

Chapter 17 & 18

Trade & capital flows

18

Open-Economy Macroeconomics: Basic Concepts



Trade, net exports (NX) and capital flows

- What happens we trade not just goods and services but also assets (lend to and borrow for other countries)
 - What happens when we borrow from China?
 - What happens when we invest in China (FDI)
- What is the role of interest rates and exchange rates in international asset movements
- How are goods and assets markets related? Answer: real vs. nominal exchange rates.
- What is “purchasing-power parity” how can we compare economies GDP and income per person (do we care about being the largest economy in world?).

Introduction

- One of the Ten Principles of Economics: *Trade in goods and services can make everyone better off... but should we (the USA) borrow or lend (as a nation)? Why invest in other countries, or have them invest here (borrow money from them?) some benefits:*
- Asset diversification (Japan, emerging markets, commodity exporters)
- Our companies make money investing in factories stores in other countries (Apple, Walmart, IBM, McDonalds, etc.)
- Some countries may have more savings and lower interest rates than ours (so why not borrow from them)
- Factories in other countries makes it easier to trade with them (e.g., foreign car companies in the Southern states)

Closed vs. open trade vs. capital accounts

- A **closed capital account** country trades goods and services with other economies, but its trade account is always balanced ($NX = 0$) this means capital (savings) cannot flow in or out of our country (our NCO or CA = 0)
- An **open capital account country** can have positive or negative net exports, when capital flows out or into the country.
- **Open capital account:** If $NX > 0$ a trade surplus capital/savings flows out of the U.S. of if $NX < 0$ a trade deficit capital flows into the U.S.

The Flow of Goods & Services

- **Exports**: goods we sell are sold to other countries, Boeing planes, Caterpillar tractor, but services almost as important: advertising, movies, Walmart, McDonalds...
- **Imports**: we import foreign-produced goods and services: NIKE shoes, All Applie products call centers (customer service).
- **But we can do all of the above and have Net exports (NX=0) trade balance** (exports= imports)

Figure 8: Trade deficit is not always what it appears ([Fallows, 2010](#) & [ADBI.2010](#))

A product of global trade

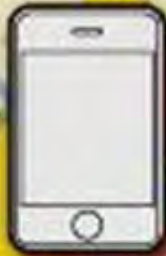
According to estimates from a research paper, Apple's iPhone added \$1.9 billion to the U.S. trade deficit with China last year

Parts come from many countries to be assembled in China...

Value of iPhone components and labor*

- Japan: 34%
- Germany: 17%
- South Korea: 13%
- China: 3.6%
- Others: 27%

\$178.96



U.S.: 6%

... but the entire value of the iPhone counts against the U.S. trade deficit with China.

2009 U.S. trade balance in iPhones

Traditional approach

Value-added approach



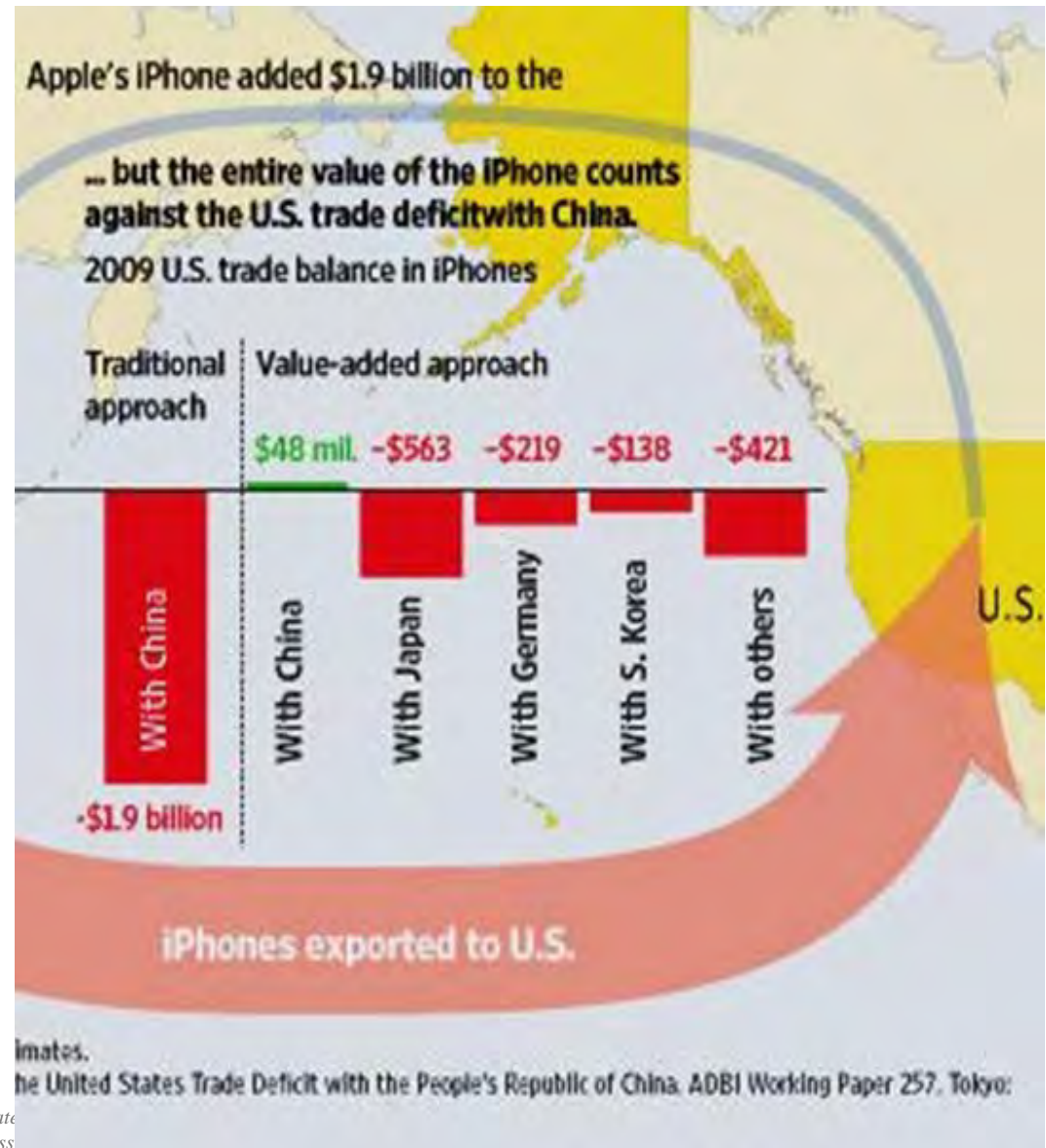
iPhones exported to U.S.

* Figures don't add up to 100% due to rounding. Figures are estimates.

Source: Xing, Y., and N. Detert. 2010. How the iPhone Widens the United States Trade Deficit with the People's Republic of China. ADBI Working Paper 257. Tokyo: Asian Development Bank Institute.

Figure 8: Trade deficit is not always what it appears ([Fallows, 2010](#) & ADBI)

It appears that importing iPhones from China created a \$2 billion U.S. trade deficit, but this is largely an accounting illusion: value added is what matters and China's share of iPhone VA is small



The smiley curve (Fallows, 2010 & ADBI) assembly is low VA activity

- China earns just 4% of the cost of a manufactured Iphone (U.S. gets 6% this means the Iphone generates a trade surplus for us, the U.S.).
- Japan, Germany, South Korea & others get 91%
- Remember the smiley curve



Whose VA is in the iPhone?

