from World Development Indicators database, covering a period of 22 years starting from 1995. Going further towards analysing our over six hundred observations for each of the considered indicators, has led us to a first set of results, which are synthetized in Table 2 and which are characterizing our sample, sustaining also our next intended steps of analysis.

Table 2. *Descriptive statistics*

Variable	Mean	Std. Dev.	Min	Max	Median	Skewness	Kurtosis	Obs.
DEBT_G	55.82206	32.65516	3.70000	179.0000	51.8000	0.8240182	3.917081	630
BALE_G	1.12024	8.368541	-20.672	-20.672	0.473177	1.277992	6.67485	643
EXP_G	55.64581	33.33424	14.28696	230.0164	46.18519	2.059909	8.519279	643
IMP_G	54.52557	28.48398	19.21991	193.9698	46.87738	1.824967	7.260241	643
GCF_G	22.90753	4.579135	0.2986439	41.53843	22.38634	0.4625357	5.048748	643
FDI_NI_G	9.288891	32.55747	-58.32288	451.7155	3.395497	9.210602	103.9506	629
GDPGR	2.67664	3.418118	-14.81416	25.55729	2.786424	-0.4146378	9.250773	639
INFL	5.646807	42.66628	-4.479938	1058.374	2.238903	23.48876	577.6131	644
UNEM	9.025076	4.335492	1.80000	27.50000	7.90000	1.291536	4.953716	644
lnPOP	15.86732	1.399202	12.84111	18.23067	15.99231	-0.2192923	2.533188	644

As stated above, we intend to develop the analysis of the impact of the specified determinants on the public debt using a set of pooled OLS models, all having as dependent variable the Government consolidated gross debt as percentage of GDP indicator and other indicators as independent variables. Therefore, such models will have the following forms, depending on their type, which may be of fixed effects (Equation 1) or of random effects (Equation 2):

$$DEBT\_G_{it} = \alpha_i + \beta_{it} \times DEBT\_G_{it-1} + \sum(\gamma_{it} \times \chi_{it}) + \mu_{it} \qquad (1)$$

$$DEBT\_G_{it} = \alpha + \beta_{it} \times DEBT\_G_{it-1} + \sum(\gamma_{it} \times \chi_{it}) + \mu_{it} + \varepsilon_{it} \qquad (2)$$

where:

$DEBT\_G_{it}$ represents the dependent variable (Government consolidated gross debt as percentage of GDP);

X_{it} represent independent variables considered for each model for the specific country i, in year t;

γ_{it}, β_{it} are the statistic coefficients for the independent variables;

μ_{it} is the between-error term; ε_{it} is the within-error term.

Beside using fixed or random effects models, we considered necessary in our study to take into consideration not only the trade balance effect which combines both exports and imports influence, but also their separate impact on the level of the public debt, which led us to creating eight models at last.

Results and comments

We considered that a first step in our analysis should focus on finding if there are specific and strong linkages between the variables we used, especially between the dependent variable and the independent ones. Therefore, by using STATA 12 for finding the statistic pairwise Pearson correlations between our variables, for our EU 28 data sample, we obtained the results synthetized in Table 3.

Table 3. *The Correlation Matrix*

Correlation/ Probability	DEBT_G	DEBT_G(-1)	BALE_G	IMP_G	EXP_G	GCF_G	FDI_NI_ G	GDPGR	INFL	UNEM
DEBT_G	1.0000									
DEBT_G(-1)	0.9869***	1.0000								
	0.0000									
BALE_G	0.0075	0.0098	1.0000							
	0.8514	0.8098								
IMP_G	-0.2604***	-0.2568***	0.482***	1.0000						
	0.0000	0.0000	0.0000							
EXP_G	-0.2206***	-0.216***	0.6629***	0.9755***	1.0000					
	0.0000	0.0000	0.0000	0.0000						
GCF_G	-0.4952***	-0.4725***	-0.3845***	0.0541	-0.0503	1.0000				
	0.0000	0.0000	0.0000	0.1710	0.2025					
FDI_NI_G	-0.0085	0.0008	0.1152	0.3638***	0.3422***	-0.0416	1.0000			
	0.8324	0.9836	0.0038	0.0000	0.0000	0.2979				
GDPGR	-0.3134***	-0.2213***	-0.0331	0.1781***	0.1439	0.3974***	0.0321	1.0000		
	0.0000	0.0000	0.4035	0.0000	0.0003	0.0000	0.4232			
INFL	0.0070	-0.2044***	0.0187	-0.0394	-0.029	-0.122	-0.0123	-0.0438	1.0000	
	0.8610	0.0000	0.6363	0.3188	0.4636	0.0019	0.7574	0.2689		
UNEM	0.2859***	0.267***	-0.2515***	-0.2519***	-0.2783***	-0.2211***	-0.105***	-0.1142	0.0449	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0084	0.0038	0.2551	
lnPOP	0.3662***	0.3669***	-0.201***	-0.7294***	-0.6737***	-0.1489***	-0.2683	-0.1738***	0.0076	0.1449***
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.8464	0.0002

***, **, * denote significance at 1%, 5%, and 10%, respectively.

Table 3 shows first of all, as expected, and in accordance to the previous studies (Sinha et al., 2011; Gargouri and Ksantini, 2016), that the strongest correlation which was found was between the current debt to GDP ratio, which is our dependent variable, and the first lag value of this ratio (coef. = 0.9869), confirming the idea of the dependency of the current public debt by the previous accumulated one.

As expected, we found also very significant and positive correlations, both in terms of coefficients, but also of probabilities, between the debt to GDP ratio and the variables reflecting the unemployment (coef. = 0.2859), respectively the population size (coef. = 0.3662). However, we found also positive even almost insignificant correlations of current debt to GDP ratio with trade balance and inflation, which appear in contradiction to the expectations determined by other similar studies (e.g. Swamy, 2015).

On the other hand, our results confirm the findings from previous studies (Hall and Sargent, 2010; Bittencourt, 2015) showing a very significant negative correlation between the debt to GDP ratio and real GDP growth (coef. = -0.3134).

As expected the relationship between public debt and investments appears also to be negative, but while FDI net inflows show a less significant correlation with debt to GDP ratio (coef. = -0.0085), gross capital formation to GDP ratio shows a very significant one, both in terms of probably and of coefficient (coef. = -0.4952), which suggests that the influence of local private investments was much higher than the FDI on limiting the public debt. Finally, results in Table 3 show also significant and negative correlations between the debt to GDP ratio and both imports (coef. = -0.2604) and exports (coef. = -0.2206).

Going further towards the target of our study and based on the previous considerations and the results commented above, we will use in the next step of our analysis the two types of pooled OLS models shown before, attempting to identify which are the main determinants that drive the public debt level. Moreover, besides using both fixed effects and random models, in order to avoid multi-collinearity between exports and imports, but still to find their specific influence, we will apply the two models by considering separately trade balance, imports, respectively exports. Moreover, we will use basically robust estimators to catch as accurately as possible the effects of each determinant. The results obtained by using the considered models are synthetized in Table 4.

Table 4. *Results of the linear models used*

Variable	Model 1 Fixed Effects	Model 2 Random Effects	Model 3 Fixed Effects (Robust)	Model 4 Random Effects (Robust)	Model 5 Fixed Effects (Robust)	Model 6 Random Effects (Robust)	Model 7 Fixed Effects (Robust)	Model 8 Random Effects (Robust)
EXP_G					0.0300 (0.0279)	0.0056 (0.0143)		
IMP_G							0.0607 (0.0368)	0.0245 (0.0193)
DEBT_G(-1)	0.8950*** (-0.0132)	0.9411*** (0.0094)	0.8950*** (0.0288)	0.9411*** (0.0124)	0.8808*** (0.0284)	0.9418*** (0.0128)	0.8771*** (0.0279)	0.9404*** (0.0131)
BALE_G	-0.2090*** (-0.0622)	-0.1343*** (0.0377)	-0.209*** (0.0744)	-0.1343** (0.0549)				
GCF_G	-0.3156*** (0.0881)	-0.1637*** (0.0685)	-0.31555** (0.1436)	-0.1637** (0.0778)	-0.0807 (0.1129)	-0.0114 (0.0662)	-0.0951 (0.1087)	-0.0033 (0.0648)
FDI_NI_G	-0.0119*** (0.0053)	-0.0092* (0.0053)	-0.0119*** (0.0026)	-0.0092*** (0.0033)	-0.0108*** (0.0023)	-0.0091*** (0.0023)	-0.0109*** (0.0022)	-0.0100*** (0.0021)
GDPGR	-0.8563*** (0.0559)	-0.9192*** (0.0544)	-0.8563*** (0.1198)	-0.9192*** (0.1288)	-0.9009*** (0.1158)	-0.9525*** (0.1338)	-0.9014*** (0.1140)	-0.9597*** (0.1321)
INFL	-0.0982*** (0.0227)	-0.0731*** (0.0223)	-0.0982** (0.0396)	-0.0731** (0.0343)	-0.0771** (0.0299)	-0.0578** (0.0312)	-0.0724** (0.0266)	-0.0558* (0.0302)
UNEM	0.2205*** (0.0691)	0.1796*** (0.0552)	0.2205** (0.1068)	0.1796* (0.0924)	0.3371*** (0.1125)	0.2483*** (0.0839)	0.3637*** (0.1119)	0.2661*** (0.0807)
lnPOP	11.6590*** (3.6189)	-0.2119 (0.2400)	11.659 (7.1151)	-0.2119 (0.1858)	12.0091** (5.7438)	0.0719 (0.3791)	10.5972* (5.4842)	0.3543 (0.4222)
constant	-170.775*** (57.289)	12.38693*** (4.3228)	-170.775 (111.5403)	12.3869*** (4.6343)	-183.8671* (90.5841)	3.2839 (7.9733)	-162.776* (87.0192)	-2.497 (8.6421)
R-squared	0.9498	0.9480	0.9498	0.9480	0.9490	0.9471	0.9496	0.9477

Notes: standard errors between parentheses.
***, **, * denote significance at 1%, 5%, and 10%, respectively.

According to Table 4, regardless of the used model it is confirmed the strong and significant positive impact of the previously accumulated public debt on the current level of public debt, both proxied by debt to GDP ratio. These results are in line with the theories on public debt formation, with our above findings and with the empirical results of other studies (Sinha et al., 2011; Pîrtea et al., 2013; Gargouri and Ksantini, 2016).

At the same time, also in all models it results that unemployment had a significant positive effect on the dependent variable, which confirms also our previous findings and expectations. However, the significant positive correlation between population size and the debt to GDP ratio appears to be confirmed only in the case of models 1, 5 and 7, all of them using the fixed effects and reflecting a positive impact of this independent variable on the dependent one, while in the other models the impact appears to be insignificant and sometimes even reversed.

Imports and exports appear each of them to have other positive but insignificant effects on the public debt, while their correlations with the debt to GDP ratio were found before significant and reversed. The observed positive impact of imports and exports is however in line with the

observations regarding trade openness found in other studies (Swamy, 2015; Omrane and Omrane, 2017).

On the other hand, all models confirm the negative and significant impact of real GDP growth on the level of public debt, confirming thus both our prior findings and the results of the other studies mentioned before (Krugman, 1988; Claessens, 1990; Bittencourt, 2015; Globan and Matosec (2016) and sustaining the idea that the most important way for reducing the public debt consists in ensuring the real growth of GDP.

The negative impact of gross capital formation and FDI net inflows on the debt to GDP ratio is confirmed by the results of all eight models, and is in line also with the findings of other researchers. However, we must note that while the negative effects of FDI net inflows are significant in all models, the negative impact of gross capital formation appears significant only in the first four models, which considered the combined effects of imports and exports.

Moreover, the results of all eight models show the significant negative impact of inflation on the debt to GDP ratio and are in line with the previous findings of Aizenman and Marion (2009), Hall and Sargent (2010), Swamy (2015) or Bittencourt (2015).

Finally, as we have anticipated, trade balance proved to have a significant negative impact on the dependent variable, confirming thus that in order reduce their public debt, governments need to find solutions to encourage the increase of the exports value and to limit the imports. In this regard, they should concentrate not only on the physical volume of imports and exports, but mainly on their structure, by promoting mainly the exports of goods and services with higher added value and the imports of raw materials and technologies.

Conclusions

The development of each country is influenced by many factors, out of which one can be public debt. While the needs for the development of a country many times exceed the possibilities of its government to finance them only from its own resources, the remaining solution is to borrow, which leads to the accumulation of public debt. However, above a certain level, public debt may become a burden and act as a brake for development and therefore it needs to be controlled. Such concerns are common for all governments and the solutions for the goal of controlling the dimension of public debt, even declared by some countries as those from European Union, rely on identifying its determinants. Therefore, our study is focused on showing which determinants were mainly influencing the public debt level, within the 28 country members of the European Union, during the period 1995-2017.

Our findings show that in the 28 European Union countries, the dimension of public debt has been positively and significantly determined both by the previously accumulated debt, but also by other macro level factors such as unemployment and total population, which confirm our initial expectations, while their evolution is leading to a similar evolution of the government spending, especially social ones.

At the same time, our results showed that real GDP growth, FDI inflows and gross capital formation have significant negative impacts on the level of public debt, in line with previous other papers findings. Also, even the correlation between public debt and inflation did not appear to be significant, all our models showed that inflation had a significant negative effect on debt to GDP ratio, confirming that inflation erodes the value of the debt.

Exports and imports were also analysed in our study from the perspective of their impact on public debt and showed, in some of our models, similar positive, yet insignificant, effects on public debt, which differs from our expectations in the case of the exports. However,

considering their combined effects, our other models showed that trade balance had significant and negative impact on the debt to GDP ratio, in line with our expectations.

Finally, we conclude that ensuring a climate enhancing the economic and social development of a country is the key for controlling the level of public debt, while the distortions as unemployment, low attractiveness for the local and foreign investors or even recession may determine dangerous accumulation of public debt.

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A discussion on basic investment alternatives

Andrei STĂNCULESCU
Faculty of Finance and Banking
Bucharest University of Economic Studies, Romania
andrei.stanculescu@fin.ase.ro

Abstract. *This paper focuses on analyzing theoretically how an ordinary investor may shape his investment decision. Choosing from a multitude of assets may be a great challenge, especially for a person who is not savvy with financial investment, securities, or generally speaking, allocating money in order to gain profit. Well, discussing some basic investment alternatives like deposits, t-bills, or commodities, and suggesting a simplified method of investment analysis, can actually help any individual make learned decisions which lead to preserving or increasing the value of the net worth.*

Keywords: treasury bill, exchange rate, bank deposit, real estate, gold.

JEL Classification: G11.

General framework of discussion

An ordinary investor, namely an investor with no special or certified financial training, is normally faced with a big informational asymmetry issue when put in the situation of forming an investment portfolio. Questions like, "what to invest in?" or "why should I choose that asset?" are only a few drops in an ocean of dilemma. Of course, the investor can use the consulting services of a financial investment services company, where he can actually directly benefit from specialized financial advice, but one may ask if such a company is always giving the "right" advice. Let us not forget that we all are part of a financial system where an economic agent usually "wins" or gains wealth, while another economic agent "loses". This is not an arguable statement. This is correct.

Thus, the unsavvy investor may want to make decisions on his own, without appealing to any financial consultant, thus saving some cash (financial consultancy isn't free of charge).

Creating assets normally anticipates obtaining financial revenue generated by real flows that either have or have not yet occurred. In the first case, the financial flows are yielded at a more distant date (Toma and Alexandru, 2003, p. 27); to this respect, the assets are created with the aim of bringing liquidity forward; in the second case, the issued securities are the very condition of obtaining the real expected income, by means of "investing".

In our country, the *basic investment alternatives* one has to pay mind to, are: *bank deposits*, state issued *treasury bills, real estate investments* and precious metal commodities, like *gold* and *silver*. Of course, there are many more possibilities, but here we discuss the basics. Savvy investors may also take into account: stocks, corporate bonds, futures, options, currency swaps, CFDs, or, why not, cryptocurrencies. But these are not covered in this study.

Therefore, our attention is focused on deposits, treasury bonds (or bills), real estate and precious metals. We discuss each case without showing complete real data because we want to keep this study on a theoretical level, and avoid marketing for any specific financial product (or investment alternative). There are financial brokers for this purpose. But what this paper intends to determine is whether you need or not to book a broker.

Bank deposits

Well this is the classical "investment", but a better word for it may be "placement". The risk-adverse investor will prefer this type of financial product. Unfortunately, nowadays, the Romanian financial market provides ridiculously low interest rates, with regards to RON deposits. For euro deposits there are better deals available. This is common knowledge, and of course the euro deposits interest is considerably smaller than the one for RON deposits, but any discussion takes into account the purchasing power of the currency.

If the interest rate is smaller than inflation rate, than the investor loses money in *real terms* (considering inflation or any other investment valuation opportunity cost) although in *nominal terms* there is some profit (example: 0.15% RON deposits and 0.01% euro deposits). In either case, placing savings at a ridiculous interest rate will erode the purchasing power of invested money. What to do? What is the solution? Appeal to investment funds, or better, to online mutual funds aggregators[1] that allow you to "dream" for a return which is bigger than 10%? Aggregators offer investment opportunities in funds listed on the largest stock exchanges of the world. Aggregation is considered to be beneficial to all stakeholders.

In our opinion, a savvy investor won't "push" for financial independence at the risk of losing top value of his savings. If one looks a significant number of years into the past, then observes that changes are immitigable. On long term, financial investment value is supposed to increase, at a certain pace, but depending strongly on economic cycles. Therefore, it would be wiser to

place your money at 1% return, in 1 euro deposit, if such an opportunity is identified on the market, with an arguable real profit, rather than losing money, i.e. gaining a nominal negative profit. And 1 euro deposit preserves value better because of currency purchasing power, regardless of Euro Area inflation rate[2].

State issued treasury bills

In general, bonds are classical securities issued to attract long term capital, with a maturity bigger than one year (Stancu (coord.), 2002, p. 208). Their prospectus provides firm conditions on interest, repayment amounts and payment period. This firmness of contractual clauses provides a low risk for capital investors. The same rationale applies for state issued bonds, usually called T-bills, where the government's financial soundness further reduces the risk. These are the risk-free assets, used in financial modeling (Stancu (coord.), 2002, p. 182) and bought by small and risk-adverse investors.

As will be shown further in this paper, the discussion (dilemma) is in fact about choosing between euro deposits and treasury bills. Real estate investing may turn out to be kind of complicated for the ordinary investor because its specifics are time consuming; thus, real estate return should be adjusted for risk and for lost time with miscellaneous real estate issues. This is not actual passive income. As regarding commodities, namely gold or silver, these alternatives do not produce immediate return but rather bear different kinds of costs (example: storage, shipping). But they work well in preserving value on long term. For these reasons alone, the unsavvy investor is unlikely to invest in real estate or metals.

For discussion sake, we will suppose an average return on RON treasury bills of 3.5%. This is consistent with recent state loan prospectus data. This is posted on the Ministry of Public Finance website. So, this investment opportunity needs to be compared to investing in euro deposits with 1% interest rate. What will you choose?

The state bond is tax free. This is to be taken into account when computing actual return. To compare these two alternatives, one has to account both for the purchasing power of each currency and for inflation rate, in order to achieve a ***real rate of return***.

Generally speaking, the euro deposit is safer and more convenient than the RON treasury bill. The euro interest rate has to be adjusted with inflation, thus reduced with the predicted Euro Area inflation rate. The T-bill coupon rate has to be adjusted with domestic inflation, thus reduced with the predicted inflation rate[3]. Of course, considering Euro Area inflation is a rather academic approach. At the end of the day, an investor who is living in Romania is in fact affected by domestic inflation. Nevertheless, inflationary expectations in the Euro Area influence interest rates, hence the exchange rate between currencies.

To ensure comparison between currencies, the exchange rate has to be taken into account. More precisely, the investor has to factor in the *exchange rate variation*. This may be computed for a given period within the past, so that its value has predictive power. It can be averaged over daily exchange rate values or it may simply be the yearly percentage fluctuation. In our opinion, this variation can be treated either as an adjustment coefficient or merely as depreciation or appreciation in value, similar to an interest rate. Whatever the selected approach, this variation adjustment is to be applied for both currencies, simultaneously, in order to achieve any fair financial values, in real terms, starting from nominal terms. Thus, formulas for real interest rates can be deduced.

