Macroeconomics: A Global Perspective I

Lecture 23

November 20th, 2019

A GLOBAL VIEW: How Might We Summarize National Economic Performances?

Output?

Employment?

Unemployment + Inflation?

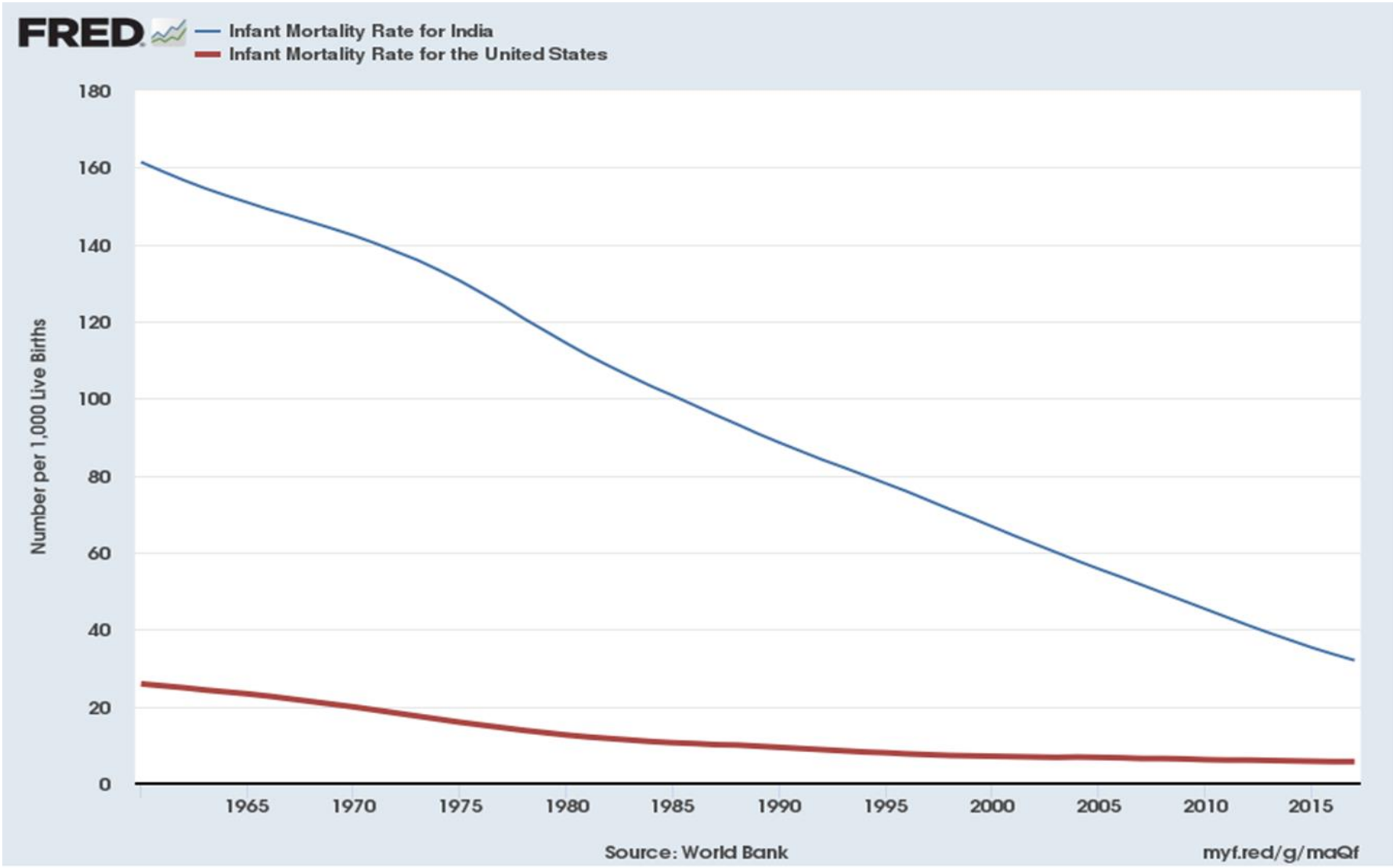
Wealth?

Health?

Satisfaction?

Averages versus ranges?