1. U.S. exports \$10.75 worth of components to China per iPhone, and then Apple pays Foxconn \$6.50 per iPhone to assemble the phone, so the trade deficit actually may be a trade surplus (why do we say “maybe”?).

2. What does this say about plants that assemble BMWs, Toyotas, Hondas, Mercedes etc. in the U.S.? Are they really eliminating the U.S. trade deficit with Japan or Germany?

Source: [ADBI, 2010](#)

Table 1: Apple iPhone 3G's Major Components and Cost Drivers

Manufacturer	Component	Cost
Toshiba (Japan)	Flash Memory	US\$24.00
	Display Module	US\$19.25
	Touch Screen	US\$16.00
Samsung (Korea)	Application Processor	US\$14.46
	SDRAM-Mobile DDR	US\$8.50
Infineon (Germany)	Baseband	US\$13.00
	Camera Module	US\$9.55
	RF Transceiver	US\$2.80
	GPS Receiver	US\$2.25
	Power IC RF Function	US\$1.25
Broadcom (US)	Bluetooth/FM/WLAN	US\$5.95
Numonyx (US)	Memory MCP	US\$3.65
Murata (Japan)	FEM	US\$1.35
Dialog Semiconductor (Germany)	Power IC Application Processor Function	US\$1.30
Cirrus Logic (US)	Audio Codec	US\$1.15
Rest of Bill of Materials		US\$48.00
Total Bill of Materials		US\$172.46
Manufacturing costs		US\$6.50
Grand Total		US\$178.96

Source: Raswalek (2009).

Apple makes a substantial profit on iPhones which it uses to pay geniuses (employees & Shareholders....)

Keep in mind, this is from four years ago, perhaps the Iphone 3 or 4 perhaps, today an Iphone 5s is \$750 and the 5c is \$450 with no contract, manufacturing costs may be higher since wages have doubled in China over the past five years
source: [ADBI, 2010](#)

Table 3: Profit Margin of iPhones

	2007	2008	2009
Unit Price*	US\$600	US\$500	US\$500
Unit manufacturing costs*	US\$229	US\$174.33	US\$178.96
Profit margin**	US\$371	US\$325.67	US\$321.04
Profit Margin (%)**	62	65	64

Sources: Supply; **Calculated by the author.

ACTIVE LEARNING 1

Variables that affect NX

What do you think would happen to U.S. net exports if:

- A.** Canada experiences a recession (falling incomes, rising unemployment)
- B.** U.S. consumers decide to be patriotic and buy more products “Made in the U.S.A.”
- C.** Prices of goods produced in Mexico rise faster than prices of goods produced in the U.S.

ACTIVE LEARNING 1

Answers

A. Canada experiences a recession
(falling incomes, rising unemployment)

U.S. net exports would fall
due to a fall in Canadian consumers'
purchases of U.S. exports

B. U.S. consumers decide to be patriotic and
buy more products “Made in the U.S.A.”

U.S. net exports would rise
due to a fall in imports

ACTIVE LEARNING 1

Answers

C. Prices of Mexican goods rise faster than prices of U.S. goods

This makes U.S. goods more attractive relative to Mexico's goods.

Exports to Mexico increase,
imports from Mexico decrease,
so **U.S. net exports increase.**

What determines net exports

- **Consumers' preferences** for foreign and domestic goods (Honda vs. Chevy vs. Toyota vs. Kia vs. Fiat*)
- *Prices of goods abroad vs. here and* the exchange rate: Boeing vs. Airbus the Euro dollar rate
- **Incomes of consumers** at home and abroad: China now has a large rapidly growing middle class
- **Transportation costs** (steam ships then containers).
- **Government policies** (taxes on profits, tariffs and quotas) see Tariffs and the single mom.

Peru has Chinese cars, poor quality? Who owns Volvo & Lenovo?

Trade Surpluses & Deficits

NX measures the imbalance in a country's trade in goods and services.

- **Trade deficit:** imports $>$ exports
- **Trade surplus:** exports $>$ imports
- **Balanced trade:** exports = imports
- **The Current Account** = Net Capital Outflows or Inflows is $NX + \text{debt service } (i^*D) + \pi^*FDI$

The Flow of Capital

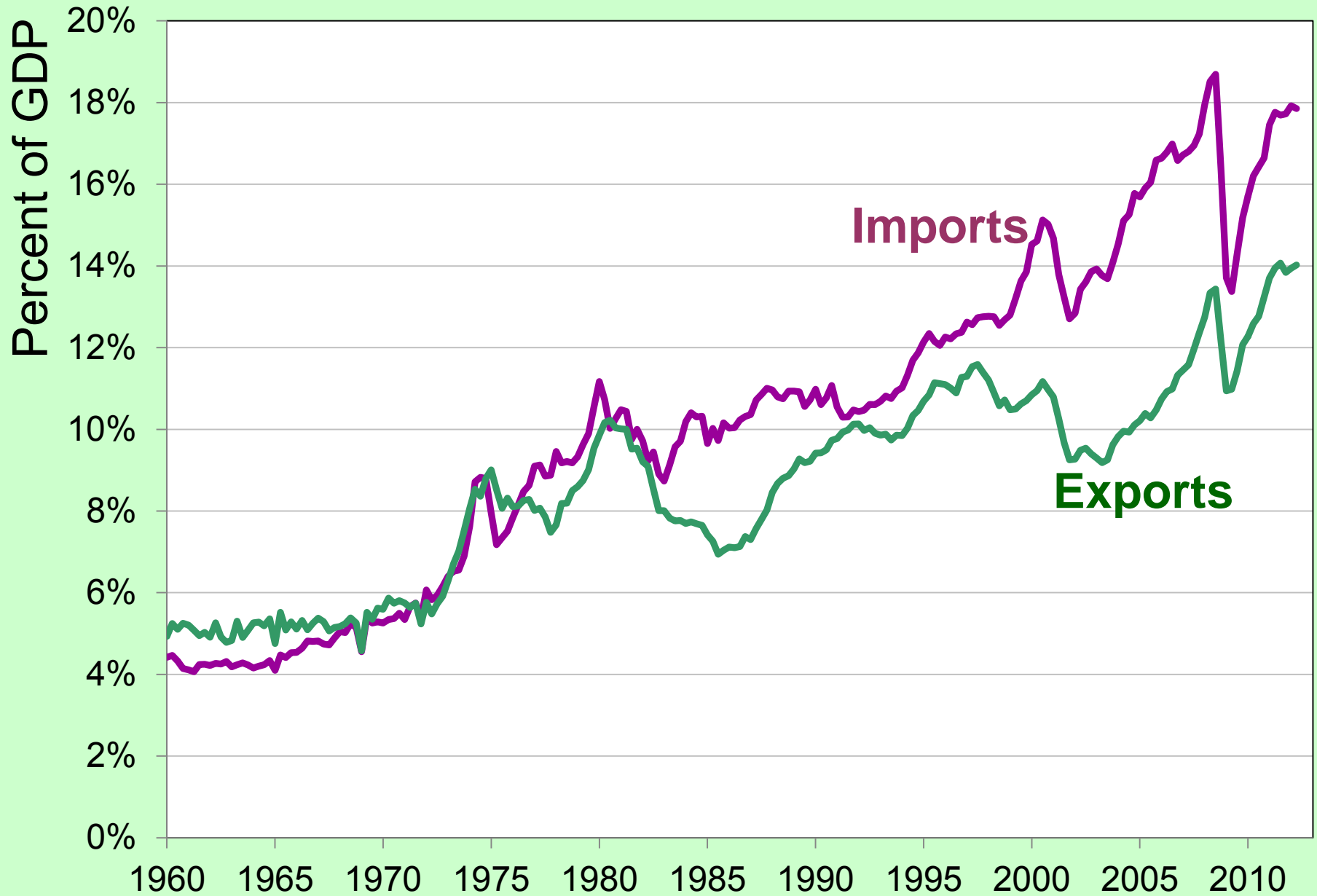
- **Net capital outflow (NCO)**: domestic residents' purchases of foreign assets minus foreigners' purchases of domestic assets **NCO** or Capital = the CA is also called **net foreign investment**.