If the investor wants to use the adjustment coefficient approach, it would function as a growth index: $1 + \Delta(\%)$ exchange rate. This is to be applied to the deflated interest rate, namely any nominal rate minus predicted inflation rate. If the investor wants to treat the exchange rate variation as capital growth rate (depreciation or appreciation in value), then it is to be simply

added to the deflated interest rate. For this latter approach, the following formulas would work (for euro deposits interest rate and for RON treasury bills coupon rate):

RON T-bill ----> Rir (%) = Nir (%) - Inflation rate / Δ(%) exchange rate EUR/RON

EUR deposit ----> Rir (%) = Nir (%) - Inflation rate + Δ(%) exchange rate EUR/RON

Regarding the notation system, we specify the following: Rir (%) is the real (adjusted) interest rate; Nir (%) is the nominal interest rate. The inflation rate is supposed to be a predicted value and is in fact the domestic RON inflation. This is because the discussion is for a domestic investor, affected by domestic inflation. The Δ(%) should be a prediction too. On an efficient forex market, the Δ(%) exchange rate EUR/RON should be approximately equal to the interest rate differential (RON interest, or coupon rate, minus euro interest rate).

Any verification of these relationships would show a real return bigger than 0% but smaller than 1%. Results may vary as data varies, and predictions are arguable. Nevertheless, this would help the small investor preserve purchasing power of invested money.

Of course, these relationships can be further studied, exploited, tested by empirical, statistical and econometric studies. A consistent database would be needed.

Statistical observation is the first phase of any research, and it involves a compendium of activities regarding collecting (according to established criteria) data on the characteristics of the investigated phenomenon. Data obtained as a result of observation must meet quality conditions, in the sense that it must be complete and collected according to unitary criteria (Vişinoiu, 2001, p. 17).

One method of approach would be to go on a predictive calculation over a year. After the year ends, the actual results for the amounts received as interest will be available. The interest of RON T-bill will be converted to euro (supposing euro as the benchmark) so it could be compared to the interest on the euro deposit. Thus, we will see which placement was more efficient, and we will see to what extent the forecast "jives" with the recorded values.

Another approach is to decide based on a predictive study for both alternatives, where the real (adjusted) interest rates are computed and compared. The (domestic) inflation rate may be suppressed from the analysis as it would cancel out. And the exchange rate variation may be equated to the interest rate differential. To this respect, and as a short example, if the RON treasury bill yields 3% and the euro deposit yields 1%, both nominal and annual interest rates, then the euro currency should increase by more than 2% per year in order to justify investing in 1 euro deposit.

The exchange rate variation can be calculated either as an average of daily exchange rates variations over a significant number of past years, or as a percentage variation of exchange rate over the last year, computed between the beginning and the end of the year.

A simple **empirical analysis** over past recorded values can be done as follows. This suggestion may be refined by advanced econometric modeling and testing. We suggest dividing the methodological approach into two stages.

In *stage 1*, we choose a RON T-bill, 1 euro deposit and any year from the past for which historical data is available. We compute the Rir (%) for both alternatives, by using a predictive value for the Δ(%) exchange rate EUR/RON. Using the Rir (%) then we compute the net wealth at the end of the year. Thus, the total RON T-bill year end value (coupon included) will be converted into euro at an estimation of the exchange rate for the end of the year (the best past value estimation, available at that moment) because the comparison should be made in the highest-valued currency, i.e. the euro. The investor will discriminate between the two investment alternatives, according to the max (net wealth) criterion. This will be the investing decision. It will be recorded for the specific year.

In *stage 2*, we compute the actual coupon and interest amounts, by using the historical nominal interest rates, along with the total worth of each placement (interest plus principal). The total RON T-bill year end value (coupon included) will be converted into euro at the actual exchange rate, recorded in the past for the end of that year. The investor will observe which alternative was more "fruitful", according to the max (net wealth) criterion.

This routine may be reiterated for n years and we will note in how many cases (years) the investment decision "jived" with actual recorded profits. By studying a large number of cases, a model might be detected, if it exists. A shorter version of the same analysis implies simply comparing the interest rate differential, between the two options, with the exchange rate variation. To this respect, if the exchange rate fluctuation is greater than the interest rate difference, than the investor will choose the euro deposit. Of course, we will have to go through the two stages described above (predictive values and actual values).

Interestingly, if empirical analyses prove placing your money in 1 euro deposit is the efficient decision in most cases, the unsavvy investor can simplify his investment decision and save time, which equates money at the end of the day. Nevertheless, the investor has to remember to factor in the tax saving on the coupon produced by a treasury bill.

Real estate investments

This is a very "common" alternative. Because investing in tangible assets is a concern of any investor, regardless of his or her financial education. The ordinary investor "knows" real estate will always be a viable alternative. Houses and apartments will always be built, as to accommodate new inhabitants. This will always define a business. But actual investing might be somehow intricated for the common investor. The specifics of real estate investing are in fact time consuming, and the return, although consistent during some economic cycles, may not qualify as passive income. Therefore a Rir (%) type of real estate return should be adjusted for risk and for the time the investor consumes with miscellaneous real estate issues.

In theory, real estate does not represent a financial market (Dragotă et al., 2009, p. 152). If we were to accept that land is a financial instrument, then it is obvious that almost anything may be also categorized as such an instrument. It represents an alternative market for investors which may add real estate properties to their portfolio of shares, bonds and monetary assets.

In our country, although the real estate market may yield an average 5% or 6% return per year[4], it is expected to decrease in the near future, according to practitioners in this field. Therefore it is highly recommended to any investor to pay attention to market evolution and to buy cheap real estate when the market drops.

On another hand, the Romanian real estate market may be more and more isolated from the evolution of the EUR/RON exchange rate, as investors' budgets and credit loans are denominated in RON. For example, an apartment in Ferentari neighborhood is priced in euro, but it will probably not increase its price in direct relation to the variation of the EUR/RON exchange rate. Considering all of these particular characteristics of Romanian real estate market, as presented here, and mainly because this type of investment doesn't really bring passive income, we will suggest placing saved money in 1 euro deposit or a RON T-bill.

Gold/silver commodities

With regards to precious metal commodities, the most actively traded are *gold* and *silver*. These alternatives are interesting[5], but unfortunately, they do not produce any interest, or return, on the short and medium term. Conversely, they bear different supplemental costs, such as *storage costs* and *shipping costs*. For these reasons alone, an ordinary investor is unlikely to place

money in these alternatives. Because there is an obvious opportunity cost and a supplemental cost. We believe this is "bad business".

Nevertheless, these precious metal commodities perform well in preserving monetary value on the long term. The opportunity cost and the other miscellaneous costs are supposed to be totally covered somewhere in the future, when, during a financial crisis or economic deleveraging, the value of precious metals would increase consistently. But this is just a "bet"; with a high risk attached to it. We believe placing RON savings in 1 euro deposit or a RON T-bill is a much better investment decision.

Conclusions

To conclude, as shown above, the only significant investment alternatives an ordinary, unsavvy Romanian investor would have to choose from, at present moment, in this financial and economic environment, are in fact the euro deposits and the RON T-bills.

For discriminating between these two financial products, we offered an empirical method, in detail. By applying this methodology, any investor will decide correctly, as we believe, on preserving the time-value of hard-earned and saved money.

Notes

[1] See https://economictimes.indiatimes.com, Opinion – Interviews.
[2] See https://tradingeconomics.com, Euro Area – Inflation.
[3] See www.bnr.ro, Politică monetară – Proiecții BNR.
[4] See www.bankingnews.ro
[5] See www.bullionbypost.eu, Info – How to Buy Gold.

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Economic growth and impact of social and economic factors in the Baltic States

Cosmina-Ștefania CHIRICU
Bucharest University of Economic Studies, Romania
cosmina.stefania@ymail.com

Abstract. *This paper highlights the economic impact of indirect taxes on economic growth rate by using a Panel Data regression model. The econometric assessment implies the effects of the variables from 1996 to 2016 for the Baltic States. On one side, the estimations performed assert remarkable results from a statistical perspective with government expenditures, excises and other consumption taxes leading to economic decline. On the other side, the other explanatory variables of the model support economic growth. Also, the Baltic States adopted the VAT system later than other countries but has advantages because of the range of different rates for goods and services.*

Introduction

The Baltic States: Estonia, Latvia and Lithuania as Post-Soviet countries experienced a long period of substantial economic growth since they had regained their independence from the Soviet Union up until the global financial crisis of 2007-2008. The aftermath of the financial crisis in the Baltic States had its turning point in 2009 when all economies encountered a severe downturn in their economic growth. However, all three states recovered remarkably fast with such achievement being crowned by their admittance to the Euro Zone in 2011.

This paper seeks to estimate the impact level of five explanatory variables on economic growth rate by computing two regression models with no effects and with fixed effects in order to reduce the limitations derived from the: data arranged as Panel model, correlation between variables, time series, small dimension of the series or several other measuring errors. For the purpose of attaining a higher accuracy of the analysis, a Hausman test is performed.

The structure of the paper is as it follows: the first part comprises a literary review of relevant studies regarding the economic impact of certain variables on the economic growth rate, the second part is a review of the variables and methodology used, the third part presents the analysis of the empirical results and the last part of the paper comprises the conclusions.

Literature review

Stoilova (2017) claims that an optimum design of a fiscal system depends on a variety of factors, thus the author provides an estimation together with suggestions regarding the growth-conductive taxation. The main focus of the analysis is on the impact of the tax structure on the economic growth in the EU-28 member states for a period of time between 1996 and 2013. The differences among states relating the total tax burden are assessed using descriptive analysis while the impact of taxation on economic growth is empirically analyzed through regressions on panel data. The author concluded that the tax structure based on various consumption taxes, taxes on personal property and income is supporting to the economic growth rate.

Mendoza et al. (1997) focused their study on 18 OECD countries by using a Regression Model Panel based on the macroeconomic measures of effective tax rates on income and consumption, suggesting that there is a weak but significant link between fiscal policy and long-term economic growth.

Stoilova and Patonov (2013) focus on the study of the basic trends in the distribution of total tax burden among 27 state members of the European Union for a period of time between 1995-2010. The empirical approach consists in a comparative analysis of cross-country discrepancies correlated to the total tax burden, measured as the tax-to-GDP ratio and design of tax structure classified as the total tax revenues as percentage of direct taxes, indirect taxes and social contributions with special emphasis on the impact of taxation on economic growth. Authors concluded that tax structure based on direct taxes is more supporting on economic growth.

The results of the study by Alam J. Rogers (2011) indicate that government expenditure policies have a far more consistent effect on economic growth than fiscal policies. The authors' article uses data between 1947 and 1997 for 48 states and comprises estimations of the impact on economic growth of factors such as taxation, tax policies and government expenditures.

Engen and Skinner (1996) analyze the impact of fiscal reforms on economic growth considering long-term economic growth rates in the US economy through three approaches. The first approach consisted in examining historical data in the US economy in order to highlight whether any tax cuts were associated with economic growth. The second approach presents country results and the third approach uses micro-level results by studying labor supply, investment demand and productivity gains. The authors' conclusions highlight modest effects ranging from

0.2 to 0.3 percentage point difference between growth rates and tax reforms. They also believe that such small effects have a significant impact on living standards.

Poulson and Kaplan (2008) explore the impact of fiscal policies on economic growth through a pattern of endogenous growth and a regression that estimates the economic impact of taxes in the USA from 1964 to 2004. The findings of the study revealed a significant negative impact of marginal taxation rates and stressed the importance of controlling regression, convergence and regional influences in order to isolate the effects of taxation on economic growth.

Research methodology and database

For the purpose of the study of the social and economic impact of indirect taxes on economic growth in the Baltic States, a database was created with information regarding the 1996-2016 period of time. The empirical analysis is supported by an econometrical Panel Data regression model with cross-sections.

The following table displays the variables used in the estimation:

Table 1. *Variables used in the model*

Variable	Description of variable	Source
I. Dependent variable		
PIB_grate	GDP economic growth rate	Online Database of Eurostat
II. Explanatory variables		
1. Variables regarding indirect taxes		
TVA	VAT values computed as percentage of total fiscal revenues	Online Database of Eurostat
Acc_impcons	Excises and other consumption taxes computed as percentage of the total fiscal revenues	Online Database of Eurostat
2. Variable regarding the size of the governmental public expenditures		
Ch_bug	Government public expenditures as GDP percentage	Online Database of Eurostat
3. Variable regarding the size of imports		
Import	Imports of goods and services as GDP percentage	Online Database of Eurostat
4. Control Variable		
Corr_index	Variable based on the Corruption Perception Index (CPI). The measurement is based on a given score of 0 (very corrupt state) to 100 (very low level of corruption)	The Heritage Foundation online database

Source: Author's own processing.

Analysis of the empirical results

Figure 1. *Economic growth evolution in the Baltic States*

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ESTONIA	5.32	11.8	4.12	-0.8	10.5	6.33	6.08	7.42	6.29	9.37	10.2	7.75	-5.4	-14.	2.26	7.60	4.31	1.94	2.89	1.67	2.06
LETONIA	2.36	8.97	6.52	2.62	5.41	6.46	7.10	8.43	8.34	10.7	11.8	9.98	-3.5	-14.	-3.9	6.38	4.03	2.58	1.91	2.84	2.08
LITUANIA	5.15	8.29	7.47	-1.1	3.83	6.52	6.76	10.5	6.55	7.73	7.41	11.0	2.63	-14.	1.64	6.05	3.83	3.51	3.50	1.78	2.30
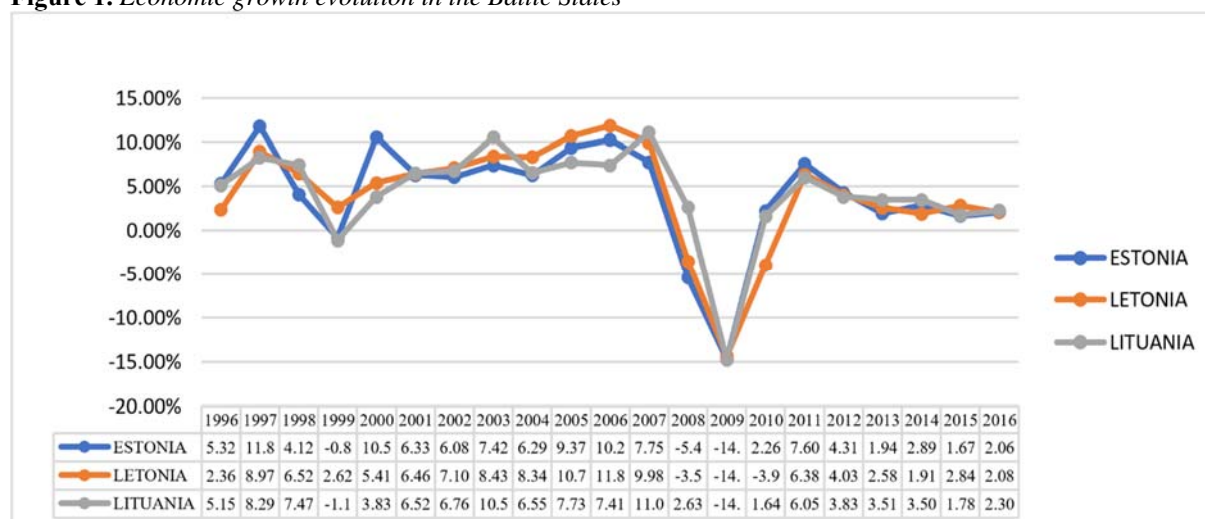
Source: Author's own processing based on Eurostat and World Bank data; values are expressed as percentage.

Figure 1 features the trend of the economic growth in the Baltic States between 1996 and 2016 and Table 2 emphasizes on the descriptive statistics of this variable. The minimum value of economic growth was of -14.81% for Lithuania (2009) and the maximum value was only 11.89% for Latvia (2006). Additionally, in Figure 1 the downturn of 2009 associated with the financial crisis of 2007-2008 is distinguishable by a descendent trend. More than this, in 2009 all three countries encountered negative values in their economic growth. However, once with the admittance of the three Baltic States in the Euro Zone, all of them sought the same trend pattern.

Table 2. *Descriptive statistics of the dependent variable*

Variable	Average	Mean	Maximum value	Minimum value	Standard deviation	Observations
Economic growth rate	0.041964	0.053238	0.118894	-0.148142	0.056616	63

Source: Author's own processing using EViews 7.

Table 3. *Baltic States estimation results (with no effects)*

Dependent Variable: PIB_GRATE				
Method: Panel Least Squares				
Sample: 1996 2016				
Periods included: 21				
Cross-sections included: 3				
Total panel (balanced) observations: 63				
Variable	Coefficient	Std.Error	t- Statistic	Prob.
C	0.686432	0.161999	4.237253	0.0001
ACC_IMPCONS	-0.354579	0.172135	-2.059894	0.0440
CH_GUV	-0.865331	0.132472	-6.532171	0.0000
CORR_INDEX	-0.356723	0.071199	-5.010203	0.0000
IMPORT	0.156435	0.071252	2.195516	0.0322
TVA	0.813955	0.369126	2.205090	0.0315
R-squared	0.628699	Mean dependent var		0.041964
Adjusted R-squared	0.596129	S.D. dependent var		0.056616
S.E. of regression	0.035980	Akaike info criterion		-3.721301
Sum squared resid	0.073791	Schwarz criterion		-3.517193
Log likelihood	123.2210	Hannan-Quinn criter.		-3.641024
F-statistic	19.30287	Durbin-Watson stat		1.401435
Prob(F-statistic)	0.000000			

Source: Author's own processing using EViews 7.

Based on the econometric estimations with no effects, the following explanatory variables proved to be statistically significant: excises and other consumption taxes (acc_impcons), government expenditure (ch_guv), Corruption Perception Index (corr_index), imports of goods and services (import) and VAT (TVA).

Table 4. *The coefficients and probabilities of the explanatory variables used in the no effects estimation*

Explanatory variables	Coef.	Prob.	Implies
C	0.686432	0.0001	
ACC_IMPCONS	-0.354579	0.0440**	Economic decline of -0,35%
CH_GUV	-0.865331	0.0000*	Economic decline of -0,86%
CORR_INDEX	-0.356723	0.0000*	Economic decline of -0,35%
TVA	0.813955	0.0315**	Economic growth of 0,81%
IMPORT	0.156435	0.0322**	Economic growth of 0,15%

Legend: * 1% significance level; ** 5% significance level.
Source: Author's own processing using EViews 7.

The estimation thus testifies that the first three explanatory variables induce an economic decline whilst only the VAT and imports support economic growth.

Panel data model approach may cause limitation in the studies, fact which can be derived from the availability degree of data, the correlation between variables, time series small dimension

or several other measuring errors. In order to reach a higher accuracy of the estimation, the model's specification testing is performed by using the Hausman test.

Table 5. *Hausman test – Baltic States*

Correlated Random Effects - Hausman Test period random effects	Test		
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
		5	0.0000
Period random	52.958601		

Source: Author's own processing using EViews 7.

Comparative with the non-effect estimation, in a fixed effects estimation, excises and other consumption taxes are statistically insignificant with all other explanatory variables bearing the same impact on economic growth. The R squared coefficient has the value of 0.628699 for the non-effect estimation, whilst for the fixed effects estimation it has the value of 0.642237. Therefore, 62.87% of the economic growth variation is determined by the variation of the explanatory variables with the percentage of 64.22% for the fixed effects model respectively.

Table 6. *The coefficients and probabilities of the explanatory variables used in the no effects estimation*

Explanatory variables	Coef	Prob	Implies
C	0.688251	0.0000	
IMPORT	0.144060	0.0544***	Economic growth of 0,14%
CH_GUV	-0.868866	0.0000*	Economic decline of 0,86%
CORR_INDEX	-0.379550	0.0000*	Economic decline of 0,37%
TVA	0.879038	0.0179**	Economic growth of 0,87%

Legend: * 1% significance level;   ** 5% significance level; *** 10% significance level.
Source: Author's own processing using EViews 7.

