

Balance of Payments

(Ch. 12)

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Outline

The Foreign Accounts

The balance of payments (BOP) records a country's economic transactions with the rest of the world.

- Definitions and Measurement
- Relationship to National Accounts
- Determinants of the Current Account

Balance of Payments Accounting

- Basic Principles

- Credit item (+)

- *Funds flow into the country*
 - Example: exports of goods (Swiss cheese)
 - Example: A German resident buys property in BE

- Debit item (–)

- *Funds flow out of the country*
 - Example: imports of goods
 - Example: a Swiss buys a house in Sardinia

The balance of payments has three components:

- the current account
- the financial account
- the capital account

Current Account Balance + Financial Account Balance
+Capital Account Balance= 0

This distinction between the financial and capital account is made by the IMF and other international organizations. Most practitioners include the financial account in the capital account

Balance of Payments Accounting

- The **current account** records exports and imports of goods and services, international receipts or payments of income and unilateral transfers
 - Net exports of goods and services –trade balance- (*NX*)
 - Net income from abroad (*NFP*)
 - Net unilateral transfers (*NUT*)

Balance of Payments Accounting

The Income Balance (NFP) of the CA

1. Net investment income

It represents the difference between the income US people receive on their foreign assets (dividends, rents,..) and the income payments made to foreign holders of US assets

2. Net international compensation to employees

Income received from abroad is a credit item, since it causes funds to flow into the United States

Payment of income to foreigners is a debit item

Balance of Payments Accounting

- The unilateral transfer balance of the CA
 - Net unilateral transfers (*NUT*)
 - Transfers made from one country to another
 - Negative net unilateral transfers for CH and the United States, since they are both net donors to other countries
 - Example: Foreign aid, reparation payments

Balance of Payments Accounting

- Sum of net exports of goods and services, net income from abroad, and net unilateral transfers gives the current account balance
- $CA = NX + NFP + NUT$
 - Positive current account balance is called current account surplus
 - Negative current account balance is called current account deficit

Balance of Payments Accounting

- The capital and financial account
 - The financial account records *trades* in assets, either real (for example, houses) or financial (for example, stocks and bonds)
 - The capital account records the net flow of *unilateral* transfers of assets into the country. Essentially, debt forgiveness and entering-departing migrants' transfers (minor items)

Balance of Payments Accounting

- The Capital and Financial Account, KFA
 - Capital Account (unilateral transfers of assets)
 - Financial Account
 - Financial Inflow
 - Credit item (+)
 - A bank deposit in Ticino by an Italian
 - Financial Outflow
 - Debit item (-)
 - Purchase of a German security by a CH resident

Balance of Payments Accounting

The **financial account** contains

- **Foreign direct investment (FDI)**

A foreign firm buys or builds capital goods. It causes an increase in the capital and financial account balance

- **Portfolio investment**

It refers to the purchase of shares and bonds. Also increases the KFA

- **Other investment**

It includes capital flows into bank accounts or provided as loans

- **Reserve account (official settlement balance)**

It keeps track of central banks' reserve asset transactions with each other. It records transactions involving gold, foreign exchange reserves, bank deposits and SDRs

Balance of Payments Accounting

- The official settlements balance
 - Also called the balance of payments, it equals the net increase in a country's *official reserve assets*
 - For CH, the net increase in official reserve assets is the rise in CH government reserve assets minus foreign central bank holdings of CHF assets
 - Having a balance of payments surplus means a country is increasing its official reserve assets; a balance of payments deficit is a reduction in official reserve assets

Balance of Payments Accounting

- The relationship between the current account and the capital and financial account
 - Current account balance (CA) + capital and financial account balance (KFA) ($CA + KFA = 0$) by accounting (every transaction involves offsetting effects)

If a country imports more than it exports ($NX < 0$) then the deficit must be financed by current income from its net assets; if this is not sufficient, by selling some of its foreign assets; or by increasing its liabilities (borrowing from abroad). Selling foreign assets or borrowing from abroad both imply a KFA surplus.

Balance of Payments Accounting

- See Table 5.2 for examples of such offsetting transactions
- In practice, measurement problems, recorded as a statistical discrepancy, prevent $CA + KFA = 0$ from holding exactly.

