International Economics II

Balance of Payments and Global Imbalances

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Outline

Motivation

Countries trade a lot with one another, and Spain is no exception. This fact elicits a number of questions, such as:

- How big are international transactions in goods, services, and financial assets for these and other countries?
- Does Spain have a trade deficit or a trade surplus with the rest of the world? What about bilaterally with other countries?
- Is Spain an external debtor or an external creditor?
- How have the trade balance and the international asset position of Spain and other countries evolved over time?

Motivation

This chapter will be focusing on descriptive statistics. It lays down the motivation for the theoretical discussion of future chapters.
Later, we will be able to ask more positive questions such as

- Why are exports of goods and services larger or smaller than imports of goods and services?
- Why do countries borrow from abroad?
- Can countries borrow forever?
- What determines the size of a country's external debt?

Outline

BoP

International Transaction Accounts

- How countries record international transactions?
- They record in the **Balance of Payments**, sometimes known as International Transaction Accounts
- In Spain, data on international transactions are collected by the Banco de España.
- Meanwhile, in the United States international transactions are recorded by the Bureau of Economic Analysis in the "International Transactions Accounts" (ITA).
- Note that the Balance of Payments register **flows**.

BoP

The balance of payments has three components:

1. **Current Account (CA)**: records exports and imports of goods and services and international receipts or payments of income.

2. **Financial Account (FA)**: records of sales of assets to foreigners and purchases of assets located abroad. Usually it separates between Official international reserves held by Central Banks and flows of other assets (stocks, bonds).

3. **Capital Account (KA)**: records flows of special categories of assets - typically nonmarket, non-produced, or intangible assets like debt forgiveness, copyrights and trademarks - and migrants' transfers.

Capital Account is typically irrelevant and we will ignore it most of the time.

BoP

- The BoP follows the typical double-entry bookkeeping.
- Each transaction enters the balance of payments twice, once with a positive sign and once with a negative sign.
- The transaction has positive sign when it implies an entry of funds into the country, a negative sign when it implies an exit of funds out of the country.
- This means that the BoP identity is given by:

$$CA + FA + KA = 0$$

- Sometimes you can also find a line registering **statistical discrepancy or error/omissions**.

BoP

Examples (from the perspective of Spain):

- You import an Iphone and pay 500 euros by bank transfer:
  - -500 in the current account (import of a good: iphone)
  - +500 in the financial account (export of an asset: bank transfer)
- German tourist buys a 20 euros ticket to enter Sagrada Familia with his credit card:
  - +20 in the current account (export of a service: tourism)
  - -20 in the financial account (import of an asset: promise of paying by the card)
- You buy 10000 Euros in Google shares' by bank transfer:
  - -10000 in the financial account (import of an asset: stock purchase)
  - +10000 in the financial account (export of an asset: bank transfer)

Current Account

The Current Account is the sum of :

- **Trade Balance (TB)**: Export minus Import $(X - M)$
- **Income Balance**: Net income payments (sometimes called *primary income account*)
- **Net Unilateral Transfers**: Basically gifts and unilateral transfers (sometimes called *secondary income account*).

Current Account

Trade Balance

Trade Balance measures the difference between exports of goods and services and imports of goods and services:

- Goods Balance = Exports of Goods - Imports of Goods.
- Service Balance = Exports of Services - Import of Services.
- Trade Balance = Goods Balance + Service Balance.
- Examples of traded goods: textiles, oil, cars, wheat...
- Examples of traded services: education, consulting, touristic services...

The Spanish Trade Balance

The Spanish Trade Balance in 2015:

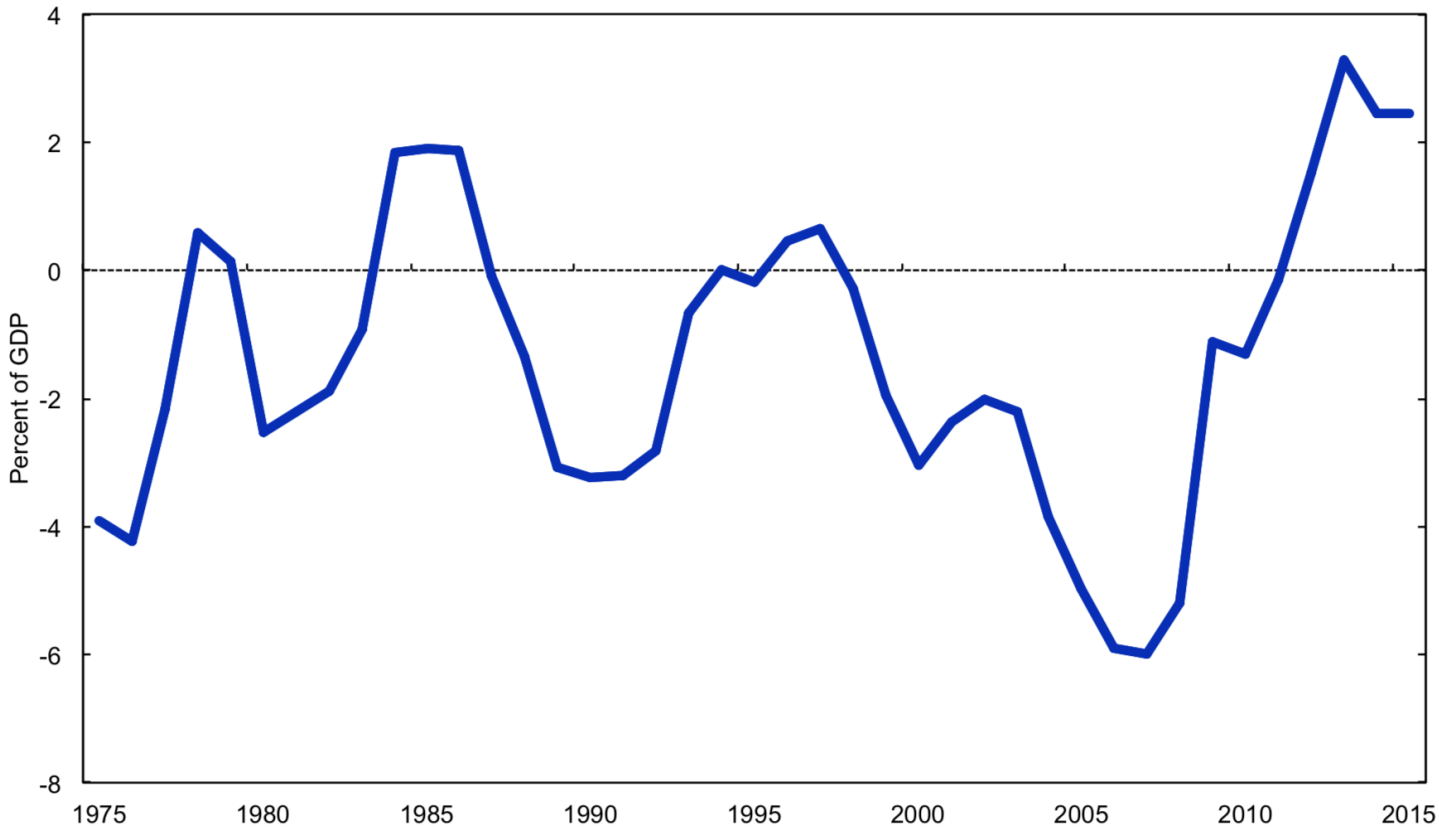
- Exports of goods and services: 356.9 billion of euros.
- Imports of goods and services: 330.6 billion of euros.
- Trade balance = 356.9 - 330.6 = 26.2 billion.
- Is 26.2 billion a little or a lot?
- Spanish GDP in 2015 was 1075.6 billion.

$$\frac{TB_{2015}}{GDP_{2015}} = \frac{26.2}{1075.6} = 0.024$$

- In 2015 trade surplus was 2.4% of GDP.

Trade Balance over time

Figure: The Spanish Trade Balance as a Share of GDP: 1975-2015



Trading Partners

Spain's Trading Partners: Top 5 Countries in 2015

	Bilateral trade (% of Total trade)	
	1990	2015
France	17.0	13.6
Germany	15.3	12.8
Italy	10.7	6.9
United Kingdom	7.5	6.1
Portugal	3.9	5.5
Total	54.5	44.7

Bilateral Trade Deficit

Spain's Bilateral Trade Deficit: Top 5 Countries in 2015

	Bilateral deficit (% of Total deficit)	
Country	1990	2015
China	1.2	21.0
Germany	19.1	17.4
Netherlands	1.7	8.5
Nigeria	4.1	6.0
Algeria	0.8	4.4

Spain running large deficits again China and Germany, and growth over time.