Let's Start with Tangible Evidence of PROGRESS:



The IMF Provides a Summary Table of the Traditional Measure of National Economic Performance:

IMF: WEO/ Oct. 2018				
	percent of global Real GDP: 2001	percent of global Real GDP: 2017	percent of global population, 2001	percent of global population, 2017
Advanced Economies	56.3	41.3	15.4	14.5
United States	21.4	15.3	4.6	4.4
Japan	7.3	4.3	2.1	1.7
Germany	4.5	3.3	1.4	1.1
France	3.2	2.2	1	0.9
Italy	3.1	1.8	0.9	0.8
U.K.	3.1	2.3	1	0.9
Canada	2	1.4	0.5	0.5
Emerging & Developing	43.8	58.7	84.6	85.6
Africa	3.2	3	12.5	13.1
Asia	22.2	32.4	52.2	48.4
China	12.1	18.2	21	18.8
India	4.7	7.4	16.7	17.8
Middle East	4	6.6	5	6.2
S & C America	8.2	7.7	8.4	8.4
Russia	2.6	3.2	2.4	2.0

A Summary of the IMF Summary Table:

	Percent of Global	Percent of Global	Percent of Global	Percent of Global
	Real GDP: 2001	Real GDP: 2017	Population: 2001	Population: 2017
United States	21.4	15.3	4.6	4.4
Germany	4.5	3.3	1.4	1.1
China	12.1	18.2	21.0	18.8
India	4.7	7.4	16.7	17.8
Russia	2.6	3.2	2.4	2.0

We Can Use USA Data to Extract data for the other 4 Nations:

- *USA real GDP in 2017 = $19.3 trillion*
- *USA real GDP in 2001 = $13.3 trillion*
- *Apply relative weights to infer other nations' real GDP levels:*

  USA, 2017 = 15.3% of global GDP

  Germany, 2017 = 3.3% of global GDP

Germany GDP, 2017 = $\left(\frac{3.3\%}{15.3\%}\right)$ X $19.3 trillion = $4.2 trillion

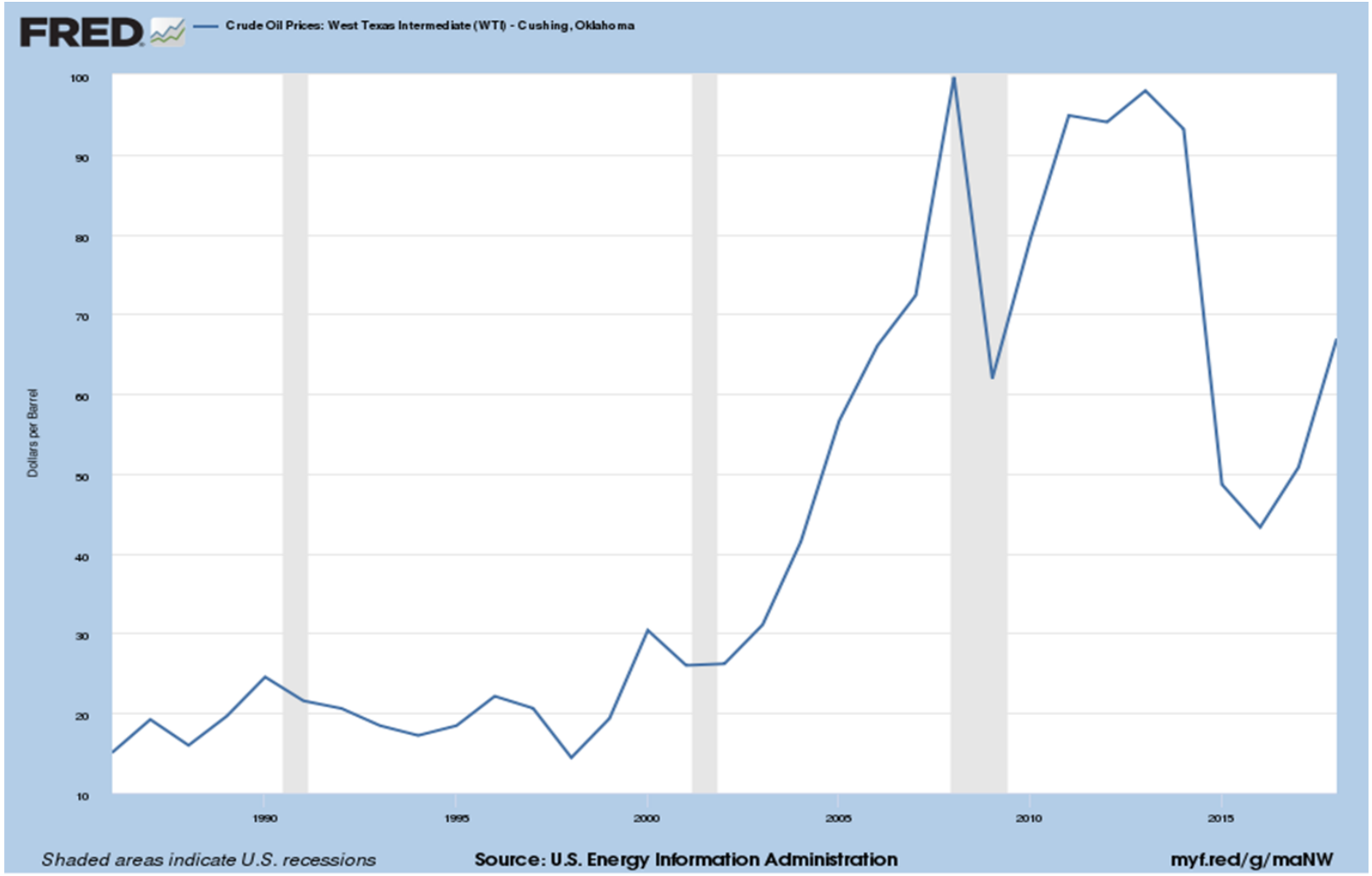
Summary real GDP: The Big Emerging Economies Boom

