

# International Monetary Economics

## Lecture Note 1: Measurement

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<sup>1</sup>University of Bern, SS 2017. Much of this material draws on Schmitt-Grohè and Uribe (SG-U), International Macroeconomics, [www.columbia.edu/~mu2166/UIM/notes.pdf](http://www.columbia.edu/~mu2166/UIM/notes.pdf)

## Definitions

- ▶ The **balance of payments** has three components:
- ▶ the **current account**: records exports and imports of goods and services and international receipts or payments of income
- ▶ the **financial account**: record of sales of assets to foreigners and purchases of assets located abroad (foreign assets).
- ▶ the **capital account**: debt forgiveness and entering-departing migrants' transfers
- ▶ Current Account Balance + Financial Account Balance + Capital Account Balance = 0
- ▶ The 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.

## A. CURRENT ACCOUNT BALANCE

- ▶ A1. Trade Balance (or Balance on Goods and Services): Exports minus imports of goods and services.
  - ▶ i. Merchandise Trade Balance (or Balance on Goods):
  - ▶ ii. Services Balance: Includes net receipts from items such as transportation, travel expenditures, and legal assistance.
- ▶ A2. Income Balance:
  - ▶ i. Net investment income: The difference between income receipts on the Swiss receive on their foreign assets and income payments made to foreign holders of Swiss assets. It includes international interest and dividend payments and earnings of domestically owned firms operating abroad.
  - ▶ ii. Net international compensation to employees
- ▶ A3. Net Unilateral Transfers: The difference between gifts (that is, payments that do not correspond to purchases of any good, service, or asset) received from/made to the rest of the world. Example: Money given to his family back home in Italy by an Italian immigrant working in CH

Current Account Balance = Trade Balance + Income Balance + Net Unilateral Transfers

## Figure : Foreign accounts

### The U.S. Balance-of-Payments Accounts in 2014

Item	Billions of dollars	Percentage of GDP
Current Account	-389.5	-2.2
Trade Balance	-508.3	-2.9
Balance on Goods	-741.5	-4.3
Balance on Services	233.1	1.3
Income Balance	238.0	1.4
Net Investment Income	247.4	1.4
Compensation of Employees	-9.4	-0.1
Net Unilateral Transfers	-119.2	-0.7
Private Transfers	-104.9	-0.6
U.S. Government Transfers	-14.3	-0.1

Source: Bureau of Economic Analysis, <http://www.bea.gov>.

Figure : Foreign accounts

### The U.S. Current Account and Trade Balances 1960-2014



Data Source: BEA, [bea.gov](http://bea.gov), ITA, Table 1.1., (March 19, 2015 release)

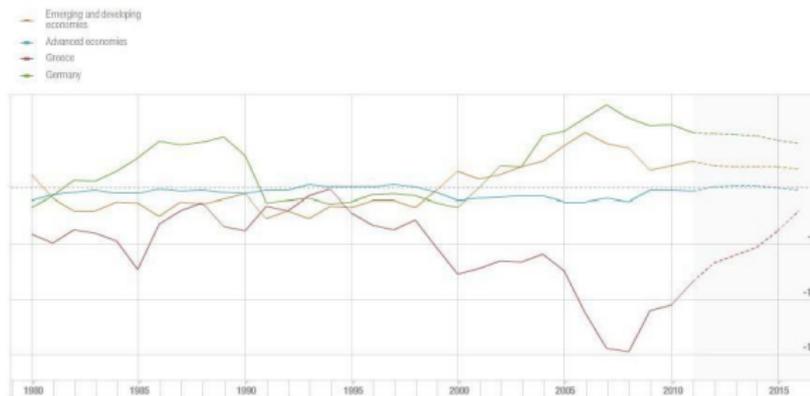
Figure : Foreign accounts, CH



# Figure : Foreign accounts

IMF Data Mapper ®

Current account balance (percent of GDP) (Percent of GDP)



©IMF, 2010, Source: World Economic Outlook (September 2011)

	Current account balance								
	2001	2002	2003	2004	2005	2006	2007	2008	2009
France	1.755	1.245	0.723	0.542	-0.485	-0.575	-1.002	-1.746	-1.503
Germany	0.02	2.015	1.905	4.683	5.076	6.266	7.459	6.259	5.633
Greece	-7.168	-6.478	-6.566	-5.85	-7.365	-11.244	-14.358	-14.688	-10.986
Italy	-0.057	-0.775	-1.298	-0.937	-1.654	-2.581	-2.439	-2.934	-2.084
Netherlands	2.433	2.487	5.604	7.754	7.599	9.69	6.714	4.404	4.866
Spain	-3.941	-3.259	-3.509	-5.251	-7.357	-8.972	-9.992	-9.62	-5.169

