



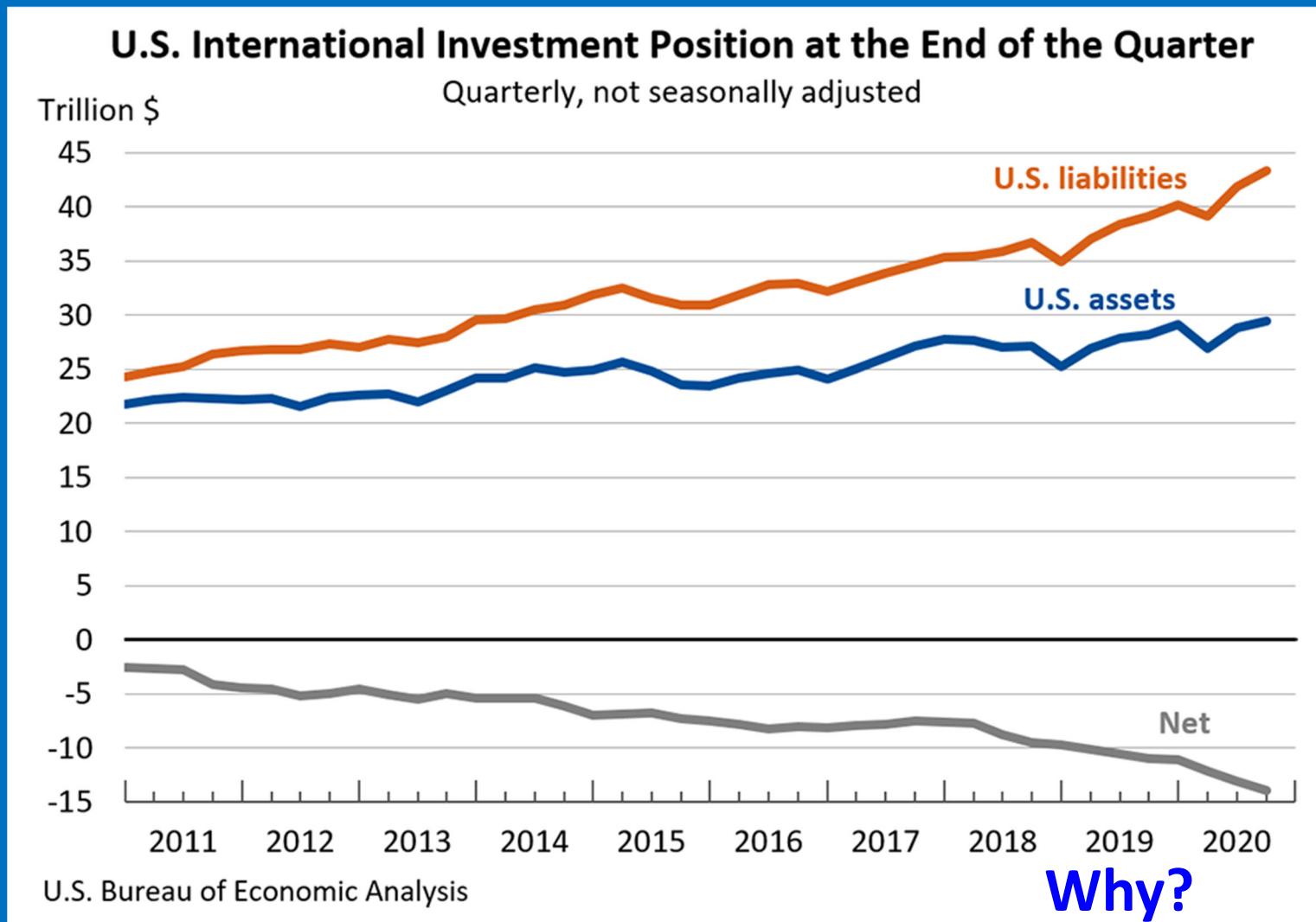
15.447: International Capital Markets Globalization and Interest Rates

Jonathan Parker

Robert C. Merton (1970) Professor of Finance

MIT Sloan School of Management

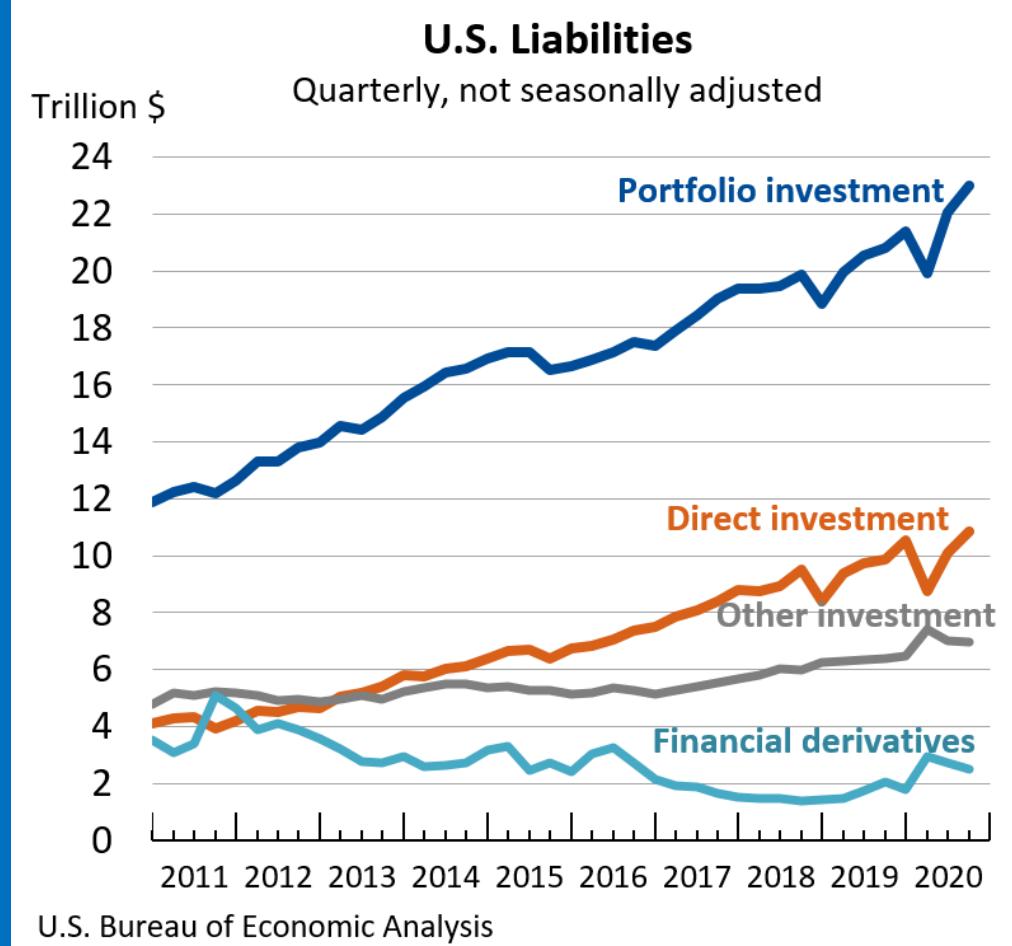
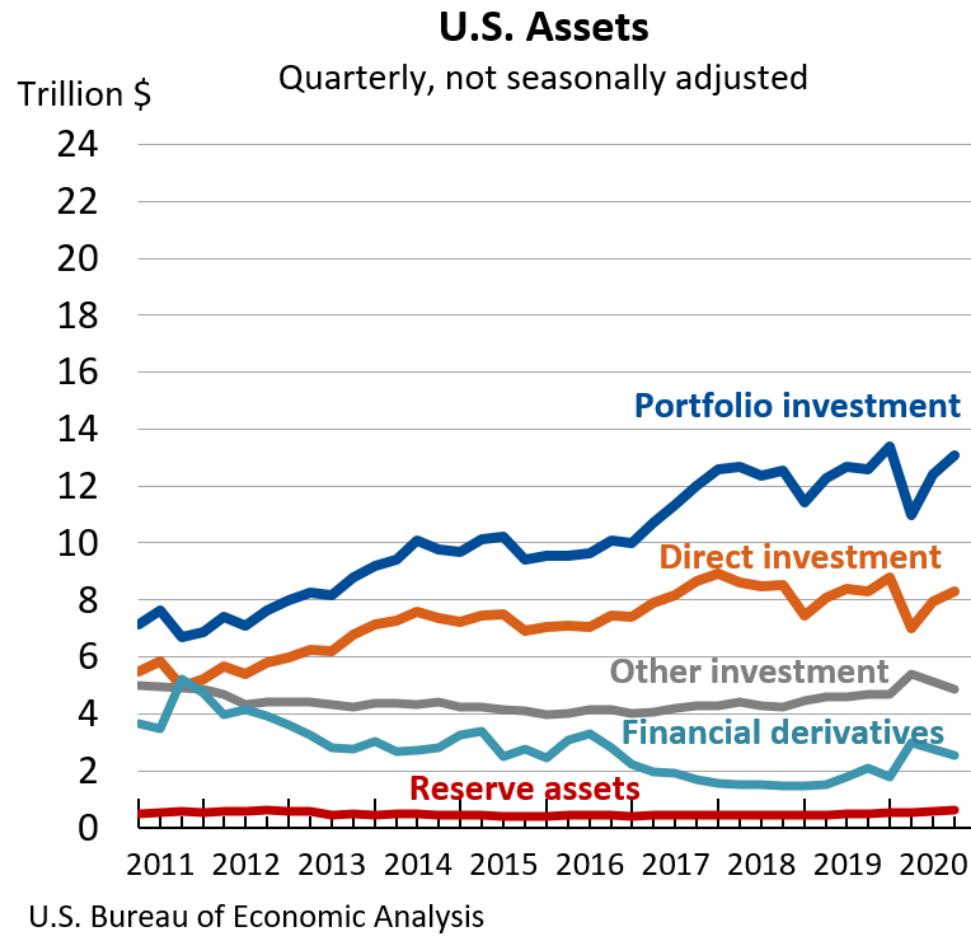
What country is the world's largest net debtor?



Sources: BEA

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The composition of US international assets & liabilities



What determines these positions?

Sources: BEA

Trump Hates the Trade Deficit. Most Economists Don't.



President Trump leading a round-table discussion on trade with corporate leaders at the White House last week. He has announced plans for stiff tariffs on steel and aluminum imports. Tom Brenner/The New York Times

Are trade deficits bad?

WASHINGTON — President Trump's fixation with America's widening trade deficit is fueling his decision to impose stiff tariffs on steel and aluminum imports. Only a small group of experts share Mr. Trump's fixation, and few see tariffs as an effective tool to narrow the so-called trade gap.

America's trade deficit is the gap between how much in goods and services it imports from foreign countries, and how much it exports. Mr. Trump complains about the metric frequently, saying the trade imbalance is a measure of America's weakness on trade policy.

"We lost, over the last number of years, \$800 billion a year," he said in the White House on Monday, while defending his tariffs against criticism from Republican leaders in Congress. "Not a half a million dollars, not 12 cents. We lost \$800 billion a year on trade." He went on

Globalization and interest rates

Lecture Outline

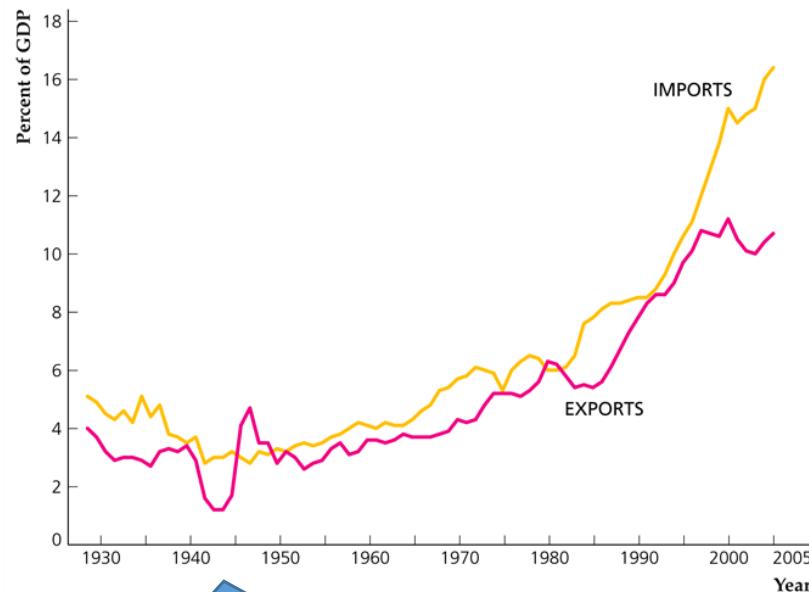
- 1. Globalization and the Forces Behind It**
2. The Costs of Globalization and future prospects
3. Balance of Payments Accounting
4. GDP Accounting
5. Rates of Return in a Closed Economy
6. Global rates of return, capital flows and trade deficits

Globalization refers to trade and asset ownership ...

What is globalization?

International trade in goods and services is increasing

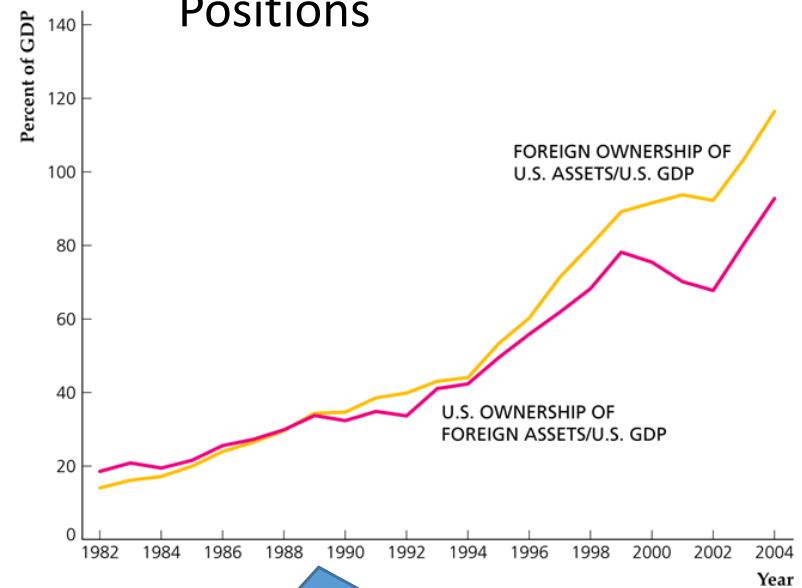
US International Trade



Over last few years *Exports* and *Imports* have both been falling relative to GDP and trade deficit $\simeq 2.5\%$ of GDP

International ownership of assets is increasing

US International Asset Positions



The United States has become the world's largest net international debtor
Net foreign debt to GDP $\simeq 60\%$ in 2020

...and to volume in forex markets

What is globalization?

The volume of trade in currency is enormous:

\$6 trillion in currency traded/day in 2019

- vs. roughly \$60 billion/day in goods trade (1%!)
- down 5% over last three years after rapid increases for decades

US GDP traded in three+ days! World GDP traded in two weeks!

Question for today: Why is there so much trade in goods and assets?

Governments account for some of this trade and cross-country holdings

- April 2013 to March 2014: China spent \$2 billion/day buying foreign currency; bit but still small relative to volume traded
- Chinese gov't currently holds roughly \$1 trillion US Treasuries in foreign reserves

**What are the benefits of
international trade?**

**What are the benefits of
international capital flows?**

Trade First

Consumers gain and countries become more productive

The forces behind international trade in goods & services

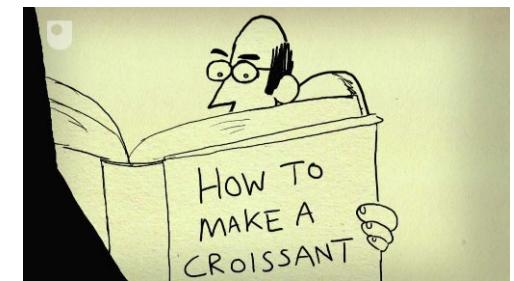
Gains for consumers in each country

- Given what each country produces, we get to consume more when we can trade what we have (a lot of) for what we do not have (a lot of)



Trade makes countries more productive:
Comparative advantage

- E.g. Think about what you would consume if you had to produce everything you consumed instead of being able to trade what you are good at producing for what others are good at producing
- Trade increases productivity*



Example of comparative advantage

The forces behind international trade in goods & services

Units of each good a worker in China
and Japan can produce in one day:

	Phones	Cars
China	10 or	4
Japan	50 or	7.5

1. Which country should produce what?
2. What workers lose jobs with trade?
3. Which is higher income country?
4. Does it matter who likes to consume which item more?