Table 5.2 Why the Current Account Balance and the Capital and Financial Account Balance Sum to Zero: An Example

(Balance of Payments of the United States)

**Case I: United States Imports \$75 Sweater from Britain;
Britain Imports \$75 Computer Game from United States**

Current Account

Exports	+\$75
Imports	-\$75
Current account balance, <i>CA</i>	<u>0</u>

Capital and Financial Account

No transaction	
Capital and financial account balance, <i>KFA</i>	0
Sum of current and capital and financial account balances, <i>CA + KFA</i>	0

**Case II: United States Imports \$75 Sweater from Britain;
Britain Buys \$75 Bond from United States**

Current Account

Imports	-\$75
Current account balance, <i>CA</i>	<u>-\$75</u>

Capital and Financial Account

Financial inflow	+\$75
Capital and financial account balance, <i>KFA</i>	<u>+\$75</u>
Sum of current and capital and financial account balances, <i>CA + KFA</i>	0

**Case III: United States Imports \$75 Sweater from Britain;
Federal Reserve Sells \$75 of British Pounds to British Bank**

Current Account

Imports	-\$75
Current account balance, <i>CA</i>	<u>-\$75</u>

Capital and Financial Account

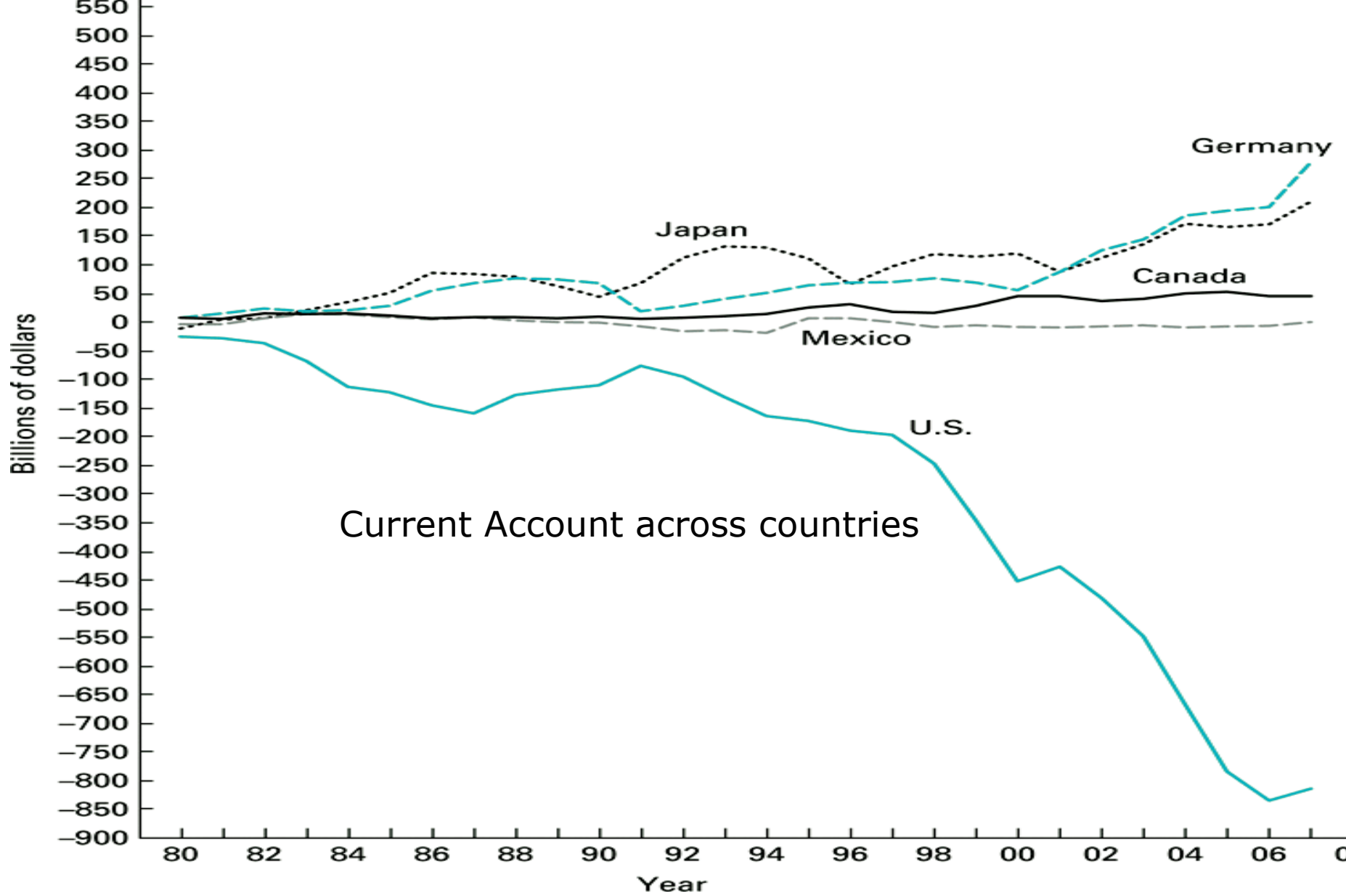
Financial inflow (reduction in U.S. official reserve assets)	+\$75
Capital and financial account balance, <i>KFA</i>	<u>+\$75</u>
Sum of current and capital and financial account balances, <i>CA + KFA</i>	0

