

# Lecture Note 1a

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## 1 Definitions

Some 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

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.

### 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.

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\*University of Bern, FS 2012-13. 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)

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

Trade Balance = Merchandise Trade Balance + Services Balance

Some graphs

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 Current Account Balance reflects a country's net international borrowing needs. A Greek current account deficit of  $x$  means that the rest of the world lends this amount to Greece.

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.

In the absence of valuation changes,  $CA = \Delta NIIP$ .

An important distinction: Historical vs market values

The NIIP/GDP of the US is 20%. It would be much larger were it not for valuation effects. Between 2002 and 2007 the cumulative sum of the US current account deficits was 3,400 billion,

Figure 1: Foreign accounts

Table 1.1: U.S. Current Account, 2007.

Item	Billions of dollars	Percentage of GDP
Current Account	-731.2	-5.3
Trade Balance	-700.3	-5.1
Merchandise Trade Balance	-819.4	-5.9
Services Balance	119.1	0.9
Income Balance	81.7	0.6
Net Investment Income	88.8	0.6
Net International Compensation to Employees	-7.0	-0.1
Net Unilateral Transfers	-112.7	-0.8
Private Remittances and Other Transfers	-72.1	-0.5
U.S. Government Transfers	-40.6	-0.3

Source: Bureau of Economic Analysis, U.S. Department of Commerce, <http://www.bea.gov>. December 2008 data release.

Table 1.2: Trade Balance and Current Account as Percentages of GDP in 2005 for Selected Countries

Country	TB/GDP	CA/GDP
Argentina	6.8	3.1
China	5.5	7.1
Ireland	11.8	-2.0
Mexico	-1.7	-0.6
Philippines	-8.9	2.3
United States	-5.7	-6.2

Source: IMF International Financial Statistics and World Economic Outlook. Available online at <http://www.imf.org>.

Figure 2: Foreign accounts



	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

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 role of

Exchange rate movements

Asset price movements

## 1.1

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

Budget constraint of an open economy

$$B_{t-1} + r_{t-1}B_{t-1} + TB_t = B_t$$

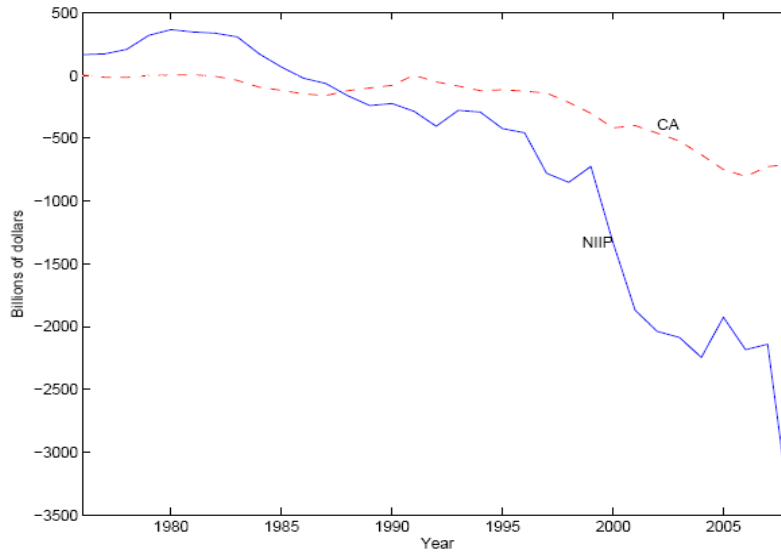
$$CA_t = r_{t-1}B_{t-1} + TB_t = B_t - B_{t-1}$$

$$GDP_t \equiv Q_t = \underbrace{C_t + I_t + G_t}_{A_t} + TB_t = A_t + TB_t$$

$$GNP_t \equiv Y_t = GDP_t + r_{t-1}B_{t-1} = Q_t + r_{t-1}B_{t-1}$$

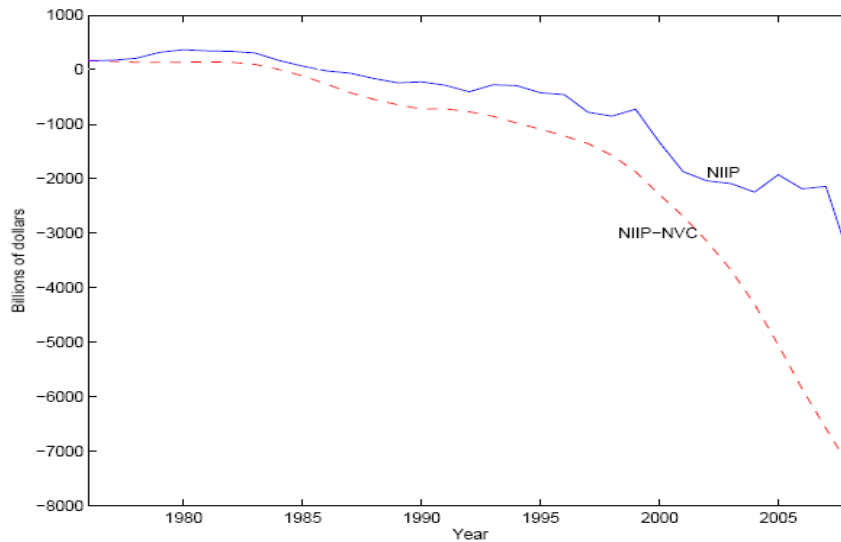
Figure 3: NIIP

Figure 1.2: The U.S. Current Account (CA) and Net International Investment Position (NIIP) at market value