	REAL GDP	REAL GDP	Annualized
	2001	2017	Growth
	(TRILLIONS	OF $)	Rate:
U.S.A.	13.3	19.3	2.4%
GERMANY	2.8	4.2	2.5%
CHINA	7.5	23.0	7.2%
INDIA	2.9	9.4	7.6%
RUSSIA	1.6	4.0	6.0%

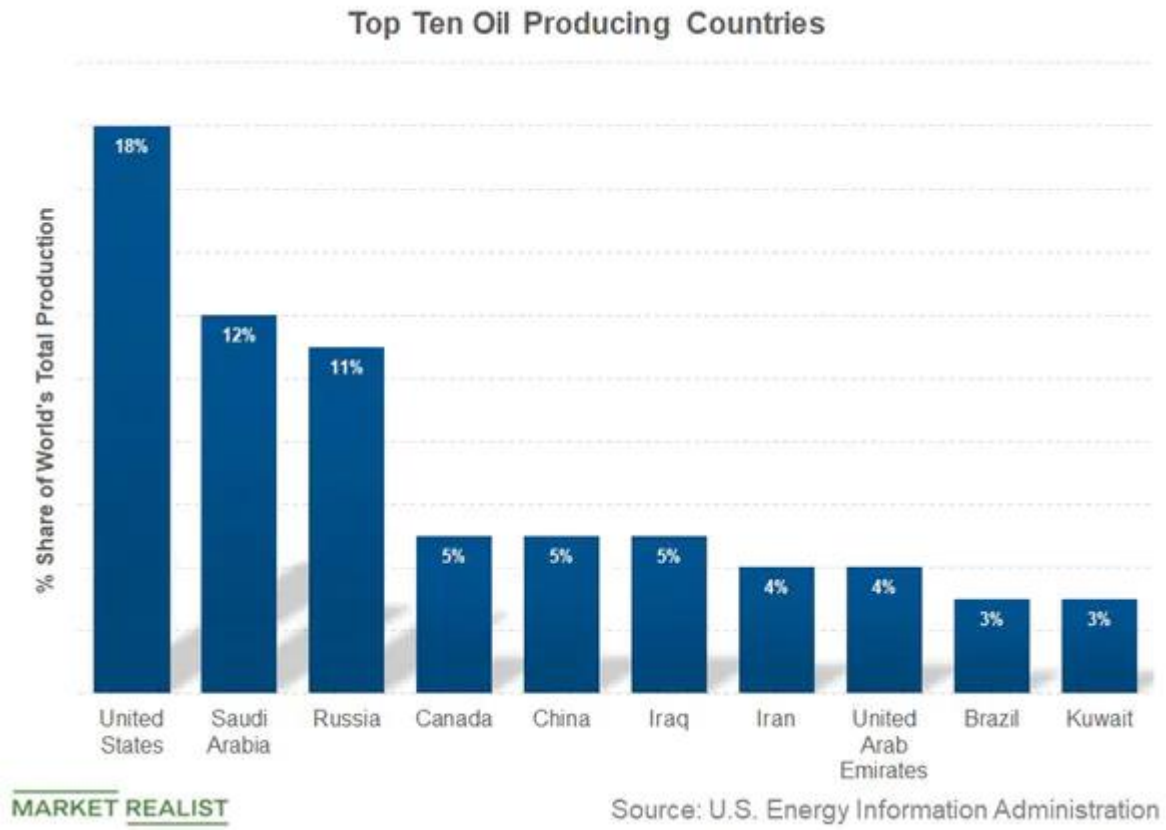
Summary real GDP per capita:

	Real GDP/Capita	Real GDP/Capita
	2001	2016
United States	44.5	51.8
Germany	37.4	44.1
China	5.8	13.7
India	2.4	5.9
Russia	9.9	19.6

What Explains Russia's Gains?
A One Commodity Story:



The Big Three Oil and Natural Gas Producers? USA, Russia, Saudi Arabia:



China: $23 trillion versus USA $19.3 trillion
HOW DID WE GET CHINESE GDP IN US$?
(2017 data)

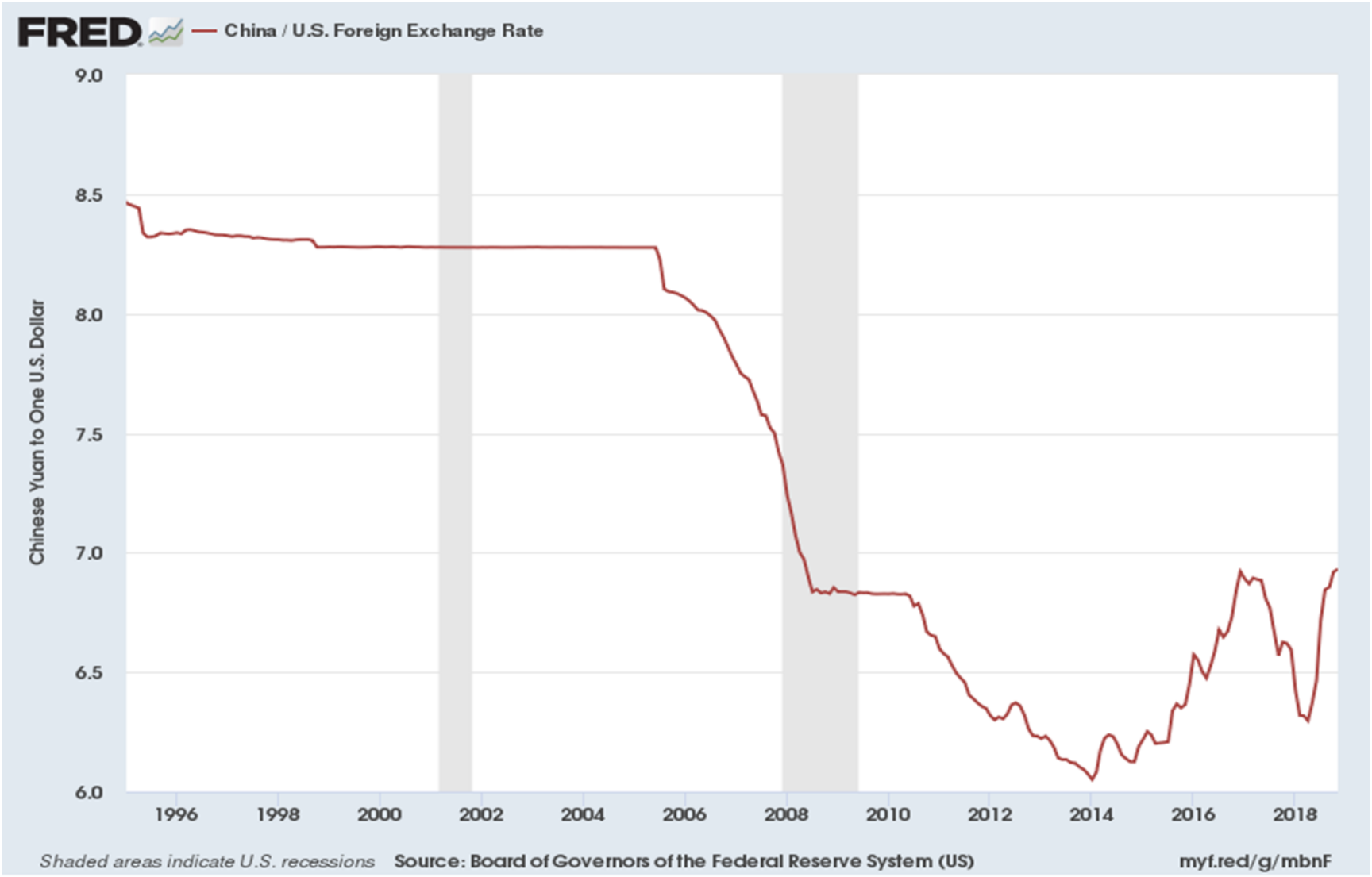
Is the Chinese economy denominated in U.S. $?