Current Account

Income Balance

- The **Income Balance** measures the difference between incomes received from the rest of the world and incomes paid to the rest of the world.
- These net income payments are recorded separately for capital and labor.
  - Net income from capital is called **Net Investment Income** and consists of dividends, interest, profits, etc.
  - Net income from labor is called **Net International Payments to Employees** and records earnings of Spanish residents temporarily employed abroad and compensation payments to foreigners temporarily working in Spain.
- Hence, we have:

$$\begin{aligned}\text{Income Balance} = &\text{ Net Investment Income} \\ &+ \text{ Net International Payments To Employees}\end{aligned}$$

Current Account

Net Unilateral Transfers

- The third item in the Current Account is **Net Unilateral Transfers**.
- It keeps record of the difference between gifts received from the rest of the world and gifts given to the rest of the world. These gifts can involve private agents or governments:

$$\begin{aligned}\text{Net Unilateral Transfers} = &\ \text{Private Remittances} \\ &+ \text{Government Transfers}\end{aligned}$$

Current Account

The Spanish Current Account in 2015

Item	Billions of euros	Percentage of GDP
Current Account	14.7	1.4
Trade Balance	26.2	2.4
Balance on Goods	-21.7	-2.0
Balance on Services	48.0	4.5
Income Balance	-0.7	-0.1
Net Investment Income	-5.6	-0.5
Compensation of Employees	2.1	0.2
Others	2.8	0.3
Net Unilateral Transfers	-10.8	-1.0
Private Transfers	-2.4	-0.2
Government Transfers	-8.4	-0.8

The Spanish Current Account

- Spain ran a small **current account surplus** in 2015 (and recent years too).
- In Spain, the trade balance drives the current account surplus, but services, not goods drive the surplus $\Rightarrow$ **tourism**!
- Net investment income is negative, which means that investments of Spanish residents in foreign assets paid less in interest, dividends, profits, than the investments of foreign residents in Spanish assets. Net International Payments to Employees was positive implying more income coming in from abroad.
- Net Unilateral Transfers were negative, which means that Spain gave more gifts to the rest of the world than it received. Part of this is due to remittances of immigrants in the Spain to relatives to living abroad, but a larger component is due to EU transfer funding.

Current Account

The United Current Account in 2015

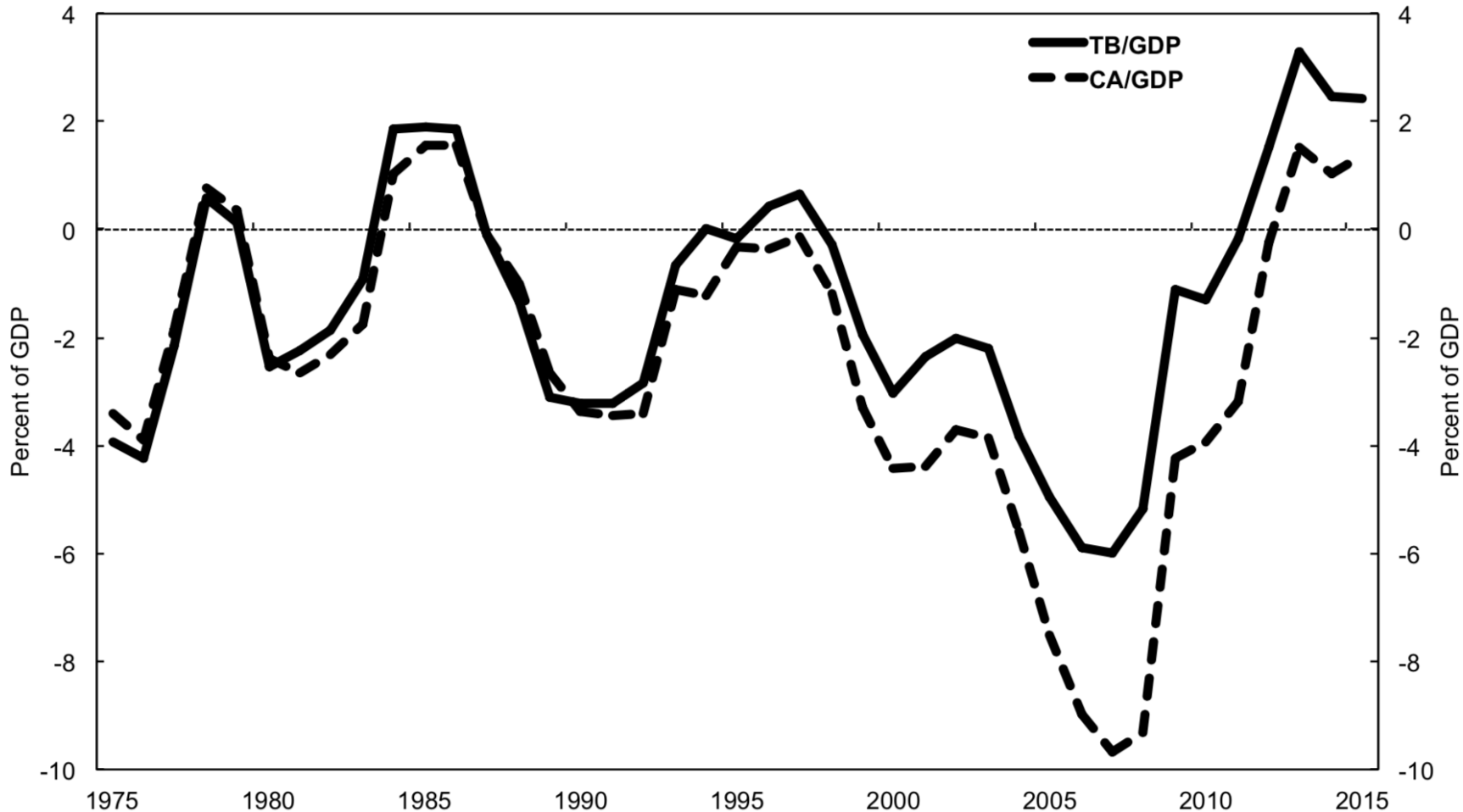
Item	Billions of dollars	Percentage of GDP
Current Account	-389.5	-2.2
Trade Balance	-508.3	-2.9
Balance on Goods	-741.5	-4.3
Balance on Services	233.1	1.3
Income Balance	238.0	1.4
Net Investment Income	247.4	1.4
Compensation of Employees	-9.4	-0.1
Net Unilateral Transfers	-119.2	-0.7
Private Transfers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

The US Current Account

- In 2014, the United States ran a **large current account deficit**.
- The bulk of the current account deficit is accounted for by a **large trade balance deficit**. The U.S. imports mostly low-tech. manufactured goods - textiles, electronics - and exports human-capital-intensive services (higher education, R&D, health care, professional consulting).
- **Net investment income is positive**, which means that investments of U.S. residents in foreign assets paid more in interest, dividends, profits, than the investments of foreign residents in U.S. assets. Net International Payments to Employees was quite small.
- Net Unilateral Transfers were negative, which means that the United States gave more gifts to the rest of the world than it received. These gifts are mostly remittances of immigrants in the U.S. to relatives to living abroad.