Source: <http://www.bea.gov>

Figure 1.3: The U.S. NIIP and the Hypothetical NIIP with No Valuation Changes Since 1976



Note: the actual NIIP data are from the Bureau of Economic Analysis. The hypothetical NIIP with no valuation changes (NIIP-NVC) is computed as the sum of the NIIP for 1976 and the cumulative sum of current account balances since 1977

Figure 4: Net assets

Net foreign investment position, % of GDP		
	1999	2009
Belgium		44.6
Germany	4.5	37.3
Ireland	51.7	-98.4
Greece	-32.6	-85.7
Spain	-28.4	-92.1
France	-7.0	-13.2
Italy	4.4	-19.3
Netherlands	-8.2	17.4
Portugal	-31.6	-109.3
Slovenia	-11.7	-35.5
Slovakia		-68.0
Finland	-177.0	-5.4
Euro area	-6.1	-16.3

$$Y_t \equiv Q_t + r_{t-1}B_{t-1} = \underbrace{A_t + TB_t}_{\text{CA}_t} + r_{t-1}B_{t-1} \Rightarrow Y_t = A_t + CA_t \Rightarrow CA_t = Y_t - A_t$$

$$Y_t = C_t + S_t + T_t$$

$$Y_t = Q_t + r_{t-1}B_{t-1} = C_t + I_t + G_t + TB_t + r_{t-1}B_{t-1}$$

Combine to get

$$S_t + T_t = I_t + G_t + CA_t \Rightarrow CA_t = S_t - I_t + T_t - G_t$$

## 1.2

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.

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.

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.

Due to partial repayment, the country's net foreign debt is growing over time. In order to service part of its interest obligations to the rest of the world, the economy must generate larger and larger trade surpluses. This requires growth in output that exceeds the growth in the trade surpluses (otherwise, exports will become larger than GDP, which is not possible).

## 2 Addressing some questions raised earlier regarding the CA

We now consider a model with many periods, ending in period  $T > 0$ . The agents maximizes its intertemporal utility

$$\sum_{t=0}^T \beta^t U(C_t)$$

subject to

$$(1+r)B_{t-1} + Y_t = C_t + B_t$$

The intertemporal budget constraint then writes

$$(1+r)B_{-1} + \sum_{t=0}^T \left(\frac{1}{1+r}\right)^t Y_t = \sum_{t=0}^T \left(\frac{1}{1+r}\right)^t C_t + \frac{B_T}{(1+r)^T}$$



The infinite horizon version of the budget constraint is given by

$$(1+r)B_{-1} + \sum_{t=0}^{\infty} \left(\frac{1}{1+r}\right)^t Y_t = \sum_{t=0}^{\infty} \left(\frac{1}{1+r}\right)^t C_t + \lim_{T \rightarrow \infty} \frac{B_T}{(1+r)^T}$$

which simplifies to

$$(1+r)B_{-1} + \sum_{t=0}^{\infty} \left(\frac{1}{1+r}\right)^t Y_t = \sum_{t=0}^{\infty} \left(\frac{1}{1+r}\right)^t C_t$$

because  $\lim_{T \rightarrow \infty} \frac{B_T}{(1+r)^T} = 0$ .

**Can a country run perpetual current account deficits when  $B_{-1} < 0$ ?**

$$C_t + B_t = (1+r)B_{t-1} + Y_t$$

denoting the trade balance by  $TB_t = Y_t - C_t$ , the last equation rewrites

$$B_t = (1+r)B_{t-1} + TB_t$$

Let  $TB = -\alpha r B_{t-1}$  with  $\alpha < 1$ . Then plugging this in the last equation yields

$$B_t = (1+r-\alpha r)B_{t-1}$$

Then starting from  $B_{-1} < 0$  implies that  $B_t < 0 \forall t$

$$B_t = (1+r(1-\alpha))^t B_{-1}$$

then

$$CA_t = B_t - B_{t-1} = r(1-\alpha)B_{t-1} < 0$$

Is this feasible? Under what conditions?

$$\lim_{t \rightarrow \infty} \frac{B_t}{(1+r)^t} = \frac{(1+r-\alpha r)^t}{(1+r)^t} B_{-1} = 0 \iff \left(\frac{1+r(1-\alpha)}{1+r}\right) < 1$$

$TB$  grows at rate  $r(1-\alpha)$ ,  $Y$  must grow at least  $r(1-\alpha)$  to prevent  $C < 0$