US, 2011

Current Account		
Net exports of goods and services (NX)		-560.0
Exports of goods and services	2105.1	
Goods	1497.4	
Services	607.7	
Imports of goods and services	-2665.0	
Goods	-2235.7	
Services	-429.3	
Net income from abroad (NFP)		221.1
Income receipts from abroad	738.7	
Income payments to residents of other countries	-517.7	
Net unilateral transfers		-134.6
Current Account Balance (CA)		-473.4
Capital and Financial Account		
Capital Account		
Net capital account transactions		-1.2
Financial Account		
Net financial flows		387.3
Increase in U.S.-owned assets abroad (financial outflow)	-396.4	
U.S. official reserve assets	-15.9	
Other U.S.-owned assets abroad	-380.5	
Increase in foreign-owned assets in U.S. (financial inflow)	783.7	
Foreign official assets	164.8	
Other foreign-owned assets	618.9	
Financial derivatives		6.8
Capital and Financial Account Balance (KFA)		392.9
Statistical Discrepancy		80.5
<i>Memoranda:</i>		
Balance on goods and services (trade balance)		-560.0
Balance on goods, services, and income		-338.9
Official settlements balance =		
Balance of payments =		
Increase in U.S. official reserve assets minus increase in foreign official assets = 15.9 - 164.8		-148.9
<i>Note:</i> Numbers may not add to totals shown owing to rounding.		
<i>Source:</i> "U.S. International Transactions: Fourth Quarter and Year 2011," Table I, p. 30 and Table J, p. 31, <i>Survey of Current Business</i> , April 2012.		

TABLE 12.2
Simplified
Balance of
Payments of
Switzerland
(in Billions
CHF)

	2008	2012
Current Account	11.9	66.3
Goods Trade	15.1	15.5
Services	50.2	41.2
Labor Income	-13.2	-18
Investment Income	-26.2	39.6
Unilateral Transfers	-14	-11.9
Financial Account	-7.9	-96.8
Direct Investment	-32.6	-27.1
Portfolio Investment	-38.5	13.2
Other Investment	67.4	91
Derivatives and structured products	7.4	5
Commercial Bank Lending	62.8	57.6
Corporate Lending	-12.3	1.3
Swiss National Bank lending	-35.1	22.8
Other claims and liabilities abroad	39.2	5.4
Reserves	-4.1	-174.6
Capital Account	-3.8	-1.9
Statistical error	-0.2	32.3



Balance of Payments Accounting

- **Net foreign assets (NFA) or**
- **Net International Investment Position (NIIP)**
Net foreign assets are a country's (value of) foreign assets minus (the value of) its foreign liabilities
- **The change in the country's net foreign assets is equal to the financial account**

- **$KFA = \Delta(NFA)$**

(Recall that an increase in the NFA, say, through a purchase of foreign securities, represents a negative change in the KFA as "money" leaves the country)

Balance of Payments Accounting

- But recall that

$$CA + KFA = 0 \rightarrow CA - \Delta(NFA) = 0 \rightarrow \Delta(NFA) = -KFA = CA$$

- A current account surplus (CA+) implies a capital and financial account deficit (KFA-) and thus a net increase in holdings of foreign assets (a financial outflow)
- A current account deficit implies a capital and financial account surplus, and thus a net decline in holdings of foreign assets (a financial inflow)

Balance of Payments Accounting

- Summary: Equivalent measures of a country's international trade and lending

Current account surplus

= capital and financial account deficit

= net acquisition of foreign assets

= net foreign lending

= net exports (only if *NFP* and net unilateral transfers are zero)