Table 7. *Results of the estimation with fixed effects*

Dependent Variable: PIB_GRATE				
Method: Panel Least Squares				
Sample: 1996 2016				
Periods included: 21				
Cross-sections included: 3				
Total panel (balanced) observations: 63				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.688251	0.151933	4.529971	0.0000
CH_GUV	-0.868866	0.131651	-6.599746	0.0000
CORR_INDEX	-0.379550	0.072159	-5.259917	0.0000
IMPORT	0.144060	0.073313	1.965008	0.0544
TVA	0.879038	0.360213	2.440330	0.0179
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.642237	Mean dependent var		0.041964
Adjusted R-squared	0.603906	S.D. dependent var		0.056616
S.E. of regression	0.035632	Akaike info criterion		-3.726698
Sum squared resid	0.071100	Schwarz criterion		-3.488572
Log likelihood	124.3910	Hannan-Quinn criter.		-3.633042
F-statistic	16.75473	Durbin-Watson stat		1.479637
Prob(F-statistic)	0.000000			

Source: Author's own processing using EViews 7.

Conclusions

For the Baltic States the following remarkable results are to be taken in consideration:
- Excises and other consumption taxes and VAT (as indirect taxes).
- Imports of goods and services.
- Governmental expenditures.
- Corruption Perception Index.

The estimation with no effects in EViews of the above-mentioned variables within an econometric model confirms that all are significant and have impact on economic growth. Therewith the running of Hausman test, a condition to use fixed effects was implied (due to the large number of observation and the long period of time), as a result, excises and other consumption taxes were no longer significant. Also, Estonia proved to be the country which applies smaller excises and consumption taxes than Latvia and Lithuania.

On a side, government expenditures, excises and other consumption taxes and the Corruption Perception Index lead to economic decline, moreover, for the Baltic States the Corruption Perception Index records values between 70 and 27. Such index reflects the population's level of trust in the political environment of their country and government and in the meantime hints the impact which various negative factors may bear upon the economy. Moreover, results acquaint a non-productive usage of government expenditures.

On the other side, the other explanatory variables of the model support economic growth. Due to the fact that the VAT is harmonized across EU members, this has advantages because of the range of different rates for goods and services. Additionally, the Baltic States as Post-Soviet countries adopted the VAT later than other countries.

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The Nordic-Baltic region:
European integration and security concerns

Hilmar Þór HILMARSSON
School of Business and Science
University of Akureyri, Iceland
hilmar@unak.is

Abstract. *The five Nordic countries and the three Baltic States are closely interlinked via trade, investment, mobility of people, and banking. Because of this integration, as well political, cultural and historical ties, they are sometimes referred to as the Nordic-Baltic region or simply the Nordic-Baltic countries. All the countries in this group have pursued some form of integration with the European Union (EU), four of them are members of the euro area, and all of them are Schengen member states. But can these small countries as a group cooperate more closely and perhaps exercise more collective authority in Europe? The Nordic countries and the Baltic States have cooperated successfully in the Bretton Woods institutions, the World Bank and the IMF, and six of them are among European NATO member states. But when it comes to European integration the lack of common approach complicates their cooperation. Within this group of countries there are hardcore EU and euro area member states (the Baltics and Finland), EU members (Denmark and Sweden) and EU outsiders (Iceland and Norway). Common pathways for the future cooperation in Europe may be hard to find.*

Introduction

The five Nordic countries and the three Baltic States are closely interlinked via trade, investment, mobility of people, and banking. Because of this integration, as well political, cultural and historical ties, they are sometimes referred to as the Nordic-Baltic region (5+3) or simply the Nordic-Baltic countries (NB8). All the countries in this group have pursued some form of integration with the European Union (EU).[1]

The level of economic and political integration varies among these eight small countries, for several reasons. These include, for example, different economic and political priorities, as well as security concerns. The behaviour of the countries in the Nordic-Baltic region is shaped by their circumstances and interests. They are affected by their relations and ties among themselves, relations with the EU, and with individual EU member states. They are also influenced by non-EU member states in Europe and most notably the five countries in this group that share borders with Russia.[2] In fact, the Nordic-Baltic region is the only part of the EU that borders Russia.

Countries in distant regions can also be important, especially the United States (USA) because of its role as security guarantor in Europe via its participation in the North Atlantic Treaty Organization (NATO)[3] (NATO, 2018) and leadership within that alliance. Iceland has a bilateral defence agreement with the USA. While the focus of this article is mainly on the EU and NATO, it should be noted that those countries also cooperate in other institutions such as the Bretton Woods institutions (the World Bank and the IMF) as well as the European Bank for Reconstruction and Development, the Council of Europe, the Organization for Security and Cooperation in Europe and the United Nations, amongst others.

From an economic point of view, European integration is important for the Nordic countries and the Baltic States as their economies largely, albeit to varying degrees, depend on trade of goods and services with EU member states and thus access to the EU internal market. Dependence on trade with other nations is typical of small states such as the Nordic countries and the Baltic States, which have relatively small domestic markets, produce a limited variety of goods and need to rely on cross-border trade to achieve economies of scale[4] in their production. Cross-border capital flows within the EU are also important to the Nordic countries and the Baltic States. This is especially true of the Baltic States, which are still in transition, catching up with richer EU member states. Access to the common labour market can be beneficial, especially if the flows of people are circular, that is, people migrating to other countries and returning with more experience and education. Nevertheless, this can be a challenge for the lower-income Baltic States, where young people may not have an incentive to return once settled in higher-income countries with better living conditions, including more advanced welfare systems. The austerity programmes in the Baltics have made them particularly vulnerable in recent decades. Security issues also come into play as an important incentive to participate in European integration, and defence alliances are particularly important for small states that can be, and often have been, threatened by larger, more powerful neighbours. Iceland's situation is special in this regard as it is located in the Atlantic Ocean, far from continental Europe.

Because of their strategic locations, the Nordic countries were the targets of conquest or control during World War II. Denmark and Norway were occupied by Germany. Finland fought against the Soviet Union. Iceland was under British and later US occupation. Only Sweden managed to remain neutral. All the Nordics regained their independence after World War II. In contrast, all three Baltic States suffered occupation for decades during the Soviet era until 1991.

While the levels of Nordic and Baltic European integration are different, all the Nordic countries and the Baltic States are within the European Economic Area (EEA)[5] and participate in Schengen (European Commission, 2018a).[6] Six out of the eight countries are EU member

states and two are European Free Trade Association (EFTA)[7] member states. Four of the Nordic-Baltic EU member states are also euro area member states and have thus adopted the euro[8] (see Figure 1 below).

Figure 1. *Different levels of European integration within the Nordic-Baltic region*
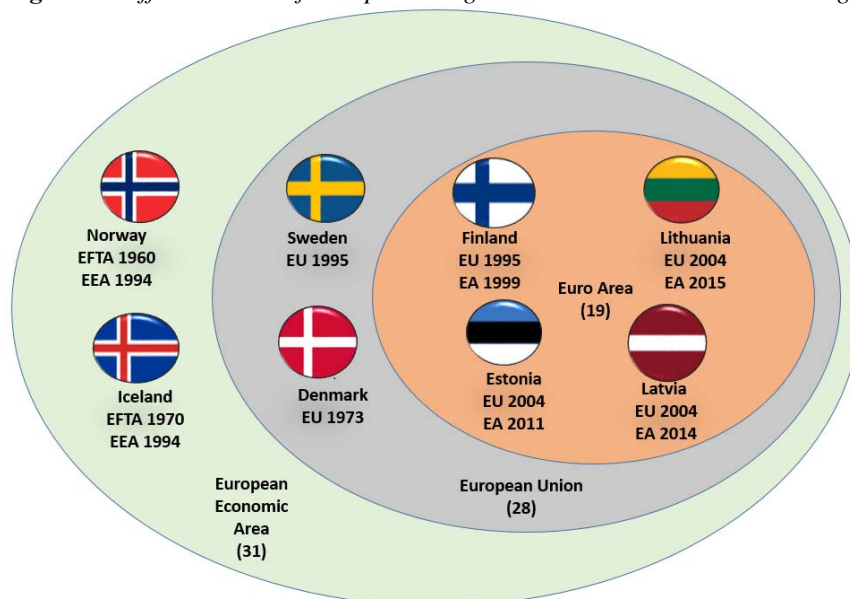
Source: Constructed by the author; EFTA 2014 and European Commission 2018b.
Euro Area (EA), European Economic Area (EEA), European Free Trade Association (EFTA) and European Union (EU)

Among the Nordic countries and Baltic States, Iceland and Norway have the lowest level of economic integration, being members of EFTA and parties to the EEA Agreement since 1994. While they are not EU member states, this arrangement provides them with access to the EU internal market critical for their export sectors. Denmark and Sweden have closer integration with the EU as full EU member states. However, neither country has chosen to enter the euro area and adopt the euro as their legal tender. Denmark has pegged its krona to the euro.[9] Sweden, on the other hand, maintains a floating exchange rate regime with an inflation target (Gylfason et al., 2010, p. 167). Finland and the Baltic States have the highest level of EU integration among the Nordic countries and the Baltic States, being both EU and euro area member states.

 All eight Baltic and Nordic countries participate in Schengen along with 18 other European countries, enabling free movement of their citizens within the Schengen Area.[10] In addition to economic and security benefits from European integration, all the Nordic countries and Baltic States except Finland and Sweden are members of NATO.[11] It is notable, but perhaps not surprising given their history and security concerns, that the Baltic States are the most internationally integrated countries in the Nordic-Baltic group. For the Baltics, EU membership was to provide long term prosperity, with NATO membership providing military protection and security. They want the closest possible links with the West including the older EU 15 member states (i.e. the member states before the 2004 and 2007 enlargements) as well as with the USA.

Some theoretical considerations. Free trade and economic integration

For the Nordic countries and the Baltic States, free trade among themselves and within the EU internal market is critical: arguably the internal market is the EU's greatest asset. Classical economic theory documents gain from international trade, demonstrating that nations can improve the welfare of their populations by engaging in cross-border trade with other nations. Trade between nations can, at least in theory, result in a positive sum game, meaning that the

trading countries are all better off, benefiting from their gains from trade.[12] To this day this is one of the fundamental principles underlying arguments for all countries to strive to expand and to promote free world trade (e.g. Czinkota et al., 2009). The efficiencies derived from economies of scale[13] are also a key argument for economic integration:[14] creation of a common market allowing larger production and trading volumes can benefit all participating countries. The EU pursues regional integration, where those who have access to its common market can benefit as described above. According to regional integration theory, the level of integration varies. From least to most integrative, they are: a free trade area, a customs union, a common market, and finally, an economic and political union.

EFTA is a free trade area and represents the loosest form of economic integration where all barriers to trade among member countries are removed. This is the route that Iceland and Norway have chosen and currently maintain in addition to access to the EU internal market via the EEA Agreement that came into force in 1994. Both countries have been reluctant to join the EU and have so far chosen to stay out of the union. The current arrangement pursued by Iceland and Norway does not require a common trade policy, such as a common external tariff, with respect to non-members, as do customs unions such as the EU. Nor does it require the surrender of numerous measures of their national sovereignty to supranational authorities in Union-wide institutions such as the European Parliament, the European Commission and the European Council. Nor, too, does it require participation in common agricultural or fisheries policies. Furthermore, Iceland and Norway do not take part in European Central Bank activities as they are not part of the monetary union and have their own currencies.

Initially, the Nordic countries Denmark, Norway and Sweden were among the founding members of EFTA in 1960. Other founding members were Austria, Portugal, Switzerland and the United Kingdom (UK). Given the size of its economy, as well as its regional and global importance, the UK was in a leadership role in EFTA from the beginning until it left and joined the European Economic Community (EEC) in 1973. By joining the EEC, the UK sought more influence in shaping the EEC, a difficult or perhaps impossible task had the UK remained an EFTA member state only. Recently the UK decided to exit the EU but future arrangements with the EU and the level of economic integration remain unknown at the time of writing. With Brexit, the UK is entering uncharted territory and is scheduled to leave the EU, with or without an exit deal by the end of March 2019.

Iceland became a member of EFTA in 1970 and Finland in 1986. All the Nordic countries thus decided to take part in this early regional integration effort led by EFTA. The Baltic States could not have participated in EFTA since they were occupied by the Soviet Union until their independence was re-established in 1991. To date the only Nordic countries that remain members of EFTA are Iceland and Norway. Denmark left in 1973 to join the EEC, while Finland and Sweden left in 1995 to join the EU (see Table 2). Those Nordic countries were willing to surrender some of their national sovereignty to supranational authorities in Union-wide institutions and possibly hoped that they, as a like-minded group on many issues, would be able to influence the EU, that is, by being *systems-affecting* in the sense suggested by Keohane (Keohane, 1969) *that is,* states that cannot affect the international system if acting alone but that can exert significant impact on the system if working through small groups or alliances or through universal or regional international organizations.

Currently EFTA has four member states; Iceland, Liechtenstein, Norway and Switzerland. EFTA has three core tasks: The first is the liberalization of intra-EFTA trade. Second, the EFTA states have built networks of preferential trade relations throughout the world.[15] Third, three of the four EFTA states – Iceland, Liechtenstein and Norway – are parties to the European Economic Area Agreement,[16] which ensures their participation in the Internal Market of the EU (EFTA, 2014).[17] Switzerland, also an EFTA member state, does not participate in the EEA Agreement, but has a bilateral agreement with the EU.[18]

As EFTA/EEA member states, Norway and Iceland have no formal influence on the decision-making phase on the EU side. They cannot directly affect EU laws and regulations governing the EU internal market that they are part of. EFTA/EEA member states can, though, participate in what is called "decision-shaping". This means that in the phase of preparatory work undertaken by the European Commission in drawing up new legislative proposals, the EEA Agreement contains provisions for input from the EEA EFTA side at various stages before new legislation is adopted (see Figure 2 below).[19]

Figure 2. *Decision Shaping i.e. EEA EFTA participation in the preparation of new EU law*
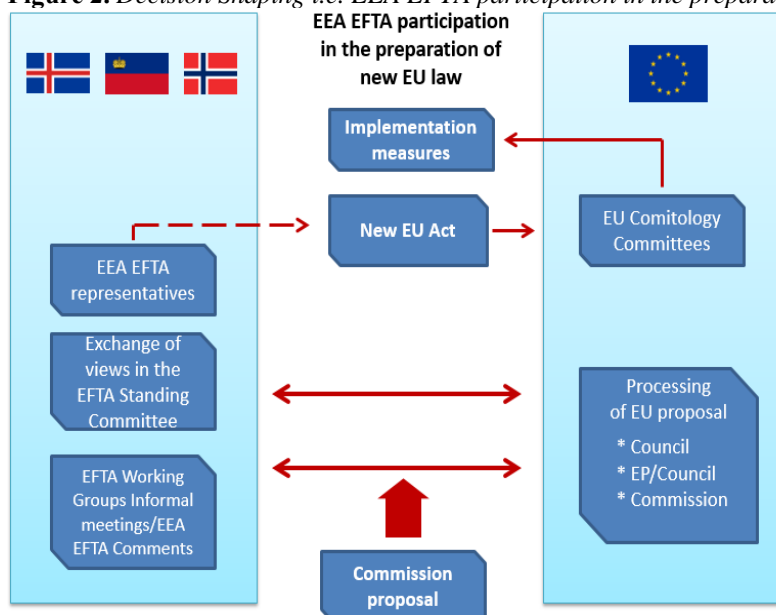
Source: EFTA (2014).

Given how small the EFTA/EEA member states are compared to the EU, it is questionable whether they can be classified as *systems-affecting* in the EU context. The reality is that Iceland and Norway receive the rules and laws governing the single European market via email without being able to directly influence the process of making them. In this regard, we can speak of sovereignty infringement. Since Iceland and Norway can only comment on those laws and regulations at an early stage of preparation at an expert level, they are not part of the final decision-making process and must adopt whatever decision is made finally by EU member states. This is the cost of enjoying access to the single market. So far the benefits have been assessed as higher than the costs.

As Table 1 shows, EFTA has lost most of its members, who chose closer economic integration by joining the EEC and later the EU, including the Nordic countries Denmark, Finland and Sweden. The Baltics never joined EFTA and immediately sought full EU membership.

Table 1. *European Free Trade Association (EFTA)*[20] *membership through the years*

1960	Austria, *Denmark, Norway,* Portugal, *Sweden,* Switzerland and the UK establish EFTA
1970	*Iceland* becomes a member of EFTA
1973	*Denmark* and the UK leave EFTA to join the EEC
1985	Portugal leaves EFTA to become a member of the EEC
1986	*Finland* becomes a full member of EFTA
1991	Liechtenstein becomes a member of EFTA
1995	Austria, *Finland and Sweden* leave EFTA to join the EU

Source: EFTA, 2014; Constructed by the author.

The EU has been moving towards an economic and political union. This involves not only abolition of tariffs and quotas among members – as in the case of a free trade area such as EFTA – but also a common tariff and quota system, abolition of restrictions of factor movements, as well as harmonization and unification of economic policies and institutions. While EFTA has

lost membership, the EU has expanded its membership, with currently 28 countries. This has included the Nordic countries and the Baltic States. Denmark joined (the then EEC) in 1973, Sweden and Finland joined the EU in 1995, and the Baltics – Estonia, Latvia and Lithuania – in 2004, (see Table 2 below). Norway rejected EEC membership in a referendum in 1973 and rejected EU membership in a referendum in 1994. Iceland applied for EU membership in 2009, but in 2013 the Icelandic government requested that "Iceland should not be regarded as a candidate country for EU membership" (see Table 2 below). This decision was made without a public referendum, but by a cabinet coalition formed in 2013. There are no signs of change and the new cabinet formed in 2017 is unlikely to seek EU membership (Hilmarsson, 2018).

Table 2. *The EU and the Nordic-Baltic Region*

1962	*Norway*, the UK, *Denmark* and Ireland apply for membership in the EEC.
1973	*Denmark*, Ireland and the UK become members of the EEC.[21] *Norway* rejected EEC membership in a popular referendum.
1994	The Norwegian referendum rejects accession to the EU.
1995	Austria, *Finland, and Sweden* become members of the EU.[22]
2004	*Estonia, Latvia and Lithuania* join the EU.[23]
2009	Iceland applies to join the EU.[24]
2013	The Icelandic government requests that "Iceland should not be regarded as a candidate country for EU membership"[25]

Source: Constructed by the author.

The formation of an economic union requires nations to surrender some measure of their national sovereignty to supranational authorities in union-wide institutions. Iceland and Norway have not been prepared to join the EU. Surrendering sovereignty is not controversial only in the Nordic region, as the recent decision of the UK to leave the EU demonstrates. British exit was decided in a 2016 referendum whereby British citizens voted to exit the EU: Brexit.[26] It remains to be seen how Brexit will be implemented and if some other EU member states will follow the UK and also consider exiting. This also depends on what kind of a deal, if any, the UK manages to make with the EU. EFTA nations are closely watching EU and UK negotiations as the final outcome could result in demands for a changed EEA agreement.

EU member states clearly have different opinions on what regional integration should include and how far it should go. This has resulted in varying levels of integration among countries within the EU. Nineteen out of 28 member states have adopted the euro (€) as their common currency and sole legal tender (see Figure 1). Among the Nordics, Denmark and Sweden, both EU members, have chosen to stay out of the euro area.

The formation of a common currency area can bring economic benefits to the members of the currency union, particularly if there is a high degree of international trade among them – that is, a high level of trade integration. This is primarily because of reductions in transaction costs in trade and the reduction in exchange-rate uncertainty. However, joining a currency union also involves costs, namely, loss of independent monetary policy and loss of the exchange rate as a means of macroeconomic adjustment. Among the Nordic countries, only Finland has adopted the euro. All the Baltic States have also done so (see Table 3 below). Denmark and Sweden rejected euro area membership and adoption of the euro in referendums. Iceland and Norway would not be eligible for membership in the euro area and could not do so unless first joining the EU and then fulfilling the euro area criteria for at least two years.

Table 3. *The Euro Area and the Nordic-Baltic Region*

1992	Denmark granted opt-outs from participating in the euro.
1999	Finland becomes a member of the euro area and adopts the euro.[27]
2003	Sweden decides not to adopt the euro for the time being in a referendum.
2011	Estonia becomes a member of the euro area and adopts the euro.[28]
2014	Latvia becomes a member of the euro area and adopts the euro.[29]
2015	Lithuania becomes a member of the euro area and adopts the euro.[30]

Source: Constructed by the author.