B. FINANCIAL ACCOUNT: Change in foreign ownership of domestic assets minus change in domestic ownership of foreign assets. It contains the following categories:

- ▶ Foreign direct investment (FDI)
- ▶ Portfolio investment refers to the purchase of shares and bonds (it is sometimes grouped together with "other" as short term investment)
- ▶ Other investment includes capital flows into bank accounts or provided as loans.
- ▶ Reserve account: Foreign assets held by domestic official bodies (such as the domestic central bank) minus domestic assets held by foreign official bodies (such as central banks).

The relationship between the current account and a country's net international investment position (NIIP):

Net international investment position is a country's net foreign wealth, that is, the difference between foreign assets owned by domestic residents and domestic assets owned by foreigners.

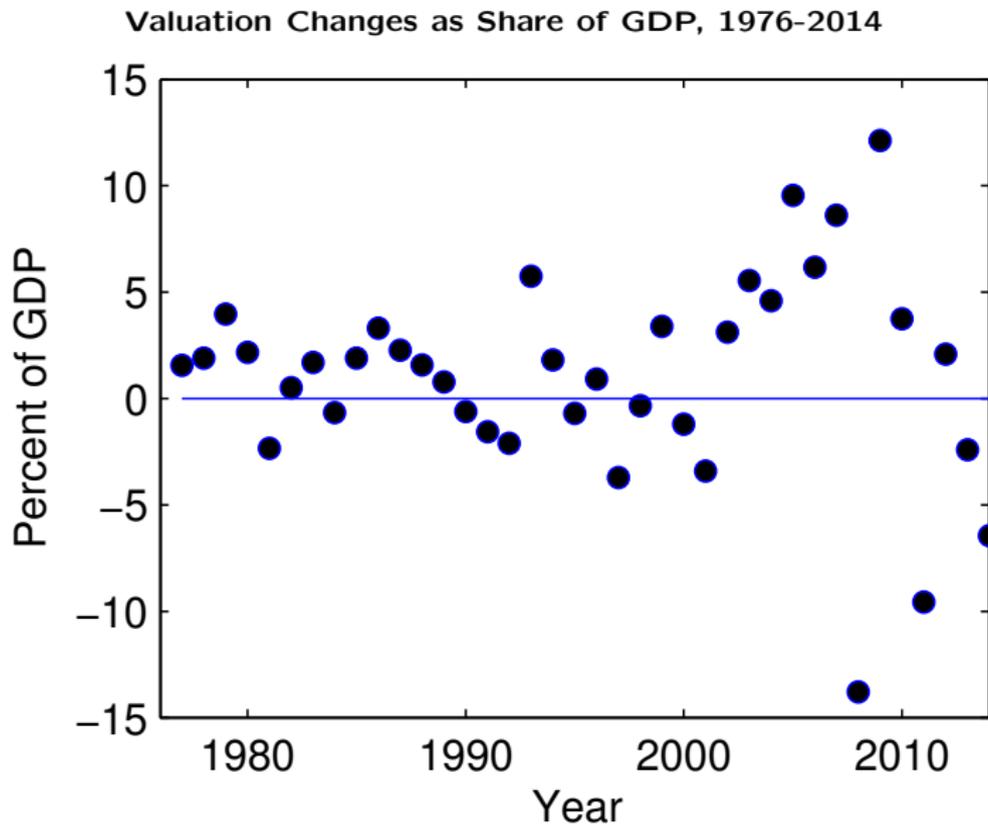
$$\Delta NIIP = CA + \text{Valuation changes}$$

An important distinction: Historical vs market values

Valuation Changes: changes in the market value of the country's foreign assets and liabilities due to exchange rate changes, changes in stock or bond prices, etc.

Between 2002 and 2007 the cumulative sum of the US current account deficits was 3,400 billion, whereas the change in the US net international investment position at market value was only 400 billion. A huge difference of about 3,000 billion. The latest figure (QII, 2016) is –8 trillion USD.