Summary 7

Equivalent Measures of a Country's International Trade and Lending

Each Item Describes the Same Situation

A current account surplus of \$10 billion

A capital and financial account deficit of \$10 billion

Net acquisition of foreign assets of \$10 billion

Net foreign lending of \$10 billion

Net exports of \$10 billion (if net factor payments, *NFP*, and net unilateral transfers equal zero)

Balance of Payments Accounting

- Recall: NIIP is a country's net foreign wealth, the difference between foreign assets owned by domestic residents and domestic assets owned by foreigners.
- In the absence of valuation changes, historical (acquisition) and current market values coincide

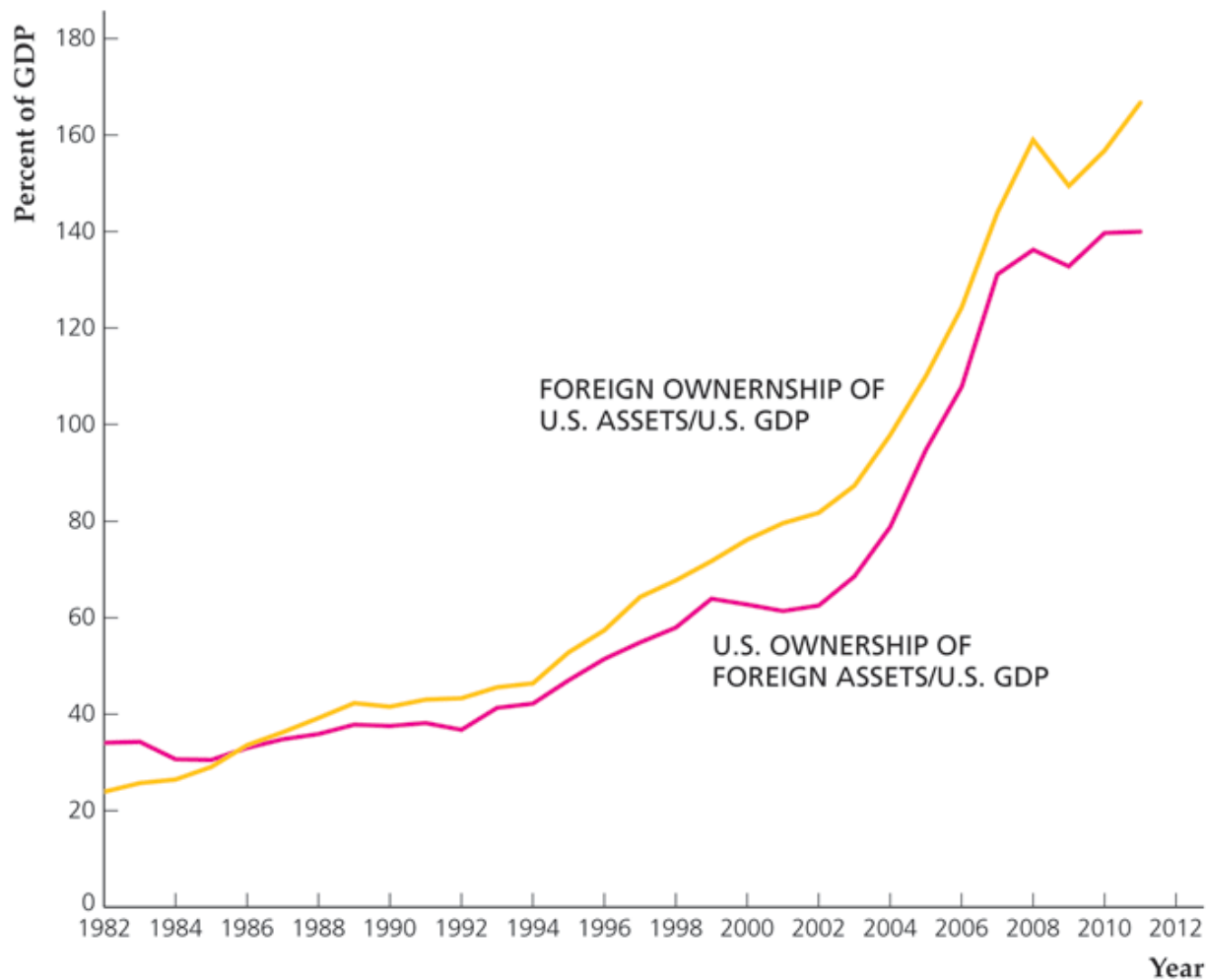
$$\Delta (\text{NIIP}) = -\text{KFA} = \text{CA}$$

$$\text{With valuation effects: } \Delta (\text{NIIP}) = \text{CA} + \text{Valuation}$$