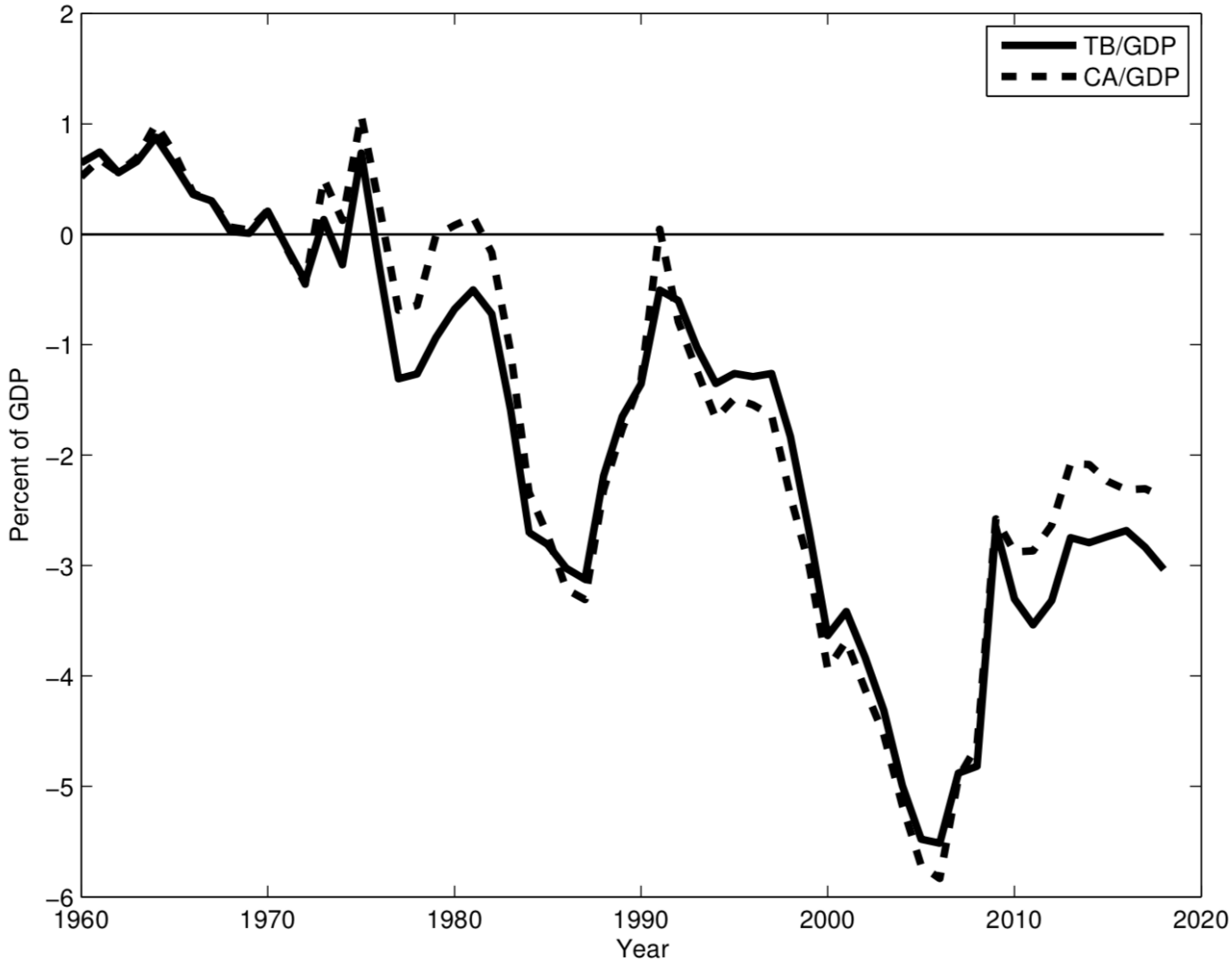
Current Account and Trade Balance

Figure: The Spanish Trade Balance and Current Account, 1975-2015



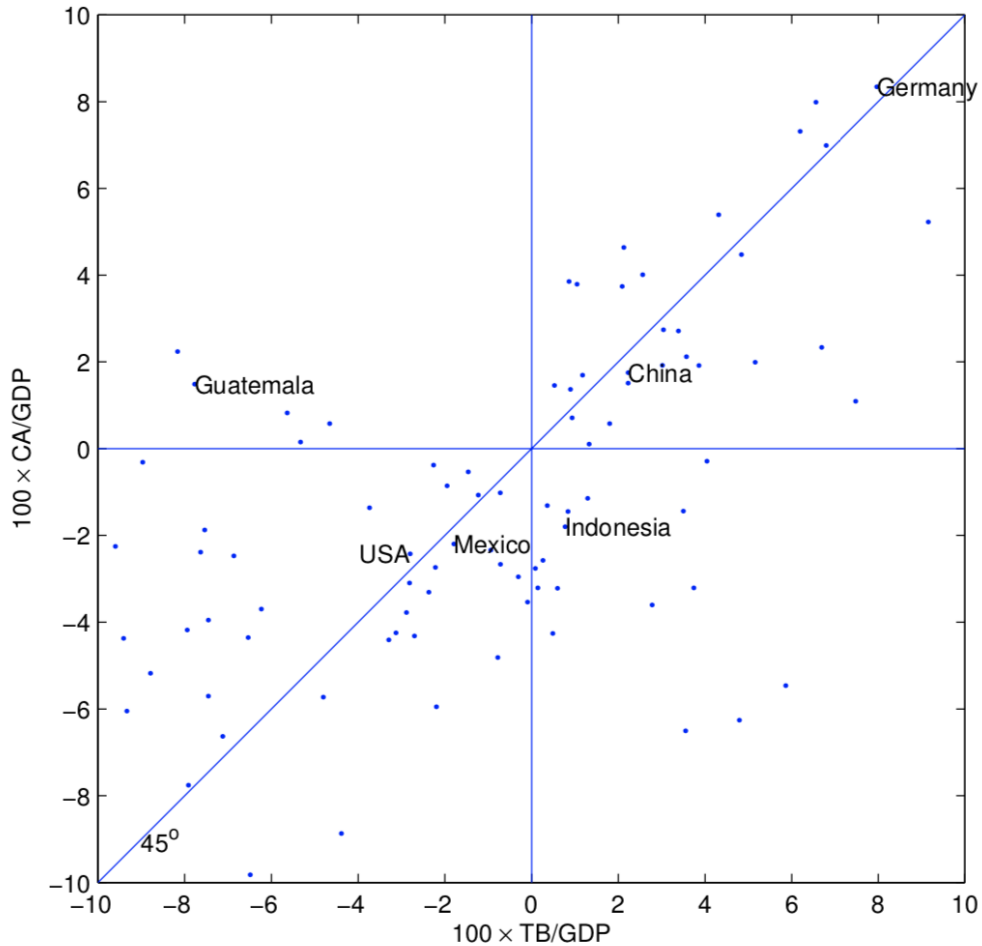
Current Account and Trade Balance

Figure: The U.S. Trade Balance and Current Account, 1960-2018



Current Account and Trade Balance

Figure: Trade Balances and Current Account Balances Across Countries in 2016



The TB and CA often move in tandem, but there are exceptions.

Current Account and Trade Balance

- For most of the countries TB accounts for the largest share of CA, and they often move in tandem as Spain and the U.S.
- But in principal they need not both be negative/positive. Any sign pattern is possible:

Country	TB/GDP	CA/GDP
Argentina	5.9	2.9
Ireland	11.7	-3.5
Philippines	-5.6	1.9
United States	-3.4	-3.0

Current Account and Trade Balance

Recall: CA = TB + Income Balance + Net Unilateral Transfers.

- **Argentina**: $\frac{TB}{GDP} > \frac{CA}{GDP} > 0$ because Income Balance < 0. It is a net debtor, so it pays interest to the rest of the world.
- **Ireland**: $\frac{TB}{GDP} > 0 > \frac{CA}{GDP}$ because Income Balance is large, -15.2% of GDP!, as large FDI in the 1990s now send profits abroad.
- **Philippines**: $\frac{TB}{GDP} < 0 < \frac{CA}{GDP}$ because Personal Remittances, which are part of Net Unilateral Transfers, are 13% of GDP! Philippines working in the Middle East and elsewhere sending money home.

Current Account and Financial Account

- Why is the Current Account so important?
- Note that the BoP identity implies: *Current Account* = - *Financial Account* (ignore KA).
- Countries running negative (positive) CA will run positive (negative) financial flow.
- If FA is positive (negative), all other things equal, the net external debt of the country goes up (down)!

Current Account and National Accounting

Review national accounting:

- GDP = Gross National Expenditure + Trade Balance = C + I + G + TB
- GNI (Gross National Income) = GDP + Income Balance
- GNDI (Gross National Disposable Income) = GNI + Net Unilateral Transfers $\Rightarrow$ GNDI = C + I + G + CA
- National Saving = S = GNDI - C - G = I + CA
- Countries can finance investment either by saving or by acquiring foreign funds equal to the current account deficit
  - CA surplus (CA $>$ 0): the country saves more than its investment needs.
  - CA deficit (CA $<$ 0): the country saves less than its investment needs $\Rightarrow$ decrease in the stock of assets!

Taking Stock

- The BoP records the international flows in the CA, FA and KA.
- The CA keeps record of a country's net exports of goods and services and net international income receipts.
- For most countries the TB is the largest component of the CA.
- The CA is intimately related to the country's international asset position.

Outline

Motivation

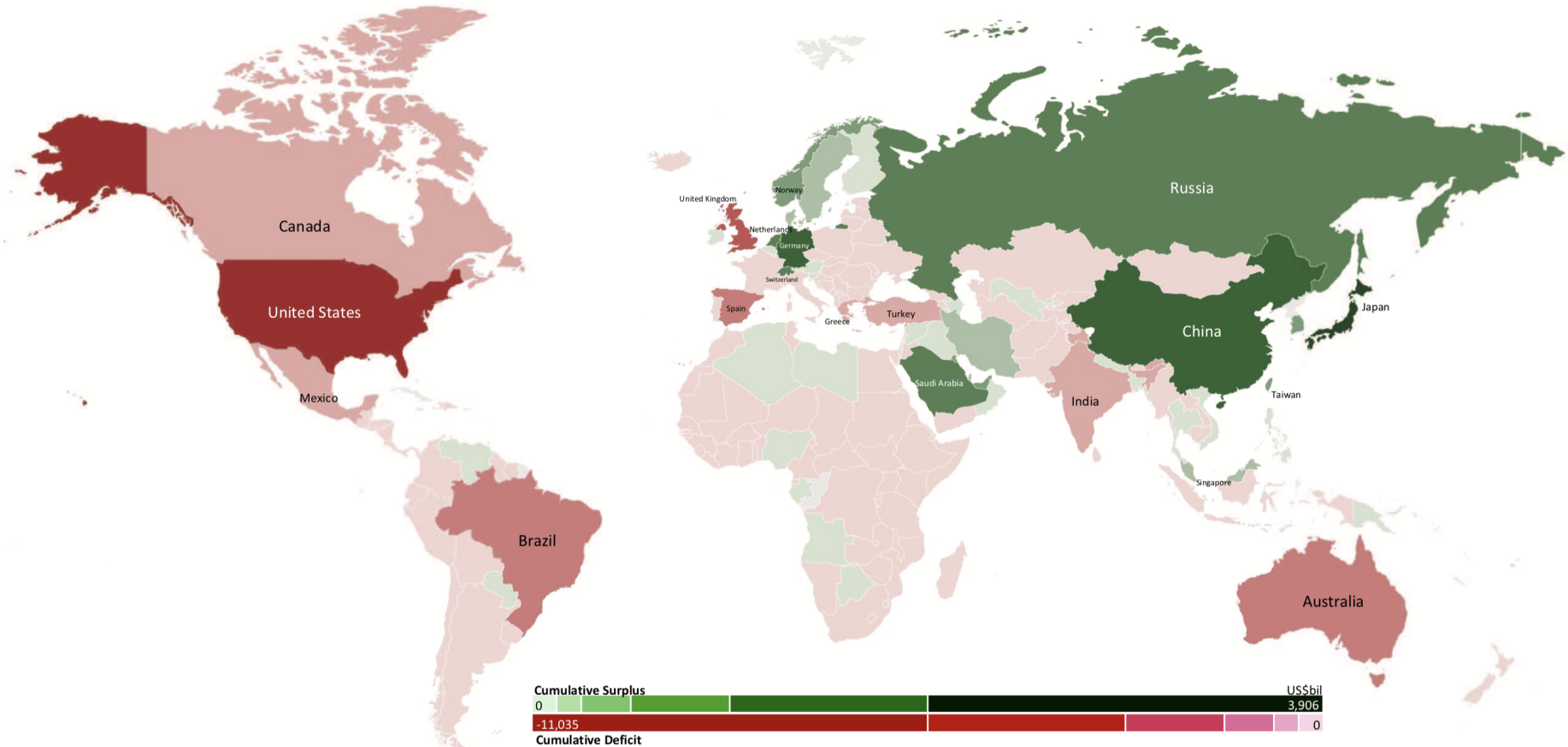
- Countries are running CA deficits for a long time.
- This implies a change in their net asset position.
- What are the consequences of $CA < 0$?
- If the United States is running a large current account deficit, some other countries must be running current account surpluses (China and who else?).