Let's run the numbers:

Consider one five day week:

- If China produces 0 and 20
- And Japan produces 50 and 30
- China can get 15 and 15
- And Japan gets 35 and 35

Can either get to these levels alone?

No.

- If China spends 1.5 days on Phones, makes 15, but then only $3.5 \times 4 = 14$ cars
- If Japan spends 1/2 day on Phones, makes 25, and only $4.5 \times 7.5 = 33.75$ cars

Another example of comparative advantage

The forces behind international trade in goods & services

Consider current US agricultural production and the rest of the world producing consumer goods

	Food	Consumer goods
US	10 or	12
Rest of world	5 or	8

What are the sources of comparative advantage?

Where are firms and ownership?

Where is the exchange rate?

What has caused the *increase* in international trade in goods & services?

Trade liberalization and existing comparative advantages

Decreased costs of trade

- Trade liberalization and natural forces of comparative advantage
 - 1960s only 20% of countries were open
 - By 2000, over 70% of countries were “open”
- Free Trade agreements
 - GATT (1947)
 - WTO (1986)
- Regional Trade agreements
 - European Union
 - NAFTA => USMCA
 - ASEAN
- Weightless goods
- Container shipping and IT
- IT and outsourcing



NETFLIX



Populist protectionism has reversed trend a bit



What are the benefits of international capital flows?

International financial flows allow for risk sharing

The forces behind international financial flows

Utility



- Asset management can provide global assets
 - Investors in Chile benefit from diversification



Lower required returns and cost of capital



- Diversification lowers required returns and global cost of capital
 - Domestic investors in Chile may not want to hold more country-specific risk so they only invest in very profitable projects; US investors do not mind Chile-specific risk as much and will provide investment funds

Global price discovery



- Smart money can find returns and improve price discovery globally

Hedging



- Production: Firms can hedge
 - Hedge export risk, import risk, correlated risks

What caused the increase in international financial flows and cross-border investment?

€	EUR		+2.31	▲
£	GBP		-0.45	▼
¥	JPY		+3.16	▲
\$	USD		+1.02	▲
C\$	CAD		-1.15	▼
kr	SEK		-4.42	▼
Fr	CHF		+1.99	▲
kr	NOK		+1.05	▲
₩	KRW		-2.21	▼



What has caused the *rise* in international financial flows?

- 1. Liberalization of financial flows**
 - In 1980's, lots of markets liberalizing
- 2. Information and communication technologies**
- 3. Growth of LDCs, and growth of finance in these countries**
 - BRICs
- 4. Trade in goods is growing**
 - Demand for hedging
- 5. Financialization generally**
- 6. Speculation, herd behavior, gambling, sentiment**

Openness to goods and financial flows provides flexibility

The benefit of being open to both goods and financial flows

Countries can borrow or lend (net) on international markets

- Analogous to saving when income is high to maintain standard of living, or to borrowing when income is low
- When a country produces less than it wants to consume and invest it can import from abroad and finance by either selling foreign assets or borrowing from abroad by selling domestic assets
- This motivation is one determinant of both **trade balance** and **net capital flows** (and in turn short-run demand for currency)
- Cover in more detail shortly . . .



Other parts of globalization and forces driving it

- **Trade in goods can lead to or be trade in ideas, culture, political institutions**
- **Increased flows of workers across borders**
 - Good if people live where they want and avoid dictators
 - Bad if people undermine host country good institutions
 - Or political backlash
- **Globalization can increase competition and so competitiveness**
- **Globalization can export institutions**
 - Good: e.g. health infrastructure, market regulation, market culture, court system, etc.
 - Bad: undermining these, bribery, electoral interference, etc.

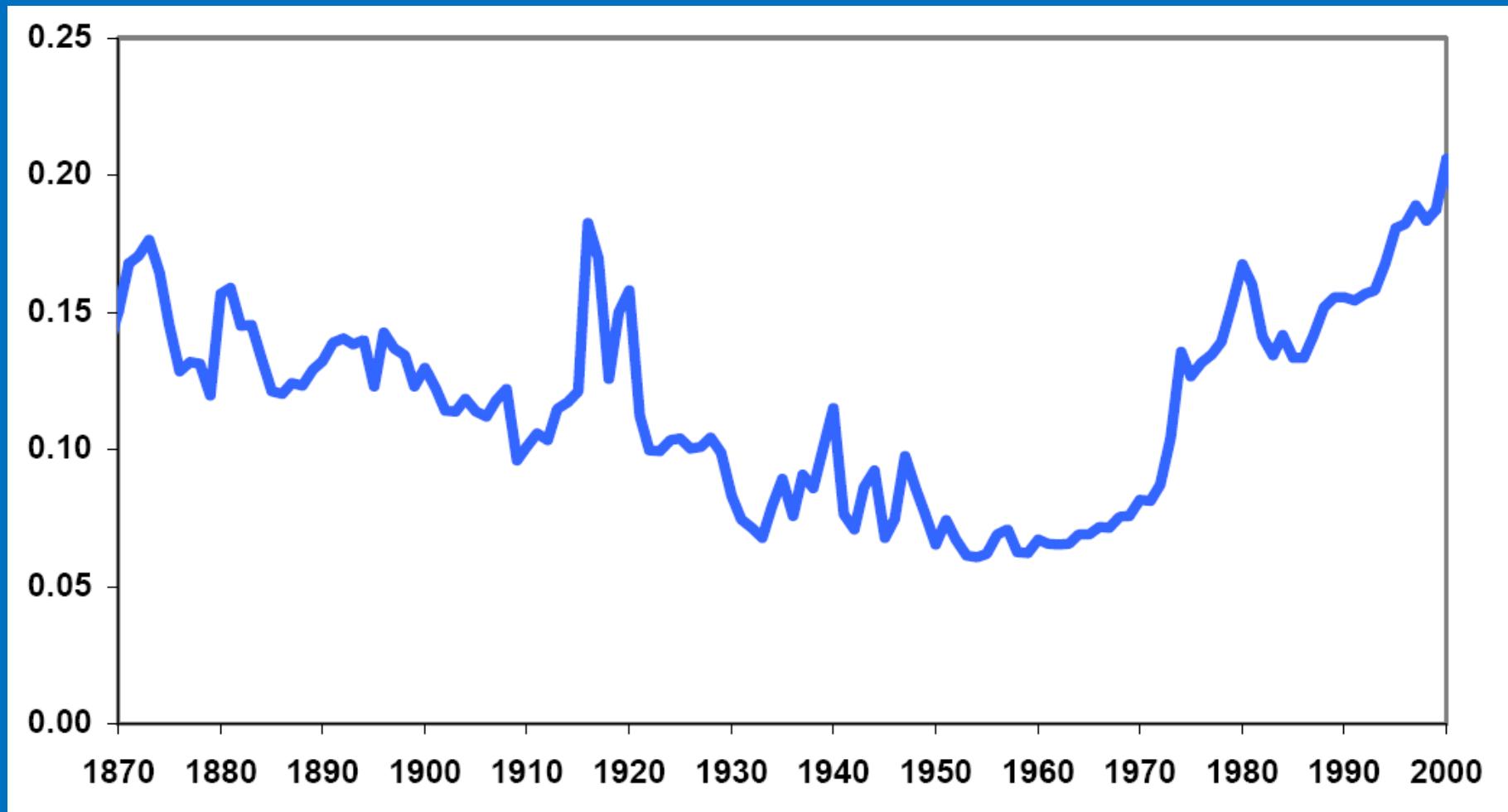
Globalization and interest rates

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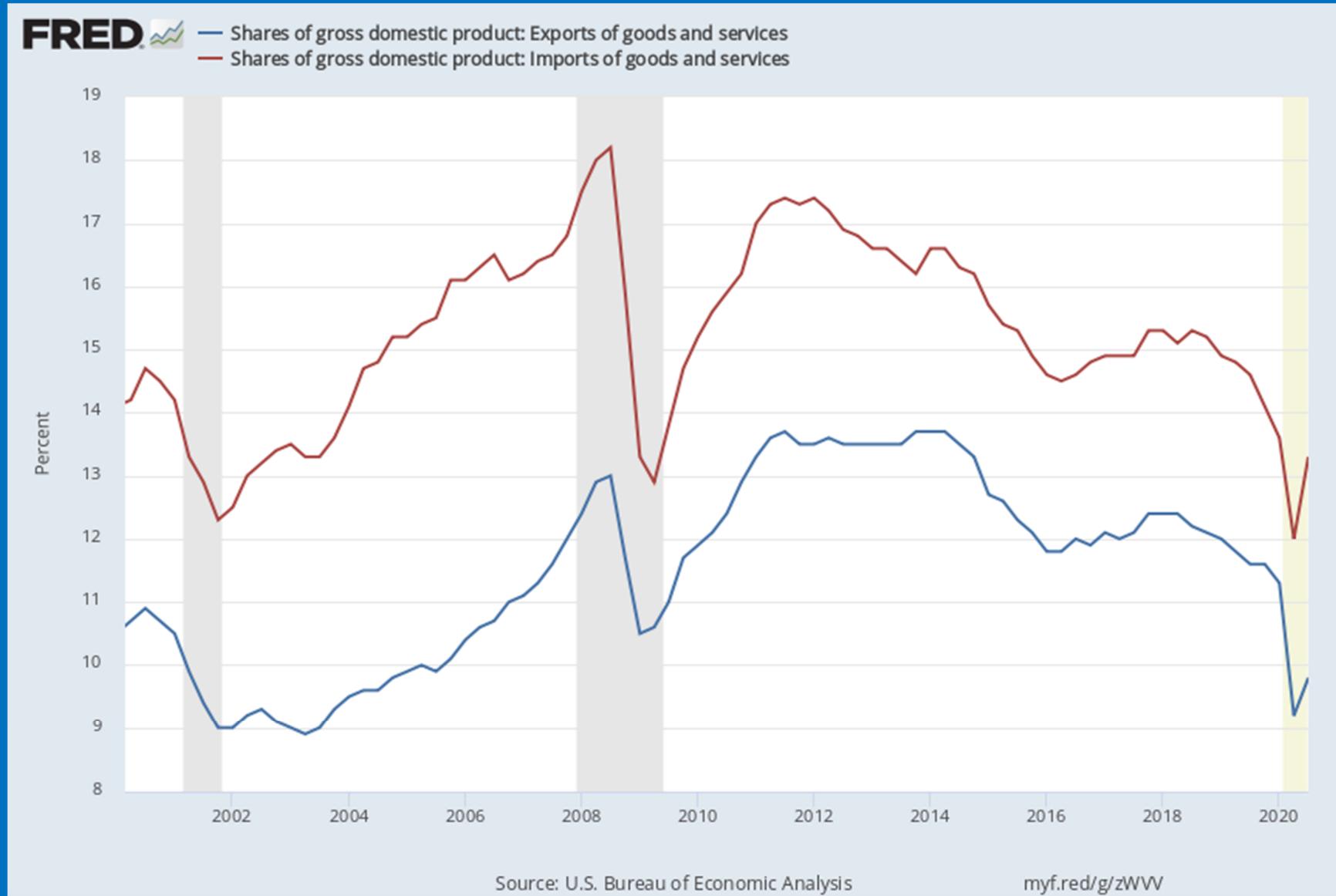
Globalization has been high before now . . . and declined

World (Exports+Imports)/GDP



Globalization has been high and collapsed before

The US has seen declining trade now for a decade . . .



Source: U.S. Bureau of Economic Analysis

myf.red/g/zWVW

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The costs of globalization

Globalization can cause inequality and interdependence

Inequality

- Unequal distribution of gains
 - Transition costs



Volatility

- Financial market volatility and financial crises

"Global capital markets pose the same kinds of problems that jet planes do. They are faster, more comfortable, and they get you where you are going better. But the crashes are much more spectacular." --Larry Summers



Loss of regulatory ability

- Loss of border control and ability to regulate/tax
 - Regulatory arbitrage

Interdependence

- The world shares the bad – like disease -- as well as the good

Optional see "The Free Trade Fix" by Tina Rosenberg

Globalization is posing significant challenges to societies

The future of globalization

Policy

Trade increases the size of the pie but can change its distribution.

- The rise of populism
- Possible policy: take from the winners and give to the losers.
- Possible policy: close borders.
- Insurance that maintains incentives

Threats

Infectious diseases, transportation costs, (cold) war, trade wars (anti-market policies)

- Invest in stopping threats not stopping trade



Delocalization

If globalization proceeds apace, Alan Blinder argues after de-industrialization, the next wave of US job losses will be all sorts of services

- Maybe finance lectures will be produced abroad!



Culture

Openness spreads and combines cultures

- Repressive regimes fall and human rights spread, but there is loss of the old ways
- Violence is a big threat



Free flow of goods and financial services affects numerous managerial and financial decisions

Free flow of goods

Free flow of goods across borders is critical to many strategic decisions

- Particularly for R&D on goods that are inexpensive to produce to that market size determines profits

GM halts deliveries to Russia

by Chris Isidore and Alanna Petroff
@CNNMoney

December 19, 2014: 11:14 AM ET

Apple closes online store in Russia as ruble tumbles
The company said that due to "extreme fluctuations" in the value of the currency, the online store is unavailable while Apple (AAPL, Tech30) reviews its product pricing.

December 16, 2014: 4:30 PM ET

Free flow of financial services

Free flow of financial instruments critical for raising capital, corporate structure and investment strategies

- Examples: China, Cuba vs. Hong Kong, London, Switzerland

Russia Crisis Hits Pimco Fund, Wipes Out Options

Pacific Investment Management Co. is facing mounting losses on its Russian bond holdings; almost every bullish ruble option contract registered in the U.S. has been made worthless; and foreign-exchange brokers in New York and London told clients they're no longer taking ruble trades. Sergey Shvetsov, a first deputy central bank governor, expressed astonishment at the scope of the collapse during a conference in Moscow.