Valuation changes due to changes in assets prices/exchange rate

A numerical example

Figure 5.1 International ownership of assets relative to U.S. GDP, 1982-2011



Sources: *International ownership of assets*: Bureau of Economic Analysis, International Economic Accounts, International Investment Position, Table 2, available at www.bea.gov/international/xls/intinv11_t2.xls. GDP: Bureau of Economic Analysis, National Income and Product Accounts, available at research.stlouisfed.org/fred2/series/GDPA.

Balance of Payments Accounting

- Application: The United States as international “debtor” (negative NIIP)
 - The net foreign debt of the United States relative to U.S. GDP is huge in \$ terms but relatively small as a % of GDP (29%) compared to other countries (some of whom have net foreign debt of over 100% of GDP)
 - It represents a liability of the country. The US has to eventually transfer 29% of the goods it produces (GDP) to foreigners.

Table 5.3 Foreign Holdings of U.S. Treasury Securities

Yearend (billions)	2009	2010	2011
China	1036.4	1277.4	1283.7
Japan	750.2	860.9	1050.1
Belgium and Luxembourg	111.3	167.7	239.7
Brazil	169.5	181.7	222.7
OPEC Asia	166.1	173.2	201.5
United Kingdom	29.7	101.8	180.7
Russia	156.3	169.1	152.2
Taiwan	125.8	150.8	147.1
Switzerland	91.0	109.0	132.2
Cayman Islands	70.4	103.3	127.5
Other countries	963.9	1171.7	1333.7
Total Holdings	3670.6	4466.6	5071.1

Source: Elena L. Nguyen, "The International Investment Position of the United States at Yearend 2011," *Survey of Current Business* (July 2012), Table K, p. 14.

Net International Investment Position 2013 (2014)

Singapore	182
Norway	170.9
Switzerland	119.6
S. Arabia	106.6
Japan	74.8
Belgium	49.7
Germany	36.4
Venezuela	30.5
China	17.1
Argentina	14.2
Canada	6.9
Chile	-13.8
France	-19.5

Net International Investment Position 2013 (2014)

UK	-24.8
Italy	-27.7
Brazil	-33.1
Mexico	-33.3
US	-39.7
Australia	-55.6
Spain	-94.5
Ireland	-106.7
Portugal	-111.6
Greece	-121.9