$$CA^{US} + CA^{ROW} = 0$$

- Who is running big current account surpluses?

World Global Imbalance

Figure: Cumulative CA Balances Around the World: 1980-2017, billions of U.S. dollars.

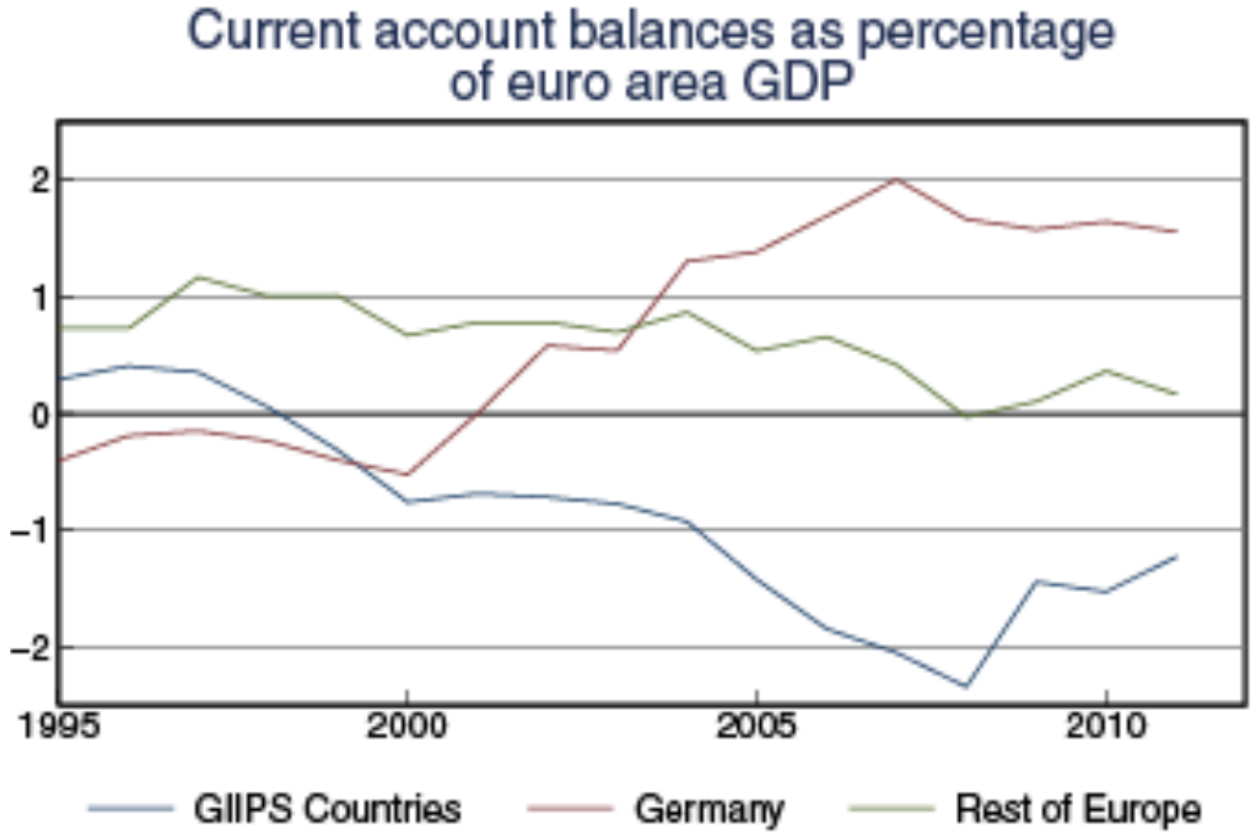


World Global Imbalance

- The map reflects not the current account of countries in a particular year, but the accumulated current accounts between 1980 and 2017.
- Clearly, the country with the biggest accumulated current account deficit (bright red) is the United States.
- The countries that have been financing these deficits (green) are China, Japan, Germany, and oil exporting countries (Russia, members of OPEC, and Norway).
- Overall, the picture is one of unbalanced accumulated trade, with some countries running protracted current account deficits and others running protracted surpluses $\Rightarrow$ **Global imbalances**!

European Imbalance

Figure: Current Account Balances (Percent of euro area GDP)



Notes: GIIPS: = Greece, Ireland, Italy, Portugal, Spain.

Net International Investment Position

- What are the consequences of $CA < 0$?
- A CA deficit must be financed by either reducing the country's international asset position or increased its international liability position or both.
- We will refer to the international asset position as the **Net International Investment Position (NIIP)** (also referred to as the net foreign asset (NFA) position).
- NIIP + Difference between a country's foreign assets (A) and its foreign liabilities (L):

$$\begin{aligned} \text{NIIP} &= \text{A - L} \\ &= \text{Domestic-owned foreign asset - Foreign-owned.} \end{aligned}$$

- If the NIIP is negative, then the country has an external debt, and if the NIIP is positive, the country is a net creditor to the rest of the world.

The Financial Account

- Changes in a country's NIIP are recorded in the financial account:

$$\begin{aligned}\text{Financial Account} = \ & \text{Increase in Foreign-owned assets in Spain} \\ & - \text{Increase in domestic-owned assets abroad.}\end{aligned}$$

- Note that if the FA increases, a country's NIIP falls, since liabilities (L) increase as the financial account increases.
- Recall that a change in the FA is offset by an opposite change in the CA in the balance of payments.