What is the U.S. (our) net international investment position? Typically? Right now?

NX measures the imbalance in a country's trade in goods and services.

- ***NX* negative or a Trade deficit** (imports > exports) borrowing abroad or using savings.
- ***NX* > 0 a trade surplus**: When?
- **Balanced trade**: $X = IM$ yes/no, almost never
- **The Current Account Deficit or surplus?**
(circle one) does the U.S. pay debt service (i^*D) and earn profits on its FDI? (π^*FDI)
- **So is U.S. GNP > GDP** (an overall net debtor?)

The U.S. Economy's Increasing Openness



The Flow of Capital

The flow of capital abroad takes two forms:

- 1. Foreign direct investment:** Domestic residents actively manage the foreign investment, e.g., Walmart/McDonalds opens a store/restaurant in Mexico, China or France
- 2. Foreign portfolio investment:** Domestic residents purchase foreign stocks or bonds, supplying “loanable funds” to a foreign firm.
- 3.** To hedge U.S. risk buy stocks of Multinationals (#1) or emerging market ETFs (#2 weighted?) or, marry an immigrant (25% foreign? Perhaps 33%)

The Flow of Capital

NCO measures the imbalance in a country's trade in assets:

- When **NCO** > 0 , “capital outflow”
Domestic purchases of foreign assets exceed foreign purchases of domestic assets.
- When **NCO** < 0 , “capital inflow”
Foreign purchases of domestic assets exceed domestic purchases of foreign assets.

Variables that Influence NCO

- Real interest rates paid on foreign assets
- Real interest rates paid on domestic assets
- Perceived risks of holding foreign assets
- Government policies affecting foreign ownership of domestic assets

The Equality of NX and NCO

- Accounting identity: $CA = NCO = NX + \text{debt service}$ every transaction that affects NX also affects NCO by the same amount
When a foreigner purchases a good from the U.S.,
 - U.S. exports and NX increase the foreigner pays with currency or assets, so the U.S. acquires some foreign assets, causing NCO to rise.

Saving, Investment, and International Flows of Goods & Assets

$$Y = C + I + G + NX \quad \text{accounting identity}$$

$$Y - C = T + S \quad \text{and if } G = T \text{ then } Y - G - T = S$$

$$Y - C - G = I + NX \quad \text{rearranging terms}$$

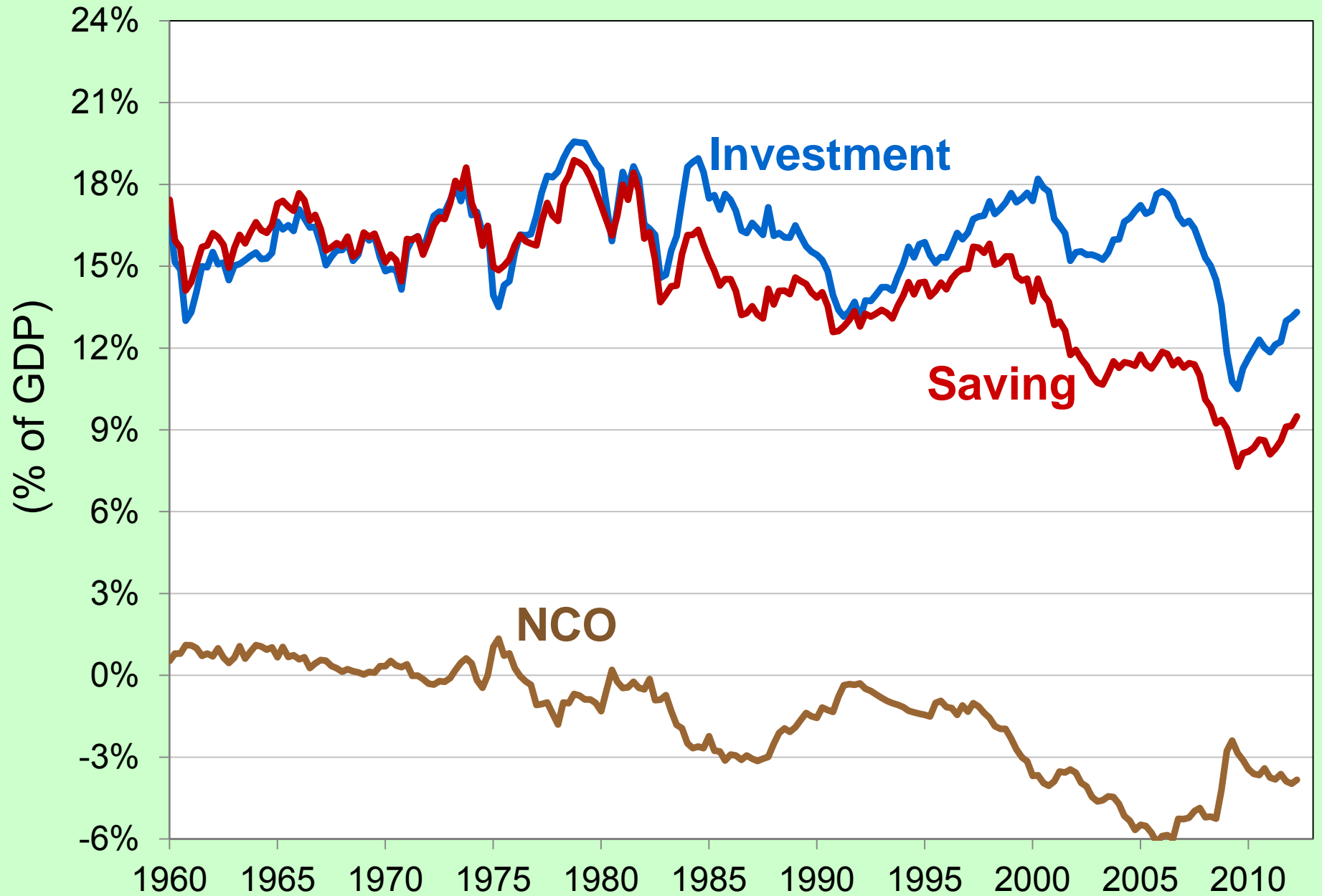
$$S = I + NX \quad \text{since } S = Y - C - G$$