US NIIP

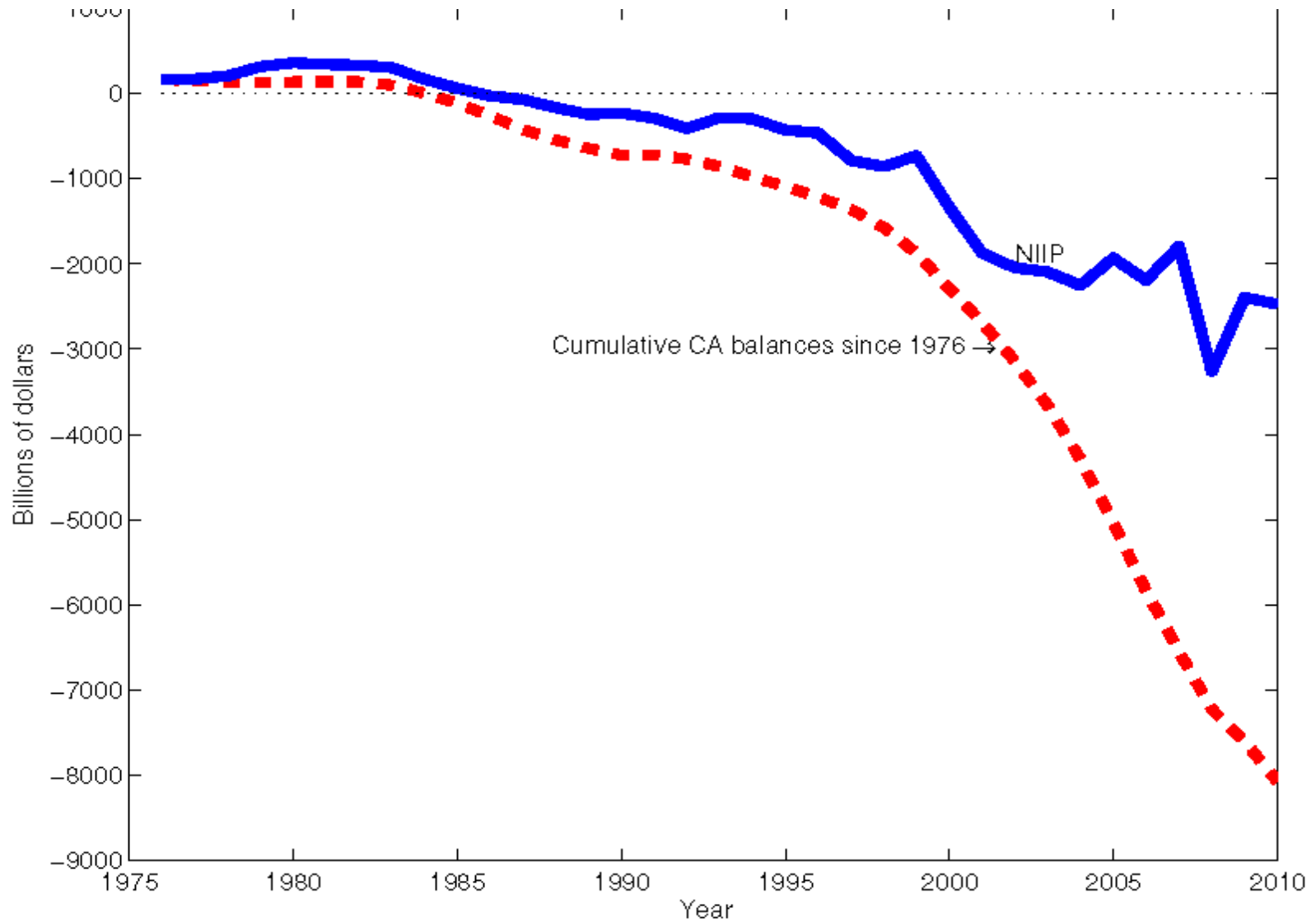
Nonetheless, the US has done well in a particular way:
The change in NIIP has been much smaller than its
cumulative Current Account deficits (about 6 trillion *less*
during the last 40 years)

The US has found a favorable way to pay for its large trade deficits!

An example: Sources of discrepancy between historical
and market values over 2002-2007

- a) Real USD depreciation (20%)
 - b) Out-performance of US by foreign equity markets
 - 1 USD invested in foreign stocks in 2002 delivered 2.9 by 2007
 - 1 USD invested in US stock markets in 2002 delivered 1.9 by 2007
- Value of net US equity position went from 0.04 to 3 trillion

But recent relative performance of US and world stock
markets!!



US Cumulative Current Account balances vs Net International Investment Position, NIIP.
 Source: : Grohe Schmitt- M. Uribe, International Macroeconomics

US NIIP vs NII (net investment income) Fig p. 34

A puzzle: Negative NIIP but positive NII. It is as if a borrower receives interest payments from the lender!!

Two explanations

Explanation 1. Dark Matter: Unreported assets

(True) TNIIP = (Actual) NIIP + Dark Matter

Let R be interest rate on net foreign assets. Assume $R=5\%=0.05$

$$NII = R \times TNIIP \quad \rightarrow \quad TNIIP = NII/R$$

$$TNIIP = 171.3/0.05 = 3.4 \text{ trillion} > 0 \quad NII(2010)=171.3$$

Dark matter = TNIIP - NIIP = $3.4 - (-2.5) = 5.9$ trillion dollars
NIIP(2010) = -2.5 trillion dollars

Explanation 2. Differences in rates of return: Americans hold more risky- higher rate of return assets (equity vs G-bonds)