Figure : Foreign accounts, CH



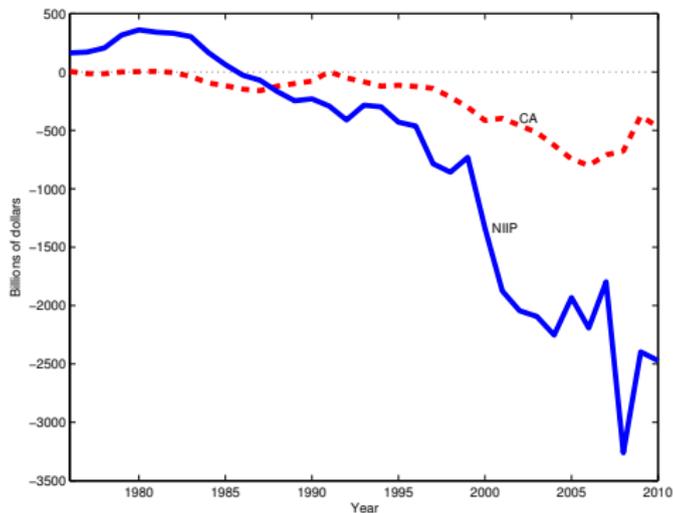


Figure : US Current Account, CA, and Net International Investment Position, NIIP, Market Values. Source: U-SG

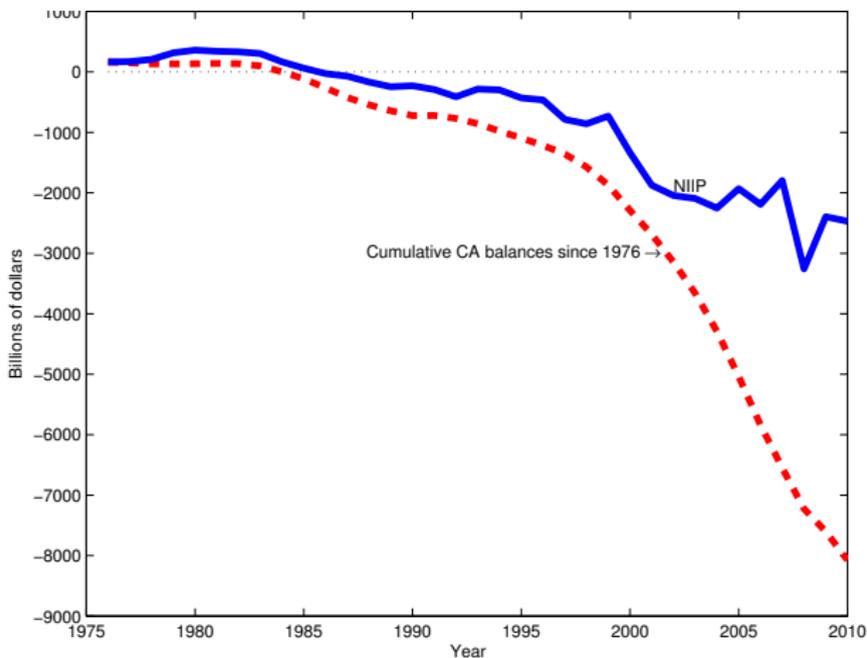
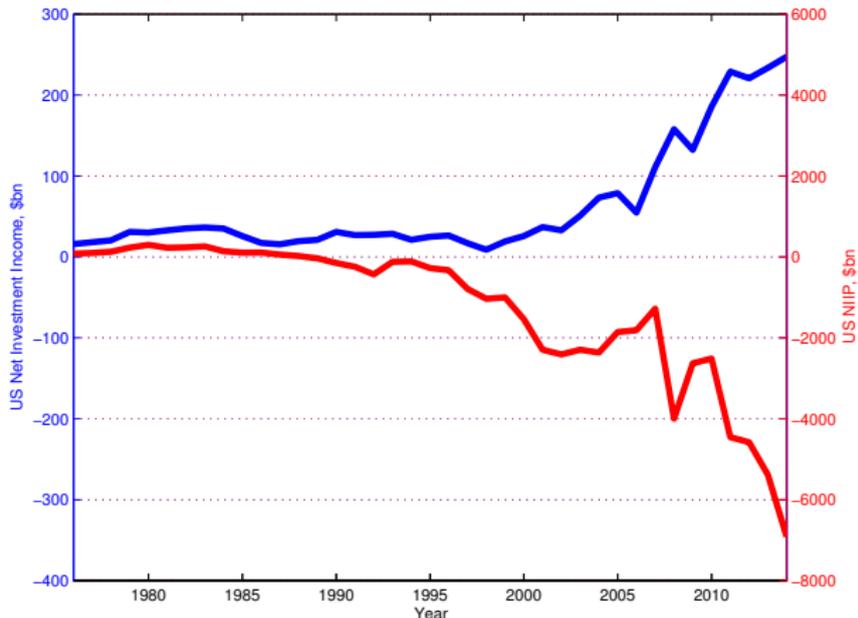