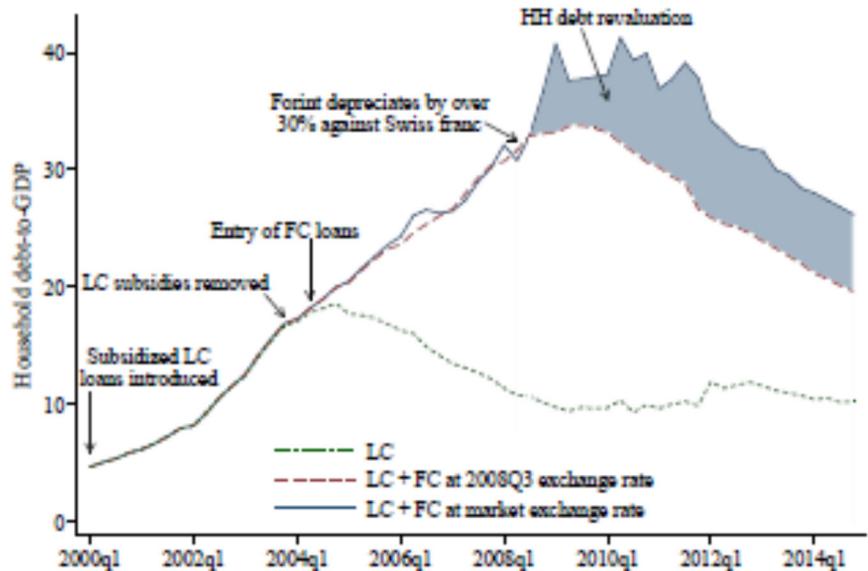
December 17, 2014 — 5:53 AM EST

Example: Hungary currency devaluation in late 2008

Caused a recession

- In 2008, 69 percent of households debt was denominated in Swiss francs
- Why? Because Hungary had a fixed exchange rate with the Swiss franc (a neighbor) and Switzerland had lower interest rates
- In late 2008, Hungary allowed the Hungarian forint to depreciate by 30% against the Swiss franc
- In local currency, household debt rose by 6% of GDP
- Households increased mortgage default, decreased other spending
- Unemployment rose in regions by:
 $1.6 * (\% \text{ of debt denominated in forint})$

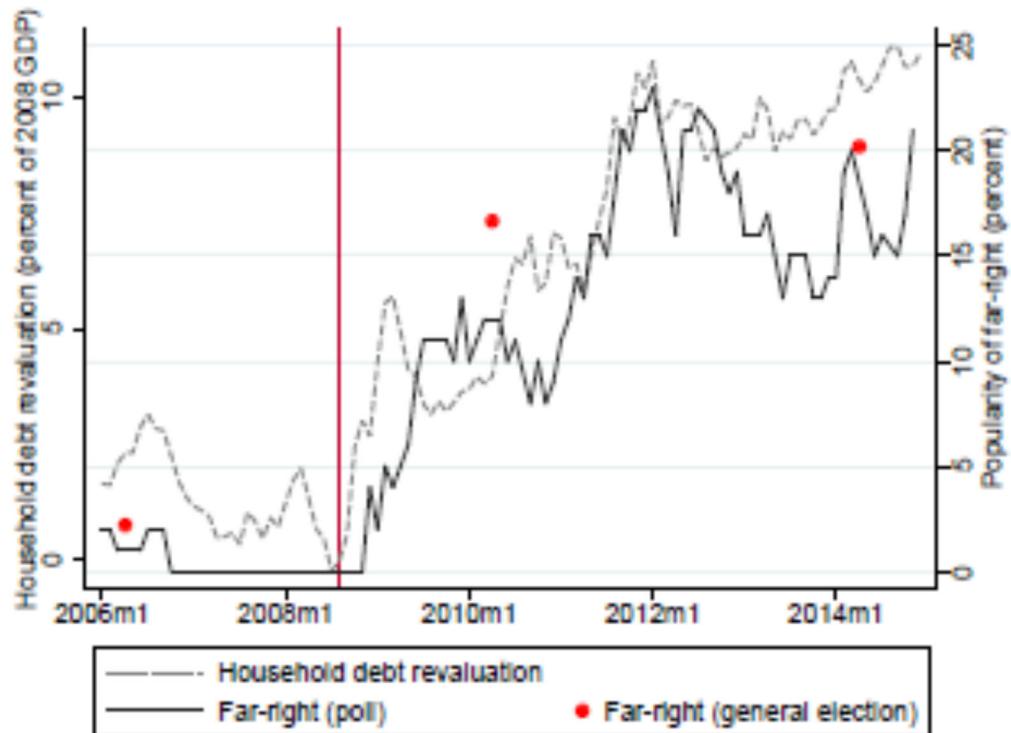
Figure 1: Household Debt Revaluation



Example: Hungary currency devaluation in late 2008

May have caused a backlash

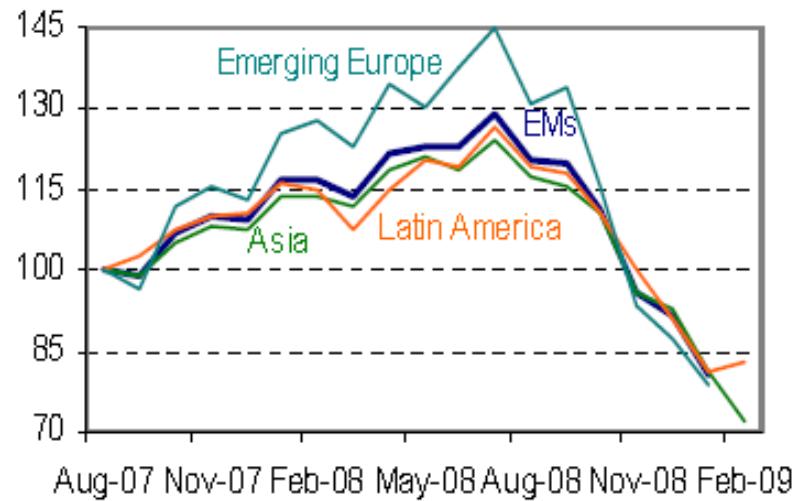
- Household financial distress may lead to increase in support of far right party
- Figure:
 - Left axis: household debt revaluation as percent of GDP
 - Right axis: polling support for far-right party
- The cross-zip code and cross-household evidence suggests that the revaluation and increase in debt and unemployment caused 1/5 of the increase in support for the far right



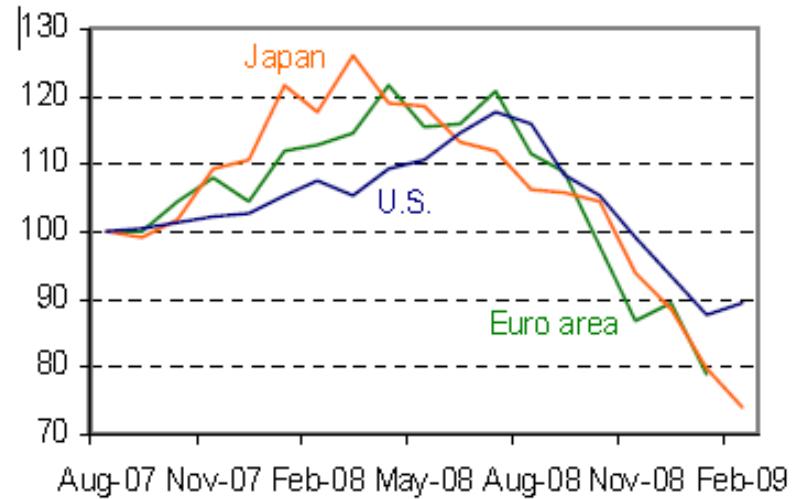
In the Trump era, trade declines due to protectionism

Trade also collapses in the 2008 crisis. Why?

Emerging market exports
(index, Aug-07 = 100)



U.S., Japan and Euro area exports
(index, Aug-07 = 100)



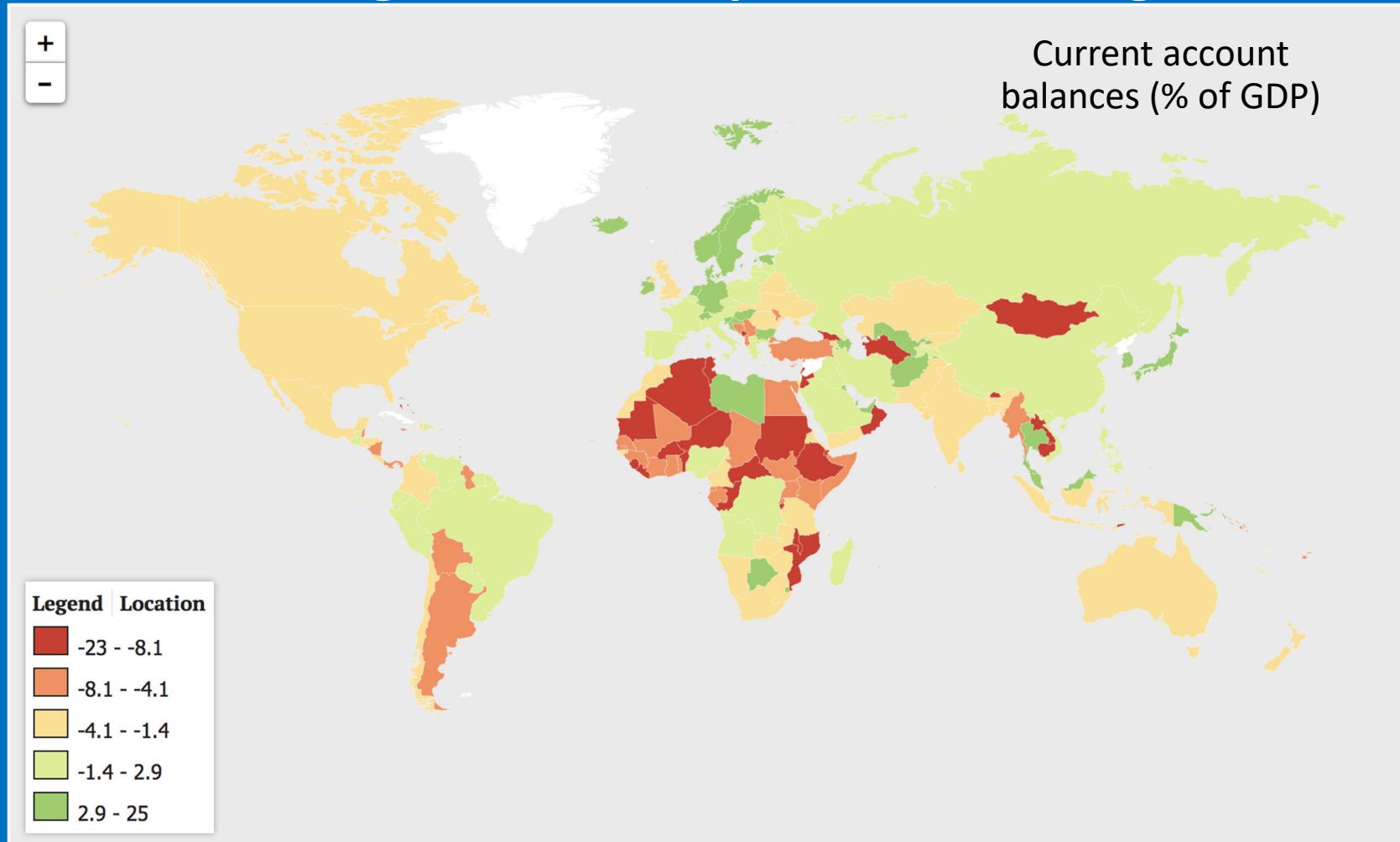
Globalization and interest rates

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Current account balances (% of GDP, 2018)

Where should goods and capital be flowing?



What determines capital flows, trade deficits, rates of return
and (future lecture notes) exchange rates?

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Source data: World Bank (2018)

<http://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS/countries?display=map>

Two key lessons on the Balance of Payments accounting

1. The BoP lesson

Net trade and net investment across borders are linked. Almost by definition.

- Things that cause capital flows cause trade flows
- Things that cause trade flows cause capital flows



2. Interest rates

The linkages between trade and capital flows also determine interest rates

- Internal rates of return
- Costs of borrowing
- Alternative investment opportunities

The two sides of the Balance of Payments Account

The balance of payments account (BOP)

1

The current account (CA)

2

The capital and financial account (FA)

2b

Official reserves account

Will
use
these
terms
later

Primary

Secondary

Net exports of goods and services
 $(NX = X - M)$

- Also called the trade balance

Investment income account (NI)

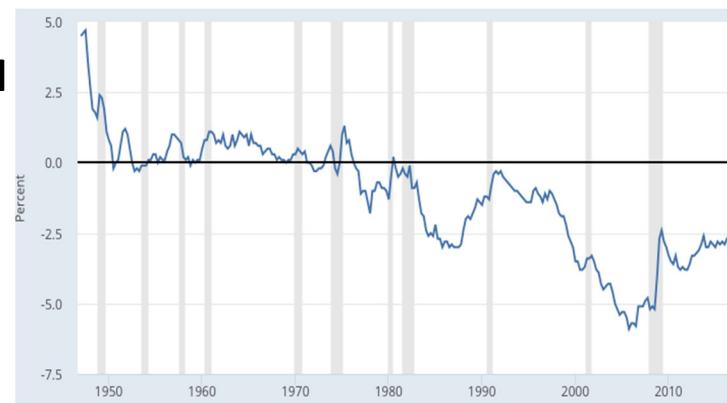
- Net receipt of foreign dividends and interest
- Not capital de/appreciation
- Net wages received

Unilateral transfers from abroad

U.S. NX as % of GDP



Impact of U.S. NX on FA as % of GDP



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Increase in official reserves of domestic country

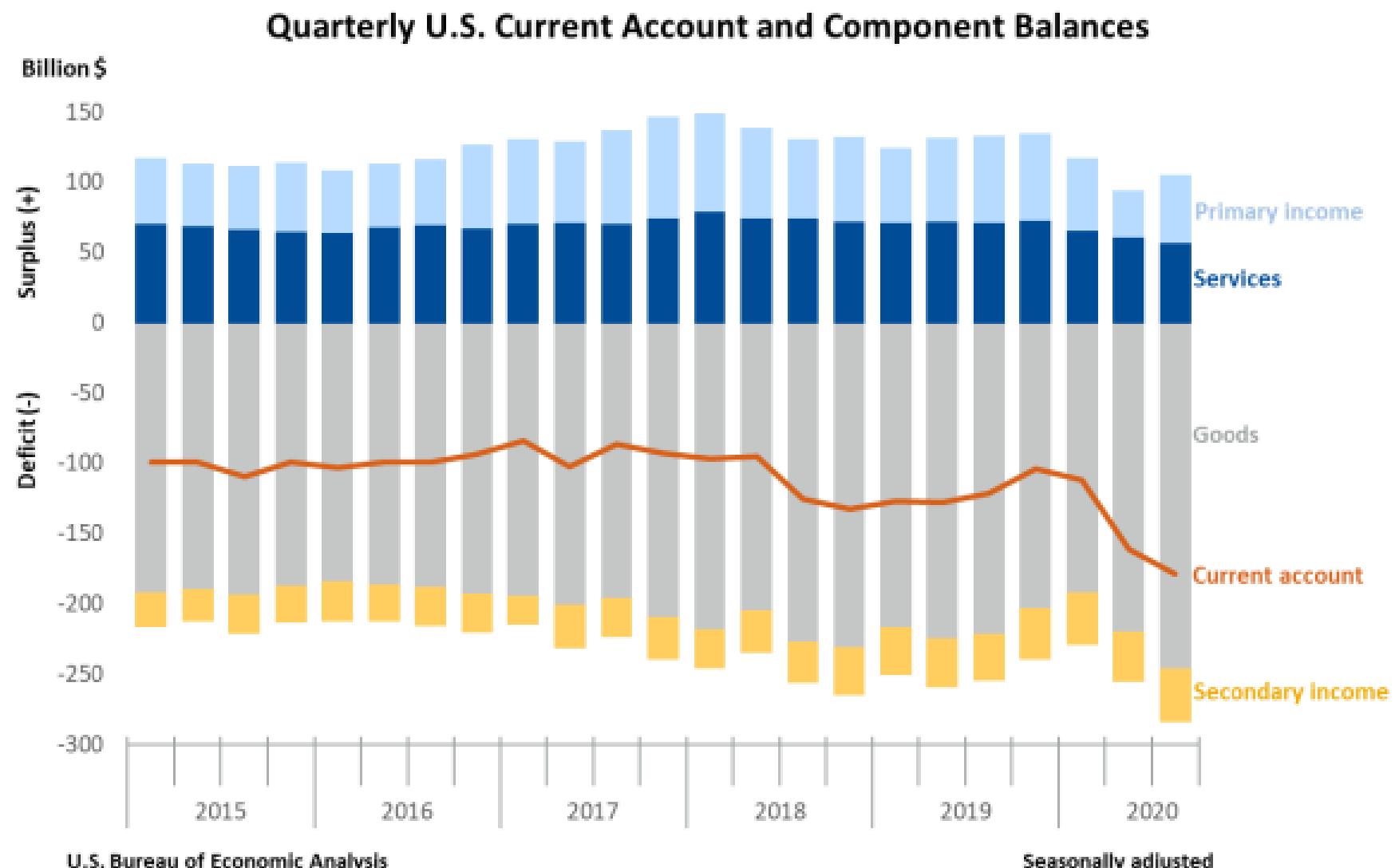
less

decrease in official reserves of foreign country

Accounting relationship

$$CA + FA = 0$$

The US Current Account (net)



The US Current Account (gross, third quarter 2020)

- Exports of goods increased \$68.4 billion, to \$357.1 billion, while imports of goods increased \$94.4 billion, to \$602.7 billion.
- Exports of services increased \$2.8 billion, to \$164.8 billion, while imports of services increased \$6.5 billion, to \$107.7 billion.
- Receipts of primary income increased \$26.8 billion, to \$238.7 billion, while payments of primary income increased \$11.9 billion, to \$190.6 billion.
- Receipts of secondary income increased \$1.4 billion, to \$35.3 billion, while payments of secondary income increased \$3.7 billion, to \$73.5 billion.