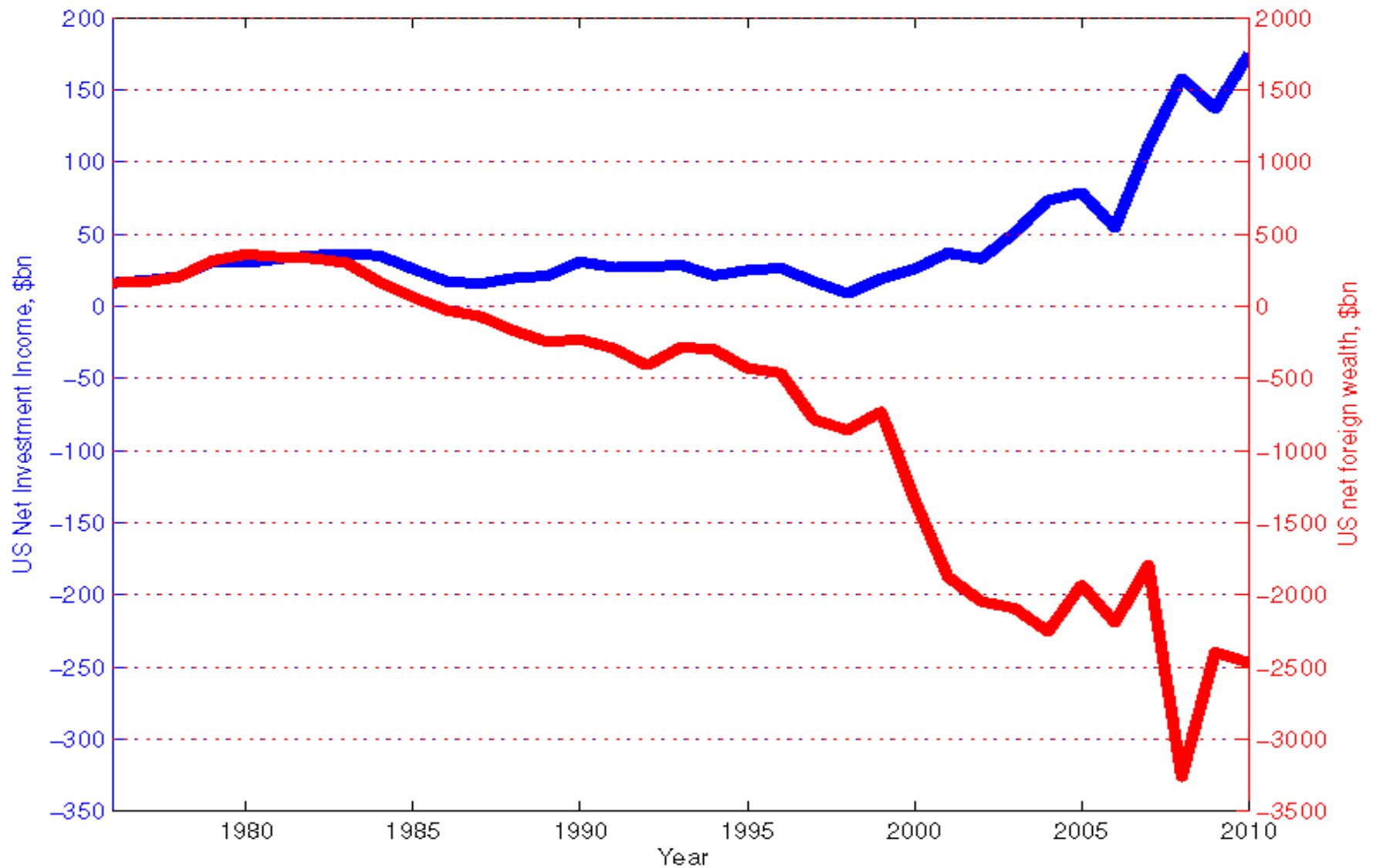
$$\text{NII} = R_A \times \text{ASSETS} - R_L \times \text{LIABILITIES}$$

Let R_A , R_L be the average rate of return on US gross foreign assets and liabilities. What R_A resolves the puzzle, that is, it generates NII of 0.171 trillion USD?

$$0.171 = R_A \times 20.3 - 0.0032 \times 22.8 \rightarrow R_A = 1.2\% \rightarrow R_A - R_L \text{ about } 1\%$$

That is a 1% return differential in favor of US held foreign assets suffices to solve the puzzle!

Data: 2010: U.S. gross foreign asset position 20.3 trillion dollars (140% GDP), gross foreign liability position 22.8 trillion dollars (160% GDP), net investment income (NII) 171 billion, one-year Treasury securities rate 0.0032 (0.32%)



Net International Investment Position(Net Foreign Wealth)vs Net International Income (NII).