In addition to economic theories on gains from trade and economies of scale, as well as theories on the economics of integration, including a common currency area, there are also theories on the behaviour of small states within multilateral arrangements. Small states as well as large states have a choice to engage in bilateral negotiations and/or multilateral arrangements to address issues that cannot only be resolved within their borders. Bilateral negotiations are carried out between two countries focusing only on their own interests. On the other hand, multilateralism is the international governance of the many, for example, EFTA with four member states, the euro area with 19, the EU with 28, and the EEA with 31 member states, large and small. Schengen has 26 member states and NATO 28.

Arguably, the lack of a common approach among the Nordic countries to European integration is unfortunate (see Figure 1) and is not in their best interest collectively. The Nordics have rather homogenous populations and are often considered like-minded, with a similar social and cultural background as well as political traditions. A Nordic group with a coordinated approach could have become a stronger voice within EU decision-making bodies. This might help to further the interest of the Nordics as well as influencing the future direction of European integration efforts (Gylfason et al., 2010, p. 167). On the other hand, the Baltic States have a common European integration approach but are neoliberal, with their approaches in terms of both economic and social policies differing from the Nordics. On this account the Nordics and the Baltics are not like-minded countries.

The Baltics along with Finland all have the same level of integration, being both EU and euro area member states.[31] Finland adopted the euro in 1999, Estonia in 2011, Latvia in 2014 and Lithuania in 2015. The Baltic States made huge sacrifices to ensure euro area membership by implementing austerity programmes during the 2008/9 global economic and financial crisis. It would be hard, if not impossible, for the Nordics to implement such policies without social unrest. The level of tolerance for such radical government decisions is lower in the Nordics. Arguably, income and wealth inequality within the Baltic States has undermined democracy in those countries with divisions between the elite[32] and the poor much sharper than in the Nordics (Hilmarsson, 2016).

European integration and security concerns

In addition to economic considerations when joining the euro area, Finland and later the Baltic States had political motives to settle their political identities once and for all. Finland has for long lived in the shadow of either the Soviet Union or Russia. The Baltic States were occupied by the Soviet Union after the end of World War II until regaining independence in 1991. Finland, Estonia and Latvia have eastern borders with Russia, while Lithuania borders Kaliningrad,[33] since 1945 part of Russia. For those countries, EU and euro area membership are more than merely an economic integration arrangement. Security concerns too are of utmost importance for Finland and the Baltics. The EU could hardly ignore an attack on a member state without responding. Large EU countries, especially Germany and France, both euro area member states, could not tolerate an attack on the euro area. In addition to EU and euro area membership, the Baltic States were also keen on NATO membership and all became members in 2004.[34] It is notable that while EU enlargement proved to be a very lengthy and complex process for new member states, including the Baltics, NATO enlargement, which proceeded in parallel, proved much simpler and faster. Perhaps US support helped?

Of the Nordic countries, Denmark, Iceland and Norway joined NATO in 1949 and thus had been members for 55 years when the Baltic States joined (see Figure 3). NATO still remains the primary actor in European collective defence. The Baltics thus participated in a twin enlargement of the EU and NATO in 2004, driven by economic, political and security motives. Since the Ukraine crisis the Baltics have been increasingly concerned with the emerging

security threat from Russia, looking to the USA to lead NATO for protection. NATO can be viewed as the alpha and omega of their security, but EU membership and especially euro area membership is also important. It is notable that while NATO was expanding and its commitment increasing, the USA was reducing its military presence in Europe. Increased commitment thus coincided with reduced military power in Europe. This has weakened NATO as a guarantor of peace in Europe.

Recently, the US commitment to NATO has also come under question. During the 2016 presidential campaign, Donald Trump stated that NATO may be "obsolete" and the European allies would have to start paying their way in NATO.[35] Trump considers the Europeans as free-riders. Regardless of Trump's views and intentions, Europeans may need to recognize that the USA may not be able – financially, politically or militarily – to play the role of global policeman it assumed in 1945 (see, for example, Howorth, 2017). The USA is faced with many challenges, most notably in the Middle East and in the Pacific region. The US economy represented about half of the world economy's GDP at Bretton Woods, but this is now merely 25%. Times have changed and Europe may increasingly be forced to take more charge of its own security. As Angela Merkel recently stated, Europe's fate is "in our own hands".[36]

There is a need to rethink relations between the EU and NATO. The EU may increasingly need to take over NATO, recognizing that the world has changed and the USA has other security priorities than it had post-World War II, when NATO was established. Arguably the euro area may to some extent have replaced NATO as a security alliance backed up by Germany and France as military powers. Since the Baltics and Finland are euro area countries, those main euro powers would have to respond to any attack on them. The EU powers may also increasingly need to take over NATO as US commitment weakens, because US relative economic power has diminished, its presence in Europe has been reduced and also because the USA is busy in other regions, most notably in the Middle East and in the Pacific.

Figure 3. *Nordic and Baltic membership in NATO*
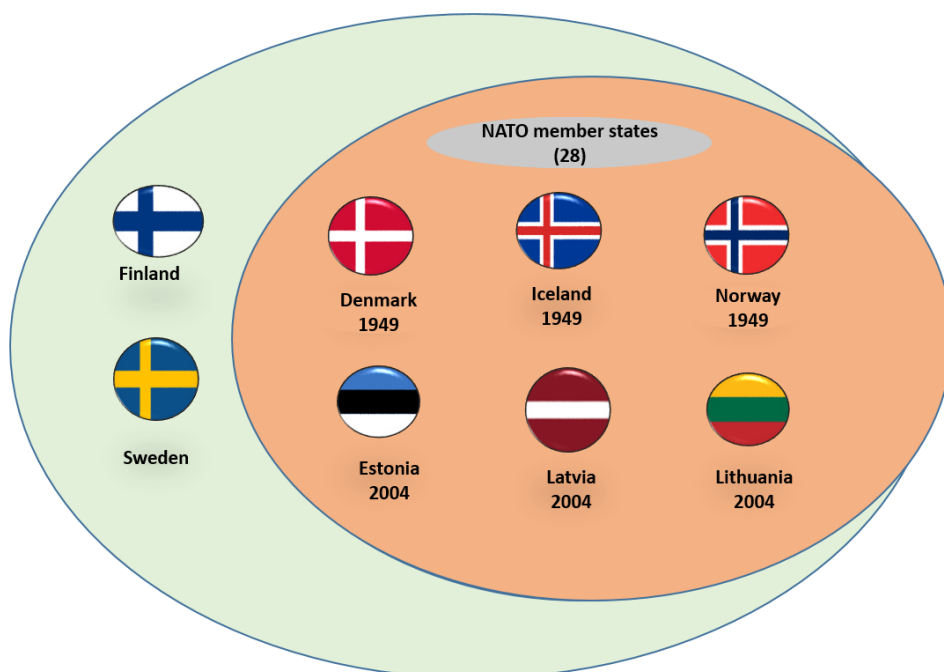
Source: Constructed by the author.

Denmark, Iceland and Norway were founding members of NATO post-World War II. The Baltic States took part in a twin enlargement of EU and NATO, becoming members of both institutions in 2004. Russia has warned it would respond to any move by Finland or Sweden to join NATO, see for example Guardian (2016).[37]

Conclusions

Can the Nordic-Baltic countries as a group exercise collective authority in Europe? If all eight Nordic countries and Baltic States (NB8) were EU member states and presented a united position on integration issues, they might be able to influence the other 22 EU member states to a greater degree than they can today. The same level of integration within the EU could make the Nordic countries and the Baltic States *system-affecting, that is,* states that cannot affect the international system if acting alone but that can exert significant impact on the system if working through small groups or alliances or through universal or regional international organizations. The NB8 countries are also divided vis-à-vis NATO with six countries as member states while two countries, Finland and Sweden, remain out of NATO.

In retrospect, the most effective and successful exercise of the EU in recent decades has arguably been the transformation of most Central and Eastern European states, including the Baltics, from authoritarian polities and command economies into democracies embracing market forces and the rule of law. However, as already noted, the Nordics are welfare states and with economic and social policies that differ sharply from the neoliberal Baltics with weak safety nets. How much benefit they could gain from cooperation is questionable, especially when the countries have different policy priorities and continue to be at very different levels of economic development, with the Baltics poorer than the Nordics.

Furthermore, the EU and the euro area have not shown impressive economic performance since the 2008/9 crisis. Economic growth remains low and unemployment remains high, especially among young people. As EU member states, Denmark and Sweden have chosen to keep their own currency, the former with an exchange rate pegged to the euro and the latter with a floating exchange rate and an inflation target. They have kept the option to manage their own exchange rate, whereas Finland and the Baltic States are locked in a fixed exchange policy via the euro.

From an economic perspective, euro area membership means giving up monetary autonomy for member countries, and comes at the cost of increased macroeconomic instability should asymmetric shocks become significant. Small states are also vulnerable when dealing with the EU and larger EU member states during times of crisis, as the case of Iceland and Latvia (Hilmarsson, 2016) clearly demonstrates and where there were also disputes within the Nordic group and different interests between the Nordic countries and the Baltic States.

Within the Nordic-Baltic group there are hardcore EU/euro area member states (Baltics and Finland), EU members (Denmark and Sweden) and EU outsiders (Iceland and Norway). Common pathways for the future in Europe are not obvious at all.

Notes

[1] The EU is an economic and political union between 28 European countries that together cover a large share of the continent. The EU was created in the aftermath of the Second World War. The first steps were to foster economic cooperation: the idea being that countries that trade with one another become economically interdependent and so more likely to avoid conflict, see further https://europa.eu/european-union/about-eu/eu-in-brief_en Current member states are: Austria, Belgium, Bulgaria, Croatia, the Republic of Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the UK.

[2] Finland, Estonia, and Latvia have eastern borders with Russia while Lithuania borders Kaliningrad. Norway borders Russia in the north-east.

[3] NATO's essential purpose is to safeguard the freedom and security of its members through political and military means, see further http://www.nato.int/nato-welcome/index.html Among the Nordic countries, Denmark,

Iceland and Norway are members. All three Baltic States are members. Finland and Sweden are not NATO member states but cooperate closely with NATO. The USA has been the major guarantor of peace in Europe via NATO although recent developments after the 2016 presidential elections have raised concerns about weakening commitment.

[4] Economies of scale mean the cost advantage that arises with increased output of a product. Average cost per unit decreases as volume increases.

[5] The EEA unites the EU member states and the three EEA EFTA States (Iceland, Liechtenstein, and Norway) into an Internal Market governed by the same basic rules. These rules aim to enable goods, services, capital, and persons to move freely about the EEA in an open and competitive environment, a concept referred to as the four freedoms, see further http://www.efta.int/eea

[6] The free movement of persons is a fundamental right guaranteed by the EU to its citizens. It entitles every EU citizen to travel, work and live in any EU country without special formalities. Schengen cooperation enhances this freedom by enabling citizens to cross internal borders without being subjected to border checks. Non-EU countries such as Iceland and Norway also participate in Schengen, see further http://ec.europa.eu/home-affairs/what-we-do/policies/borders-and-visas/schengen_en

[7] EFTA is an intergovernmental organization set up for the promotion of free trade and economic integration for the benefit of its four member states. EFTA is responsible for the management of: (i) the EFTA Convention, which forms the legal basis of the organization and governs free trade relations between the EFTA states; (ii) EFTA's worldwide network of free trade and partnership agreements; and (iii) the European Economic Area (EEA) Agreement, which enables three of the four EFTA Member States (Iceland, Liechtenstein and Norway) to participate in the EU Internal Market, see further http://www.efta.int/about-efta/european-free-trade-association

[8] All 28 EU member states are part of Economic and Monetary Union (EMU) and coordinate their economic policymaking to support the economic aims of the EU. However, a number of member states have taken a step further by replacing their national currencies with the single currency – the euro. These member states form the euro area. When the euro was first introduced in 1999 – as "book" money – the euro area was made up of 11 of the then 15 EU member states. Of the Nordic countries, only Finland became a member of the euro area in 1999. Of the Baltic States, Estonia joined in 2011, Latvia in 2014 and Lithuania in 2015. Today, the euro area numbers 19 EU member states. Of the Nordic Countries outside the euro area, Denmark has "opted out" from joining (laid down in Protocols annexed to the Treaty) and Sweden has not yet qualified to be part of the euro area, see further https://ec.europa.eu/info/business-economy-euro/euro-area/what-euro-area_en

[9] Denmark has a treaty-based exception, i.e. "opt-out" from monetary union, which is not the case for Sweden.

[10] A Schengen Visa is a document issued by the appropriate authorities for visiting/travelling to and within the Schengen Area. The Schengen Area comprises 26 countries that have agreed to allow free movement of their citizens within this area as a single country. Of the 26 countries bound by the Schengen agreement, 22 are part of the EU and the other 4 are part of EFTA. The Schengen area covers the majority of European countries, except for the UK and countries such as Romania, Bulgaria, Croatia, Cyprus and Ireland, soon to be part of the agreement. However, countries that are not part of the EU such as Norway, Iceland, Switzerland and Liechtenstein do belong in the Schengen area and enjoy the free movement policy, see further http://www.schengenvisainfo.com/

[11] NATO is always headed by a European Secretary General although most of the heavy lifting militarily has been done by the USA.

[12] Without trade, countries can consume what they produce, but with trade they can consume beyond their production capabilities.

[13] Economies of scale are factors that cause the average cost of producing something to fall as the volume of its output increases.

[14] In addition to the economic benefits of economic integration, important political and security concerns may also drive the integration process.

[15] EFTA is not a customs union.

[16] The EEA Agreement does not include the following EU policies: Common Agriculture and Fisheries Policies; Customs Union; Common Trade Policy; Common Foreign and Security Policy; Justice and Home Affairs (the EFTA States are part of the Schengen area); Economic and Monetary Union (EMU).

[17] The EEA EFTA States do not have the right to participate in political decision-making within the EU institutions. The EEA Agreement does, however, enable EEA / EFTA State experts to contribute to the shaping of EU legislation (EFTA, 2014).

(18) More information can be found about this agreement on the European Commission website https://eeas.europa.eu/delegations/switzerland_de and on the Swiss Federal Administration website https://www.eda.admin.ch/dea/fr/home/bilaterale-abkommen.html?lang=en

(19) Decision-shaping is the phase of preparatory work undertaken by the European Commission to draw up new legislative proposals. The European Commission has an exclusive right to propose new legislation but is obliged to call on advice from external sources when doing so. The EEA Agreement contains provisions for input from the EEA/ EFTA side at various stages before new legislation is adopted. Input can take the form of participation by EEA/ EFTA experts on European Commission committees or submission of EEA/ EFTA comments, as well as adoption of resolutions in response to European Commission initiatives. Bearing in mind that the EEA/ EFTA States have little influence on the decision-making phase on the EU side, it is all the more important for them to be actively involved in the decision-shaping process of EEA legislation. http://www.efta.int/eea/decision-shaping

(20) EFTA is an intergovernmental organization set up for the promotion of free trade and economic integration for the benefit of its member states (today Iceland, Liechtenstein, Norway and Switzerland). The Association is responsible for managing the EFTA Convention, which forms the legal basis of the organization and governs free trade relations between the EFTA States; EFTA's worldwide network of free trade and partnership agreements; and the Agreement on the European Economic Area, which extends the EU Internal Market to three of the four EFTA States (Iceland, Liechtenstein and Norway) (EFTA, 2014).

(21) https://europa.eu/european-union/about-eu/countries_en

(22) https://europa.eu/european-union/about-eu/countries_en

(23) https://europa.eu/european-union/about-eu/countries_en

(24) https://ec.europa.eu/neighbourhood-enlargement/countries/detailed-country-information/iceland_en

(25) https://ec.europa.eu/neighbourhood-enlargement/countries/detailed-country-information/iceland_en

(26) Brexit is an abbreviation for "British exit", which refers to the 23 June 2016 referendum whereby British citizens voted to exit the EU.

(27) https://europa.eu/european-union/about-eu/countries/member-countries_en

(28) https://europa.eu/european-union/about-eu/countries/member-countries_en

(29) https://europa.eu/european-union/about-eu/countries/member-countries_en

(30) https://europa.eu/european-union/about-eu/countries/member-countries_en

(31) The Baltic States are also NATO member states so arguably their level of integration is higher than that of the Nordic Countries, none of which is an EU and euro area member as well as a NATO member.

(32) For definition see endnote in Preface.

(33) The Russian exclave of Kaliningrad on the Baltic Sea is sandwiched between Poland to the south and Lithuania to the north and east. Annexed from Germany in 1945, the territory was a closed military zone throughout the Soviet period.

(34) Estonia, Latvia and Lithuania became members of NATO on 29 March 2004. Prior to NATO membership they were members of the Warsaw Pact since 1955 as part of the Soviet Union.

(35) Merkel hits back at Trump: Europe's fate is "in our own hands". http://uk.businessinsider.com/merkel-hits-back-at-trump-europes-fate-is-in-our-own-hands-2017-1?r=US&IR=T

(36) http://uk.businessinsider.com/merkel-hits-back-at-trump-europes-fate-is-in-our-own-hands-2017-1?r=US&IR=T

(37) Russia has warned it would respond to any move by Finland or Sweden to join NATO. In a meeting with his Finnish counterpart in early July, Vladimir Putin claimed (wrongly) that Russian troops had been withdrawn 1500km from the Finnish border, but suggested that decision would be reviewed if Finland moved towards NATO membership, see further https://www.theguardian.com/world/2016/aug/22/finland-us-russia-military-security

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The competition between traditional power centers and emerging powers

Ştefan Cătălin TOPLICEANU
"Alexandru Ioan Cuza" University, Iaşi, Romania
tstefan.catalin@yahoo.com

Abstract. *The power implications in the world economy are subject of many debates between specialists. In a multipolar world, power is shared between traditional power centers such as Group of Seven and emerging powers as BRICS countries. This research wants to offer an image about the power shared between the G7 and BRICS countries. For this approach, there are used different indicators from various power dimensions.*

Keywords: economic competition, multipolar power, emerging powers.

JEL Classification: F02, F50, O57.

1. Introduction

Generally, power and its manifestation in the world economy are subjects of many academic debates. The various manifestations of power such as economic, political, sociological, military, cultural and technological create a broad of interpretation by specialists.

First of all, there are the sociologists, who define power as being the capacity to impose your own will in social relations beyond the oppositions (Pausenberger, 1983, p. 131) or the ability to hold and retain control by different methods over another person. (Morgenthau, 2013, p. 50)

Secondly, there is a politological perspective which admits that power is the states` capacity to influence others` will, either people or countries (Trocan, 2003, p. 1) or the possibility of generating changes and reacting to other mutations. (Nye, 2011, p. 5)

Thirdly, power is considered an efficient way to insure the society existence (Nivaldo, 2001, p. 24) and to guarantee the own security and that of allies. (Ancuț, 2009, p. 1)

Lastly, the economists believe that power is the ability of taking decisions and carry it into effect (Chirovici, 2009, p. 21) using two methods to impose your own volition; the positive one, referring to open acceptance and the negative one, with appeal to coercion. (Bal et al., 1999, p. 37)

In an attempt to synthesize the power`s concept, it can be considered that power is the ability of a state, an international organization or a multinational company to influence the world from different perspectives such physical, economic, political, military and cultural. (Kebabdjian, 1994, p. 297)

Considering all these, we consider that power is highly meet in all structures of society, being represented by a person or an international actor which influences other`s behavior through different instruments; the most decisive being the economic ones. (Topliceanu, 2018, p. 76)

2. Literature review

Beyond the ways of interpreting power, the interest of specialists was prompted by the methods of measuring it. Some of them consider that power can be quantify using only measurable resources, such as the economic or political ones, territory, natural recourses, political stability, population and military capabilities. (Waltz, 2006, p. 183) Sometimes, the power`s roots are referring to human, physical, financial, technological and energetic resources transformed by countries in military capabilities. (Tellis et al., 2000, pp. 45-47)

On the other side, there are specialists who suggest that power must be quantify using both measurable resources and intangible elements. In first category, may include territory, population, economic and military resources; while in the second group can be mention the national will and effective planning of the national strategy. (Cline, 1977) Also, the quantify of power can appeal to elements such as economic capacity, strong and reliable currency, used worldwide, favorable geographical position, technological resources, cultural values, diplomacy, nuclear capabilities, powerful army and international alliances. (Yilmaz, 2010, pp. 197-198)

Considering all these, a synthetic perspective to quantify power takes into account several determinants regarding to territory, population, economy, army, governance, international relations, communications and transport. (Glassner and Fahrer, 2004, pp. 261-269) In terms of territory, there are important the geographical location and natural resources, while population is referring to wealth distribution, immigration, education and demographic and social aspects. At the same time, determinants regarding to economy are those referring to Gross Domestic Product size, trade, investments, workforce and industry, while governance indicators include leadership, political structures and its efficiency. To those are added elements related to communications and transport such as media, infrastructure, goods and services flows. Finally,

the international relations are translated by diplomacy, cultural relations and alliances, while army include indicators referring to strategies and tactics, military logistics, equipment, quality of training and armed personnel.