Current Account Balance, Third Quarter

The U.S. current account deficit, which reflects the combined balances on trade in goods and services and income flows between U.S. residents and residents of other countries, widened by \$17.2 billion, or 10.6 percent, to \$178.5 billion in the third quarter of 2020, according to statistics released by the U.S. Bureau of Economic Analysis. The revised second quarter deficit was \$161.4 billion.

Note: Some use “capital account” and financial account interchangeably
Also note oddly US BEA reports **capital account surplus** as a negative number

The US tables for Financial Account

Bureau of Economic Analysis

Financial Account Transactions (tables 1, 6, 7, and 8)

Net financial account transactions were -\$221.1 billion in the third quarter, reflecting net U.S. borrowing from foreign residents.

Financial Assets (tables 1, 6, 7, and 8)

Third quarter transactions decreased U.S. residents' foreign financial assets by \$73.0 billion. Transactions decreased other investment assets, mostly currency and deposits, by \$288.1 billion. Transactions in deposits included a net withdrawal by the U.S. Federal Reserve of \$203.0 billion from deposits abroad related to the ending of currency swaps. Transactions increased direct investment assets, mostly equity, by \$71.1 billion; portfolio investment assets, mostly equity securities, by \$142.2 billion; and reserve assets by \$1.8 billion.

Liabilities (tables 1, 6, 7, and 8)

Third quarter transactions increased U.S. liabilities to foreign residents by \$172.0 billion. Transactions increased direct investment liabilities, both equity and debt, by \$70.5 billion and portfolio investment liabilities, mostly equity securities, by \$147.5 billion. Transactions decreased other investment liabilities, mostly loans, by \$46.0 billion.

Financial Derivatives (table 1)

Net transactions in financial derivatives were \$24.0 billion in the third quarter, reflecting net lending to foreign residents.

The balance of payments always holds (in theory)

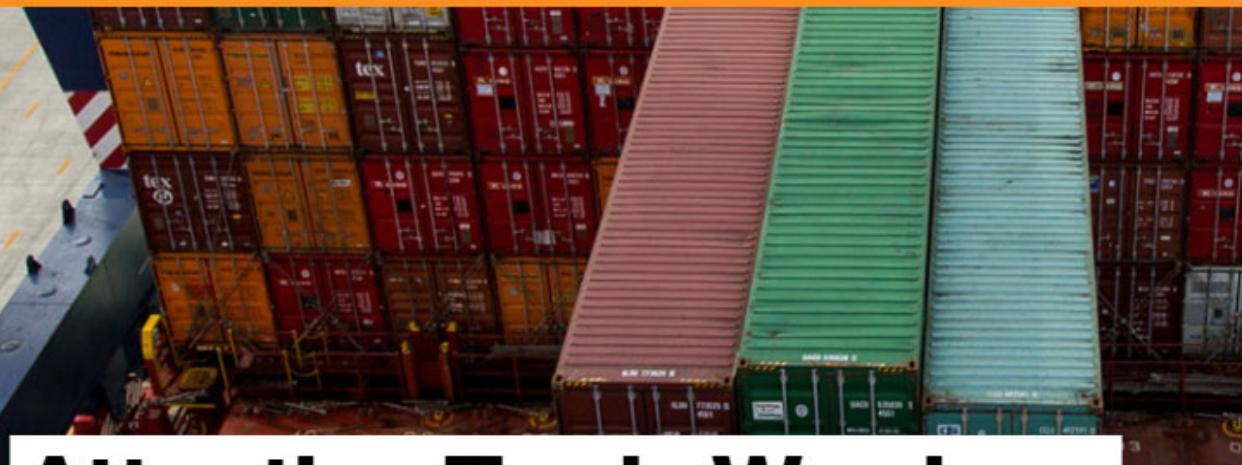
Double-entry accounting system: every international trade or investment has offsetting transactions that keep the balance of payments holding:

$$CA+FA=0$$

Accounting rule: positive entry in account when currency flows in to home country; negative entry in account when currency flows out

- When home country sells assets to a foreign country, that is a capital inflow for the home country and a credit (+) item in the capital and financial account
- When assets are purchased from a foreign country, there is a capital outflow from the home country and a debit (-) item in the capital and financial account
- When export a good, currency in, positive entry
- When import a good, currency out, negative entry
- Note: **flow** account. Does not add to stocks because, like GDP, omits re-valuation/unexpected capital gains losses
- Unilateral transfers are offset by import or export of “goodwill”

Insight: net trade in goods linked to net trade in assets



Attention Trade Warriors: Germany's Surplus Is on the Wane

An aging society, a housing boom and more immigrants will help slim Germany's controversial current-account, Deutsche Bank argues

by **Rainer Buergin**

February 5, 2017, 12:01 AM EST
From **Benchmark**

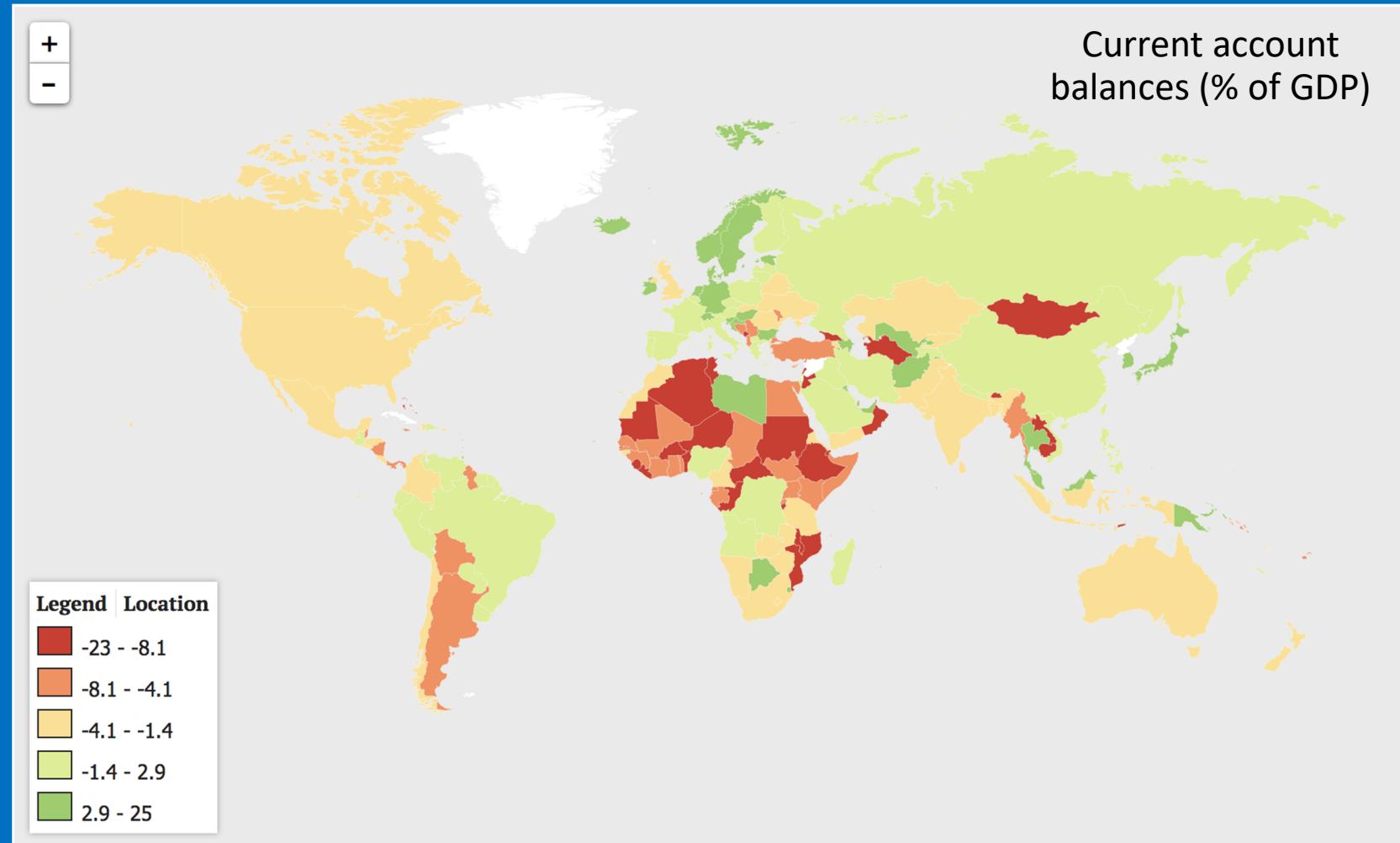
A rising share of pensioners in the German population, who normally have less money to save than people in jobs, will crimp household savings rates, while an increasing number of immigrants such as refugees will contribute to boosting German imports, Peters wrote in a study first published last year.

And with housing valuations outpacing income and rent growth since 2009, home owners feel richer, save less toward retirement and borrow against their property. That leads to rising imports of building materials to fuel the property boom and increased demand for foreign consumer goods on the back of the wealth effect.

Why Does the US persistently run a big current account deficit?

Why does it persistently run a financial account surplus?

Now can we make sense of this?



What does the financial account balance around the world look like?
Who is lending and who is borrowing?

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Source data: World Bank (2018)

<http://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS/countries?display=map>

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GDP: three ways to describe the same concept

Value added

GDP is the sum of all value added (produced) in an economy



Income

GDP is also the sum of all income earned in an economy



Expenditures

GDP is also the total expenditures on final goods in an economy:



The equivalence of the 3 approaches

Example:

Prof Parker's contribution to GDP through his local auto repair shop

Revenue (charges for car repairs)	3,500
- Wages (Bob and his employee)	2,000
- Parts (Imported)	700
<hr/>	
= Profits	800

GDP is made of four component

$$\mathbf{GDP = C + I + G + NX}$$

G: Government buys goods and services (G), collects taxes, makes transfers and interest payments on debt, leading to:

$$S^{govt} = Taxes - Transfers - Gov't Interest payments - G$$

C: Households buy consumption (C), gets disposable income leading to private saving:

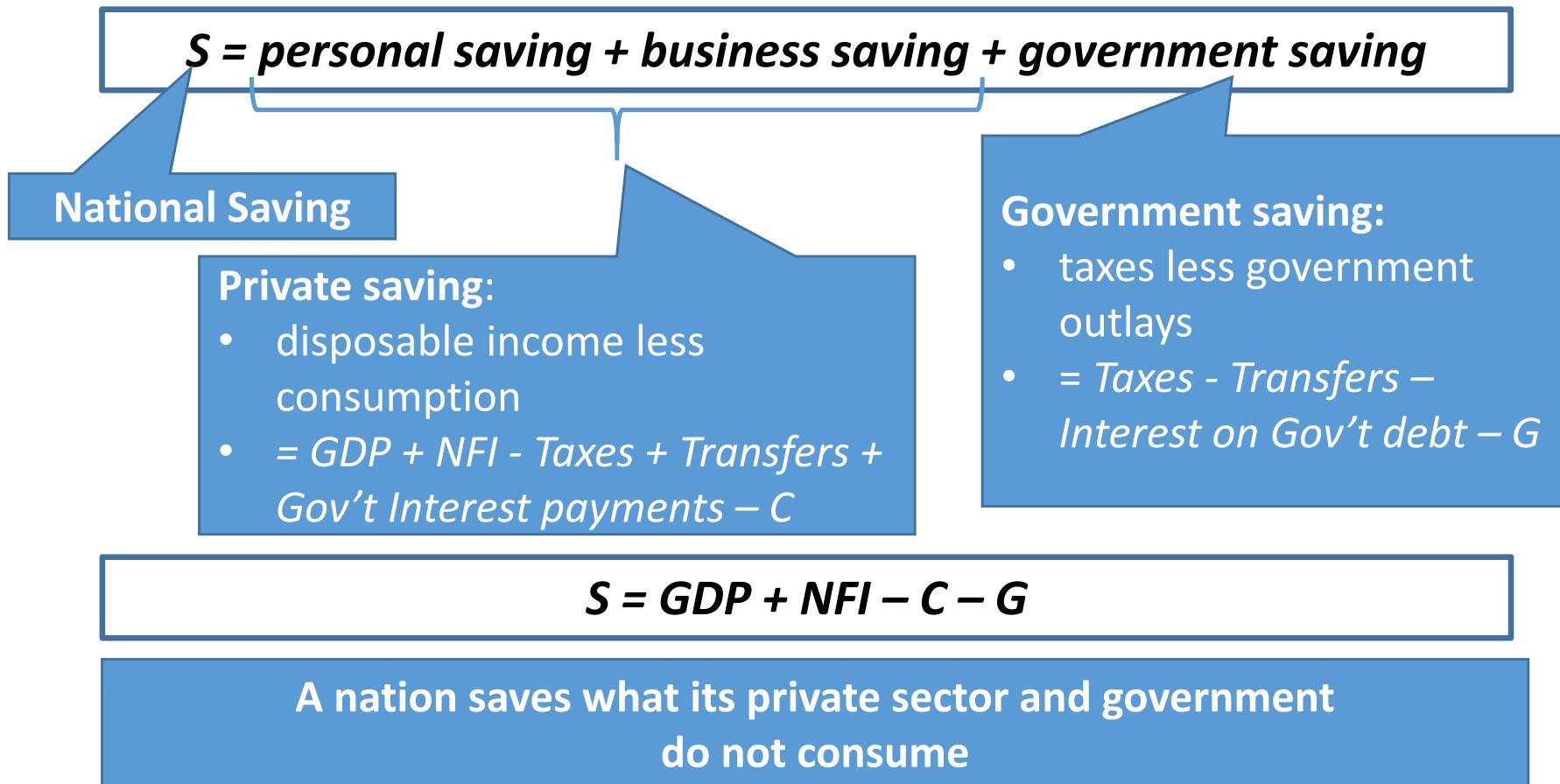
$$S^{pri} = GDP + NFI - Taxes + Transfers + Gov't Interest payments - C$$

I: Firms and households also choose investment

- Inventories, equipment, non-residential and residential structures

GDP measures final goods only, not welfare, ignores resource depletion, ignores revaluation, misses illegal economy, misses home production

What are national savings?