$$S = I + NCO \quad \text{since } NX = NCO$$

$$S = I + CA \quad \text{since } NCO = CA$$

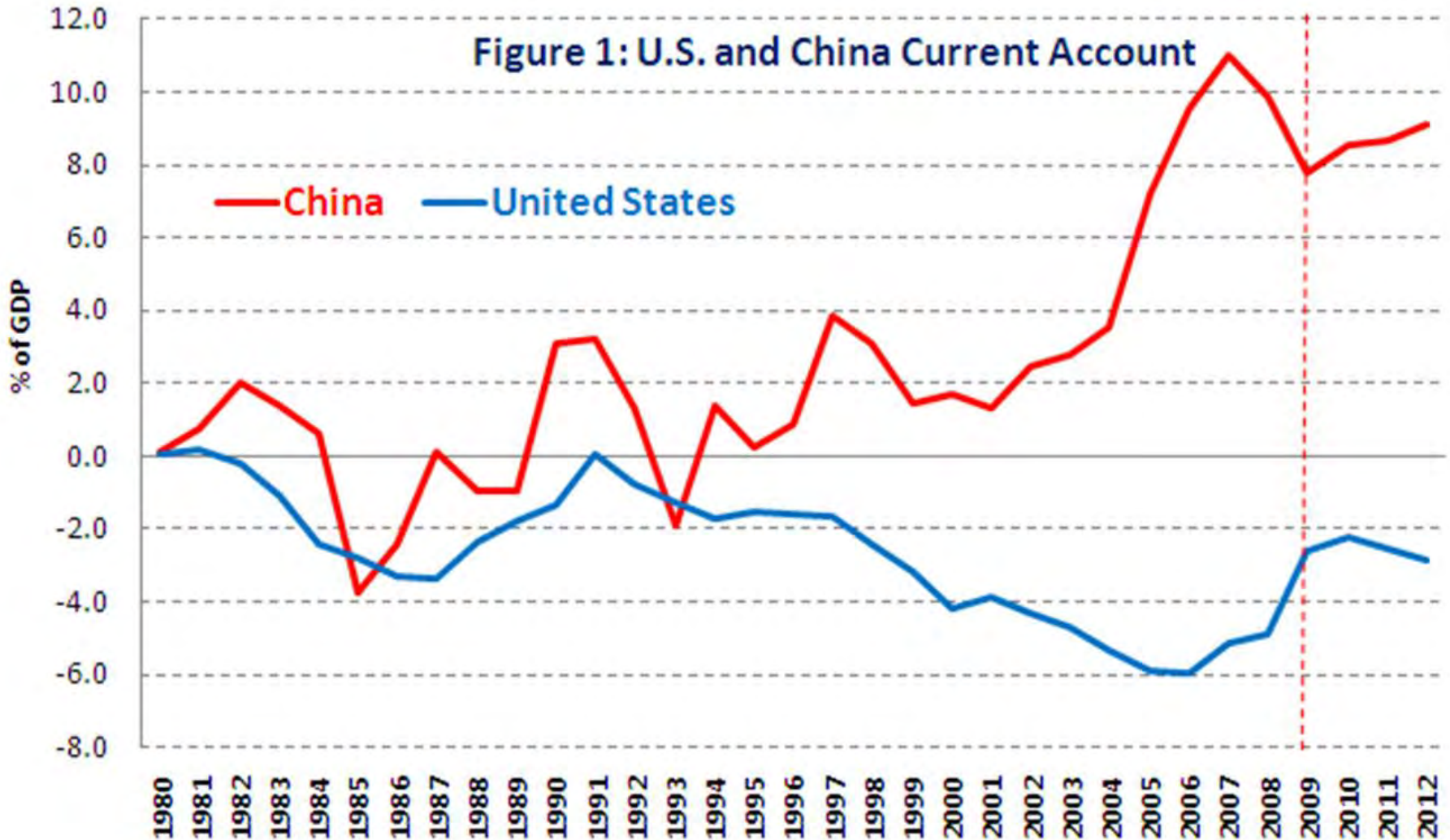
- When $S > I$, the excess loanable funds flow abroad in the form of positive net capital outflow.
- When $S < I$, foreigners are financing some of the country's investment, and $NCO < 0$.

U.S. Saving, Investment, and NCO, 1950–2012



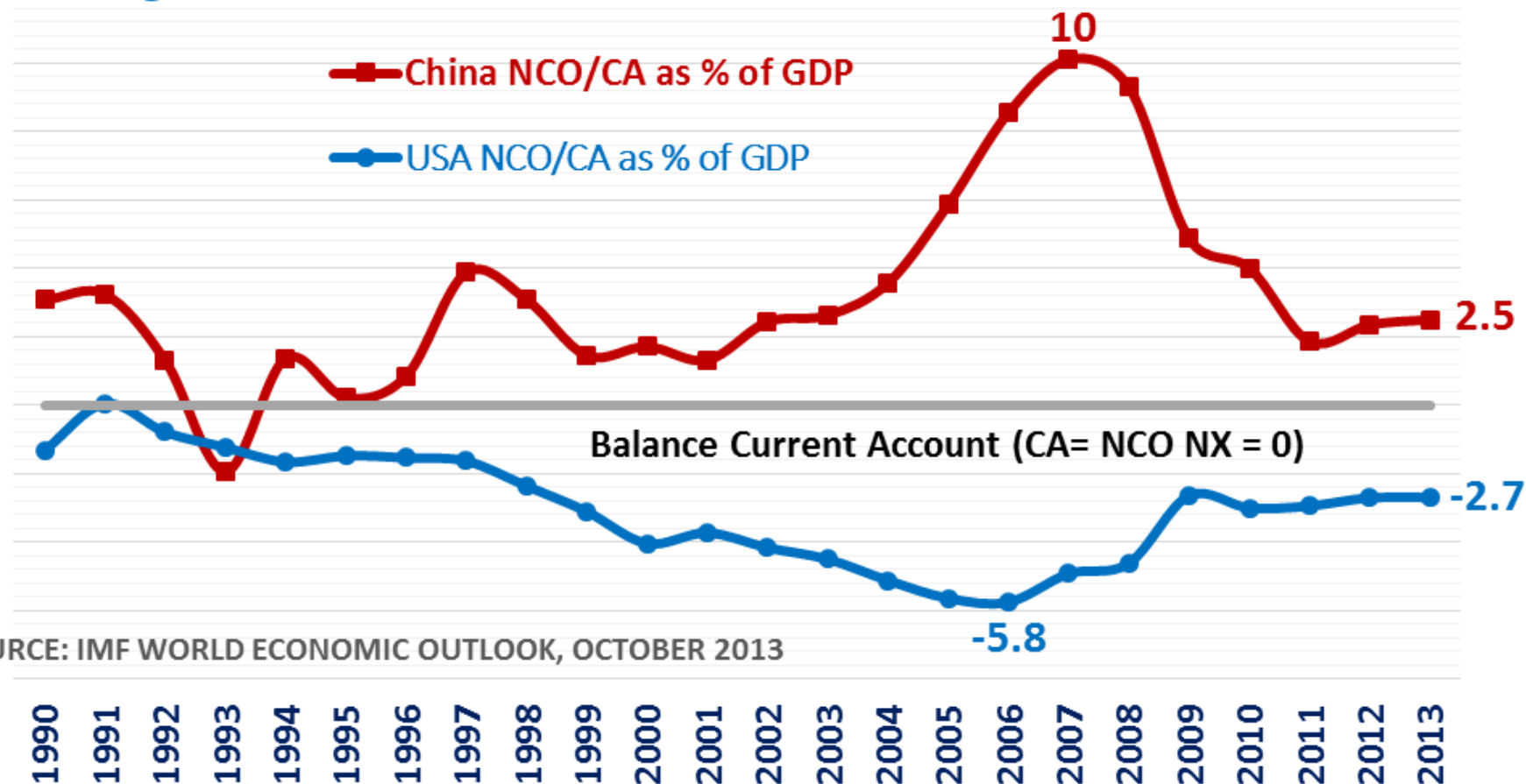
U.S.(borrower) and China (lender?) CA imbalances widened after 1995... Narrowed recently (see [Victoria Stillwell, Bloomberg](#))