In spite of these, it is important to convert these resources in influence, so called *smart power* (Nye, 2010, pp. 24-26), describing a state that uses its converted resources to impose its own volition to others. Power has a fungible character due to its possibility to transform a domain`s resources in elements used in other domains (Baldwin, 2013, p. 278), an example being the conversion of economic power into a military one. Therefore, each indicator can reveal a source of power.

In empirical perspective, researches are based on using different statistical techniques. In this way, there are researchers who study the degree of rescheduling the external loans influenced by capital inflows, external debt, imports and exports (Dhonte, 1975) or by external debt, imports, amortization and government reserves. (Frank and Cline, 1971, pp. 327-344) Also, using the Gross Domestic Product size, foreign trade, external debt, state reserves and the reimbursement of external debt it can be study the state dependence on foreign borrowing. (Grinols and Bhagwati, 1976, pp. 416-424) At the same time, it can be observed the probability of a state to lose its international credibility using the nominal Gross Domestic Product, GDP per capita, investments, external debt and net capital inflows. (Kharas, 1984)

Meanwhile, it has been demonstrated that economic power is positive influenced by human resources and political stability (Barro, 1991, pp. 407-443), while uncertainties regarding inflation, tax level and interest rates exerted a negative influence. (Lensink and Hermes, 2000, pp. 142-163) On the other side, the power has been studied by four perspectives, demonstrating that the United States has a superior position than China regarding economic, military and socio-political aspects, but not from a technological perspective. (Topliceanu, 2018, pp. 77-80)

Nowadays, the empirical researches belong to specialized institutions, some of them as The World Bank, World Economic Forum, Heritage Foundation, United Nations Development Program and other. Usually, both scholars and institutions use indicators related to GDP, foreign trade, investments, population, governance, finance, poverty and labor force. But, there are several differences between studies because of the different selections of indicators or the calculation methods. Hoping to remove this deficiency, this study focuses on an equal approach of each indicator`s role.

3. Methodology

This study aims to compare the G7 (Canada, France, Germany, Italy, the United States, Japan and the United Kingdom) and BRICS countries (Brazil, Russia, India, China, South Africa), using 40 indicators of 2017 from the World Bank`s statistical base, reflected in Appendix 1. The settings are based on several considerations.

Firstly, the selected indicators reflect the economic power from various perspectives and its implications on trade, labor market, investments, technology, military, financial and social aspects. Also, in order to analyze the impact of various areas on economy and to compare the economic power dimensions, we use a larger base of indicators than the one used by other authors. A special emphasis is given to trade (most indicators), being the preponderant way through which countries communicate each other. At the same time, through trade and investments, countries can attract capital needed for economic growth. But, the economic performance is not reflected only by the state` well-being, but also by the population welfare and the entire economy. That is why we are focusing on various indicators from different areas related to economy. On the other side, each indicator is equal in importance and weight, in order to avoid that some countries benefit too much from their strengths. For example, is possible that a country to have only a low inflation rate. If this indicator has a greater weight than the others,

that country is propelled among power centers only on the basis of that indicator and in an incorrect way. In this situation, there will be an unclear picture about the power of that country.

Secondly, we prefer to use the World Bank`s statistical base for indicators to avoid the different calculation methodologies. In this way, we make sure that all indicators come from the same source and are based on the same estimation and calculation methodology, in order to reveal the hierarchy of power centers as accurate as possible.

Thirdly, we use 2017 as a sample for future analyzes that will involve longer time intervals. Also, we prefer 2017 as reference since the World Bank`s statistical base has no more current data than those of 2017 for selected indicators. And the purpose of this study is to compare the competition between traditional power centers and emerging powers as current as possible.

For the beginning, each country is analyze by comparison with other countries and gets a score from 12 to 1. This score is meant to reflect the level of power and the degree of stability for each country. A score of 12 means a high level of influence and stability. On the other side, a low score shows that a country exerts a low level of influence and has a poor stability. The maximum final score for a country can be 480 points, because there are 40 indicators, while the minimum score is 40 points. The country, which is closest to the maximum final score, is the one with the highest level of power and stability in the world economy.

Then, the comparison is done between the G7 and BRICS countries in order to reflect the competition between traditional power centers and emerging powers.

4. Analysis and findings

For interpretation the results, we use the scores from Appendix 2 and the values from Appendix 1. Starting with Canada, according to Appendix 2, the country has 2 indicators scored with 12, which means that Canada has the best performance on unemployment and tax rate. So, among the analyzed countries, Canada has the lowest tax rate, almost 21% of commercial profits and the fewest unemployed people, about 1.27 million, as it emerges from Appendix 1. But, Canada also has some indicators scored with 11, making it the second country in the world according to external balance on fuel trade, population ages 65 and above, annual population growth and human capital index. So, Canada has the world second biggest fuel trade surplus after Russia, of almost 64.4 billion US$, the second annual population growth in the world, after South Africa, about 1.21% and follows Japan about human capital index. This indicator calculates the contributions of education and health to worker productivity and takes values between 0 and 1. For Japan, human capital index is 0.84, while Canada has an index of about 0.8. On the other hand, Canada is also advantaged by the second least elderly population. Practically, Canada has 6.23 million people ages 65 years and above, only South Africa positioning better.

Despite these, Canada has some problems, revealed by indicators scored with 1. According to Appendices 1 and 2, Canada has the smallest population between analyzed countries, almost 36.7 million people, of which young population reaches 5.88 million people and the Canadian labor force counts only 20.1 million people. Also, Canada has the lowest GNI size based on purchasing power parity value after South Africa, almost of 1.7 trillion US$. In addition, Canada spends 20.57 billion US$ on military forces and has the smallest reserves, evaluated at 86.68 billion US$, both only more than South Africa.

Going further, France has no scores of 12, only two of 11 regarding arms imports and annual inflation rate at consumer prices. Practically, according to Appendix 1, France imports more arms only than South Africa, about 65 million US$ and has the second lowest annual inflation rate after Japan of almost 1.03%. On the other hand, France has neither scores of 1; the worst occupied position is at dependency ratio, where 60.78% of population younger than 15 years or older than 64 years is dependent by working age population.

On the other side, Germany is the biggest European economy, having the best indicators compared to other European countries. According to Appendix 1, the German advantages are related to the largest current account and external trade surplus, of almost 291.46 billion US$ and 275.72 billion US$. Also, Germany has the biggest net portfolio investments, which reach 228.15 billion US$ and the smallest dependency ratio among young, of about 20% of working-age population. To these, can be mentioned also the second largest GDP per capita, after the United States, of about 50,639 US$. Moreover, Germany exports high-technology more than other countries, excluding China, reaching almost 168 billion US$. Also, Germany is the second destination for immigrants, both citizens and noncitizens after the United States, attracting 1.85 million people. Furthermore, Germany has the second lowest unemployment rate among young after Japan, of almost 6.77%. But, it is necessary to mention the Germany has no score of 1 or 2, being the only country with this performance. As disadvantages it can be mention the large dimension of imports of goods and services, about 1.47 trillion US$, after the United States and China, and the small number of population ages 0-14 years of almost 10.8 billion people. Finally, even if Germany has the smallest dependency ratio among young, it has the third biggest dependency ratio among old people, after Japan and Italy, with almost 33% of working-age population.

Another European country, analyzed with France and Germany, is Italy, all of them being included in G7. According to Appendix 1, Italy has no scores of 12 or 1. But, the Italian economy is advantaged by a low age dependency ratio among young and a high level of net portfolio investments, where Italy has scored with 11. This means that Italy has the highest value of net portfolio investments of almost 110 billion US$ and the lowest young population dependent by working-age population (21.3%) after Germany, as it reveals by Appendix 2. But, as we said before, Italy has the second biggest dependency ratio among old people after Japan and in front of Germany, with 36.28% of working-age population. Despite this dependency ratio, Italy records a low level of net FDI inflows, a small young population, a low annual rate of population growth and a high youth unemployment rate as disadvantages. Practically, Italy is the second most unattractive destination of FDI after South Africa and its population decreases with 0.13%, being with Japan, the only countries with a negative population growth rate. Moreover, Italy has the second smallest young population of only 8.19 million people and the second highest youth unemployment rate (34.73%) between analyzed countries.

Japan is the only Asian country included in G7, at foundation of this membership could be mention the Japanese advantages such a high human capital index and the lowest rates of inflation and youth unemployment. As it can be observed in Appendix 1, Japan has a highest 0.844 human capital index, while inflation at consumer prices is low at 0.47%. Also, the youth unemployment rate is the smallest between analyzed countries of only 4.62%. In addition, Japan has the second biggest current account surplus after Germany (195.8 billion US$), is the second world investor after the United States, with 168.57 billion US$ as FDI outflows and has the second largest reserves, estimated at 1.26 trillion US$, after China. But, the Japan problems are related to dependency ratio, arms exports, net FDI, fuel exports and annual population growth. Starting with population, the annual growth rate is negative (-0.16%) and almost 66.5% of people is dependent of working-age population. Moreover, the arms and fuel exports record the lowest values, of 2 million US$ and 10.54 billion US$, while the net FDI reach amount the most negative value, of 149.73 billion US$.

Going further, the United Kingdom is the last European country analyzed and included in G7. Surprisingly, the United Kingdom has no scores of 12 and only two scores of 11, being in same situation as France. According to Appendix 2, the United Kingdom has the lowest unemployment after Canada and the second largest surplus service trade among analyzed countries, excluding the United States. Thus, in United Kingdom are only 1.47 million unemployed people. Also, the external balance records a surplus of 147.5 billion US$. On the

other hand, the United Kingdom is not doing well at current account balance, at net portfolio investments and at net FDI, where records scores of 2. This can be translated in a current account deficit of 98.37 billion US$ and a negative value of net portfolio investments, reaching 84.33 billion US$, both the biggest after the United States, while the net FDI amount a negative value of 82.4 billion US$.

The United States has 8 indicators scored with 12, being leader of arms exports (about 12.4 billion US$), external balance on arms trade (11.85 billion US$) and on service trade (255.2 billion US$), net FDI inflows and outflows (354.8 billion and 379.22 billion US$), GDP per capita based on purchasing power parity (59,532 US$), military expenditure (609.76 billion US$), net migration (4.5 million people) and. On the other hand, the United States is disadvantaged by current account deficit of about 449 billion US$, the largest final consumption expenditure of almost 15.48 billion US$, a negative net portfolio investments around 212.5 billion US$, imports of goods and services, which also affect the external balance on trade. Thus, the United States has a trade deficit about 552.3 billion US$, mainly determined by high import values of 2.9 trillion US$.

The greatest competitor for the United States is China, which is the world`s economic leader by GNI on purchasing power parity value, with almost 23.2 trillion US$. Among these, China has another 10 indicators scored with 12, making the Chinese economy the leader with the most scores of 12. According to Appendix 1, China has the lowest ratio dependency, only 39.5% of people being dependent by working-age population. In addition, China has the largest volume of exports of goods and services (2.42 trillion US$), the biggest net FDIs (66.3 billion US$) and an annual growth of GDP of 6.9% and of GDP per capita of 6.3%. Also, China`s gross domestic savings reach 5.8 trillion US$, being the largest, while high-technology exports amount about 504.4 billion US$. Moreover, China has the biggest population, recording 1.38 billion people, of which 786.7 million is represented by labor force. Last, but no least, the China`s reserves, including gold, are estimated at 3.23 trillion US$, the world`s largest reserves. But, China is not invincible; it has poorest values on 6 indicators. First two are regarding to its enormous fuel imports, counted at 266.5 billion US$, which determine a fuel trade deficit of 231 billion US$. Secondly, China has the oldest population, almost 147.5 million people being ages 65 years and above. Thirdly, the service trade deficit reaches 265.4 billion US$, while China has 36.78 million unemployed people. Lastly, the tax rate amounts 67.3% of commercial profits, being the highest between analyzed countries. Despite all these, China remains the most important economy of BRICS countries.

Brazil is the only South-American country analyzed and is considered an emerging power. From Appendix 2, easily it can be observed the Brazil has no score of 12. But, Brazilian economy can be proud with a second lowest age dependency ratio of almost 43.5% of working-age population, the largest net FDIs, after China, with 64.4 billion US$, a small size of imports of goods and services of about 221.5 billion US$. On the other hand, Brazil is showing instability at 2 indicators; first is regarding to FDI outflows (6.27 billion US$) and second referring to a low annual GDP growth of 0.98%.

India is the third emerging economy included in BRICS countries, but compared with Brazil, it has 2 scores of 12. First indicator is related to young population. As it can be observed in Appendix 1, India has the youngest population of almost 372 million people being ages 0-14 years. Second indicator is referring to information and communication technology (ICT) service exports, where India counts 78.52 billion US$, being the biggest exporter. Nevertheless, India is also the biggest arms importer, recording a deficit of about 3.36 billion US$. Also, India has the lowest values of GDP per capita of almost 7060 US$. In addition, the India disadvantages are related to a negative migration rate, meaning that 2.45 million people is living this country than coming here, also, only almost 21% of employees are represented by wage and salaried workers.

The last two economies seen as emerging powers are Russia and South Africa, but surprisingly, South Africa has more scores of 12 than Russia. Starting with the last one, its advantages are, mostly referring to fuels. Practically, according to Appendix 1, Russia is the biggest fuels exporter (208.5 billion US$) and imports the least (2.3 billion US$). This is why the fuel trade surplus is the largest between the analyzed countries. The last indicator scored with 12 is referring at wage and salaried workers, where Russia records a percent of 92.3% of total employment. On the other side, South Africa has more reasons to be proud. Only 8.14% of old people is dependent of working-age population, while the population ages 65 years and above counts only 3 million people. With the biggest annual growth rate of population (1.24%), South African economy has some advantages related to trade: the arms imports amount only 4 million US$, while imports of goods and services record the lowest value between countries analyzed, of almost 99 billion US$. Lastly, South Africa has the lowest final consumption expenditure of about 280 billion US$.

But, South Africa has also the most scores of 2, while Russia has none. Among the Russian disadvantages, it can be mentioning the second lowest value of high-technology exports (9.17 billion US$) and the highest inflation rate at consumer prices of almost 3.68%. But, at both indicators, South Africa is worse, exporting only 1.8 billion US$ high-technology and recording a 5.18% inflation rate. Also, South African economy is disadvantaged by the lowest exports of ICT service (664 million US$) and of goods and services 103.8 billion US$. In addition, South Africa spends only 3.62 billion US$ on military. Regarding population, South Africa has the highest level of youth unemployment (53.53%) and the biggest young dependency ratio of about 44% of working-age population, while the human capital index is nearly 0.4. Moreover, here the annual GDP per capita grows only with 0.06%, while the GNI, based on purchasing power parity count only 765 billion US$ and 742.57 billion US$. Also, South Africa has the lowest values related to FDI inflows (1.37 billion US$), gross domestic savings (68.5 billion US$) and total reserves (50.72 billion US$).

Table 1. *The final results*

Country	Final score	Average score	Final position
The United States	315	7.88	1
Germany	309	7.73	2
China	295	7.38	3
Russia Federation	291	7.28	4
Canada	260	6.50	5
France	254	6.35	6
The United Kingdom	252	6.30	7
Japan	251	6.28	8
India	242	6.05	9
Italy	225	5.63	10
Brazil	222	5.55	11
South Africa	204	5.10	12

Source: own calculations.

Despite of these, it could be noticed that each country has advantages and disadvantages. China has the most scores of 12, followed by the United States, while France, Italy and Brazil have none. On the other hand, South Africa has 13 indicators scored with 1. But, the final results reveal that the United States is the most powerful economy in the world, being the only one which reaches more the 310 points. The United States are followed by Germany, China and Russia, all of them having more than 290 points. After them, there is a group of countries (Canada, France, the United Kingdom and Japan), which final results are very concentrated between 260 and 250 points, all countries being traditional power centers. At the bottom, there are Italy, Brazil and South Africa, which have less than 230 points.

5. Conclusions

There are many ways to describe and quantify power due to its multiple manifestations in different areas of society. Generally, the indicators meant to measure the level of power include GDP, population, foreign trade, unemployment, investments, public debt, inflation rate and poverty, being used either by scholars or specialized institutions.

This study focuses on comparing the G7 and BRICS countries on different dimensions of power, using 40 indicators from 2017. For each indicator, the countries are compared each other and get a score from 12 to 1, meant to reflect the level of power and the degree of stability.

The research reveals that China has the most scores of 11; its advantages include high levels of exports of goods and services, net FDIs, GNI based on purchasing power parity, gross domestic savings, high-technology exports, labor force, population and total reserves, including gold. Also, China has the biggest rates of GDP growth and GDP per capita growth, while the age dependency ratio is the lowest between analyzed countries.

Even if China has the most scores of 12, the United States is the more powerful economy in the world, being the only one which reaches more the 310 points as final result. The American advantages are related to high levels of arms exports, the largest arms and service trade surpluses and the highest FDI inflows and outflows. Also, the United States spends the most between analyzed countries on military and has the biggest GDP per capita. Moreover, the positive net migration indicates that the United States is the most wanted country to live in.

On the other hand, the powerless are Italy, Brazil and South Africa, of which Brazil and Italy have no score of 12. Also, there are more countries included in G7 in the top of the table than BRICS countries. This means that G7 is a more powerful group, leading by the United States, Germany, Canada and France. In the same time, only China and Russia between emerging powers are in the top of the table, while India, Brazil and South Africa are in the bottom, revealing their economic powerless.

Even if the United States is the most powerful country, in today`s world, the United States cannot expect individually to dominate the international system. The difference between the United States and Germany, the second most powerful country, according to final results, is only 6 points.

The United States is followed by Germany, China and Russia, all of them having a final score more than 290 points, but only the United States and Germany have more than 300 points. This means that the United States may be able to influence the international system in a unilateral or multilateral way, not dominate it. The American domination after the War World Two through Bretton Woods' system and institutions (such as International Monetary Fund or International Bank for Reconstruction and Development) has changed by a multipolar world due to the rise of emerging powers. The Bretton Woods system and its institutions are now instruments of the United States` influence over the world economy. Among them, countries such as Germany and France or BRICS countries has developed own instruments and institutions. Germany and France influence the world economy through EU`s institutions (such as European Central Bank), while the BRICS countries launched in 2016 the New Development Bank (NDB) and the Chinese-led Asian Infrastructure Investment Bank (AIIB). Therefore, the competition between traditional power centers and emerging powers is driven, also, through international financial institutions, a situation which can be subject of future studies.