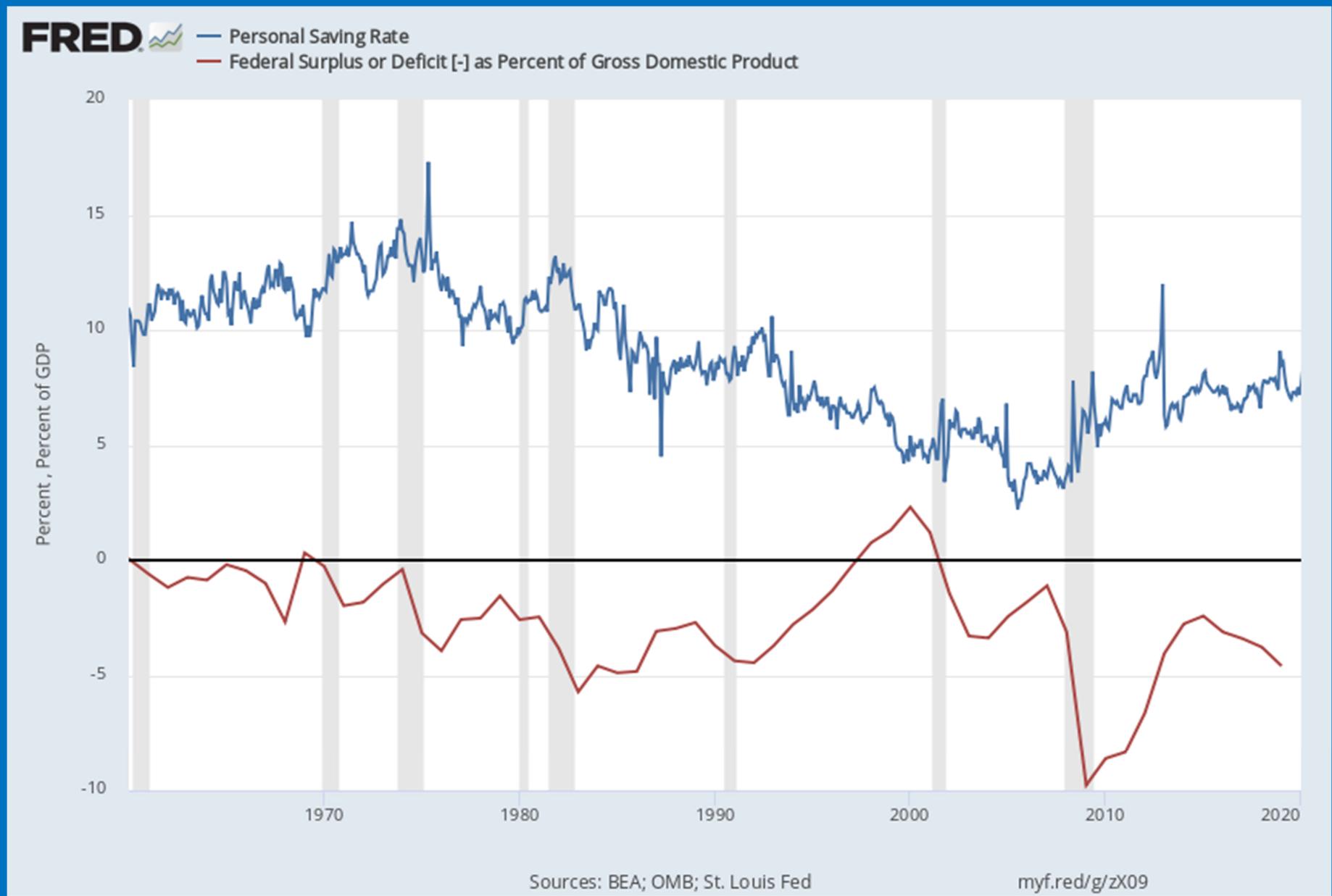


Since $GDP = C + I + G + NX$,

$$S = I + NX + NFI$$

$$S = I + \text{current account balance}$$

The history of personal and Federal government saving rates in the U.S., pct of GDP (also business and state and local)



Then came COVID-19

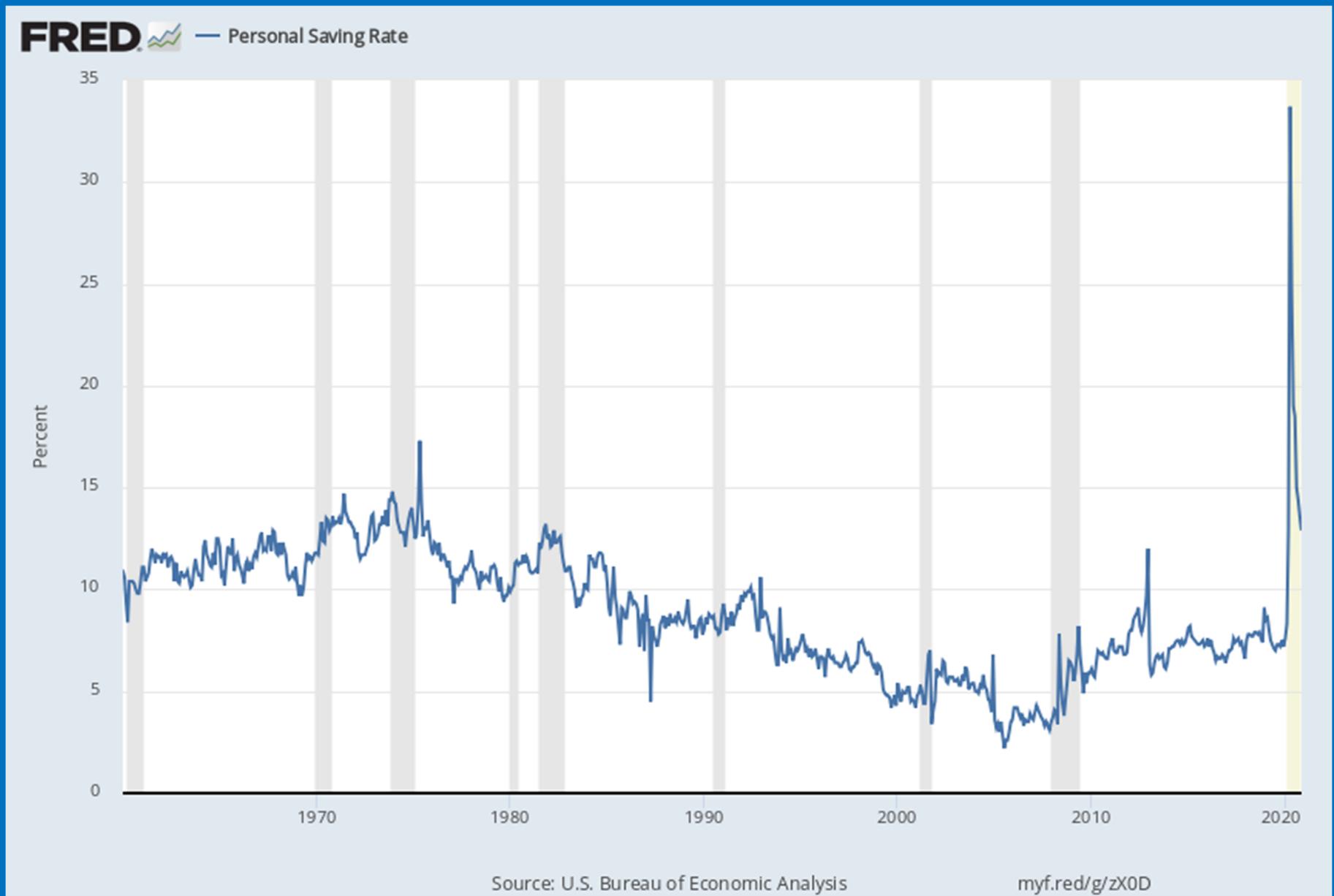
Deficits in CBO's September 2020 Baseline Versus Its March 2020 Baseline

Percentage of Gross Domestic Product



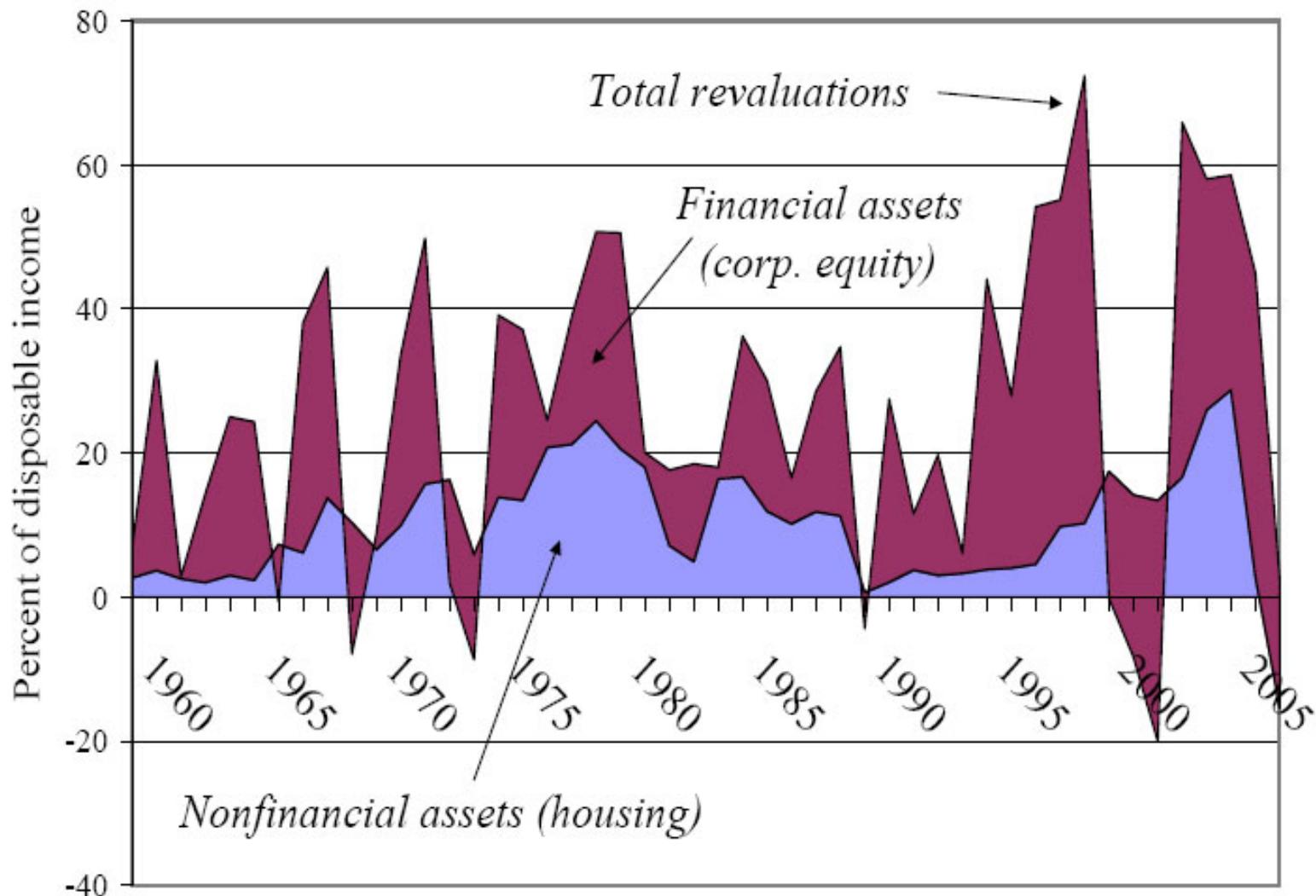
The deficit in 2020 will be the largest since 1945 as a percentage of GDP. Under current law, it is projected to shrink over the following few years, eventually returning to levels similar to those CBO projected before the coronavirus pandemic. Nevertheless, annual deficits would exceed their 50-year average throughout the 2021–2030 period.

Then came COVID-19



US Saving rate including capital gains and losses

Official saving rates do not include re-valuation of existing assets – they omit capital gains and losses because they are also omitted from GDP



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The roadmap for the next concepts

This section

The determination of rates of real return in a closed economy

- Helpful for financial planning



The determination of rates of return in an open economy

- Determination of global rates of return
- Capital flows and trade deficits



Applications

- The global savings glut and the US real estate and leverage boom
- Current global bond bubble?



Rates of return: Inflation and price levels

The value of a currency

- The domestic value of a currency is the inverse of the price level or price deflator
- The change in the domestic value of a currency is the negative of the inflation rate



Interest rates and incentives

Nominal Interest rates:

$$i = i_r + \pi^e$$

i = nominal interest rate

i_r = real interest rate

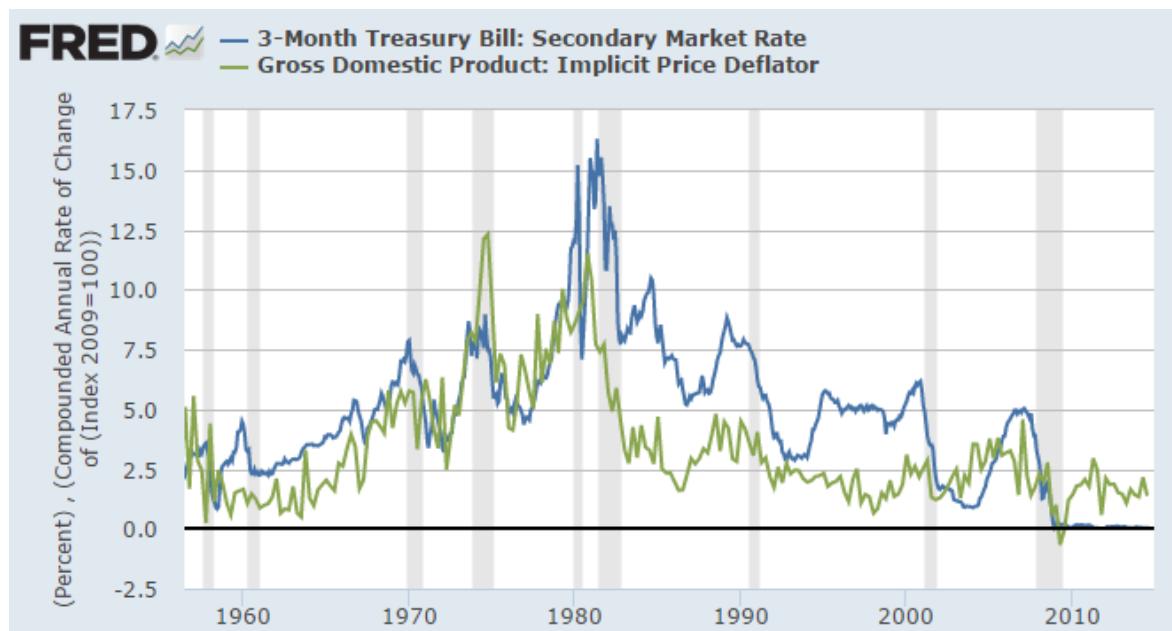
π^e = expected inflation rate

When the real interest rate is low, there are greater incentives to borrow and fewer incentives to lend.

The real interest rate is a better indicator of the incentives to borrow and lend

Inflation is the decline in the real value of money

Inflation and nominal interest rates



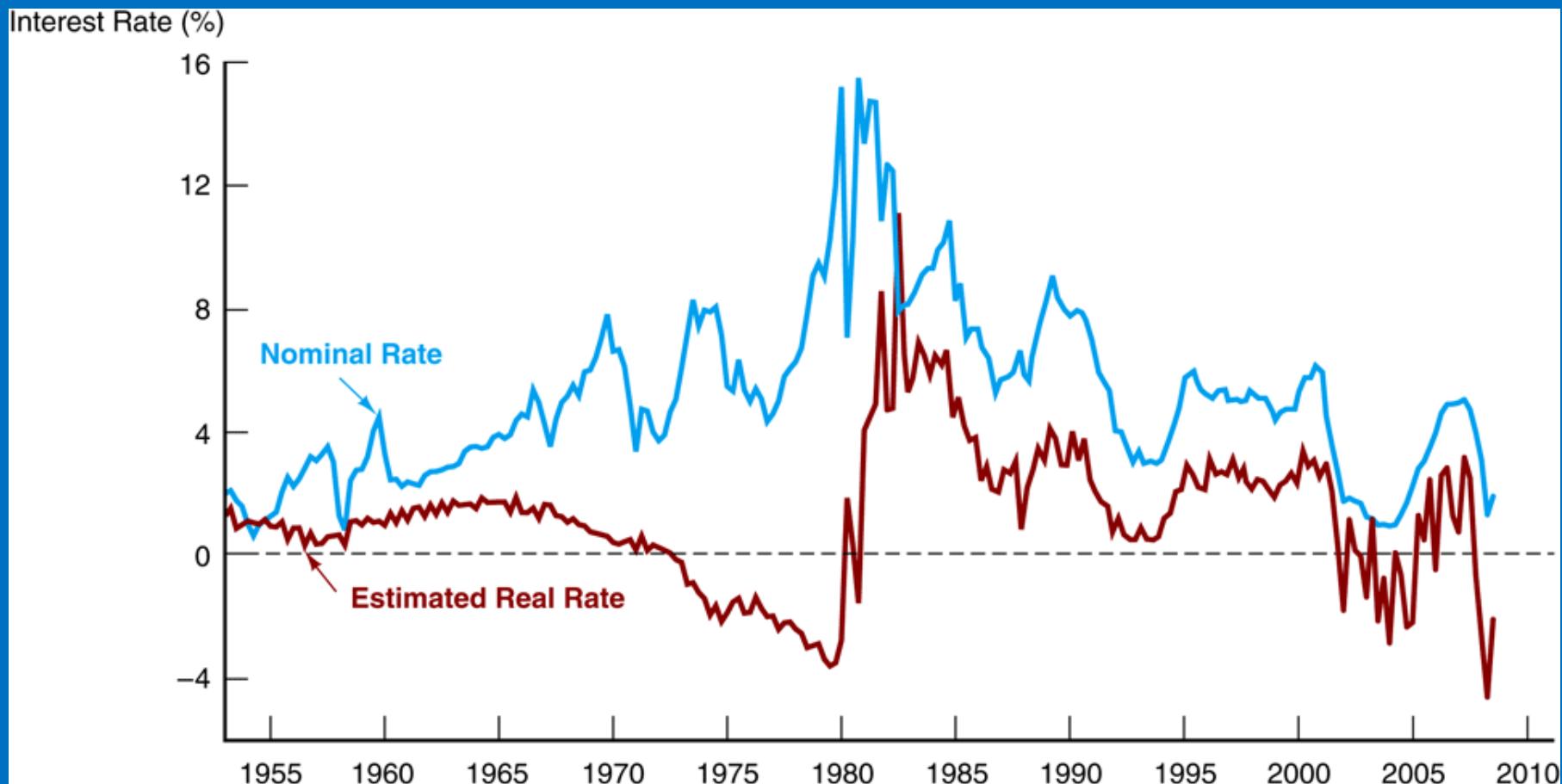
Protection against inflation

Inflation destroys absolute value of assets, contracts, etc. with fixed future nominal payments