Figure : US Current Account, CA, and Hypothetical (No Valuation Changes) Net International Investment Position, NIIP. Source: U-SG

## Positive Net Investment Income And Negative NIIP: A Paradox?



Data Source: BEA, bea.gov, ITA, Table 1.1., (December 17, 2015 release)

Figure : Net International Investment Position vs Net International Income, NIIP. Source: U-SG

## Sources of discrepancy between historical and market values over 2002-2007

- ▶ Real USD depreciation (20%)
- ▶ Out-performance of US equity markets by foreign equity markets
  1. 1\$ invested in foreign stock markets in 2002 delivered 2.9 by 2007
  2. 1\$ invested in US stock markets in 2002 delivered 1.9 by 2007
  3. Value of net US equity position went from 0.04 to 3 trillion \$

2. A **puzzle**: Negative NIIP but positive NII (net investment income). Two explanations

Dark Matter: Unreported assets

- ▶ (True)  $TNIIP = (\text{Actual}) NIIP + \text{Dark Matter}$   
Let  $R$  denote interest rate on net foreign assets. *Assume*  
 $R = 5\% = 0.05$
- ▶  $NII = R \star TNIIP \Rightarrow TNIIP = NII / R$
- ▶  $TNIIP = 250 / 0.05 = 5$  trillion ( $NII_{2014} = 250b$ )
- ▶ Dark matter =  $TNIIP - NIIP = 5 - (-7) = 12$  trillion dollars  
( $NIIP_{2014} = -7$  trillion dollars). A bit too high!!

Difference in rates of return: Americans hold more risky- higher rate of return assets (equity vs G-bonds)

$$NII = R_A \star ASSETS - R_L \star LIABILITIES$$

$R_A, R_L$  average rate of return on US gross foreign assets, liabilities  
 $0.250 = R_A \star 25 - 0.0013 \star 32 \Rightarrow R_A = 0.0117 \Rightarrow R_A - R_L \simeq 1.04\%$

(2014: U.S. gross foreign asset position 25 trillion dollars (140% GDP), gross foreign liability position 32 trillion dollars (180% GDP), net investment income (NII) 250 billion, one-year Treasury securities rate 0.0013 (0.13%)

Claims about the origins of the CA.

(1) Large current account deficits originate from too much borrowing by the residents of a country from the rest of the world.

(2) Large current account deficits originate from too much borrowing by a government.

(3) The current account deficits are caused by large trade imbalances: The country is importing too much and exporting too little.

(4) The current account deficit is due to the fact that because people are not saving much or because the country has too high levels of domestic investment.

(5) The root of the current account is in the fact that the country is living beyond its means; domestic absorption of goods and services exceeds national income.

All these "different" explanations are not explanations but simply accounting identities that are all always satisfied

## Derivation of the CA

Budget constraint of a representative agent

$$Y_t + (1+r)B_{t-1} + (1+r)B_{t-1}^{Gh} = C_t + I_t + T_t + B_t + B_t^{Gh}$$

Budget constraint of the government

$$G_t + (1+r)B_{t-1}^{Gh} + (1+r)B_{t-1}^{Gf} = T_t + B_t^{Gh} + B_t^{Gf}$$

where  $B_t^{Gh}$  and  $B_t^{Gf}$  is domestic government debt held by domestic and foreign residents respectively and  $B_t$  is the net int'l investment position of the private sector. Note that  $NIIP_t = B_t - B_t^{Gf}$

Combining

$$\begin{aligned} Y_t + (1+r)(B_{t-1} - B_{t-1}^{Gf}) &= C_t + I_t + G_t + B_t - B_t^{Gf} \Rightarrow \\ Y_t + (1+r)NIIP_{t-1} &= C_t + I_t + G_t + NIIP_t \end{aligned}$$

The CA is then given by

$$\begin{aligned} CA_t \equiv NIIP_t - NIIP_{t-1} &= \underbrace{Y_t - C_t - G_t - I_t}_{TB_t} + rNIIP_{t-1} \\ &= TB_t + NII \end{aligned}$$

The CA in terms of savings and investment

$$GNP_t = GDP_t + rNIIP_{t-1} = Y_t + NII_t$$

$$GNP_t = C_t + S_t + T_t$$

$$\begin{aligned} CA_t &= Y_t - C_t - G_t - I_t + NII_t = GNP_t - NII_t - C_t - G_t - I_t + NII_t = \\ &= C_t + S_t + T_t - C_t - G_t - I_t = S_t - I_t + T_t - G_t \quad (1) \end{aligned}$$

Equation (1) emphasizes savings as the determinant of the CA