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Indicator	Canada	France	Germany	Italy	Japan	UK	USA	Brazil	China	India	Russia	S. Africa
Age dependency ratio (% of working-age population)	49.27	60.78	52.74	57.58	66.49	56.81	52.27	43.47	39.51	50.99	46.59	52.28
Age dependency ratio, old (% of working-age population)	25.35	31.70	32.77	36.28	45.03	29.04	23.47	12.27	14.85	9.04	20.78	8.14
Age dependency ratio, young (% of working-age population)	23.92	29.07	19.97	21.30	21.45	27.77	28.80	31.20	24.66	41.95	25.81	44.14
Arms exports (million US$)	87	2,162	1,653	660	2	1,214	12,394	45	1,131	56	6,148	74
Arms imports (million US$)	295	65	65	794	500	899	547	103	1,117	3,358	34	4
Current account balance (BoP, billion US$)	-48.80	-13.31	291.46	55.44	195.80	-98.37	-449.14	-9.81	164.89	-38.17	33.27	-8.33
Exports of goods and services (BoP, billion US$)	510.78	830.35	1,742.77	608.28	875.29	796.37	2,351.07	251.72	2,422.9	489.40	411.28	103.84
External balance on arms trade (million US$)	-208	2,097	1,588	-134	-498	315	11,847	-58	14	-3,302	6,114	70
External balance on fuel trade (billion US$)	64.38	-46.58	-67.66	-38.48	-131.00	-18.73	-39.91	-3.61	-231.04	-98.36	206.23	-3.82
External balance on goods and services (billion US$)	-37.72	-23.89	275.72	59.52	37.72	-29.01	-552.27	30.18	210.73	-72.21	84.33	5.03
External balance on service trade (billion US$)	-19.05	30.16	-23.84	-3.91	-6.51	147.53	255.22	-33.85	-265.42	75.92	-31.09	-0.40
Final consumption expenditure (trillion current US$)	1.30	2.01	2.67	1.54	3.73	2.21	15.48	1.72	6.44	1.83	1.11	0.28
Foreign direct investment, net (BoP, billion US$)	-53.67	-9.69	-47.06	-3.77	-149.73	-82.39	-24.39	64.42	66.31	28.88	-8.20	-6.07
Foreign direct investment, net inflows (BoP, billion US$)	27.53	47.34	77.98	9.24	18.84	64.69	354.83	70.69	168.22	39.97	28.56	1.37
Foreign direct investment, net outflows (BoP, billion US$)	81.20	57.02	125.04	13.01	168.57	147.08	379.22	6.27	101.91	11.09	36.76	7.44
Fuel exports (billion US$)	95.44	14.77	25.81	16.82	10.54	36.47	164.88	18.95	35.46	36.42	208.53	11.20
Fuel imports (billion US$)	31.06	61.36	93.47	55.30	141.54	55.20	204.80	22.56	266.51	134.79	2.30	15.02
GDP growth (annual %)	3.05	1.82	2.22	1.50	1.71	1.79	2.27	0.98	6.90	6.68	1.55	1.32
GDP per capita growth (annual %)	1.80	1.43	1.79	1.63	1.88	1.13	1.55	0.19	6.30	5.49	1.43	0.06
GDP per capita, PPP (current international $)	46,705	42,850	50,639	39,427	43,279	43,269	59,532	15,484	16,807	7,059	25,533	13,498
GNI, PPP (current trillion $)	1.69	2.94	4.27	2.40	5.69	2.81	19.61	3.18	23.24	9.35	3.72	0.74

Indicator	Canada	France	Germany	Italy	Japan	UK	USA	Brazil	China	India	Russia	S. Africa
Gross domestic savings (billion US$)	0.35	0.58	1.01	0.39	1.21	0.42	3.15	0.34	5.79	0.77	0.47	0.07
High-technology exports (billion US$)	24.22	98.69	167.75	27.79	83.66	68.63	110.12	9.92	504.38	14.46	9.17	1.82
Human capital index (HCI) (scale 0-1)	0.799	0.765	0.795	0.769	0.844	0.781	0.762	0.56	0.673	0.44	0.729	0.406
ICT service exports (BoP, billion US$)	7.85	18.38	37.40	9.13	5.05	26.51	42.22	2.19	26.98	78.52	4.65	0.66
Imports of goods and services (BoP, billion US$)	548.49	854.25	1,467.05	548.77	837.57	825.38	2,903.34	221.54	2,212.18	561.61	326.95	98.80
Inflation, consumer prices (annual %)	1.60	1.03	1.74	1.23	0.47	2.56	2.13	3.45	1.59	3.33	3.68	5.18
Labor force, total (million people)	20.10	30.36	43.47	25.46	66.50	33.87	163.46	104.28	786.74	520.19	75.64	22.04
Military expenditure (billion US$)	20.57	57.77	44.33	29.24	45.39	47.19	609.76	29.28	228.23	63.92	66.33	3.62
Net migration (million people)	1.10	0.40	1.85	0.35	0.25	0.90	4.50	0.03	-1.62	-2.45	0.80	0.30
Population ages 0-14 (million people)	5.88	12.14	10.81	8.19	16.34	11.69	61.60	45.51	245.07	372.06	25.44	16.44
Population ages 65 and above (million people)	6.23	13.23	17.74	13.94	34.29	12.23	50.20	17.90	147.53	80.20	20.49	3.03
Population growth (annual %)	1.22	0.39	0.42	-0.13	-0.16	0.65	0.71	0.78	0.56	1.13	0.11	1.24
Population, total (million people)	36.71	67.12	82.70	60.55	126.79	66.02	325.72	209.29	1,386.4	1,339.2	144.50	56.72
Portfolio investment, net (BoP, billion US$)	-81.00	19.22	228.15	110.02	-52.05	-84.33	-212.49	14.04	-7.43	-30.64	-8.07	-16.48
Total reserves (includes gold, billion US$)	86.68	156.32	199.98	151.12	1,264.14	150.86	451.29	373.96	3,235.7	412.61	432.73	50.72
Total tax rate (% of commercial profits)	20.9	62.6	48.9	48	47.4	30.7	43.8	65.1	67.3	56.2	47.5	28.9
Unemployment, total (million people)	1.27	2.85	1.63	2.85	1.88	1.47	7.13	13.89	36.78	18.33	3.93	6.02
Unemployment, youth (% of total labor force ages 15-24)	11.61	22.14	6.77	34.73	4.62	12.08	9.18	30.21	10.80	10.54	16.25	53.53
Wage and salaried workers (% of total employment)	84.71	88.18	89.56	76.18	88.99	84.58	90.19	68.10	63.65	20.97	92.28	84.99

Source: The World Bank, World Development Indicators, last update 30th January 2019.

Appendix 2

Indicator	CAN	FRA	GER	ITA	JPN	UK	USA	BRA	CHI	IND	RUS	SAF
Age dependency ratio (% of working-age population)	9	2	5	3	1	4	7	11	12	8	10	6
Age dependency ratio, old (% of working-age population)	6	4	3	2	1	5	7	10	9	11	8	12
Age dependency ratio, young (% of working-age population)	9	4	12	11	10	6	5	3	8	2	7	1
Arms exports (million US$)	5	10	9	6	1	8	12	2	7	3	11	4
Arms imports (million US$)	7	10	9	4	6	3	5	8		1	11	12
Current account balance (BoP, billion US$)	3	5	12	9	11	2	1	6	10	4	8	7
Exports of goods and services (BoP, billion US$)	5	8	10	6	9	7	11	2	12	4	3	1
External balance on arms trade (million US$)	3	10	9	4	2	8	12	5	6	1	11	7
External balance on fuel trade (billion US$)	11	5	4	7	2	8	6	10	1	3	12	9
External balance on goods and services (billion US$)	3	5	12	9	8	4	1	7	11	2	10	6
External balance on service trade (billion US$)	5	9	4	7	6	11	12	2	1	10	3	8
Final consumption expenditure (trillion current US$)	10	6	4	9	3	5	1	8	2	7	11	12
Foreign direct investment, net (BoP, billion US$)	3	6	4	9	1	2	5	11	12	10	7	8
Foreign direct investment, net inflows (BoP, billion US$)	4	7	10	2	3	8	12	9	11	6	5	1
Foreign direct investment, net outflows (BoP, billion US$)	7	6	9	4	11	10	12	1	8	3	5	2
Fuel exports (billion US$)	10	3	6	4	1	9	11	5	7	8	12	2
Fuel imports (billion US$)	9	6	5	7	3	8	2	10	1	4	12	11
GDP growth (annual %)	10	7	8	3	5	6	9	1	12	11	4	2
GDP per capita growth (annual %)	9	4	8	7	10	3	6	2	12	11	5	1
GDP per capita, PPP (current international $)	10	7	11	6	9	8	12	3	4	1	5	2
GNI, PPP (current trillion $)	2	5	8	3	9	4	11	6	12	10	7	1
Gross domestic savings (billion US$)	3	7	9	4	10	5	11	2	12	8	6	1
High-technology exports (billion US$)	5	9	11	6	8	7	10	3	12	4	2	1
Human capital index (HCI) (scale 0-1)	11	7	10	8	12	9	6	3	4	2	5	1
ICT service exports (BoP, billion US$)	5	7	10	6	4	8	11	2	9	12	3	1

Indicator	CAN	FRA	GER	ITA	JPN	UK	USA	BRA	CHI	IND	RUS	SAF
Imports of goods and services (BoP, billion US$)	9	4	3	8	5	6	1	11	2	7	10	12
Inflation, consumer prices (annual %)	8	11	7	10	12	5	6	3	9	4	2	1
Labor force, total (million people)	1	4	6	3	7	5	10	9	12	11	8	2
Military expenditure (billion US$)	2	8	5	3	6	7	12	4	11	9	10	1
Net migration (million people)	10	7	11	6	4	9	12	3	2	1	8	5
Population ages 0-14 (million people)	1	5	3	2	6	4	10	9	11	12	8	7
Population ages 65 and above (million people)	11	9	7	8	4	10	3	6	1	2	5	12
Population growth (annual %)	11	4	5	2	1	7	8	9	6	10	3	12
Population, total (million people)	1	5	6	3	7	4	10	9	12	11	8	2
Portfolio investment, net (BoP, billion US$)	3	10	12	11	4	2	1	9	8	5	7	6
Total reserves (includes gold, billion US$)	2	5	6	4	11	3	10	7	12	8	9	1
Total tax rate (% of commercial profits)	12	3	5	6	8	10	9	2	1	4	7	11
Unemployment, total (million people)	12	8	10	7	9	11	4	3	1	2	6	5
Unemployment, youth (% of total labor force ages 15-24)	7	4	11	2	12	6	10	3	8	9	5	1
Wage and salaried workers (% of total employment)	6	8	10	4	9	5	11	3	2	1	12	7
Average	6.5	6.35	7.73	5.63	6.28	6.30	7.88	5.55	7.38	6.05	7.28	5.10
Final scores	260	254	309	225	251	252	315	222	295	242	291	204
Position	5	6	2	10	8	7	1	11	3	9	4	12

Source: own calculations.

Lending evolution in Romania from the perspective of Prudential Regulations or how can the banking system be helped by financial crisis

Maria Alexandra CRISTEA
Bucharest Academy of Economic Studies, Romania
marialecsandra@gmail.com

Abstract. *This article wants to analyze the evolution of the lending process in Romania, from 2007 to 2018, but also the evolution of prudential regulations in the field, appearing with the purpose of creating a unitary normative framework and a healthy banking system. An increased attention is given to mortgages, which have been the subject of several laws and prudential regulations in recent times. In the last part of this article, the author created an econometric model by which to estimate the evolution of credit in Euro over the next six years, in the light of the influence of three factors.*

Keywords: global financial crisis, lending evolution, mortgages, prudential regulations, estimation.

JEL Classification: C130, G210.

Introduction

More than a decade ago, the US subprime mortgage market was the trigger for what would become a global financial crisis. Of note is the magnitude of the spread of the crisis, given that in 2007 the subprime mortgage market accounted for only 13% of total US credit. In a speech titled "Nine lessons from the current financial crisis", NBR's Governor Mugur Isărescu said that the profound factors of this financial crisis are represented by financial disintermediation, securitization, excessive deregulation and, most important, the intersection of these factors.

The global financial crisis has revealed the fact that important risks associated with the banking activity were not sufficiently taken into account or were too little understood, in the desire to maximise profit. With a simple look in the recent history of the banking systems, we can see the differences in the approach of banking activity: if until before the global financial crisis, the emphasis in a credit institution was placed on the sales area and on the desire to maximise profit, with the effects of the crisis, it was possible to observe the orientation towards the risk management activity.

The experience of the financial crisis has revealed the necessity and importance of macro-prudential supervision (across the whole banking system), in addition to the micro-prudential (at the level of the credit institution), so as to take into account problems of large banks and their impact on risk propagation in the national and international banking system *(banking contagion)*, but also the interdependence between the national financial system and the national economy (Negrilă, 2009).

The financial crisis and its effects have proved to be much more severe than all the scenarios used by banks in the stress tests carried out, thus being brought into question weaknesses such as the failure to integrate crisis simulations in the operational management of risks and insufficient treatment of interactions between the various risks. Also, Thiagarajan et al. (2011) assert that according to historical evidence, the failure of many banks is directly related to poor risk management.

Credit risk is the most important financial risk and must be understood as the volatility of earnings, which are influenced by the amount of losses that the bank registers both by the default of loans that have reached maturity, and impediments that may arise in the recovery of collateral at the time of enforcement of debtors.

Lending evolution in Romania

Performance of a banking institution is determined by the influence of internal factors, which are associated with the bank, and of the external ones, which are associated with the financial and economic environment (Ricardas, 2012).

As I noted earlier, credit risk is the most important financial risk and was the main trigger factor of the global financial crisis. Regarding external factors affecting loan portfolio credit risk, Figlewski et al. (2012) divide them in three categories, as follows:
1. Factors associated with general macroeconomic conditions – where include unemployment rate and inflation rate.
2. Factors associated with the direction in which the economy is moving – real GDP growth, changes in consumer behavior.
3. Factors associated with financial market – interest rates.

To confirm the above I will bring in the discussion a study that I did as a part of my license thesis in which I created a multiple regression having as a dependent variable the volume of credits in euros granted in Romania, and as independent variables the exchange rates for EUR/RON, the interest rate on euro-denominated loans, the non-performing loans rate and the

consumer price index. This study concludes that a change in any coefficient except for the consumer price index (interest rate, exchange rate or non-performing loans ratio) has a direct impact on the level of loans in euro. The econometric results of this study are presented in Figure 1.

**Figure 1.** *Multiple regression output*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004267	0.000766	-5.571720	0.0000
D_CURS	0.213131	0.010985	19.40190	0.0000
D_IPC	0.070126	0.145455	0.482113	0.6332
D_RCREDNF	0.411610	0.080262	5.128303	0.0000
D_RDOB	-3.329820	1.066003	-3.123651	0.0039

R-squared	0.937771	Mean dependent var	-0.001889
Adjusted R-squared	0.929474	S.D. dependent var	0.011787
S.E. of regression	0.003130	Akaike info criterion	-8.563877
Sum squared resid	0.000294	Schwarz criterion	-8.341684
Log likelihood	154.8678	Hannan-Quinn criter.	-8.487176
F-statistic	113.0229	Durbin-Watson stat	1.670340
Prob(F-statistic)	0.000000		

Credit standards, the conditions according to which banks grant loans can also be changed according to many factors. National Bank of Romania performs quarterly the "Survey on lending to non-financial companies and the population"[1]. According to the latest survey published by NBR in November 2018, the most important factors contributing to changing credit standards are:

a) the current/expected situation of the bank's capital;
b) NBR's monetary/prudential policy decisions;
c) expectations about the economy;
d) expectations about the real estate market (changing the likelihood of a rapid and sharp rise/fall in real estate prices);
e) changing the share of non-performing loans for dwellings in the bank's portfolio;
f) changing the competition in the banking sector;
g) changing the competition in the non-banking sector; h) other factors.

To get closer to the purpose of this article, it is necessary to analyze the evolution of the loans granted in Romania, from the beginning of the global financial crisis until the end of 2018.

**Figure 2.** *Evolution of loans granted (depending on currency)*
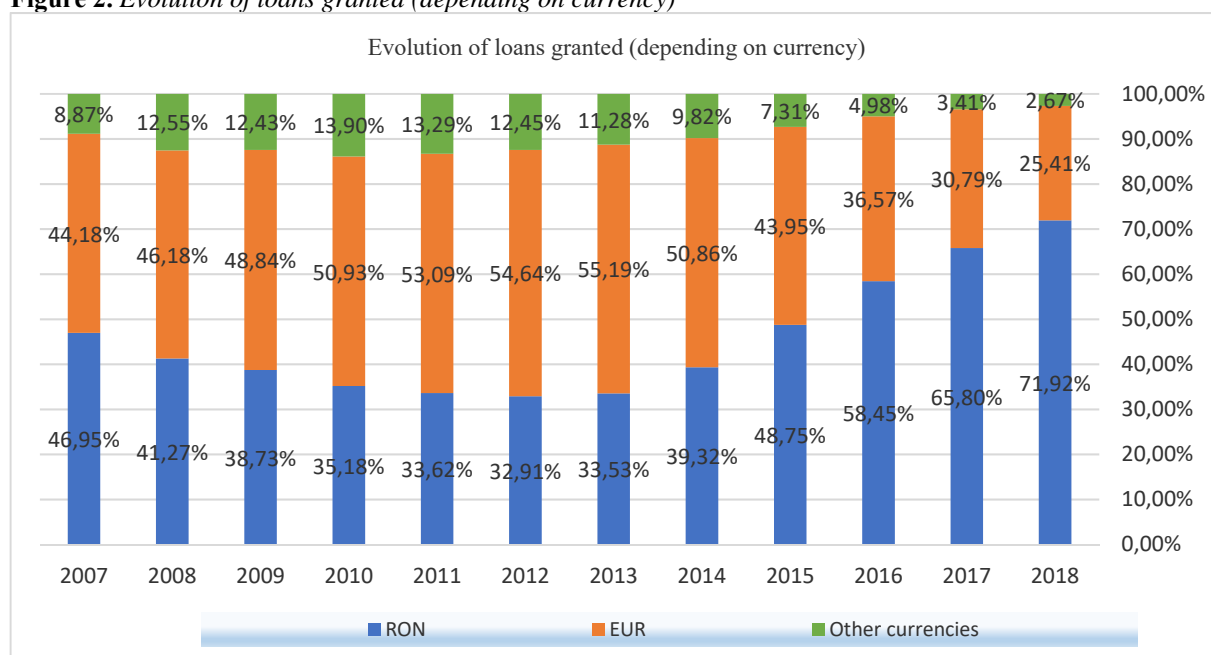
Source: NBR.

From the point of view of the currency in which the loans are granted (Figure 2), if in the year 2007 the shares of credits granted in EUR and RON were relative equal with a downward trend, from 2012 the share of loans in RON increased from the minimum (32.91%), reaching the highest share in total loans in 2018 (71.92%). On the other side, the loans granted in EUR have had a reverse evolution towards the loans granted in RON, with a highest share of 55.19% in 2013 and a lowest share of 25.41% in 2018. This evolution is significantly caused by increasing the number of loans granted in RON through the "Prima casă" Programme[2]. Also, the increase in the share of credits granted in RON is due to prudential requirements that have discouraged the lending in foreign currencies.

The share of credits granted in other currencies is relatively low throughout the analyzed period and most of these credits are granted in CHF. Even if the banks have not given loans in this currency since 2008, the share was maintained relative to the constant because of the fact that these loans became nonperforming loans in the context of the Swiss franc appreciation in relation to EUR. This appreciation was caused by two main reasons. First, Swiss franc is a refuge currency that is acquired when financial safety decreases and insecurity increases. Thus, this type of currency decreases when there is economic stability and is appreciated when financial instability rises, which is why the Swiss franc appreciated during the crisis period. Second, in 2015 the Swiss National Bank has waived the minimum threshold of 1.2 francs/euro, because the cost of maintaining it was too high and left to fluctuate freely against the euro, the franc began to catch power. For this purpose, an important measure taken by National Bank of Romania in August 2008 was represented by taking into account the risk of interest rate and the risk of exchange rates for determining the maximum degree of indebted using higher coefficients in the case of loans denominated in USD and CHF.

Given the appreciation of the Swiss franc and the increasing number of non-performing loans in CHF, Romanian Parliament adopted in 2016 the CHF Conversion Law[3], which aims to enable the consumers to convert the outstanding CHF denominated credits into RON. According to this Law, the conversion must be done at the historical exchange rate published by the National Bank of Romania on the execution date of the credit agreement.