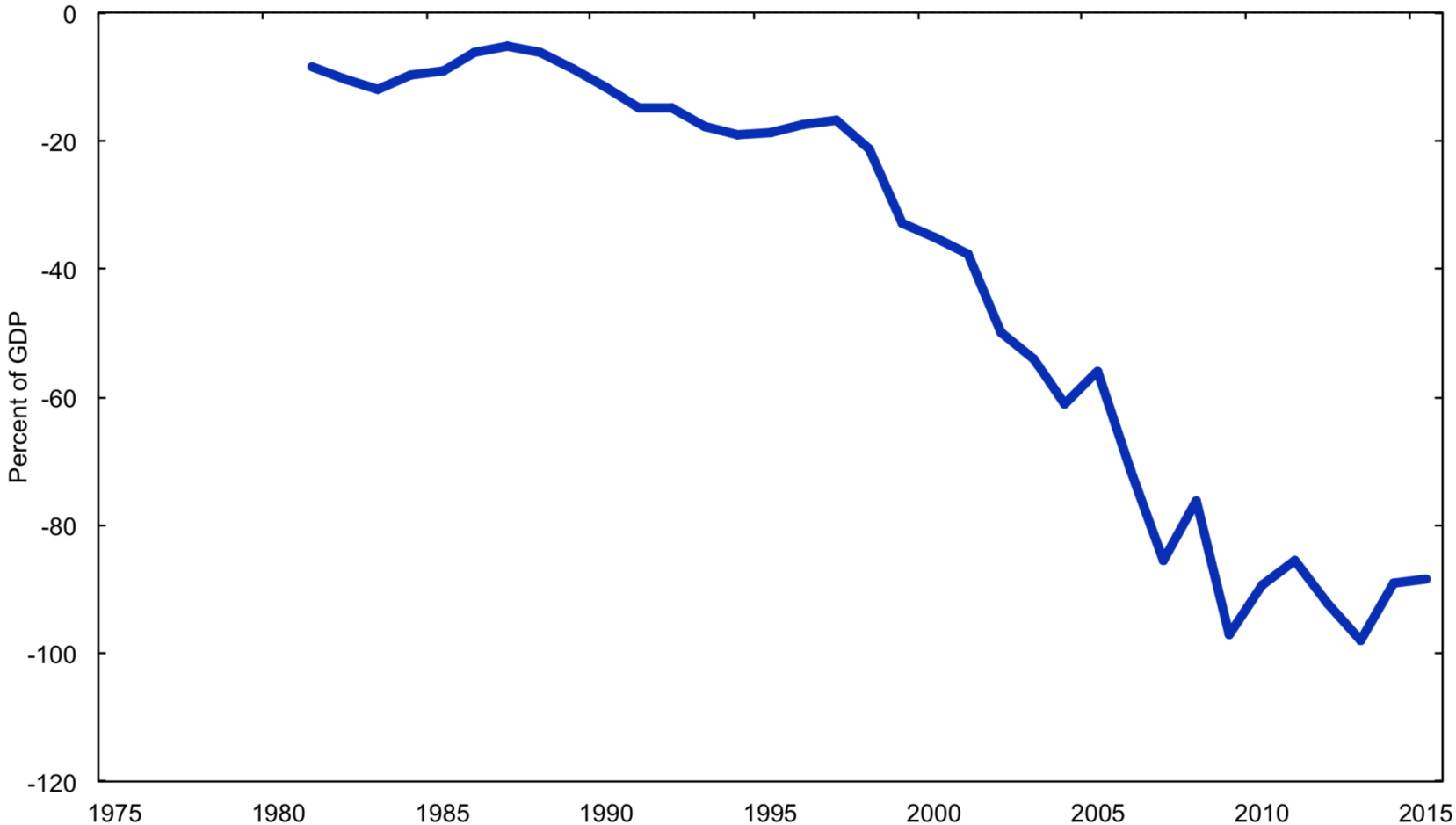
Spanish Net International Investment Position

Spanish NIIP:

- A net external debtor since the late 1980s.
- The NIIP has been falling as a fraction of GDP.
- This debt bottomed out at the end of the boom in the late 2000s, and since the crisis there has been an improvement in the NIIP in levels, while flattening out as a fraction of GDP.

Spanish Net International Investment Position

Figure: The Spanish Net International Investment Position (NIIP) as a Share of GDP: 1981-2015



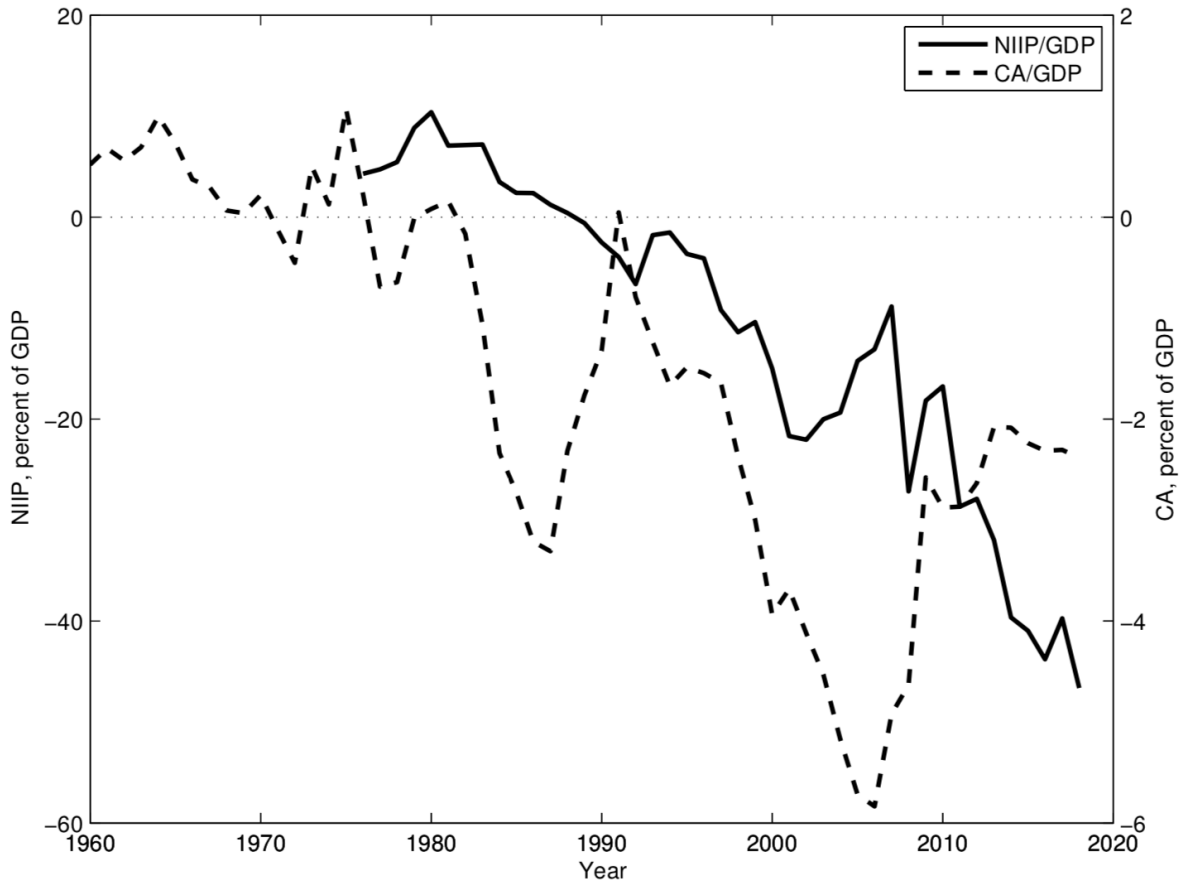
U.S. Net International Investment Position

US NIIP:

- A net creditor of the rest of the world until the late 1980s.
- A net external debtor since the late 1980s.
- The NIIP has been falling as a fraction of GDP.
- In fact in the 1990s the United States became the largest external debtor in the world.

U.S. Net International Investment Position

Figure: The U.S. Current Account and Net International Investment Position: 1976-2018



Driving Forces of the NIIP

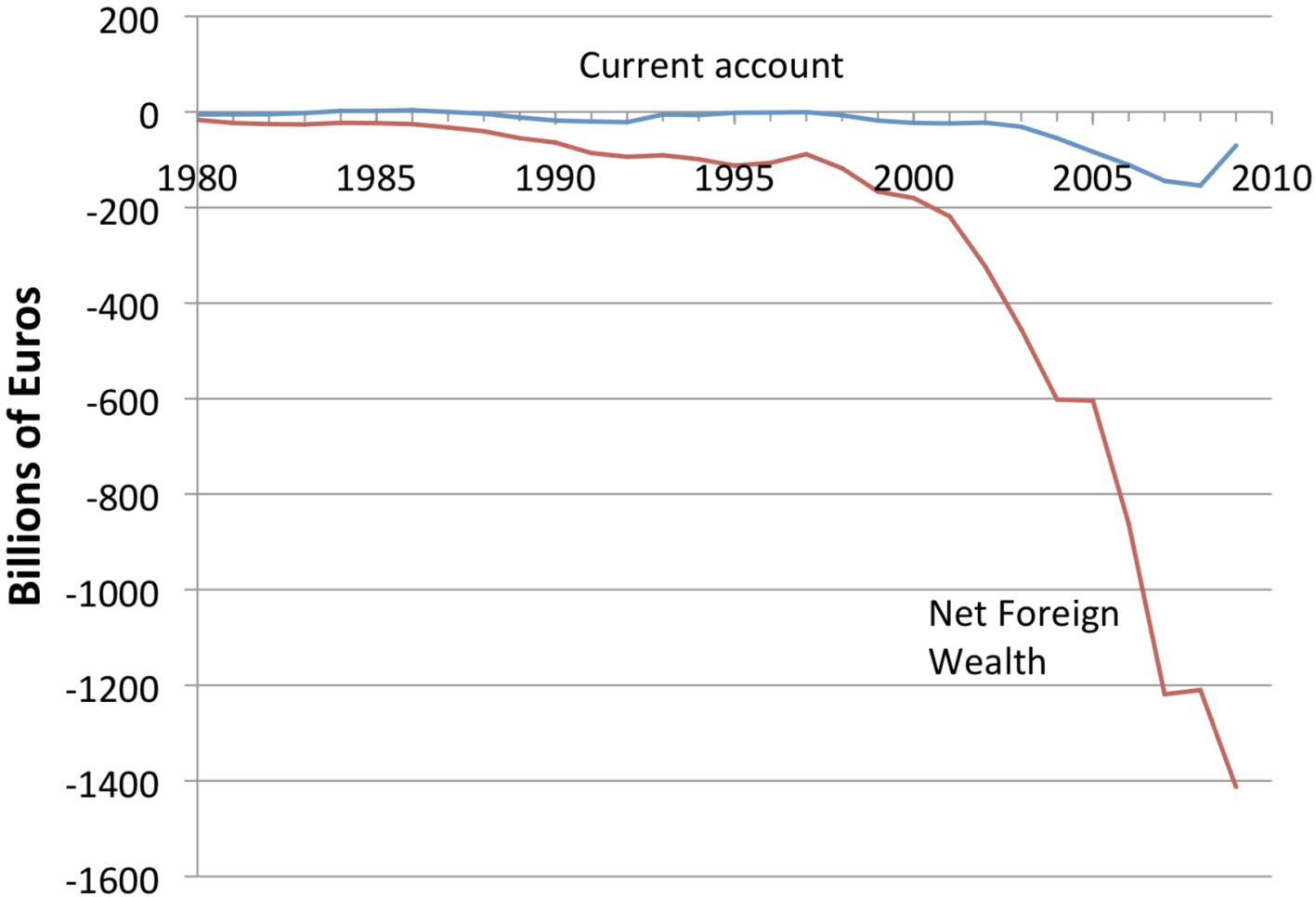
- CA is a flow, NIIP is a stock.
- NIIP is the accumulation of the CA positions over time, but not exactly because of the changes in the prices of the assets over time.
- NIIP changes for 2 reasons:

$$\Delta NIIP = CA + \text{ valuation changes.}$$

- **Valuation Changes:** changes in the market value of the country's foreign asset and liability positions (due to currency appreciations or depreciations, changes in stock prices, etc).

Spanish Net International Investment Position

Figure: The Spanish Net International Investment Position and Current Account: 1980-2009



Valuation Changes

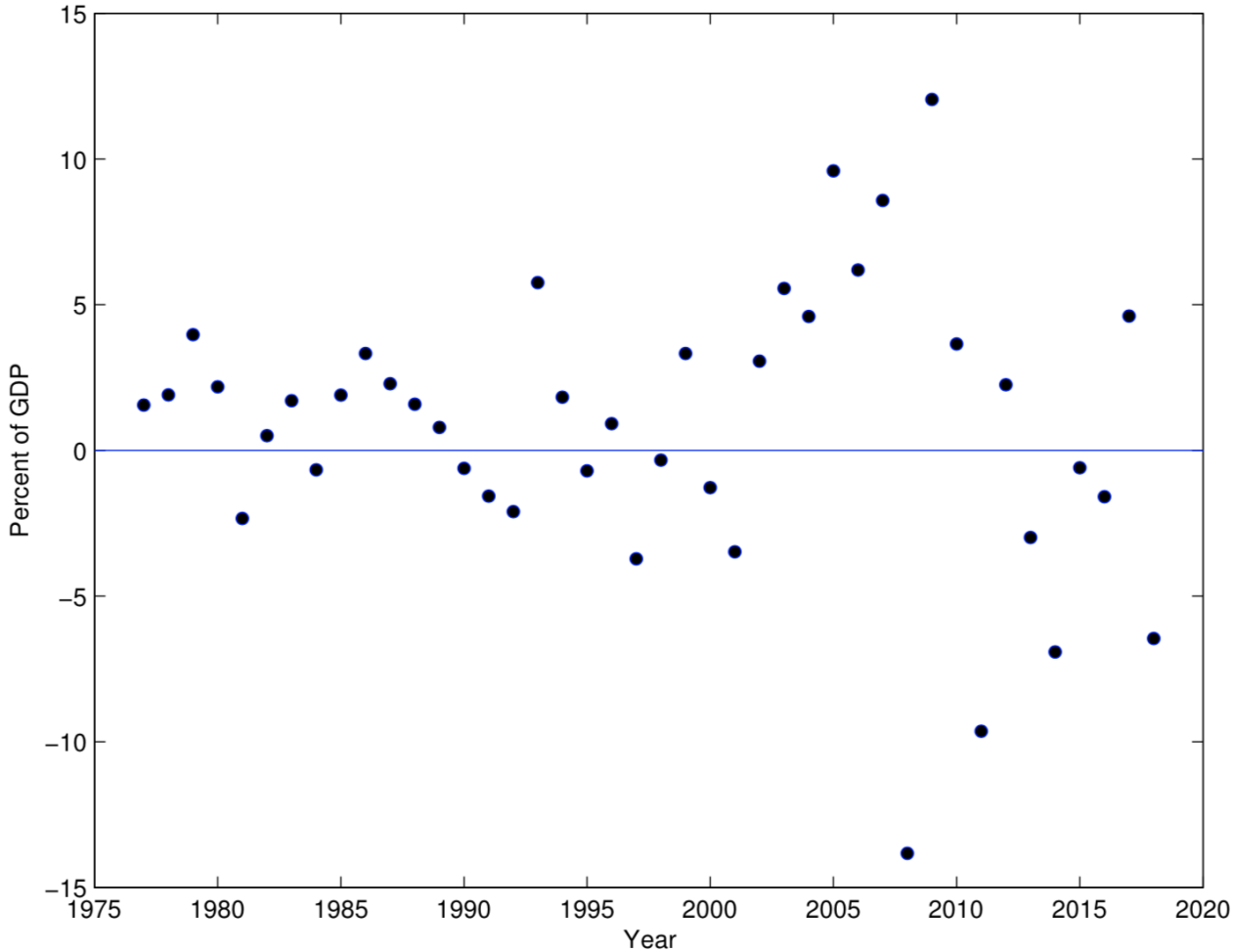
- Although large part of Spain's foreign assets are denominated in Euros, asset prices swings can still be large as it was during 2008 crisis'.
- In the U.S., the decrease in NIIP was largely accounted by the CA deficits. Nevertheless, NIIP can display large swings.
- **Recall:** NIIP = A - L
  - A = assets (U.S.-owned foreign assets)
  - L = liabilities (foreign-owned U.S. assets)
- Suppose U.S. residents hold some German stocks.
  - If there is a depreciation of the Euro, A falls and NIIP deteriorates.
  - If the price of the German stocks increase, A increases and NIIP goes up.

The Importance of Valuation Changes

- How important are changes in asset prices for the NIIP?
- The United States experienced valuation gains much more often than valuation losses, 24 versus 14 times.
- Large valuation changes are a recent phenomenon. Until the year 2003, the typical valuation change was between -1 and +2 percent of GDP.
- Since 2003, however, we have observed valuations changes as large as $\pm 15\%$ of GDP.
- Look at the next figure which plots realized valuation changes since 1976.