- May want to write contracts considering inflation
- e.g. index contracts to inflation or hedge inflation risk
- Think about which party should bear inflation risk

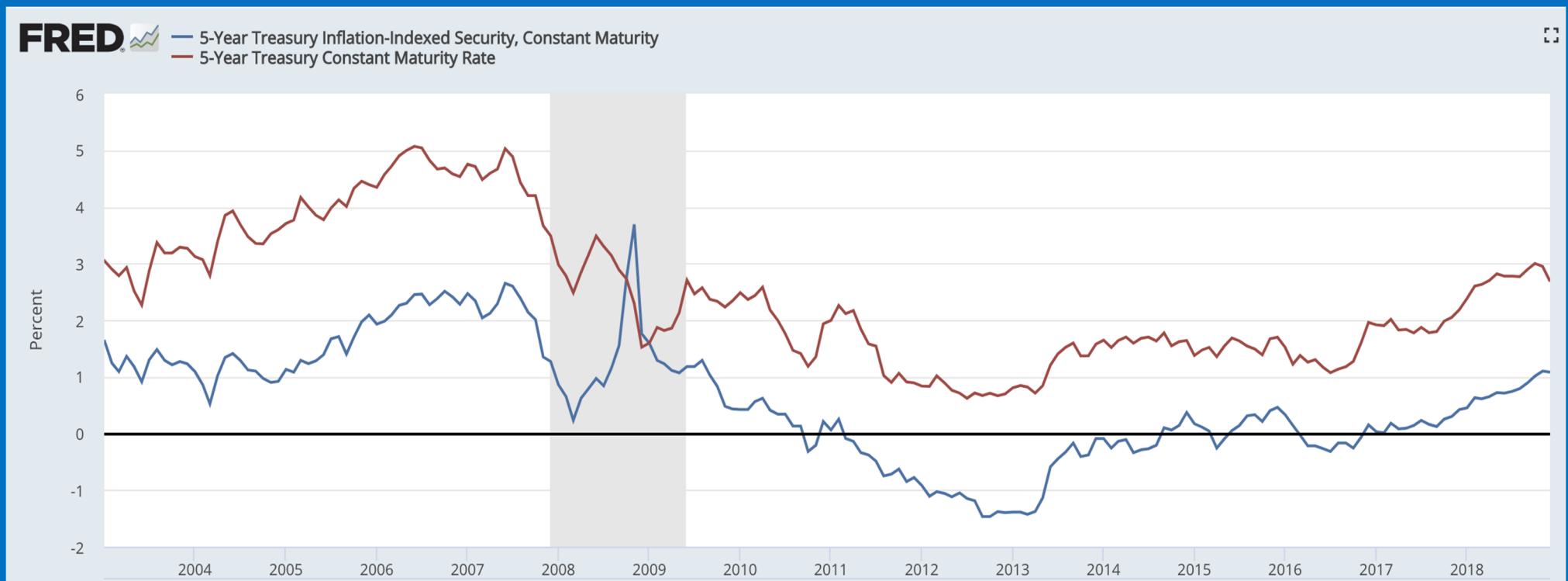
Consider if future payment denominated in dollars
discounted at nominal interest rate $i = r + \pi^e$

Real and Nominal Interest Rates (Three-Month Treasury Bill) 1953–2008



Sources: Nominal rates from www.federalreserve.gov/releases/H15. The real rate is constructed using the procedure outlined in Frederic S. Mishkin, "The Real Interest Rate: An Empirical Investigation," Carnegie-Rochester Conference Series on Public Policy 15 (1981): 151–200. This procedure involves estimating expected inflation as a function of past interest rates, inflation, and time trends and then subtracting the expected inflation measure from the nominal interest rate.

In US markets, TIPS show expected real interest rate (except maybe in 08 financial crisis)



The interest rate in a closed economy are determined by saving's supply and savings' demand (firm investment)

Introduce a model to understand

- Trade balances
- International capital flows
- Global interest rates



Two key ingredients:

- Demand for investment goods (and services) by firms
- Supply of saved goods and services from National Income not consumed by households or purchased by government

Model delivers:

- Interest rates
- Capital flows

We will use:

$$S = I + NX + NFI$$

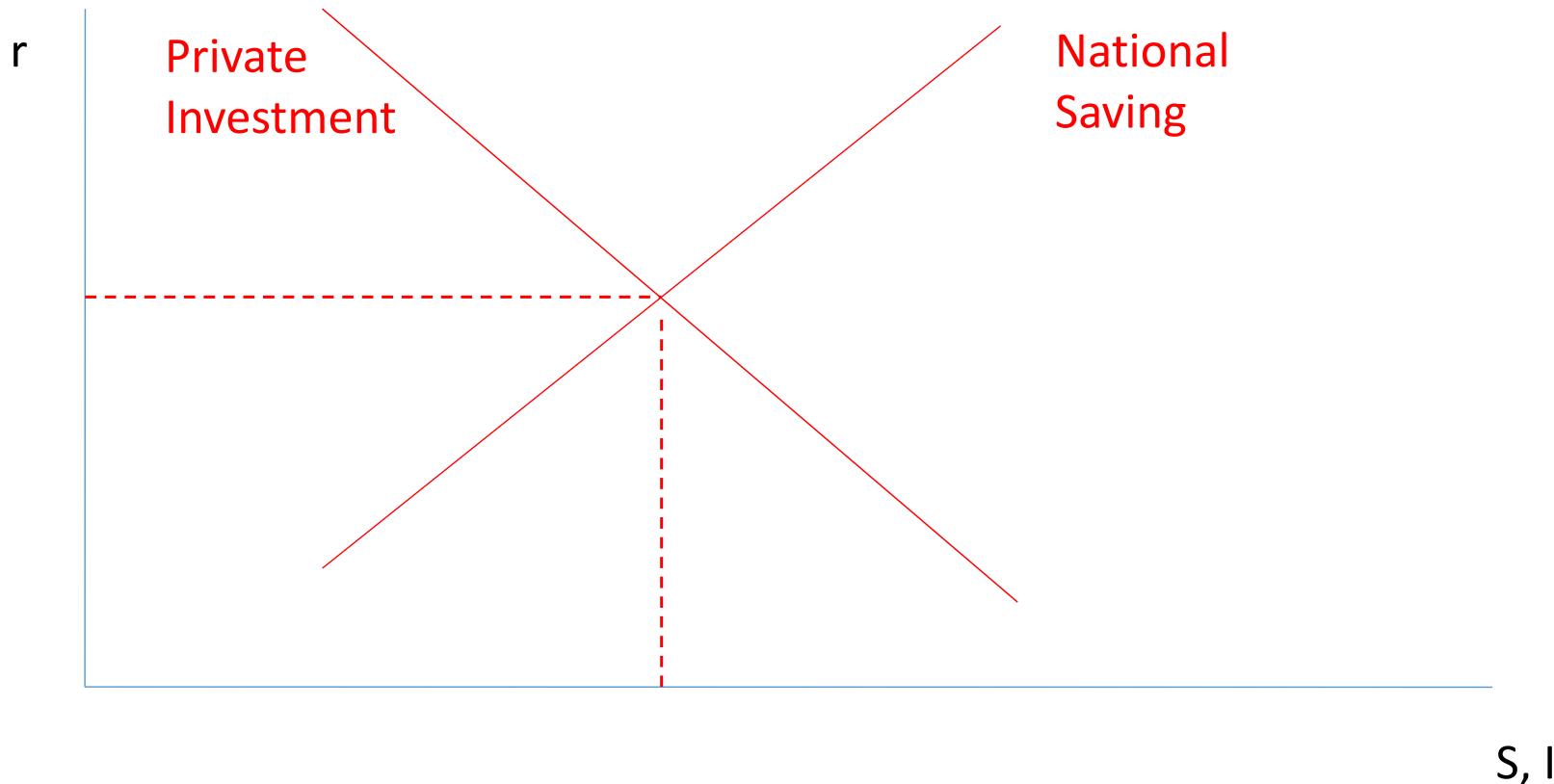
$\equiv 0$ (actually just slow-moving)

Start with
closed economy

$$S = I + \text{current account balance}$$

$\equiv 0$

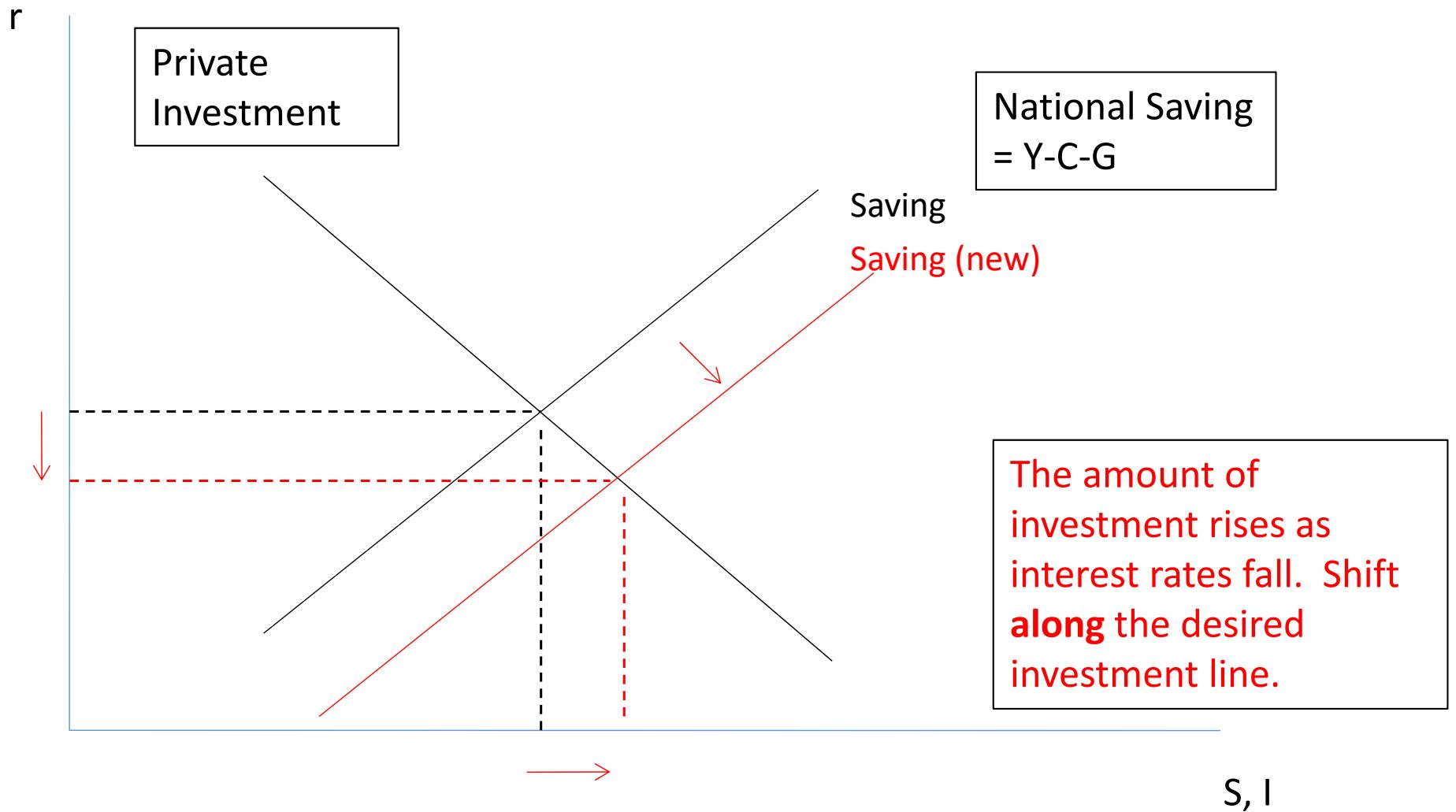
The interest rate in a closed economy are determined by saving's supply and savings' demand (firm investment)



$$I = S = S^{\text{pri}} + S^{\text{gov}} + 0$$

The same as $Y = C + I + G + 0$

If national savings increase, rates of return on capital decreases



The interest rate in a closed economy are determined by saving's supply and savings' demand (firm investment)

- Firm demand for investment determines the I line
 - Higher future productivity increases demand (shifts right)
 - Lower future profits taxes increases demand (shifts right)
 - Lower future costly regulation increases demand (shifts right)
- Government purchases of goods and services shift the S line
 - Higher purchases of goods and services lower supply (shifts left)
- Household demand for goods and services shift the S line
 - Asset market boom raises consumption demand, lower supply of saving (shifts left)
- Government taxes, transfers and deficits?
 - Increases in taxes or decreases in transfers (without changes in government purchases at any time) only change demand through their effect on consumers and firms
- Interest rates do not shift lines!! They are equilibrium outcome, price of output today vs. future that clears market for goods today

What causes changes in the supply and demand?

Government is a common cause of changes in national saving

What are the effects of changes in government spending, taxes, and transfers?

- Depends on effects on consumption demand, private saving (S^{pri}) and total saving: $S = S^{pri} + S^{gov}$

Assumptions:

1. Firms maximizing profits choose investment (at any given interest rate) looking at future after-tax profitability
2. Households seeking high, stable standard of living choose consumption (at any given interest rate) looking at current income, wealth and future after tax income

Baseline theory: Ricardian equivalence: timing of taxes irrelevant for national saving

Like Modigliani-Miller theorem. Tells you conditions under which government finance is irrelevant.

Ricardian equivalence in practice: households anticipate future effects of government spending

What is the effect of a decrease in the deficit caused by an increase in income taxes?

→ Key question: will this imply lower taxes or higher spending in the future?