Figure 1: U.S. and China Current Account



U.S.(borrower) and China (lender?) CA imbalances widened after 1995... Narrowed recently (see [Victoria Stillwell, Bloomberg](#))

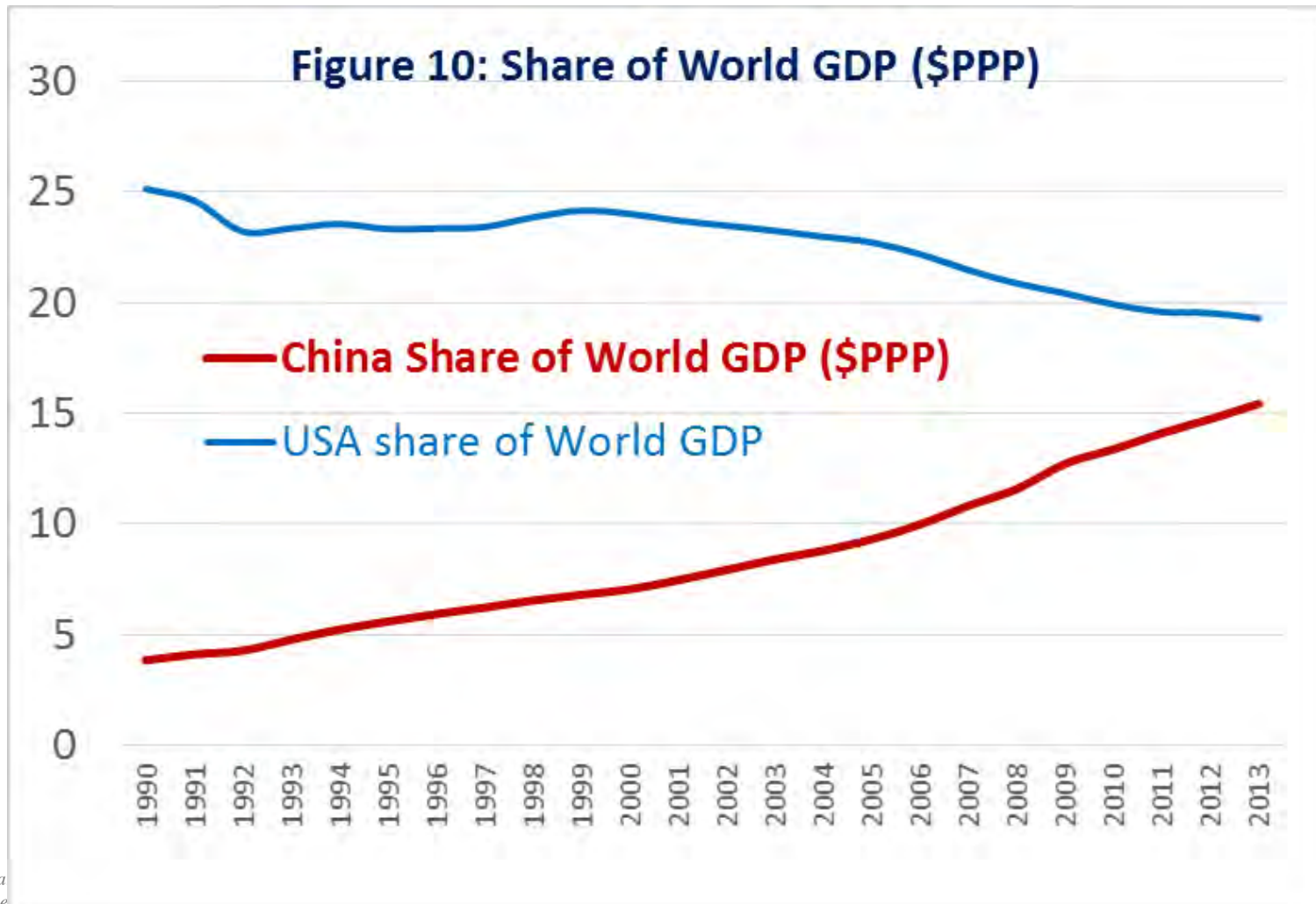
Figure 9 China & U.S. NCO/CA Current Account %GDP



SOURCE: IMF WORLD ECONOMIC OUTLOOK, OCTOBER 2013

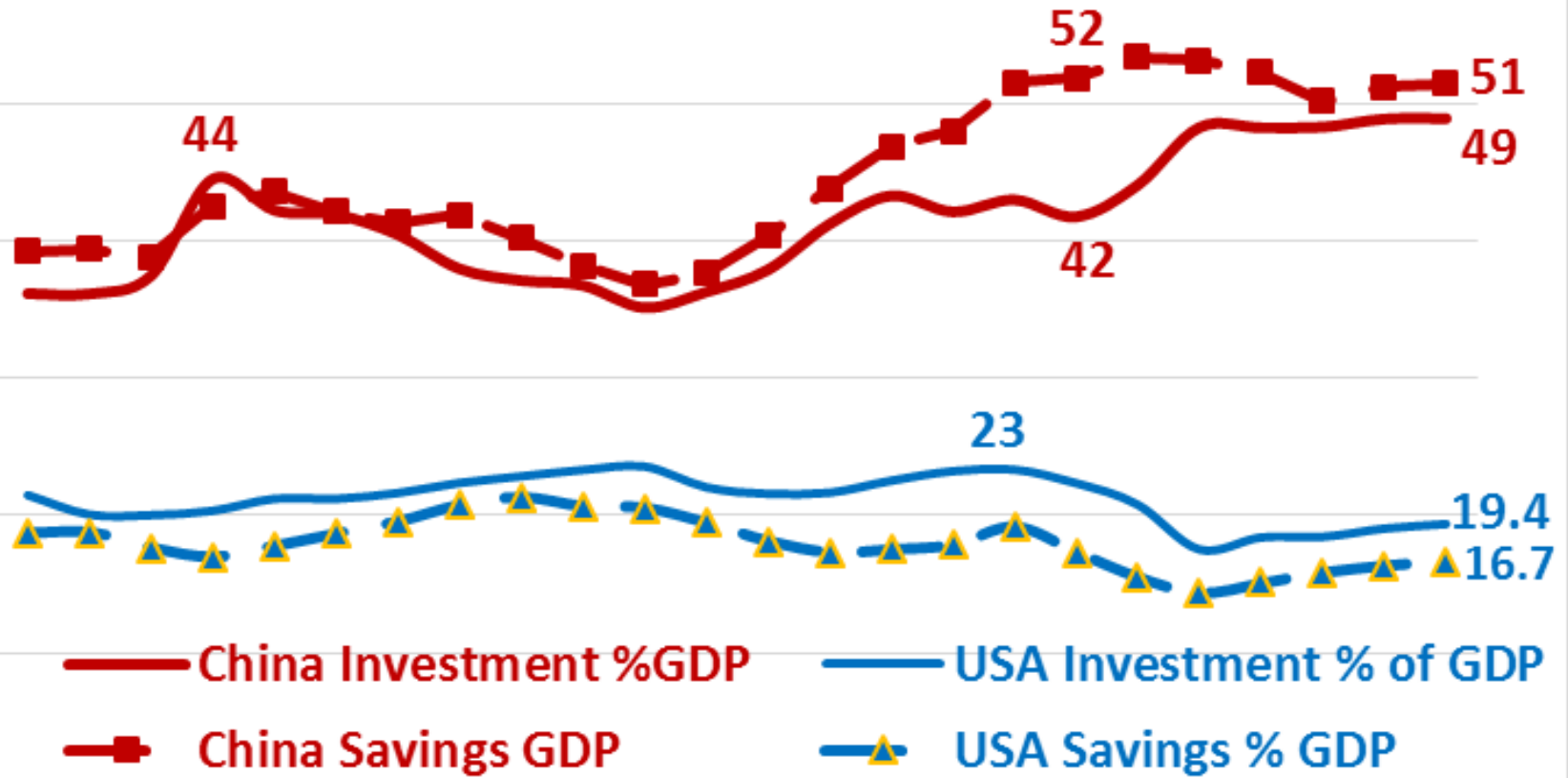
China and the U.S. are “large” economies