Figure 3. *Exchange rate evolution*
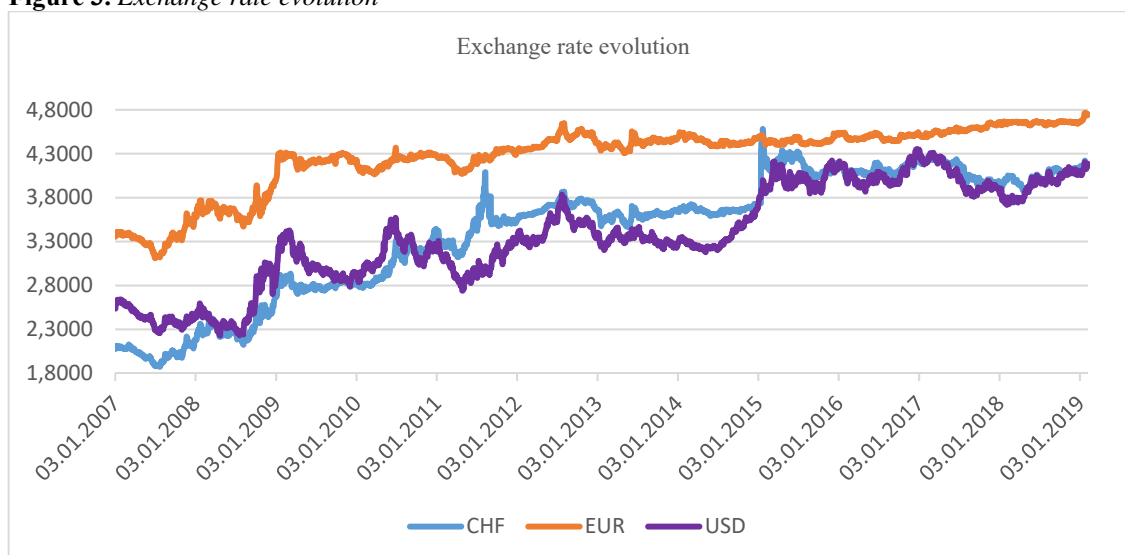
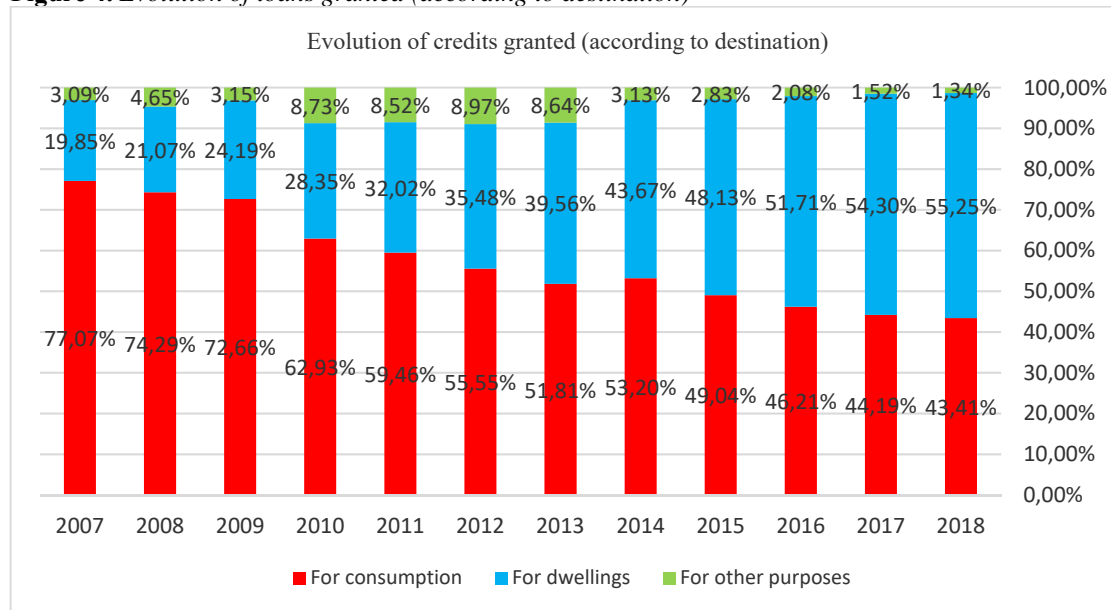
Source: NBR.

In the same context, from October 2011, thru Regulation no. 24/2011, National Bank of Romania requested banks to use certain values to determinate the maximum permissible levels for the total indebting level in the case of consumer credits (for the exchange rate shock, banks should use 35.5 percent for EUR, 40.9 percent for USD, 52.6 percent for CHF and any other currencies).

Figure 4. *Evolution of loans granted (according to destination)*

Evolution of credits granted (according to destination)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
For other purposes	3,09%	4,65%	3,15%	8,73%	8,52%	8,97%	8,64%	3,13%	2,83%	2,08%	1,52%	1,34%
For dwellings	19,85%	21,07%	24,19%	28,35%	32,02%	35,48%	39,56%	43,67%	48,13%	51,71%	54,30%	55,25%
For consumption	77,07%	74,29%	72,66%	62,93%	59,46%	55,55%	51,81%	53,20%	49,04%	46,21%	44,19%	43,41%

■ For consumption   ■ For dwellings   ■ For other purposes

Source: NBR.

In economic theory, it is well known that consumers are the ones that determine the sales and profits of a company through their purchasing decisions and their consumer behavior determines, in the end, the viability of a firm. This theory is also valid in the banking sector, such that is important to analyze the evolution of loans granted in Romania according to their destination. As presented in Figure 4, the share of real estate loans had a relatively constant growth, reaching in 2018 a share of 55.25 percent in the total credits granted. This evolution can be based on the increasing of loans granted through the "Prima casă" program, on the decreasing of the price of real estate and also on the constant increase of the average household income from 1686 Ron (2007) to 4454 Ron (Q3 2018).

On the other hand, from April 2009 National Bank of Romania requested by a regulation that banks should considering the guarantees brought by borrowers in coefficient of maximum 0.25 (for those outstanding loans older than 90 days and/or where judicial proceedings have been initiated against the operation or debtor).

According to banks, the real estate sector experienced the most severe credit risk deterioration. However, the people continue to contract loans for house purchase, and this increase in demand for real estate lending also led to an increase in non-performing loans. For this reason, lending standards have been tightened as a result of Law no. 77/2016 *(datio in solutum),* a law that allows someone with financial difficulties to "honor" their obligations under the credit agreement by giving in payment the immovable property, in the context of fulfilling certain conditions.

Also, due to poor financial education and because many people are not aware of the existing risks that may materialize, also in 2016 entered into force Government Emergency Ordinance no. 52/2016 on consumer credit granted for the acquisition of immovable assets through which it has decided that as for foreign currency loans, consumers need to be informed of the risks associated with them when signing the contract and during the credit agreement. Thus, consumers will receive warnings in the event of a more than 20 percent depreciation of the currency and they have the right to convert the credit in another currency at any time of the credit agreement.

We have already noticed the rising trend of mortgage loans over the past years, but what is the main currency in which Romanian people borrow?

In the figure below it is represented the evolution of mortgages depending on currency, where it is easy to observe the rapid increase in the share of mortgages granted in RON, from a minimum share of 4.54 percent in 2011 to a share of 66.34 percent in 2018. This increase is due, first of all, to prudential requirements that have discouraged the lending in foreign currencies, and second, due to lower interest rates for loans granted in RON.

Figure 5. *Evolution of mortgages granted (depending on currency)*
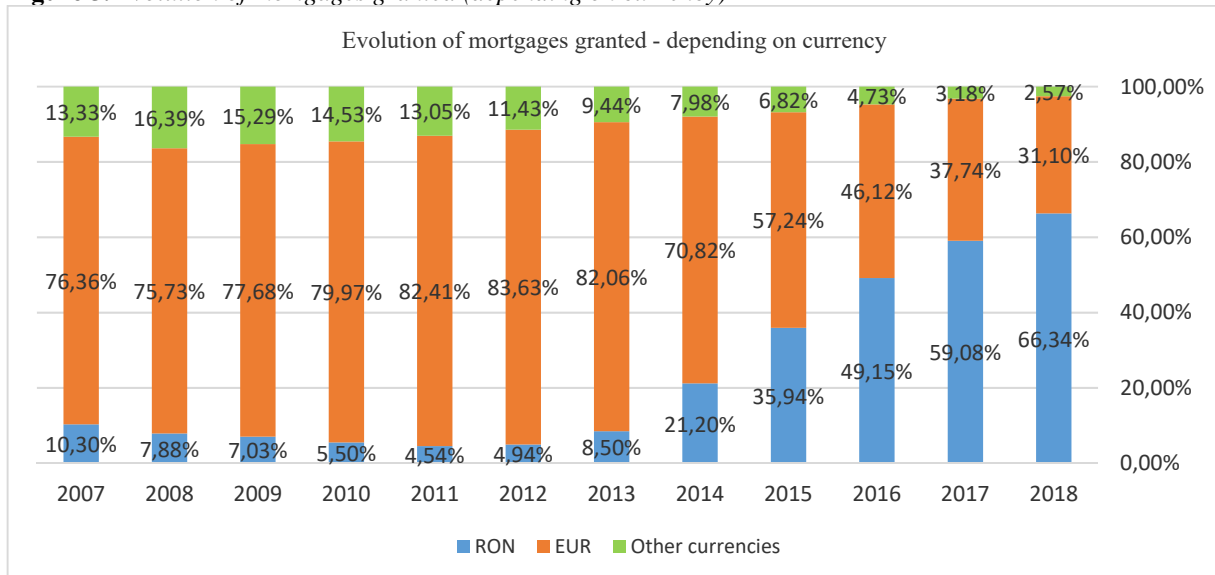
Source: NBR.

At the end of the year 2018, National Bank of Romania imposed a reduction in the maximum indebtedness, to 40 percent for the loans in RON and to 20 percent for the loans in EUR, a more restrictive measure than the proposal of International Monetary Fund, which proposed a level of 50 percent. So, National Bank of Romania proved to be more prudential, especially due to the increase in the indebtedness of the population. Regarding mortgages, the new level of maximum indebtedness has been established at 45 percent, in the case of the first loan borrowed by the borrower and the purpose of the loan is strictly using the house as a personal dwelling.

Table 1. *New maximum levels for indebtedness*

Fixed-interest real estate loans		Real estate loans with variable interest	
RON	FX	RON	FX
50%	30%	40%	30%

Another significant legislative requirement promoted by the Ministry of Public Finance is so-called "the tax on greed". This ordinance came as a result of the accelerated growth of the ROBOR index and implies applying a tax on banks if ROBOR 3M and ROBOR 6M grow above a certain level. This charge will be calculated as a quarterly average between rates on 3M and 6M, when the value of ROBOR index grows over 2 percent.

Table 2. *How will the tax on greed apply*

ROBOR 3M and 6M	Tax
< 2.5%	0.1% of the bank's assets
Between 2.51% and 3%	0.2% of the bank's assets
Between 3.01% and 3.5%	0.3% of the bank's assets
Between 3.51% and 4%	0.4% of the bank's assets
If the quarterly average exceeds the benchmark by more than 2 percentage points, the charge will be 0.5%	

Forecasts on lending

Contrary to the current growth of the ROBOR index, the EURIBOR index[4] is still at a negative level, which could lead to a reorientation of the population in terms of the currency in which they borrow. Thus, crediting in euro could again be preferred by the population. It is also expected that crediting will decelerate (due to reduction of the maximum indebtedness), but it will be accomplished in a more prudent and healthier manner. Also, the share of non-performing loans it is expected to decrease as well.

But how will affect the changes in interest rates, the exchange rate and outstanding amounts the evolution of lending in the euro? For this purpose we will use the regression function which has as the dependent variable the volume of new credits granted in Euro, and as independent variables the EUR/RON exchange rate, the interest rate and the outstanding amounts.[5]

Model estimation

New loans=a0+a1*exchange rate +a2*interest rate +a3*outstanding amounts

Once the model is created, regression generates the following output:

Table 3. *Summary Output*

Regression Statistics	
Multiple R	0.907074595
R Square	0.822784322
Adjusted R Square	0.818986843
Standard Error	153507204
Observations	144

Table 4. *ANOVA test*

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1.53168E+19	5.11E+18	216.6659	2.14E-52
Residual	140	3.29902E+18	2.36E+16		
Total	143	1.86159E+19			

Table 5. *Estimation of parameters*

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2048059396	335035460.7	6.112963	9.19E-09	1385676303	2710442490
Exchange rate	-351342529.8	68520901.24	-5.12752	9.59E-07	-486812030.4	-215873029.2
Interest rate	46067457.72	14969305.76	3.077461	0.002512	16472336.54	75662578.9
Outstanding amounts	-13086.48718	2023.111303	-6.4685	1.54E-09	-17086.28684	-9086.68751

It can be seen that the value of *R-Square* is 0.822784322, which means that the model explains in percentage of 82.27 the variation in credits. Also, *Adjusted R Square* value must be as close as 1, in our case being 0.8189.

The *ANOVA* test is the variance analysis. To be traced is the value of the S*ignificance F* coefficient, which must be below 0.05 in order for the model to be conclusive. In this case, a value very close to 0 is observed.

The *P-value* must be below the value of 0.05, and the confidence interval (Lower 95%-Upper 95%) must not contain the value 0 for the proposed model to be good. In both cases, compliance with the conditions is observed.

After extracting the parameters, we built 2 scenario: the central one has the hypothesis of a normal evolution of the indicators, in close connection with the evolution of the last years and the stress scenario is based on an unfavorable evolution of the exchange rate, interest rate and outstanding amounts.

**Table 6.** *The evolution of indicators in the context of defined scenarios*

T	Central			Stress		
	1.00	0.50	-1.00	3	1	0.5
	Exchange rate	Interest rate	Outstanding amounts	Exchange rate	Interest rate	Outstanding amounts
2017	4.5732	2.87	24398	4.5732	2.87	24398
2018	4.6558	2.62	20407	4.6558	2.62	20407
2019	4.7023	3.12	20202	4.7955	3.62	20509
2020	4.7494	3.62	20000	4.9393	4.62	20611
2021	4.7969	4.12	19800	5.0875	5.62	20714
2022	4.8448	4.62	19602	5.2401	6.62	20818
2023	4.8933	5.12	19406	5.3973	7.62	20922
2024	4.9422	5.62	19212	5.5593	8.62	21026

For the central scenario it is assumed that the exchange rate will increase constantly by 1 percent point, the interest rate will increase by 0.5 every year and the outstanding amounts will decrease by 1 percent point. The stress scenario has the following assumptions: the exchange rate will increase by 3 percent points, the interest rate will increase by 1 and the outstanding amounts will increase by 0.5 percent points.

Replacing the results with our model *New loans=a0+a1*exchange rate +a2*interest rate +a3*outstanding amounts,* we can observe the estimated evolution of credit in Romania for the next 6 years:

Table 7. *The evolution of credits according to our scenario*

T	Central	Stress	Gap
2019	275390728	261703163	-5%
2020	284546892	255883169	-10%
2021	293511404	248540100	-15%
2022	302282878	239628430	-21%
2023	310859905	229101271	-26%
2024	319241060	216910328	-32%

Figure 6. *Forecast on lending (according to the estimated model)*
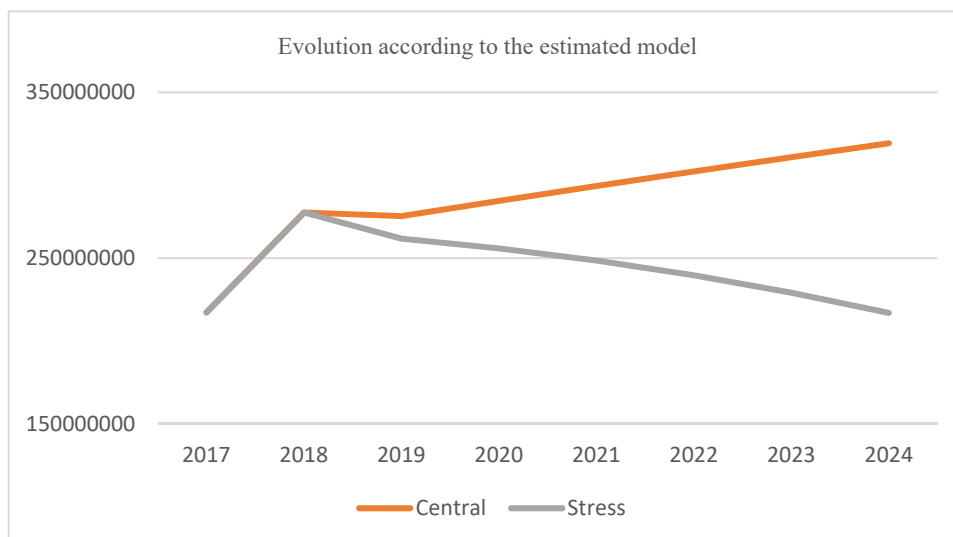
According to the model, we conclude that, in the central scenario case, even if it is estimated an increase of the exchange rate and interest rate, the volume of new loans granted in Euro will increase constantly in time. The stress scenario reflects that if the exchange rate will increase by 3 percent points, the interest rate will increase by 1 and the outstanding amounts will increase by 0.5 percent points, the volume of new loans granted in euro will decrease in time, following the trend of the past 5 years.

Conclusions

This financial crisis has shown a close link between the financial-banking market and the real economy. Thus, rising unemployment may translate into an increase in non-performing loans, and rising inflation affects the income of the population and implicitly leads to a lower saving rate.

As the US subprime mortgage market was the trigger for the global financial crisis, in the context of globalization, the Romanian real estate market was affected too, as well as the quality of borrowers and of loan portfolio: the rate of non-performing loans has risen, banks were forced to make provisions, credit standards have been tightened and so on.

The global financial crisis has taught us that banking activity must be done, first of all, from the risk perspective. Because of this, from the year of 2007, the change has been achieved: from a severe dereglementation, the national and international authorities with competences in the financial-banking field have begun to issue guidelines, regulations, and laws with the aim of i) avoiding in the future the materialization of risks that have not been sufficiently quantified and understood and ii) creating a unitary regulatory framework at EU level.

Banking activity is done from the perspective of risk management, not maximizing profits, until the onset of the crisis. Now, banks are performing stress tests based on more severe scenarios than what happened in the financial crisis period, customer reimbursement capacity analysis is realized more rigorous (versus the period of granting credits only with the identity card), and the most important objective is the continuation of the resolution process of non-performing loans.

The NBR has also issued numerous regulations aimed at supporting banks and creating a healthy banking environment. National Bank of Romania has shown caution by applying all the recommendations of the European authorities and by supervising and sanctioning, where appropriate, the banking system in Romania.

From the macroeconomic point of view, in the analyzed period, the unemployment rate decrease from a maximum of 7.2 percent in 2011 to a minimum of 4.9 percent in 2017, GDP/capita decreased in 2009 and 2010, but is increasing from 2011 to 2017, foreign direct investment grew by 66% since 2017 in 2018, and the average annual inflation rate dropped from a maximum of 7.9% in 2008 to 1.3% in 2017, recording negative values in 2015 and 2016 (-0.6% and -1.5%).

We can conclude that bank's strategies, favorable macroeconomic evolution and the mix of microprudential and macroprudential policies helped the Romanian banking sector to strengthen its financial robustness.

The global financial crisis was an opportunity for people to understand the links between the banking system and the economy of a country and also, between the national banking system and the international one. But was this opportunity fully fructified? The lessons from the global financial crisis have been learned?

Notes

[1] This survey is sent to the first 10 banks chosen from the market share of lending to companies and the population. These institutions hold about 80 percent of the lending to these sectors.
[2] "Prima casă" (engl. "First house") program was initiated by the Romanian Government to sustain the priority economic sectors and consists in facilitating the access of the population to mortgage credits. For this purpose, the Romanian state guarantees 40 or 50% of loans granted by banks.
[3] The Conversion Law was after declared unconstitutional, because it does not respect the principle of bicameralism.
[4] EURIBOR is the basic rate of interest used in lending between banks on the European Union interbank market and also used as a reference for setting the interest rate on other loans.
[5] Data used in the model are monthly; Data source: National Bank of Romania.

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The financial performance of the companies from the oil sector. A comparative analysis

Meral KAGITCI
Bucharest University of Economic Studies, Romania
meral.kagitci@ase.ro

Abstract. *Financial analysis has become an important tool of business management in the past decades, since the decisions that companies' managers have to take are complex and depend by a variety of factors specific to the internal and external environment. A well-established financial analysis can constitute important advantages for the company. Starting from these premises, in this paper we analyze the financial position of a sample of 12 worldwide oil companies, one of the most competitive fields of activity with influences on other sectors.*

I. Introduction

Financial analysis can be defined as an instrument for assessing the financial situation of an economic entity or the results (performances) obtained by it (El-Dalabeeh, 2013). Other authors have expanded this definition by pointing out that financial analysis is a thorough study of the financial position (capital, assets, debts) at a given moment in time and of its financial performance (income, profitability, solvency, dividends paid etc.) in a period of time (Tiwari and Parray, 2012). In other words, the financial analysis can be used as an instrument by which to draw a static picture of the situation in which a commercial situation is at a certain moment (at the end of the financial year in general), but also as an instrument with the help of which certain trends in the activity of that undertaking can be identified for several consecutive years.