Baseline theoretical world

If future increase in taxes, then maybe no effect on national saving

- No change in NPV income and so no change in lifetime standard of living
- So maybe no change in C or S
- Bush 1991 withholding example of Ricardian equivalence



Practical adjustments

In practice things might not be so clear-cut

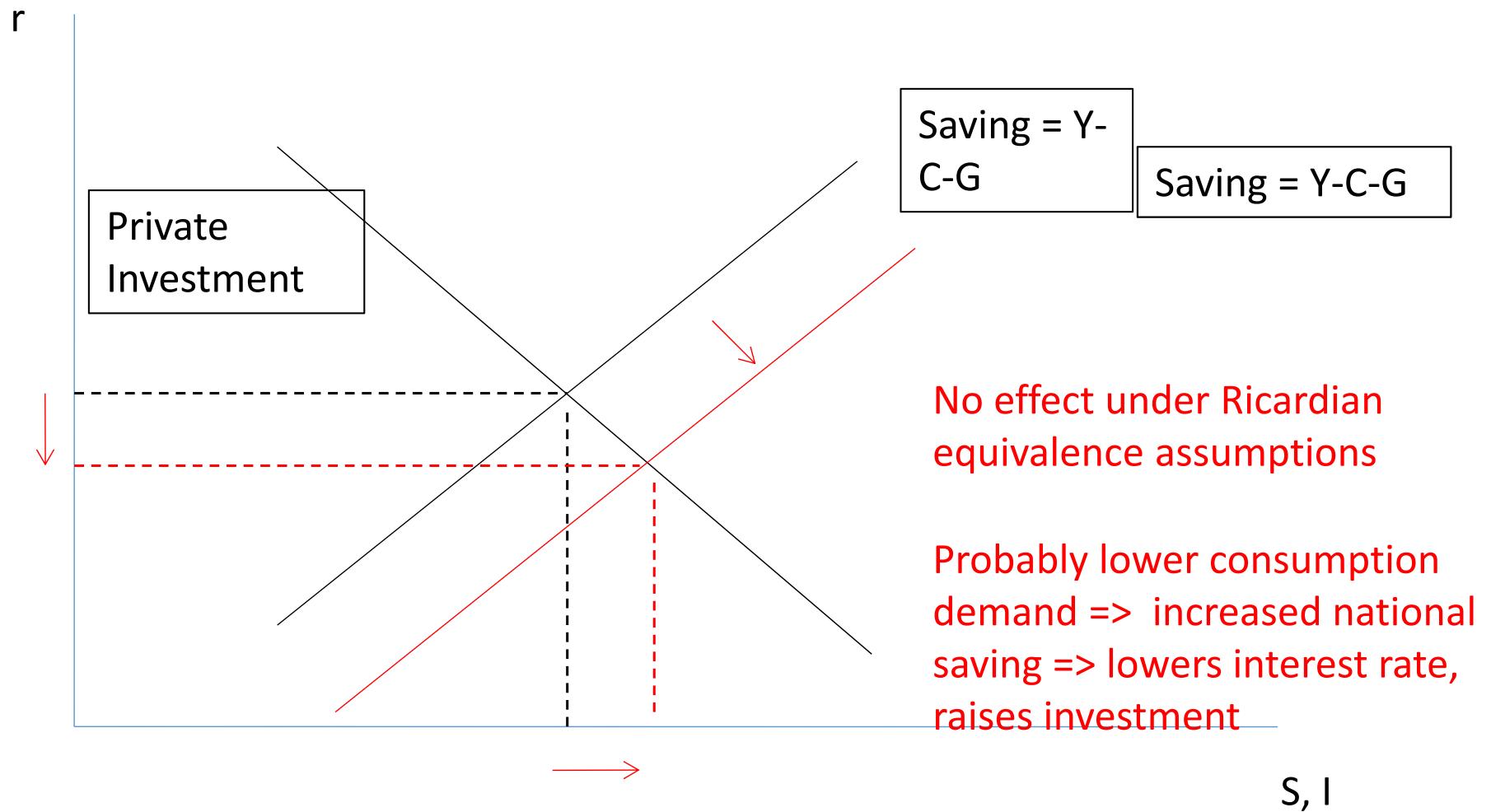
- Finite lifetimes e.g. Social security
- Borrowing constraints
- Opacity of government finances



The effect of a tax increase to close a budget gap

Ricardian equivalence: No effect

Probably: lower C \rightarrow higher S \rightarrow lowers interest rate, raises investment



Suppose the government increases spending to build infrastructure and make green investments

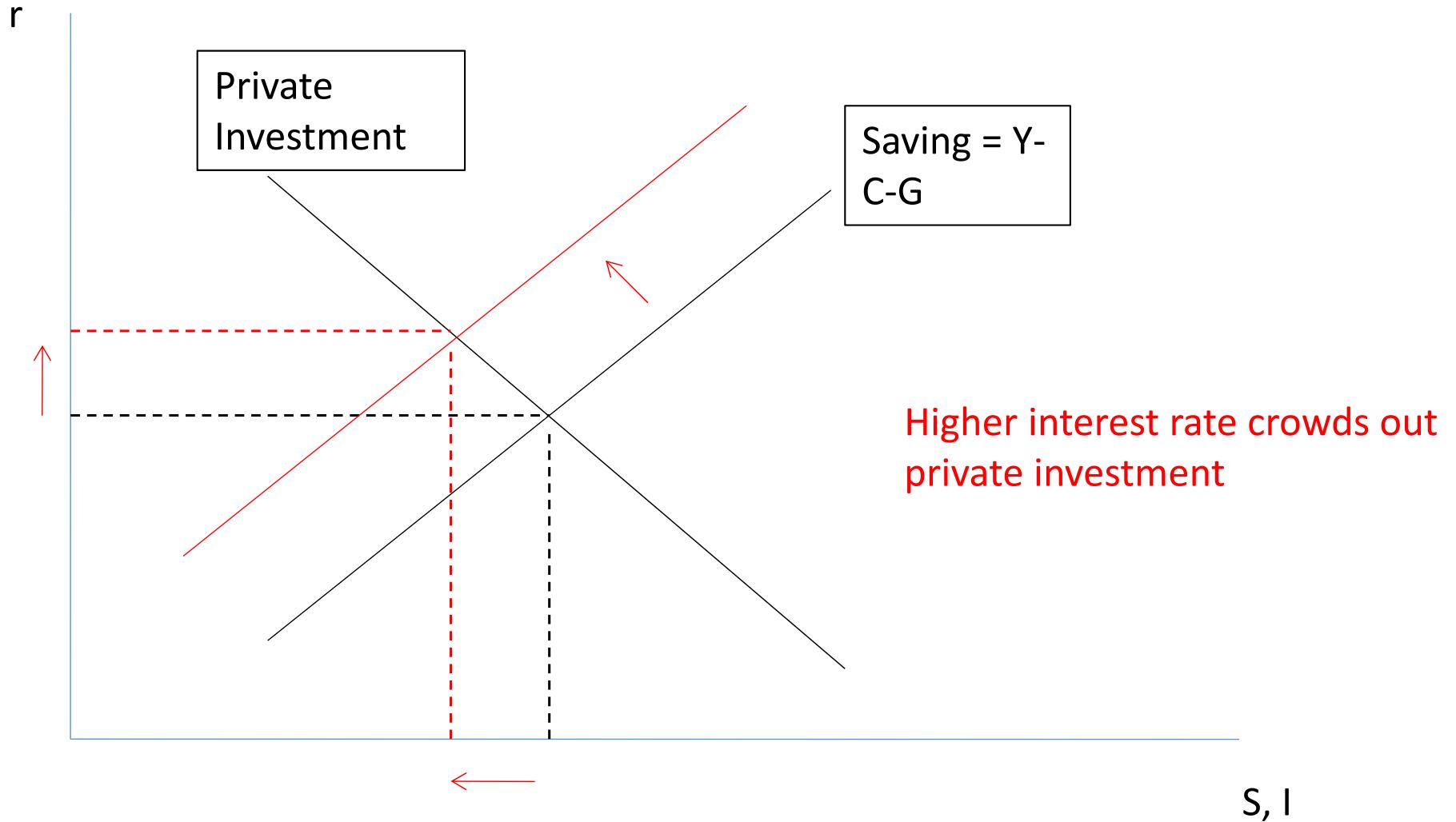
What is the effect of a permanent increase in government purchases of goods and services?

- Key: taxes have to increase or transfers have to decrease to match
- Under Ricardian equivalence, the timing of taxes or transfers is irrelevant
- **Households have less current or future after-tax income so can afford less consumption**
 - So lower C when G rises – can be no change in S
 - Firms can see no change in interest rate

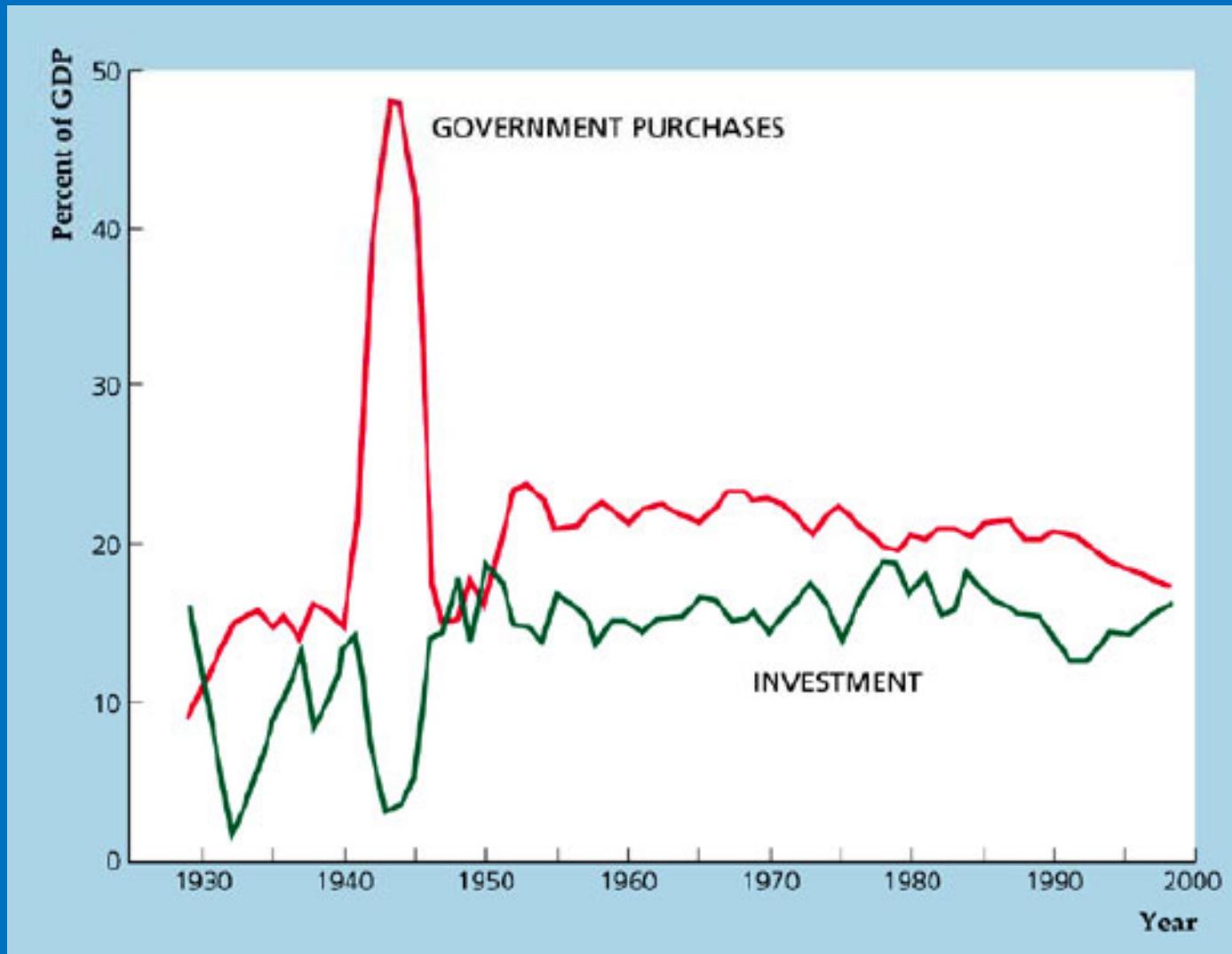
What is the effect of a transitory increase government purchases of goods and services?

Note: Ricardian equivalence is about irrelevance of timing of taxes or transfers not about changes in G

Example: a temporary increase in government spending (e.g. a war or temp spending splurge)



Lesson: deficits crowd out investment if they are ‘caused’ by G, less so if caused by T or TR



Summary of closed economy

- 1. What determines the (inflation adjusted) interest rate in the economy?**
 - The relative supply of saving (goods) and demand for investment by firms
 - Equivalently: The supply of goods relative to the demand by households, firms and the government
- 2. What increases interest rates?**
 - Anything that increases demand for goods today – lower taxes on future profits, expected higher future productivity, expected higher future income, temporary increases in government purchases, . . .
 - Anything that decreases supply of goods – lower productivity today, lower capital today
- 3. The (inflation adjusted) interest rate is the price of goods today relative to goods in the future**

Globalization and interest rates

Lecture Outline

1. Globalization and the Forces Behind It
2. The Costs of Globalization and future prospects
3. Balance of Payments Accounting
4. GDP Accounting
5. Rates of Return in a Closed Economy
6. Global rates of return, capital flows and trade deficits

The concepts we will need

Supply of goods = demand for goods

$$Y = C + I + G + NX$$



And national saving (sum of private and government saving)

$$S = GDP + NFI - C - G$$

Gives us:

$$S = I + NX + NFI$$

National saving = (national investment) + (current account surplus)

A small open economy is subject to world's interest rates

Importers and exporters

Exporter or Importer?

- At the world interest rate, a country that is saving more goods than it wants to invest is a net exporter; a country that wants to invest more than it saves imports goods (on net).

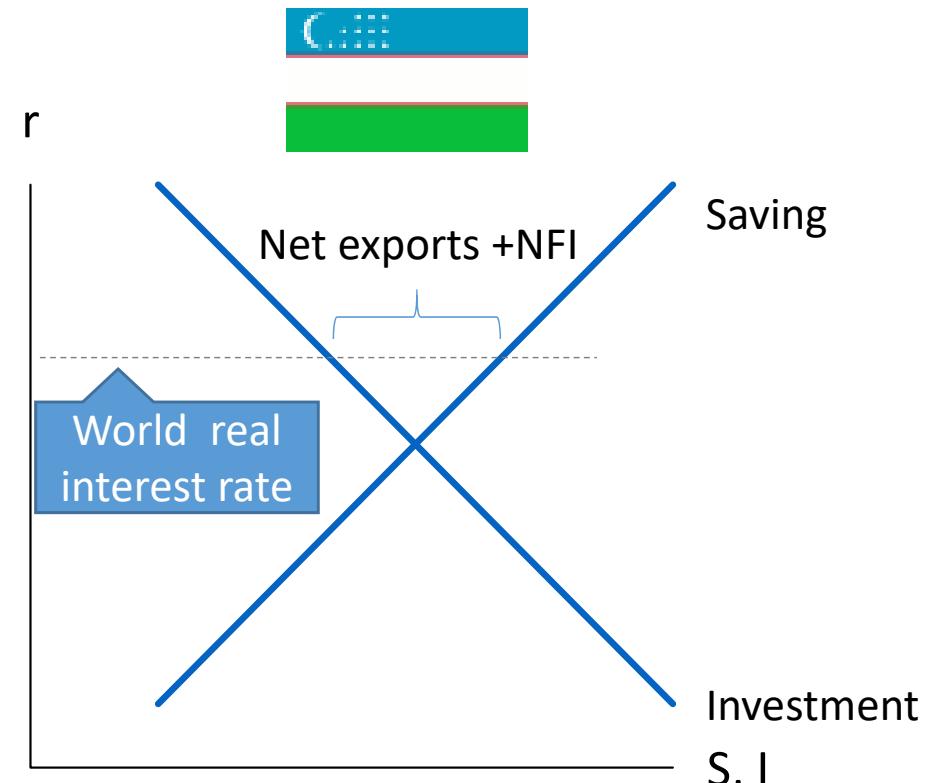
We have here an importer

- Here country exports goods and services (CA surplus) and runs a capital and financial account deficit (lending abroad)