See Hans Rosling video on the rise of Asia, China will catch up to us in GDP per person on July 28th 2048 (his 100th BD)



NCO and the CA is the difference between S and I in each country

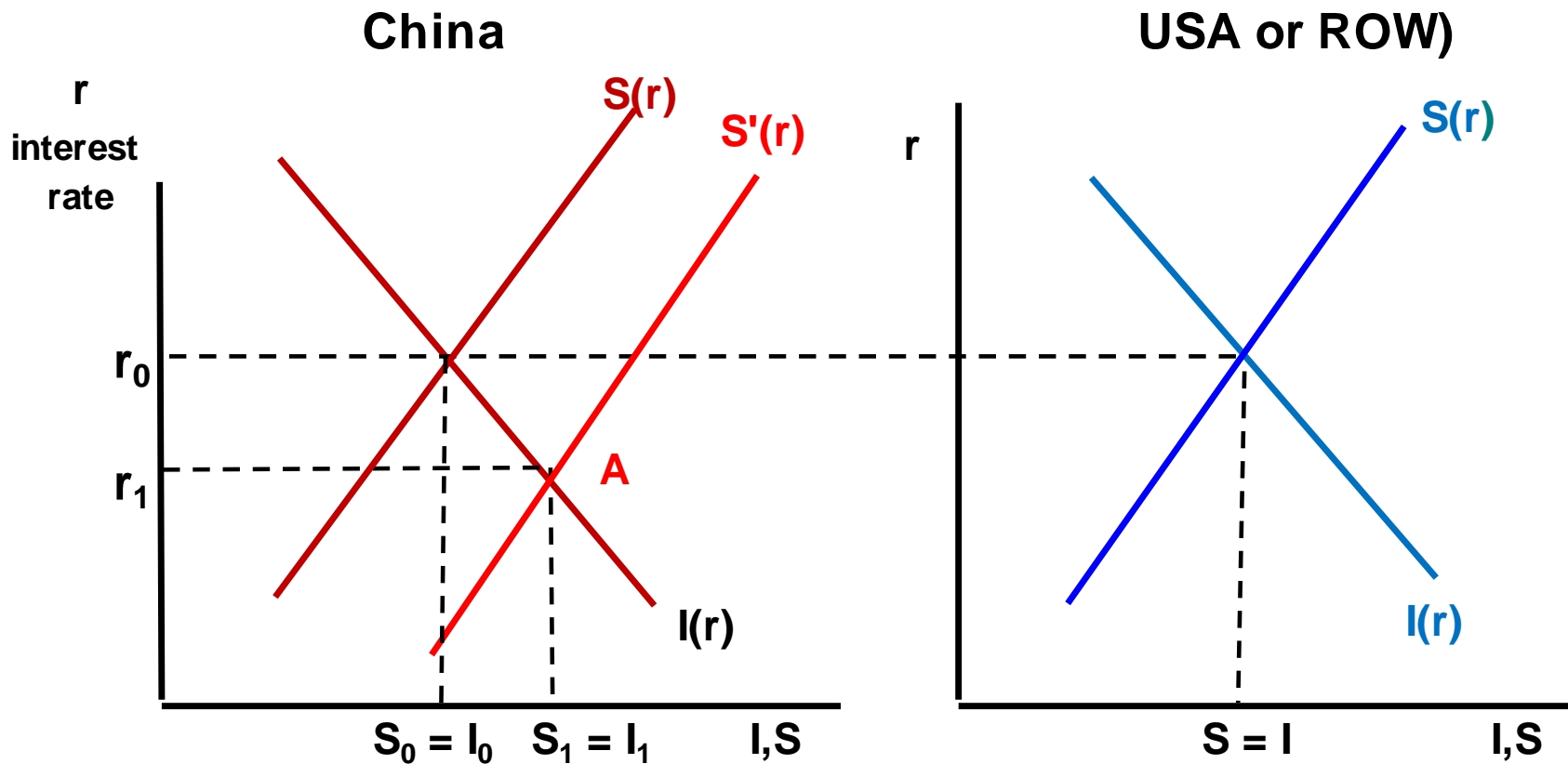
Figure 10A: China had a savings boom post 2000



1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012

Pros and cons of capital flows: the case of U.S. and China w/ closed capital account