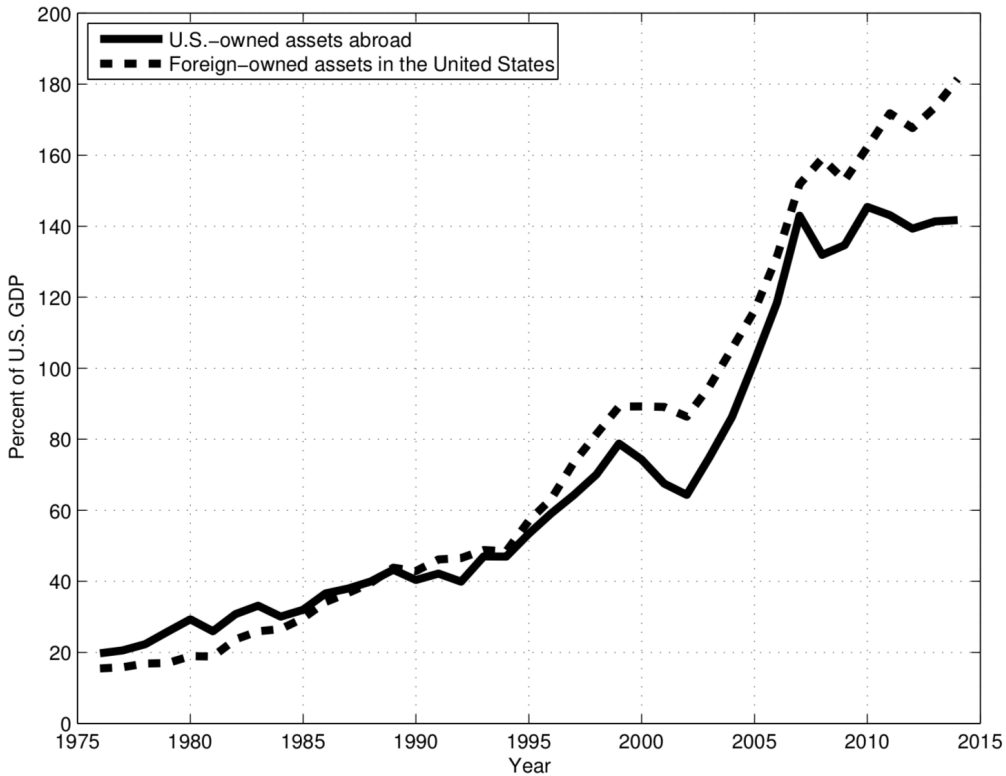
US Valuation Changes

Figure: Valuation Changes as Share of GDP, 1976-2016



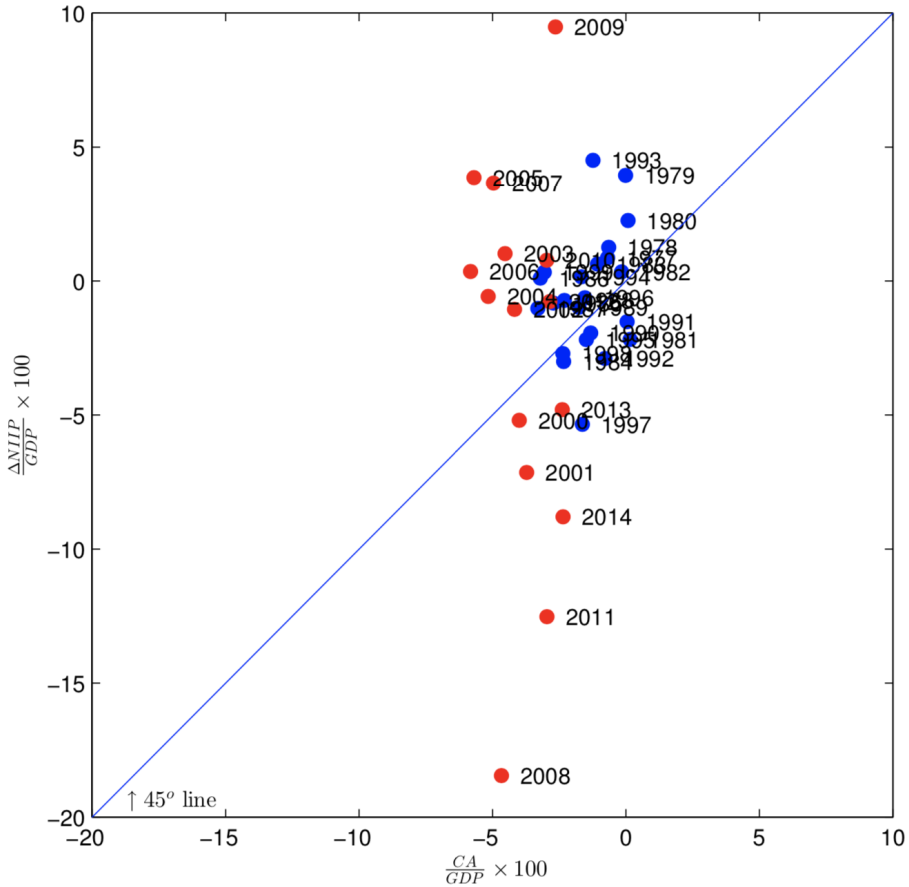
US Valuation Changes

Figure: U.S.-Owned Assets Abroad (A) and Foreign-Owned Assets in the U.S. (L)



- Why have valuation changes become so large lately?
- One reason is that Gross Positions Have Exploded in the 2000s.

The U.S. CA and Changes in the NIIP: 1977-2014



- How important are valuation changes relative to the CA?
- If not important all the dots would be in the 45 degree line $\Rightarrow$ Not the case.

U.S. External Debt and Valuation Changes

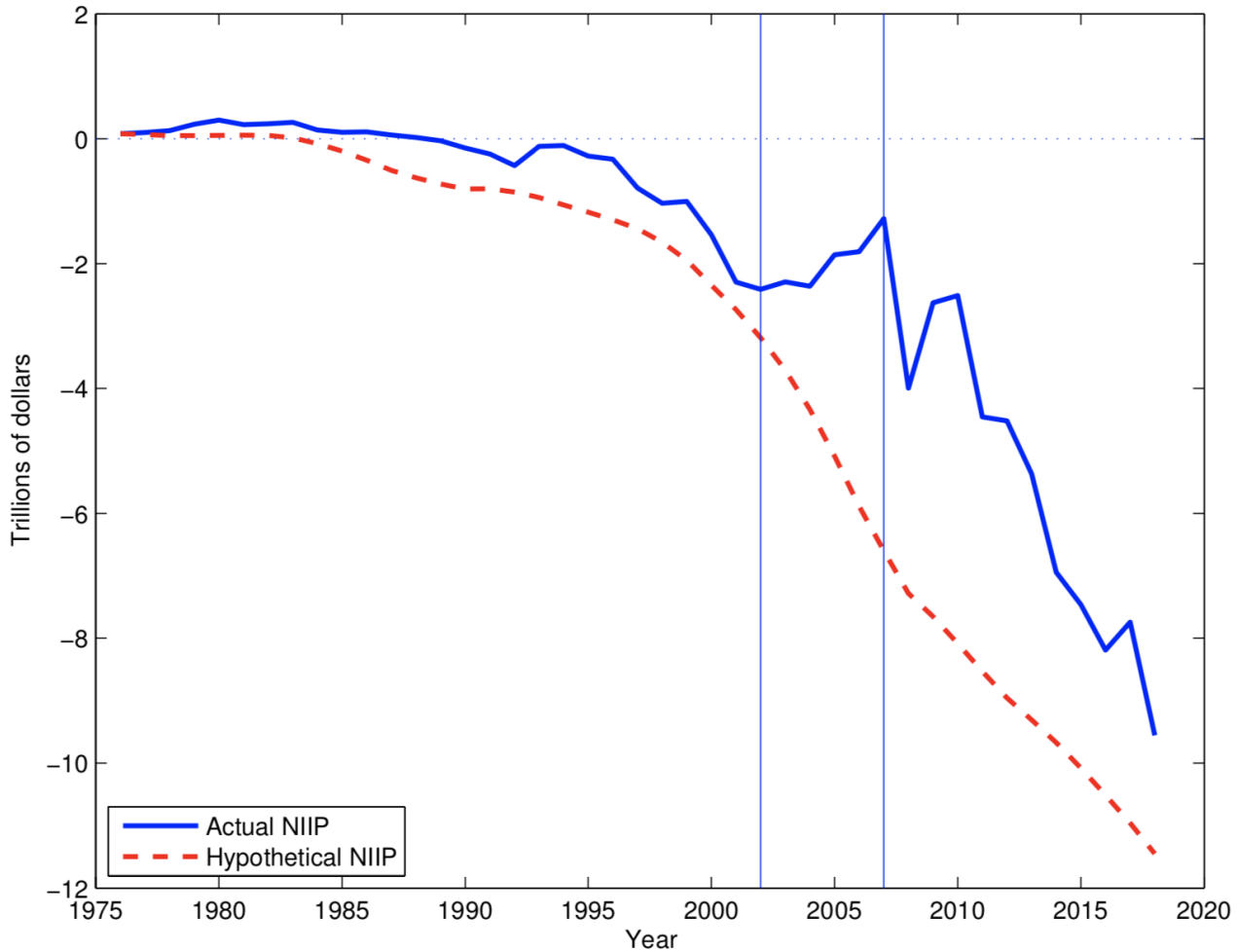
- How big would the U.S. external debt be today if it had not benefited from large positive valuation changes?
- Let's construct a hypothetical NIIP by removing valuation changes from the actual NIIP.
- Start with the $NIIP$ of the initial year, $NIIP_{1976}$, and add all of the CA balances from 1977 until the year of interest:

  hypothetical $NIIP_{2014} = NIIP_{1976} + CA_{1977} + CA_{1978} + ... + CA_{2016}$

- If the U.S. had not experienced large positive valuation changes on average, its external debt in 2014 would have been 9.9 trillion of Dollars (or 57% of GDP) instead of the actual 6.9 trillion (or 40% of GDP).

NIIP and Hypothetical NIIP

Figure: Actual and Hypothetical U.S. NIIPs: 1976 to 2016



The Importance of Valuation Changes

In the Pre-Crisis Period: 2002-2007:

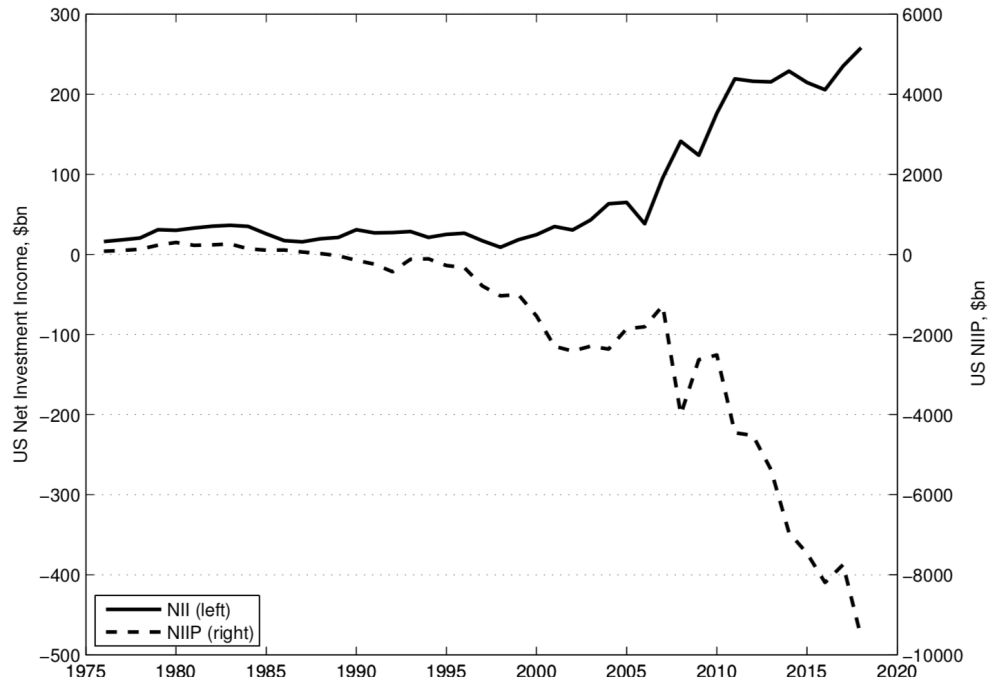
- Accumulated current account deficits: 4 trillion (or 32% of GDP)
- Change in the Net International Investment Position: +0.1 trillion.
- In spite of large CA deficits, the U.S. reduced its external debt. How did this happen?
  - **Large depreciation of the U.S. dollar (20%).** Most of the U.S. foreign liabilities are in dollars, whereas most of the U.S. holdings of foreign assets are in foreign currency.
  - **Large gains from stock market:** \$1 invested in foreign stock markets in 2002 returned \$3 by 2007, whereas \$1 invested in the U.S. stock market in 2002 yielded \$2 in 2007.