Source: : Grohe Schmitt- M. Uribe, International Macroeconomics

An interesting scenario

The implications for wealth redistribution between China and the US of China's capital account liberalization and a potential large appreciation of the RMB

It would lead to a substantial transfer of wealth from China to the US. Why?

Assuming that the current value of USD reserves is about 2 trillion a 30% appreciation vis a vis the USD would imply an immediate indirect transfer of about 600 billion from China to the US ($= 0.3 \times 2\text{tr}$).

This is about 150% of the value of the Chinese exports to the US in 2013. Or, about 7% of China's 2012 GDP!

Relationship between national income accounts and balance of payments accounts

National income accounts measure national income, value of production and total expenditure (consumption, C, Investment, I, Government expenditures (G) and Net Exports (NX))

GDP is the market value of all final (intermediary) goods and services produced (sale of used items) within a country (foreign factors) in a given period of time

Balance of payments accounts record transactions with foreign residents

$$\Delta(\text{NIIP}) = B_t - B_{t-1} = \text{CA}_t = r_{t-1} B_{t-1} + \text{TB}_t \quad (B = \text{NIIP})$$

$$\text{GDP}_t \equiv Q_t = \{C_t + I_t + G_t\} + \text{TB}_t = A_t + \text{TB}_t$$

(A = Absorption)

$$\text{GNP}_t \equiv Y_t = \text{GDP}_t + r_{t-1} B_{t-1} = Q_t + r_{t-1} B_{t-1}$$

$$Y_t \equiv Q_t + r_{t-1} B_{t-1} = A_t + \text{TB}_t + r_{t-1} B_{t-1} \rightarrow Y_t = A_t + \text{CA}_t \rightarrow$$
$$\text{CA}_t = Y_t - A_t$$

$$Y_t = C_t + S_t + T_t$$

$$Y_t = Q_t + r_{t-1} B_{t-1} = C_t + I_t + G_t + \text{TB}_t + r_{t-1} B_{t-1} = C_t + I_t$$
$$+ G_t + \text{CA}_t$$

Combine to get

$$S_t + T_t = I_t + G_t + \text{CA}_t \rightarrow \text{CA}_t = S_t - I_t + T_t - G_t$$

Twin deficits

National and Balance of payments Accounts

Interesting questions

- Can a Country Run a Perpetual Trade Balance deficit?
- Yes if the country's initial net foreign asset position is positive.
- For instance, because the CH is currently a net foreign creditor to the rest of the world, it can run perpetual trade balance deficits in the future by running down its international assets.

Can a Country Run a Perpetual Current Account Deficit?

- Yes. And this independent of the sign of the country's initial net foreign asset position given a long enough time horizon.
- But is harder than running perpetual TB deficits as we need to have partial repayment of interest obligations on international debt so that the country's net foreign debt grows at a rate less than the interest rate.
- Need sufficient output growth and large enough trade surpluses.

What are the main determinants of the CA?

- The basic insight is that the CA is determined using the permanent income hypothesis.
- The permanent income describes how people's savings responds to changes in current, future and permanent (the average over the lifetime) income.
- The response of savings then determines the change in the trade balance and the current account (recall $CA=S-I$).
- A country saves by accumulating foreign assets.
 $CA=$ change in NIIP.

Examples

- A temporary increase in income now increases consumption by less than one to one as people spread this increase over time. Savings goes up and the CA improves.
- A permanent increase in income increases consumption one to one. There is no effect on savings and the current account.
- An expected future increase in income increases current consumption as people enjoy some of the future gains in income. Savings decreases and the CA worsens.
- An improvement in domestic opportunities deteriorates the CA

Implications for the CA of LDCs and rich countries

- Based on the permanent income theory one expects that:
- The LDCs would be running CA deficits as their current income is below their future income (they expect to be richer in the longer term).
- The rich countries would be running CA surpluses
- The same theory predicts that CA should deteriorate during recessions (as people dis-save) and improve during booms.

An important question

- Are large, sustained trade deficits bad?
- This is equivalent to asking whether borrowing heavily is generally a bad idea.
- The answer depends on the reason for the debt and on how the borrowed funds are used.
- The source of trade imbalance: A boom in investment causes in general no problem. (qualification: type of investment? sector?)