Examples

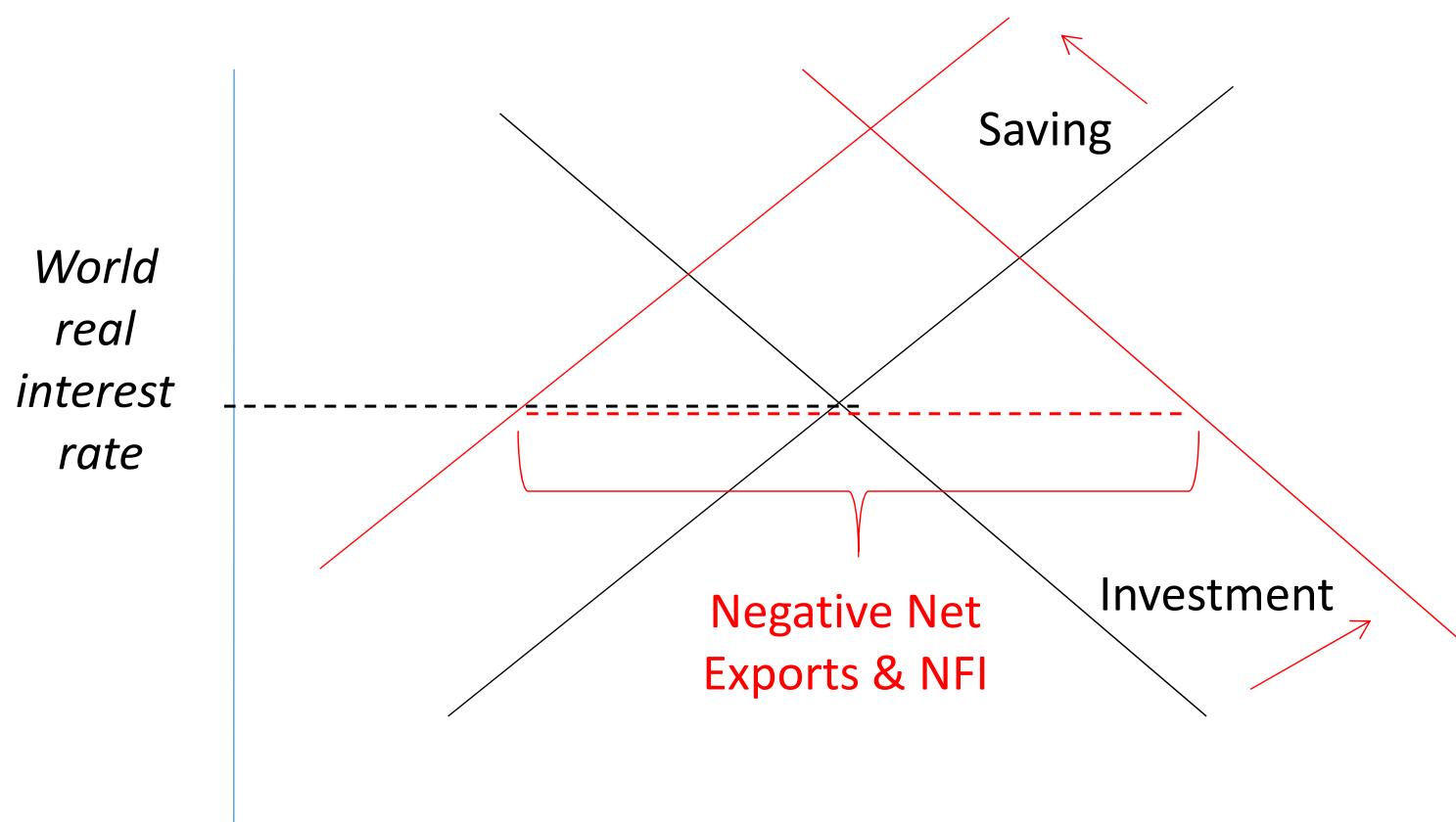
- If Germany has high saving rate => exports goods and lends to other countries
- If Brazil has a high investment rate, runs a current account deficit and borrows from abroad

$$S = I + NX + NFI$$



Example: A developing economy raises its future income prospects

$$S = I + NX + NFI$$



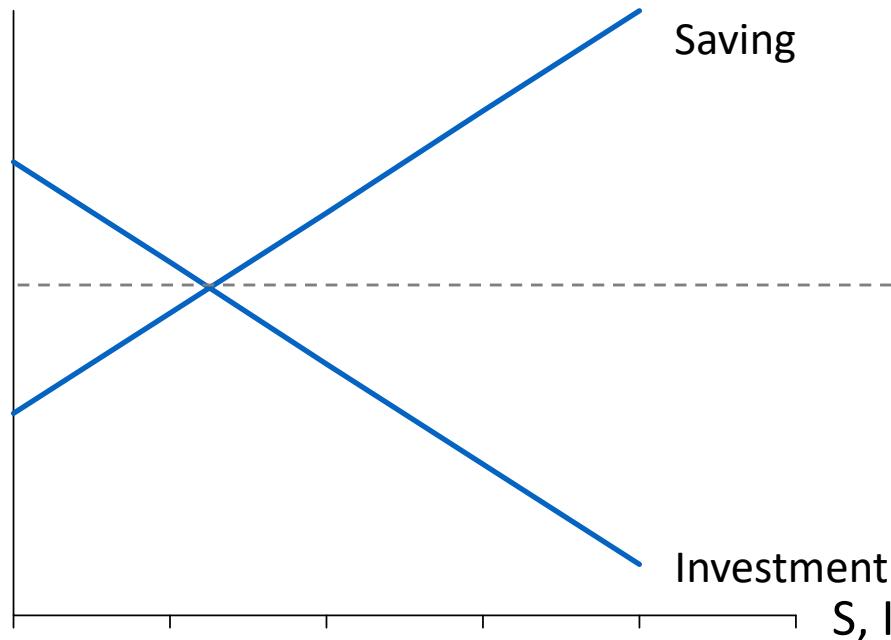
How to model a large open economy

It also influences the world's interest rates

It is possible that at the world real interest rate trade is balanced, each $NX=0$

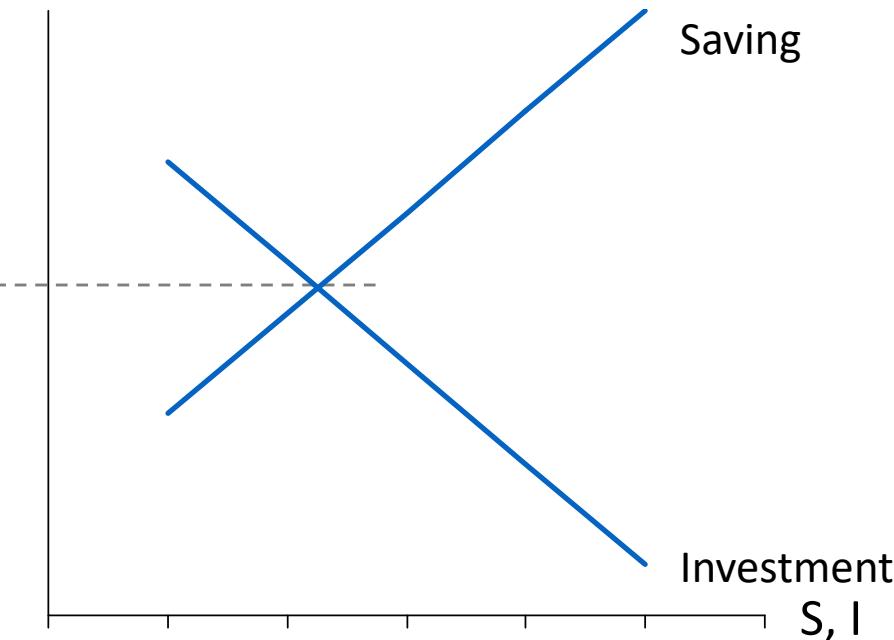
Far East

World real Interest rate



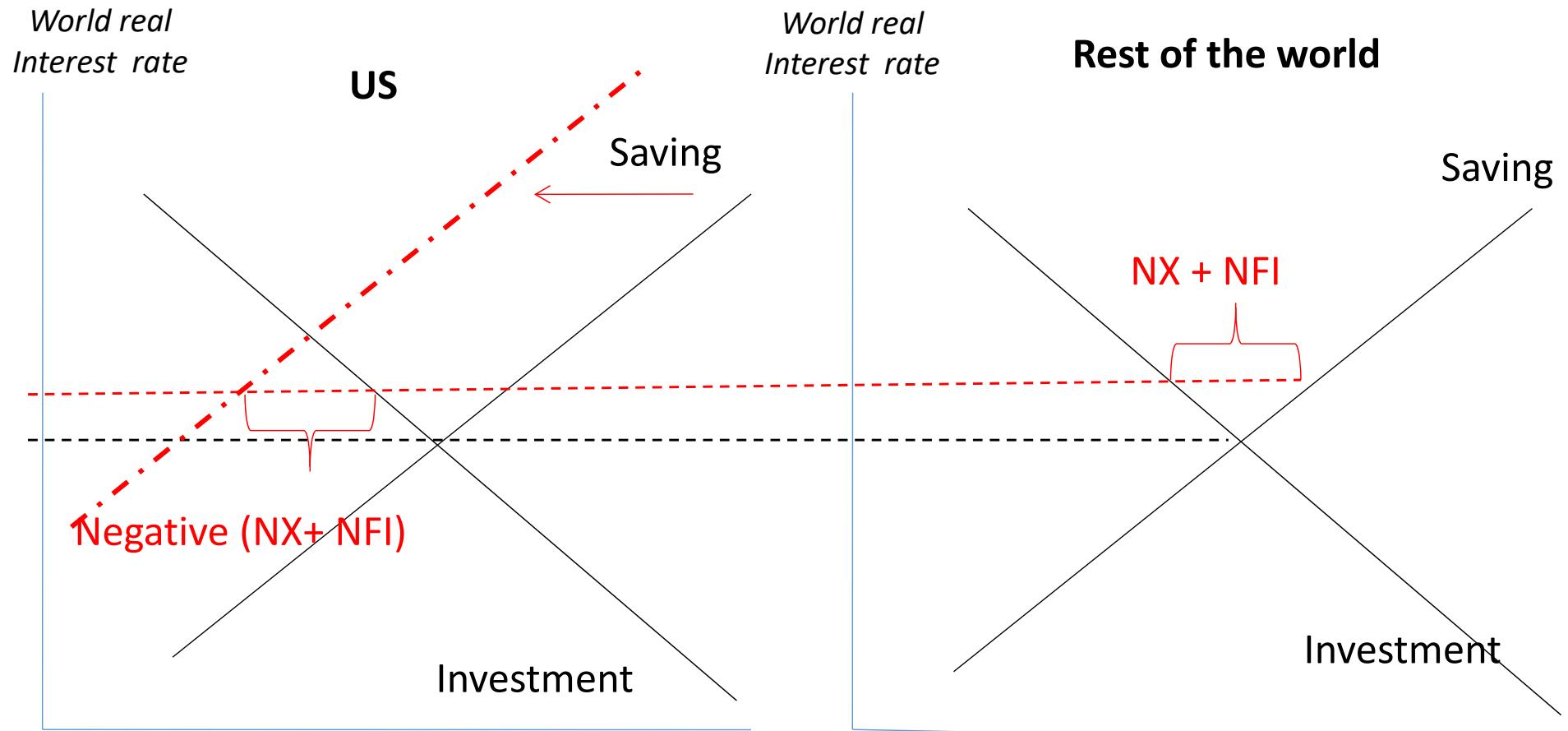
US and Rest of World

World real Interest rate



Global equilibrium: Global $NX=0$, or World Saving= World Investment
When one country adjusts, interest rates make the other country adjust

Example: a large open economy, temporarily cuts taxes without reducing government spending



Initially, balanced trade, then US national savings decreases, world real interest rates rise and capital flows into the US



Why?

How can the US shrink its trade deficit?

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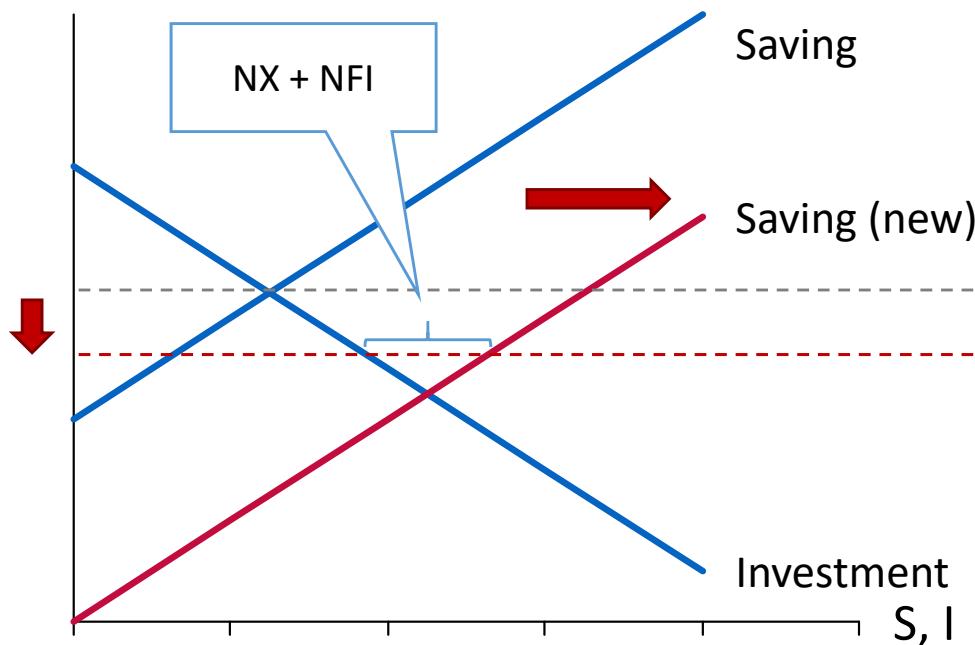
It would be a gross understatement to say that President Trump has failed in delivering on his campaign promise to close the U.S. trade deficit with a view to promoting manufacturing jobs at home.

Indeed, under his watch, not only has the U.S. trade deficit steadily widened over the past two years. It has now reached an all-time high, running at an annual rate of close to a staggering \$1 trillion.

Example Bernanke's Global Savings Glut

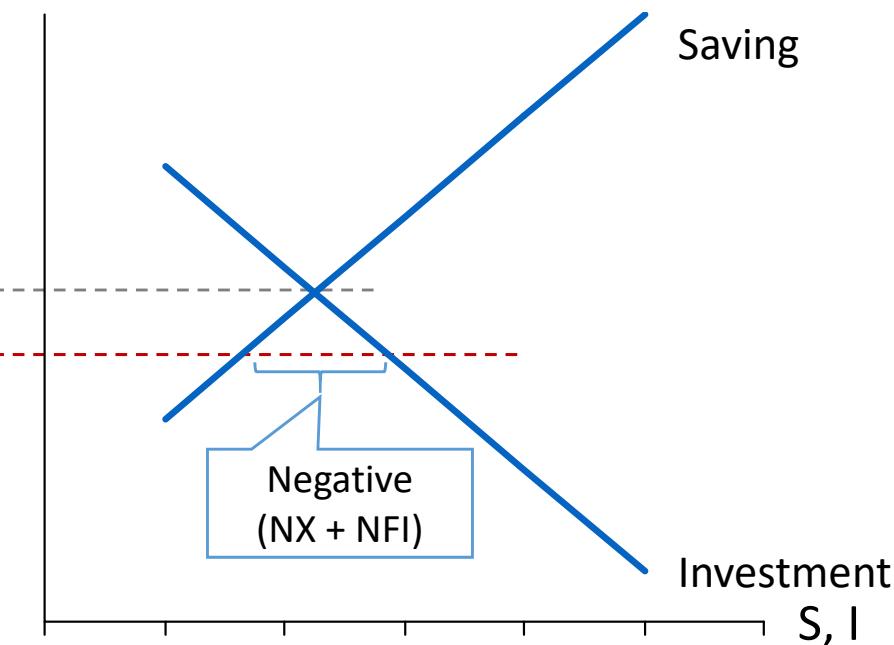
Far East

World real Interest rate



US and Rest of World

World real Interest rate



Initially, balanced trade, then Far East saving increases and world real interest fall and Far East exports to the US

Key concepts

- Risk factors that would increase or decrease global trade or financial flows
- Trade increases productivity: comparative advantage
- Understand balance of payments accounting
- Trade flows are linked to capital flows
- Interest rates, inflation, and real interest rates
- Understand how rates of return are determined in open and closed economies
- The determinants of capital flows and trade deficits

Ahead: currencies and exchange rates