In this context, it can be said that financial analysis is an instrument that can be used by an organization's management to identify directions to improve the financial viability and efficiency of current business and potential future strategic directions (Mohamed, 2013). Other authors pointed out that financial analysis can generate financial sustainability for companies and ultimately allow them to gain access to capital markets (Busch et al., 2015).

Starting from these premises, it can be said that understanding the financial analysis is essential to streamline the strategic decision-making process. Instruments and techniques specific to financial analysis can be used to define the decision-making issue, collect and organize relevant information, and improve managerial problem-solving skills (Al Khoury et al., 2014).

In the literature, two main criteria for the classification of financial analyzes were identified: sources used for analysis and direction of analysis. A summary of the types of financial analysis that can be carried out in practice according to these two classification criteria is provided in the table below.

Table 1. *Typology of financial analyzes*

Classification criterion	Forms of financial analysis	Characteristics
Sources used for analysis	Internal financial analysis	This is done by people inside the organization who have access to both the financial statements and other internal documents of the firm. The concrete way in which the internal financial analysis is carried out depends on the objectives pursued.
	External financial analysis	This is done by individuals or institutions outside the organization: creditors, government agencies, credit institutions, investors, etc. All these categories of people have only limited access to the organization's internal financial statements.
Analysis Direction	Vertical Financial Analysis	Through it, we study the quantitative relationship of concrete elements at a certain time. For example, some cost values over a given period can be compared to revenue for the same period. This type of financial analysis is useful in comparing the performance of several enterprises in the same industry or the performance of several departments of the same company.
	Horizontal financial analysis	It consists in comparing the same indicators over a certain period of time. Generally, the value of a previous year's indicator compares with that obtained in previous years.

Source: Chaturvedi (2014), pp. 7-9.

As shown in Table 1, the specificity of the globalized economy today and the intensification of competition has led to the use of different types of performance assessment of an enterprise. All of these are in fact financial analysis tools, which, depending on the objective pursued, can help determine the growth rate of an economic entity, the productivity of a particular department or the profit obtained through a particular technological process (Yalcin et al., 2012).

The financial analysis uses the data provided by the company's accounting records and financial statements (balance sheet, profit and loss account, etc.). However, these documents and financial statements do not provide relevant answers to questions like "Is the company financially viable?", "Is labor productivity high enough to generate added value for

shareholders?" Or "What are the aspects of the business where you can appear financial problems?" (Mohammadi and Malek, 2012, p. 95). In order to answer these questions, it is necessary to carry out a financial analysis by which to determine the degree of profitability, liquidity or profitability of a particular process, of a particular department or of the enterprise as a whole.

II. The importance of financial analysis in the activity of the business

The importance that financial analysis has in the business of modern enterprises is not negligible. The first aspect that derives the importance of financial analysis is that it contributes to shaping long-term strategies for businesses, setting financial policies, or assessing economic trends (Bansal, 2014). Moreover, the financial analysis contributes to the implementation of an internal control system within the company, which can improve both the activity of certain specific departments and the efficiency of processes such as approving capital expenditures, setting inventory values, allocating expenses, recognizing sales or use of liquidity (Ahmad et al., 2015).

The second aspect that reflects the importance of financial analysis in business activity refers to the link it represents between the financial statements and the information that may be used by managers in the decision-making process. Through the financial analysis, the information contained in the financial statements is transformed into data that can be used by the managers of the economic entities. In other words, the financial analysis is an instrument that contributes to transforming the numerical values contained in the financial statements into relevant trends, which may not be visible at a first assessment (Chirac, 2014).

The importance of financial analysis derives from its ability to process information contained in the balance sheet or profit and loss account. The literature has identified some key questions that can be answered using the financial analysis made using the data contained in the balance sheet on the one hand and the data contained in the profit and loss account on the other hand. A summary of these questions is provided in the Table 2.

Other authors point out that one of the most effective ways to use the information contained in the balance sheet and in the profit and loss account is the vertical analysis (Rahman, 2014). This consists of a proportionate study of the financial statements, where each line in the balance sheet and profit and loss account is considered as a weight of another item. Generally, the items in the profit and loss account are reported in sales revenue, while the balance sheet items are reported in total assets. The most common way to use vertical analysis is to study relative changes over a period of time. For example, if production costs were for a period of four years at 35% of sales, then an increase of this indicator to 35% in the last year analyzed could be an alarm signal.

Table 2. *Information provided by the financial statements*

Information Source	Questions
Balance Sheet	- What is the rhythm of inventory growth? - To what extent did the company have liquid reserves? - What is the company's ability to pay for contracted loans? - Is the company being analyzed whose debt is rising or falling? - To what extent does the company have assets such as equipment or land?
Income Statement	- Is the company's strategy rather to increase revenue or to limit spending? - Is the company able to pay its loans in the conditions of an increase in the interest rate? - To what extent does the company pay attention to R & D activity? - To what extent are spending increases due to the investments made and the growth trends of the business? - What is the relationship between operational and operational expenditure?

Source: Vance (2013), pp. 13-15.

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Also, the core aim of the financial analysis through the information provided by the financial statements is to measure the performance of the company. Regarding the financial performance, the specific literature defines it through a set of influence factors. Also, Schönbohm (2013) considers that the performs is an expression of the global economic life of a company, taking into consideration its long-term strategy, products, company's reputation and the employees' efficiency. Many authors quantify the performance thanks to the return on equity and return on assets (Delen et al., 2013; Ramadan and Chen, 2012; Ramli et al., 2018; Muritala, 2012).

At the end of this theoretical section, we also need to highlight a risk that the use of financial analysis as a decision-making tool implies. Indeed, the financial analysis provides essential information on the efficiency and effectiveness of an enterprise, especially in terms of its liquidity, profitability and profitability, but the values obtained must be correlated with the specificity of the branch of activity to which the company belongs or with other relevant trends in the external economic environment (Fareed et al., 2014). In other words, financial analysis is a useful tool for managing an enterprise, but it also incorporates elements that are outside the influence of decision-makers (e.g. the liquidity crisis on the market where the company operates).

III. An overview of the worldwide market oil

Global oil markets are going through a period of outstanding change. The United States is increasingly leading the expansion in global oil supplies. Meanwhile, the production of heavier crude grades is limited by sanctions and production restraint in key producing countries. All this contributes to a transformation of global oil supplies, with demanding implications for energy security and market balances.

Although the United States had the largest increase in global demand in 2018, growth continues to move away from developed economies and transportation fuels, confirming a shift towards Asia and petrochemicals. These changes will have profound consequences for trade and refining. That sector will also have to adapt to new marine fuel specifications mandated by the International Maritime Organization, which take effect in 2020, and an impending overhang in refining capacity that will require significant adjustments from refiners globally.

Fundamentally, oil demand depends on the strength of the global economy. Recently, the International Monetary Fund (IMF) devalued its short-term outlook, reflecting weaker economic view in many countries. Ongoing trade disputes between major powers and a disorderly Brexit could lead to a reduction in the rate of growth of international trade and oil demand. But while the economic mood is not encouraging, we expect oil demand to grow in our forecast, although at a more measured pace.

A key factor underpinning demand growth is that leading developing economies will continue to expand. China and India will account for 44% of the 7.1 mb/d growth in global demand expected to 2024. Despite its recent slowdown, China's GDP has more than doubled in real terms in the past decade and is still growing at a healthy clip. Income levels have grown sharply, and the structure of oil demand is moving away from heavy industrial sectors towards consumer needs.

Figure 1. *An overview of the worldwide demand growth on oil*
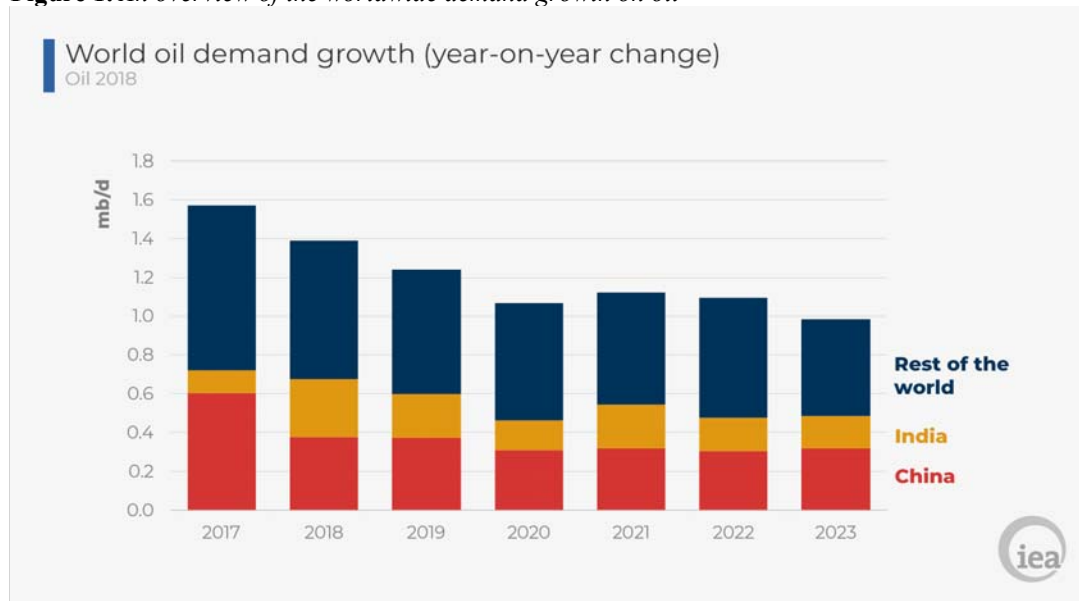
Source: IEA Oil Report (2018), pp. 7-8.

A strong world economy is expected to underpin solid increases in oil demand. World Bank denotes that strong economies will, in turn, use more oil and we expect demand to grow at an average annual rate of 1.2 mb/d. There has been a downward since 2017, of 1.6 mb/d to 1.1 mb/d for the rest of the world sector. But the statistics are still positive, as this decrease has been the cause of the innovation of technology and better procurement of our resources, as of the consultants of Ernst & Young have been reporting about the oil & gas industry in their reports.

**Table 3.** *IEA crude oil import price*

Year/Country	France	Germany	Italy	Spain	UK	Japan	Canada	USA	Total
1999	17.5	17.5	17.1	17	18	17.4	17.9	17.1	17.3
2000	28.2	28.1	27.8	27.2	28.5	28.7	29.1	27.5	28
2001	24.1	24.2	23.9	23.3	24.5	25	24.9	22.1	23.4
2002	24.6	24.4	24.3	24	24.6	25	25	23.5	24.2
2003	28.9	28.4	28.6	28.1	29.1	29.3	29.5	27.7	28.4
2004	37.6	36.7	36.6	36	37.8	36.6	38.1	35.9	36.4
2005	52.7	52.3	51.3	50.5	53.8	51.6	52.4	48.8	50.6
2006	63.7	63.3	62.5	61	65	64	64.3	59.2	61.6
2007	72.2	71.6	70.2	68.7	73.8	70.1	70	66.8	69
2008	97.6	96.7	96.7	94.9	99.3	101	101.4	95	97
2009	61.6	61.2	60.7	59.8	62.4	61.3	60.3	58.8	60.1
2010	79.8	78.5	79.3	77.8	80.6	79.4	79.1	76	77.8
2011	111.8	110.6	110.2	108.5	113.5	109.3	110.8	102.4	106.8
2012	112	112.2	112.2	109.5	112.6	114.8	110.6	101.2	107.8
2013	109.6	109.6	110	106.8	110.3	110.6	108.6	97.3	104.5
2014	99.4	99.8	99.1	97.1	100.1	104.2	98.6	89.4	96.2
2015	53.1	52.7	52.1	49.5	53.8	54.2	53.5	45.8	50.1
2016	43.5	42.8	42.3	40.1	44.6	41.8	43.6	37.9	40.4
2017	54.5	54	53.2	51.7	54.7	54.4	54.3	48.1	51.4
2018	71.6	70.5	70.9	69	72.7	72.9	70.9	59.2	66.2

Source: Statista (2019), Average annual OPEC crude oil price from 1999 to 2018 (in US dollars per barrel).

This table shows the evolution of the oil price (us dollars per barrel) between 1999-2018. As we can see, in 2011 is the highest cost for all countries under review. In 2018, the lowest value records USA (59.2). Oil prices were highly volatile in the second half of 2018, with sharp plunges toward the end of 2018, chiefly due to supply-side factors, the World Bank said. Last year, oil prices averaged $68 a barrel, slightly lower compared to the bank's forecast from June 2018, but 30 percent higher than the average price of oil in 2017.

The most recent consumption data used as weights has been extrapolated based on growth rates from the same period of the previous year. This chart includes France, Germany, Italy, Spain, UK, Japan, Canada and USA.

Figure 2. *Crude oil import price*
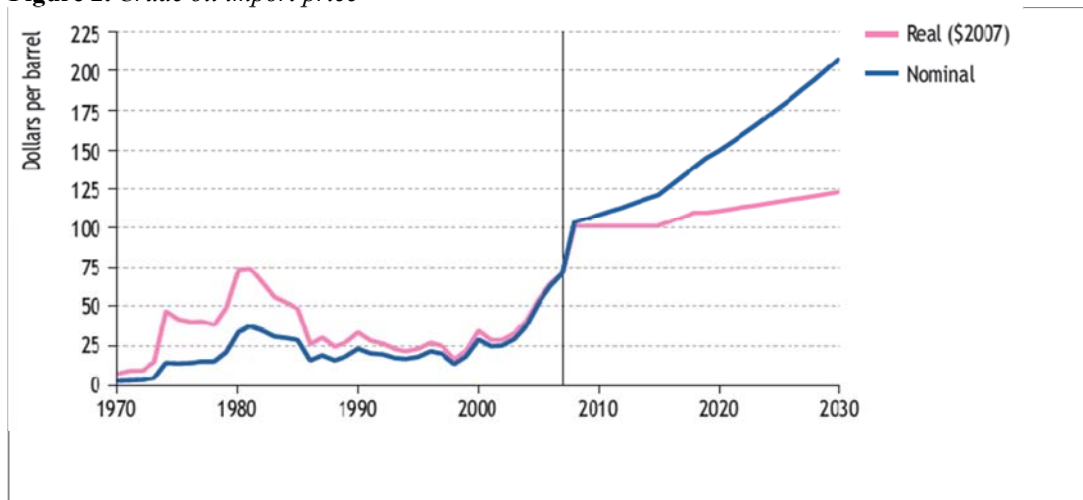
Source: IEA Oil Report (2018), pp. 20-21.

This graphic shows a growth in the price of the crude oil, being in a constant growth on year-over-year basis. It continues grow robustly, right now being at an average of 125 dollars per barrel. Since the ban on exporting crude oil was lifted at the end of 2015, volumes have increased sharply, reaching 2 mb/d in some weeks.

IV. Empirical study

In this paper we are going to investigate how EBITDA to Sales ratio, alongside financial leverage, is influencing profitability among oil companies. The large integrated oil companies are some of the largest businesses in the world. For this reason we construct a database including 12 oil companies that are listed on the stock exchange: 386 HK Equity, RDSA LN Equity, 857 HK Equity, BP/LN Equity, XOM US Equity, FP FP Equity, CVX US Equity, GAZP RM Equity, ROSN RM Equity, LKOH RM Equity, VLO US Equity, PETR4 BZ Equity) from different countries using as selection criterion market capitalization (highest values), for 21 years, from 1998 to 2018. A summary statistic regarding the data series are presented in Table 4.

Table 4. *Panel Unit Root Tests Results*

Variables	Average	Maximum	Minimum	St. Deviation
ROA (%)	7.7088	24.5057	-5.6637	5.1010
ROE (%)	16.0923	77.2464	-13.0631	11.2633
EBITDA/ Sales (%)	18.6723	52.2563	0.6812	10.4675
Fin. Leverage	2.1860	5.5590	1.3501	0.5687
Crises dummy	0.1030	1.0000	0.0000	0.3046

Furthermore, we have to investigate the presence of a unit root in each data series. To avoid a spurious regression, it is mandatory that all the variables that we use during estimation procedures are stationary. For robustness checks, we will use three different tests, alongside two specifications. All tests have the null hypothesis the existence of a unit root meaning that the series are non-stationary. We reject the null hypothesis and accept the alternative one in situations where the probability of the test is below 10% (or 5% depending on you with what degree of confidence you work).

Table 5. *Panel Unit Root Tests Results*

Variables	Method					
	LLC		IPS		ADF	
	Intercept	Trend	Intercept	Trend	Intercept	Trend
ROA	-1.9927 (0.0231)	-3.7346 (0.0001)	-1.4835 (0.0690)	-2.2288 (0.0129)	-1.5074 (0.0658)	-2.5371 (0.0056)
ROE	-3.3069 (0.0005)	-4.0417 (0.0000)	-2.6931 (0.0035)	-3.4308 (0.0003)	-2.5724 (0.0050)	-3.2226 (0.0006)
EBITDA/ Sales	-2.5724 (0.0094)	-2.5724 (0.1572)	-2.57247 (0.0359)	-1.5109 (0.0654)	-1.9049 (0.0284)	-1.79658 (0.0362)
Fin. Leverage	0.6591 (0.7451)	0.5823 (0.7198)	0.5823 (0.0087)	-2.6932 (0.0035)	-2.3719 (0.0088)	-2.5302 (0.0057)
Crises dummy	-5.9350 (0.0000)	-8.2388 (0.0000)	-5.9849 (0.0000)	-3.3329 (0.0004)	-6.1817 (0.0000)	-3.7274 (0.0001)

Note: The null hypothesis is that the series is a unit-root process; p-values are reported in parenthesis

The results presented in Table 5 reject the null hypothesis of a unit root at 5% level if we take into account the majority rule (if two out of three tests reject the existence of a unit root in the data series, we follow their recommendations and accept the alternative hypothesis). With very few exceptions all the results highlight a stationary behavior for the variables included in the model.

The next step is to use the Hausman test in order to decide what type of effects must be included in Panel OLS regression. The results are presented in Table 6.

Table 6. *Hausman Test Results*

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random for ROA	22.51	3	0.0001
Period random for ROA	48.95	2	0.0000
Cross-section random for ROE	22.64	2	0.0000
Period random for ROE	45.80	2	0.0000

First, we will test whether the fixed effects are suitable to capture the main drivers of profitability. The null hypothesis is that the preferred model is the one with random effects. As we can see in Table 6, the null cannot be rejected in all four situations, so we are going to use the random effects. The results are presented below:

Table 7. *Cross Section random + Period random for ROA as dependent*

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	8.863083	1.194321	7.421020	0.0000
EBITDA/ Sales	0.129214	0.022676	5.698174	0.0000
Fin. Leverage	-1.664338	0.408788	-4.071395	0.0001
Crises dummy	0.541899	1.433105	0.378129	0.7057
R-squared	0.202882			
F-statistic	19.42827			
Prob(F-statistic)	0.000000			

Table 8. *Cross Section random + Period random for ROE as dependent*

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	2.161510	2.786519	0.775703	0.4387
EBITDA/ Sales	0.275658	0.053382	5.163891	0.0000
Fin. Leverage	3.954152	0.963682	4.103173	0.0001
Crises dummy	1.167718	3.146405	0.371128	0.7109
R-squared	0.110717			
F-statistic	9.503637			
Prob(F-statistic)	0.000006			

As expected, EBITDA on sales ratio has a positive impact on profitability, regardless of their calculation (ROA or ROE). This result is quite normal given the fact that an increase in this ratio implies a much more efficient cost management within oil companies. Moreover, higher financial leverage is leading to a decrease in assets' returns and contrary to prevalent beliefs to

an increase on equities' returns. Apparently, no significant relationship come to light between profitability and financial crises. These results are quite interesting and indicates the high managerial performance of oil companies even during financial turmoil.

Conclusions

This paper has carried out an extensive assessment of the key determinants financial performance of oil companies based on a sample including 12 companies for 21 years, from 1998 to 2018. Overall, these findings reveal the essential role played by efficient cost management. Our results are indicating that EBITDA on sales ratio has a positive impact on profitability, regardless of their calculation (ROA or ROE). Even though both models are statistically valid, their performance is not very high, with a plus however for the specification when ROA is the dependent variable. All in all, we can conclude that a good financial analysis regarding the balance of sheet for Romanian companies alongside a decrease in financial leverage leads to higher profitability for oil companies.

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