The Negative-NIIP-Positive-NII Paradox

- Suppose you had a negative balance on your credit card.
- Would you expect to receive interest payments from your credit card company or to have to make payments to your credit card company? Probably the latter.
- Well, that is not what happens with the United States. Even though the U.S. is the **largest external debtor** in the world, it **receives** investment income from the rest of the world.
- How can this paradoxical situation happen? Here are two suggested explanations:
  - **Dark Matter**
  - **Return Differentials**
- We will focus on the second one.

Positive Net Investment Income And Negative NIIP: A Paradox?

Figure: Net Investment Income and the Net International Investment Position, United States 1976 to 2016



Data Source: BEA, bea.gov, ITA, Table 1.1., (December 19, 2017 release).

- **NII:** income receipts on U.S. owned assets abroad minus income payments on foreign-owned assets in the United States.
- **NIIP:** net foreign wealth of the United States.

Explaining the NII-NIIP Paradox: Return Differential

- This explanation is motivated by the observation that the gross international asset position of the U.S. is mostly composed of risky but high-return assets, such as foreign stocks.
- Whereas its gross international liability position is composed of safer low-return assets, such as U.S. T-bills.
- Back to the NIIP equation: $NIIP = A - L$. Let the r^A and r^L be the return on A and L.
- How large does the interest rate differential on assets and liabilities, $r^A - r^L$, have to be to explain the paradox?
- Note that: $NII = r^A A - r^L L$.

Explaining the NII-NIIP Paradox: Return Differential

Let's put some numbers.

- In 2018, the U.S. gross international asset position was \$25.3 trillion, and its gross international liability position was \$34.8 trillion.
- The average real rate of return on U.S. T-bills, which we will use as a proxy for r^L, was low, 2.25% $\Rightarrow A = 25.3$ $L = 34.8$ $NII = 0.2581$ $r^L = 0.0225$.
- Use the $NII = r^A A - r^L L$ equation to find $r^A \Rightarrow r^A = 0.0412$.
- Hence, the interest rate differential between the U.S. foreign assets and liabilities of $r^A - r^L = 1.9\%$ per year. This does not look like an **exorbitant premium**.

Explaining the NII-NIIP Paradox: Return Differential

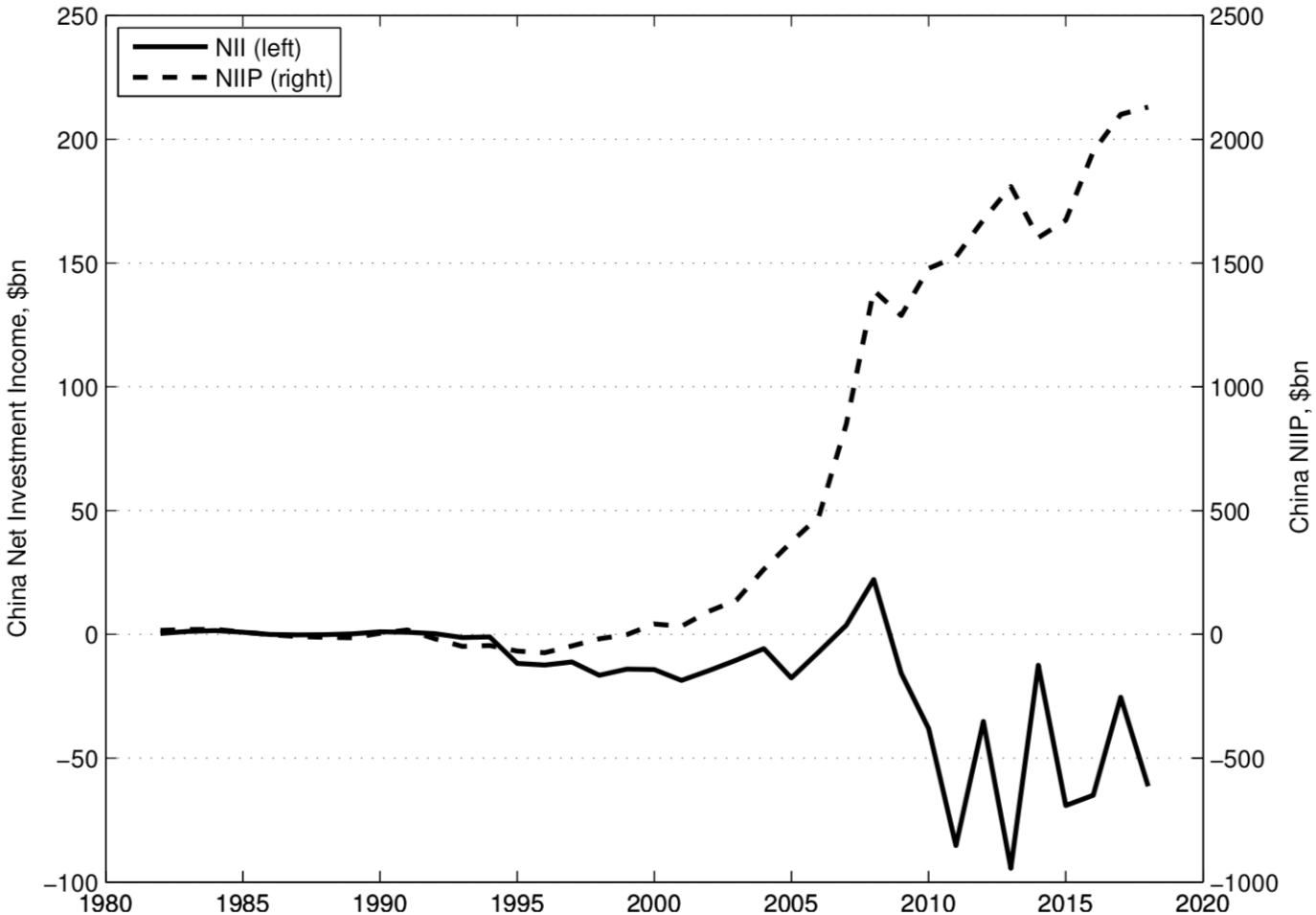
- Why is it that a relatively small interest rate differential suffices to explain the NII-NIIP paradox?
- Recall that gross asset and liability positions of the U.S. have become very large relative to the net position (A = 25.3, L = 34.8).
- They have roughly doubled every decade (we seen the picture already).
- Hence, just a relatively small rate of return differentials can lead to a positive NII even though the NIIP is negative.

Explaining the NII-NIIP Paradox: Return Differential

- Gourinchas and Rey (2007) shows that the U.S. has a positive interest rate differential in every class of asset (Equity, Debt, FDI) and that accounts for most of the differences in return.
- However, the **composition** effect has been increasing its importance: the U.S. is becoming the "venture capitalist to the world" and is increasing the share of high return assets such as Equity and FDI.
- **The Flip Side of the Paradox:** if the U.S. has $NII > 0$ and $NIIP < 0$, then at least one country in the world must have $NII < 0$ and $NIIP > 0$.
- A natural candidate is China. This country holds large amounts of U.S. government bonds, which are safe, earn low return.

China NIIP

Figure: Net Investment Income and the Net International Investment Position, China 1982 to 2015



Taking Stock

- Spain ran CA deficits until 2012, peaking in 2008. The U.S. has been running large CA deficits since the early 1980s.
- **Global Imbalances:** Some countries, like the Spain, are large debtors and some, like Germany, are large creditors.
- What are the consequences of $CA < 0$? It deteriorates a country's net international investment position $NIIP = A - L$.
- Another source of changes in NIIP is valuation changes from asset prices. Valuation changes became large since the early 2000s.
- Paradoxically, the United States has a negative NIIP and positive net investment income (NII). We use the interest rate differential to explain this paradox.