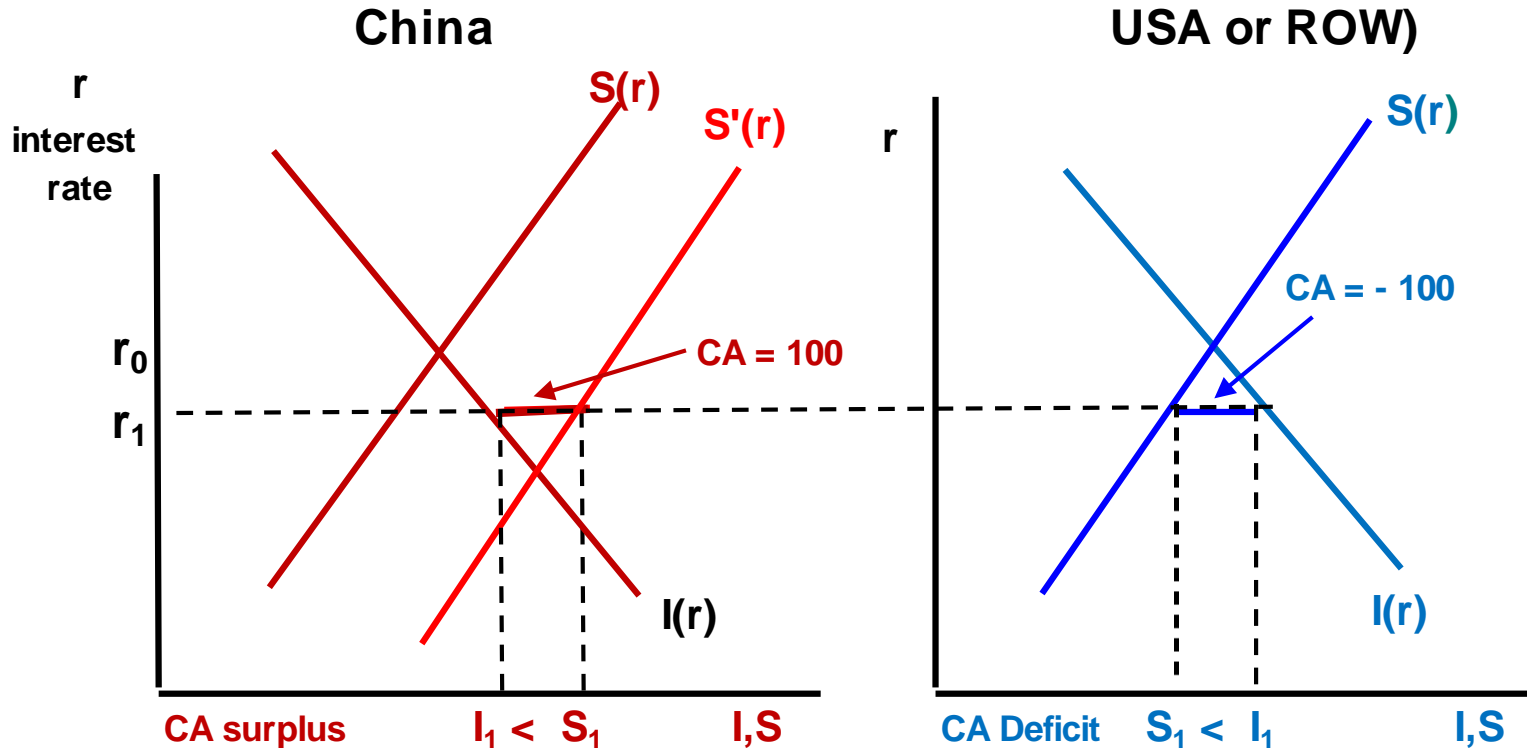
Scenario -18-0 China savings boom with closed capital account



Bottom line: China has bigger boom, lower interest rates, nothing happens to the United States because all new savings stay in China

Pros and cons of capital flows: the case of U.S. and China open capital account

S-18-1 China savings boom with an open capital account



CA surplus $I_1 < S_1$ I, S

China is a large economy, so when it exports savings (NCO > 0) world interest rates fall... spreading boom around the world.

- Note (1) interest rate same in both countries, and
 (2) A surplus in China equals CA deficit in ROW

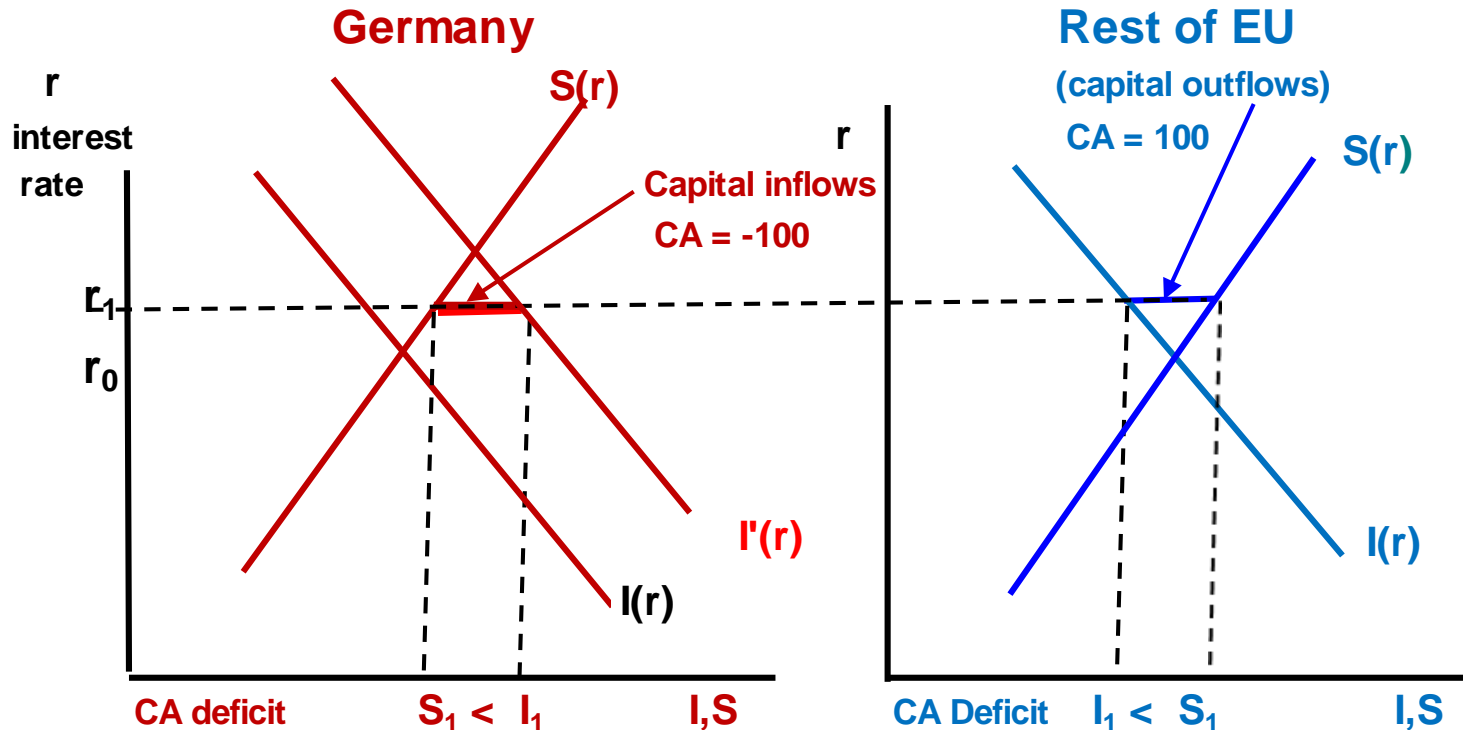
CA Deficit $S_1 < I_1$ I, S

U.S. runs a CA deficit in response to lower world interest rates.

German reunification had the opposite effect: interest rates rose in the EU

S-18-2 Early 1990s merger of East & West Germany Investment

A surge in DEU investment drives up interest rates in EU because Germany is a large country



Germany is a large economy, so when DEU imports savings (NCO < 0) from ROW

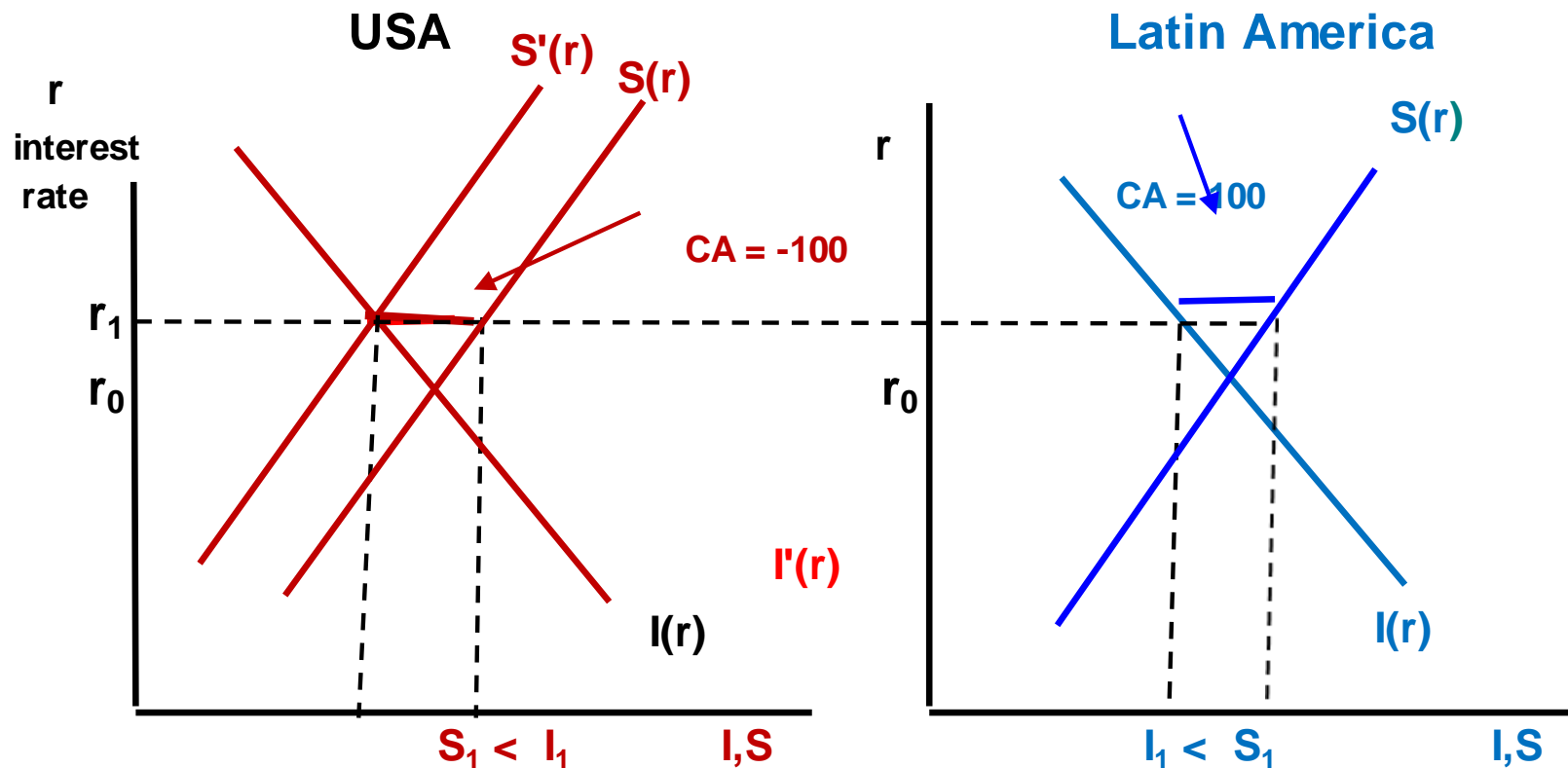
interest rates rise drawing capital from other countries (1990-1993)

Note (1) interest rate rise in Europe, capital flows to Germany.

(2) Exchange rates in EU countries want to depreciate, but they can't due to the snake (fixed fx bands) and a crisis results.

P. Volker and Corrigan raise interest rates to stop inflation, 1979 to 1982 Unemp rises sharply in U.S. debt crisis hits Latin America

S-18-3 United States cuts Taxes in 1980s, interest rates rise



China is a large economy, so when USA imports savings ($NCO < 0$) from ROW interest rates rise drawing capital from other countries (1990-1993)

Other EU countries run a trade surplus due to higher interest rates.

Note (1) interest rate rise in Europe, capital flows to USA out of emerging markets
 (2) Exchange rates in LatAm countries want to weaken but often they can't due to the fixed rates or bands, so interest rates, rise LatAm 1980s debt crisis "lost decade"

Lessons: Large countries impact world interest rates, trigger capital flows and turbulence: smaller countries hit hard...

- Flexible exchange rates help... but what about the Euro?
- Private capital markets pro-cyclical, don't help... Can you borrow in your own currency? if yes, Krugman right, if no “Original sin” Reinhart and Rogoff correct (see Steven [Colbert show](#)) and/or Carmen's [long letter to PK](#).
- Saving for a rainy day (as a nation) does help, ask Argentina, Brazil, Mexico, China, Chile, Kuwait
- $GNP > GDP$, saving aboard, a [macro stabilization](#) or [Sovereign wealth](#) funds work for “original sin” countries,
- Or join a currency union and expect transfers from Frankfurt or Washington DC (large transfers 5-6% of GDP)

Case Study: “Exorbitant Privilege”

- The U.S. does borrow in its own currency, but
 - "To those who much is given much is required" Luke 12:48 30 AD?
 - "With Great Power comes great responsibility" Peter Parker (aka Spiderman)
 - "Today we have learned in the agony of war that great power involves great responsibility." FDR 1945 Presidents day speech President's day speech (he never delivered).
- The Triffin Delimma, see also McKinsey Report

Case Study: The U.S. Trade Deficit

- Is the U.S. trade deficit a problem?
 - The extra capital stock from the '90s investment boom may well yield large returns.
 - Fall in saving of the '80s and '00s (not good) at least did not depress domestic investment, since firms could borrow from abroad.
- Like a person nations go into debt for good and bad reasons or bad A trade deficit is not necessarily a problem, but might be a symptom of a problem.

Case Study: The U.S. Trade Deficit

as of 12-31-2011

People abroad owned \$25 trillion in U.S. assets.

U.S. residents owned \$21 trillion in foreign assets.

U.S.' net indebtedness to other countries = \$4 trillion.

Higher than every other country's net indebtedness,
hence, **U.S. is “the world's biggest debtor nation.”**

- ***But the U.S. earns higher returns to foreign assets than it pays on its debts to foreigners (GNP > GDP).***
- But if U.S. debt continues to grow, foreigners may demand higher interest rates, and servicing the debt may become a drain on U.S. income.

SUMMARY

- Net exports equal exports minus imports.
Net capital outflow equals domestic residents' purchases of foreign assets minus foreigners' purchases of domestic assets.
- Every international transaction involves the exchange of an asset for a good or service, so net exports equal net capital outflow.

SUMMARY: bottom line

- Diversify your portfolio: save by financing domestic investment and buy foreign assets too.
- Trade and interdependence is now a fact of life, capital flows is trade in today's vs. future consumption: new risks bring new opportunities as well (recall the smart phones...).
- What about our external debt? China has \$3.3 trillion in reserves, \$1.3 trillion in U.S. Treasuries (more or less).