No. China's economy operates using ***yuan, or renminbi***

What is the 2017 value for Chinese real GDP, in renminbi?

¥82 TRILLION

How might we relate Chinese ¥ the U.S. $?
As of today, it takes ¥7 to buy $1:



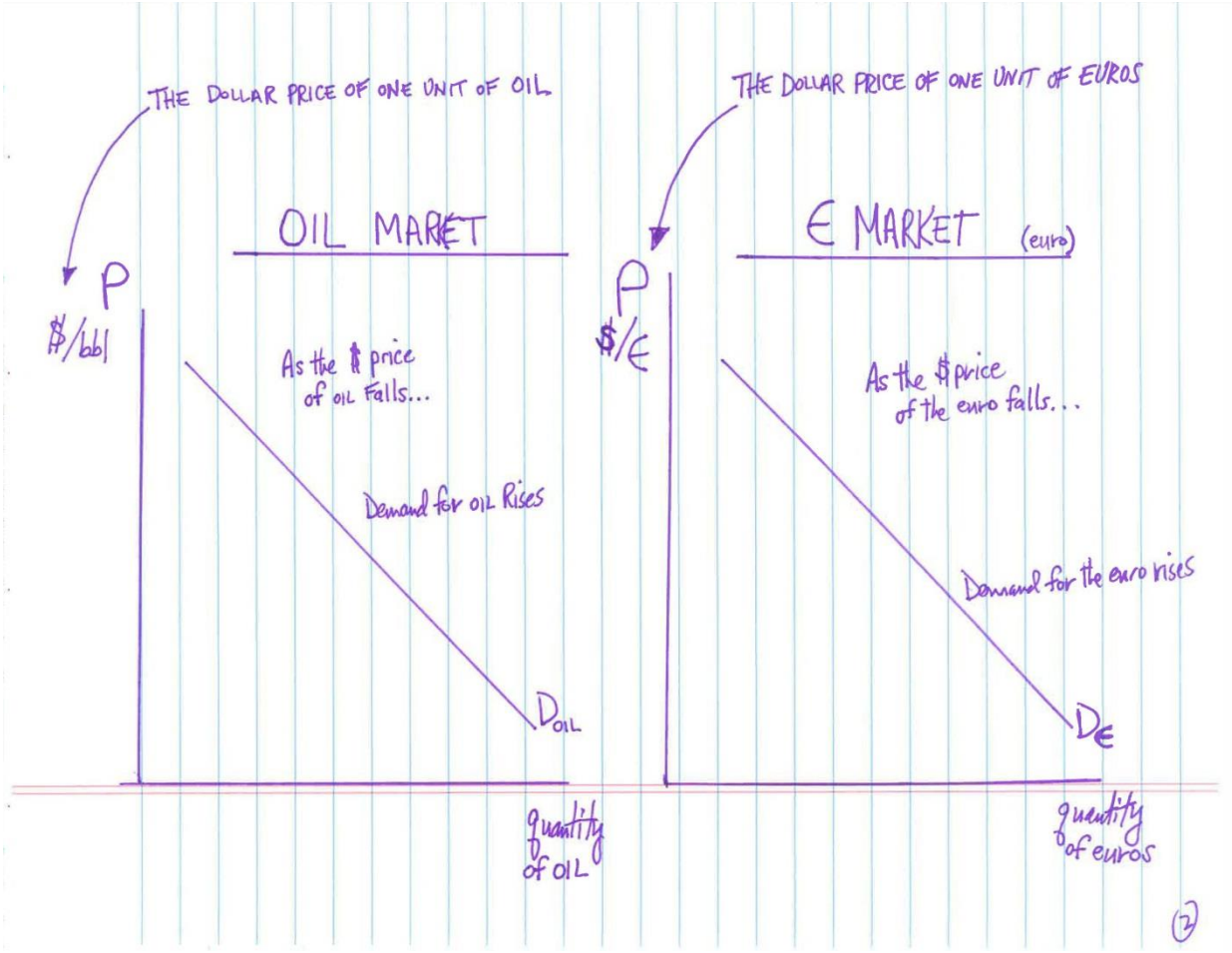
Exchange Rates: The amount of one currency you can exchange for another.

- *You arrive in Paris, 11/15/17, with $500*
- *A bank offers you €431 (431 euros) for your $500.*
- *Your hotel cost €431 per night.*
- *That means, given the $/€ exchange rate on 11/15/17, your hotel room will cost you $500 per night.*

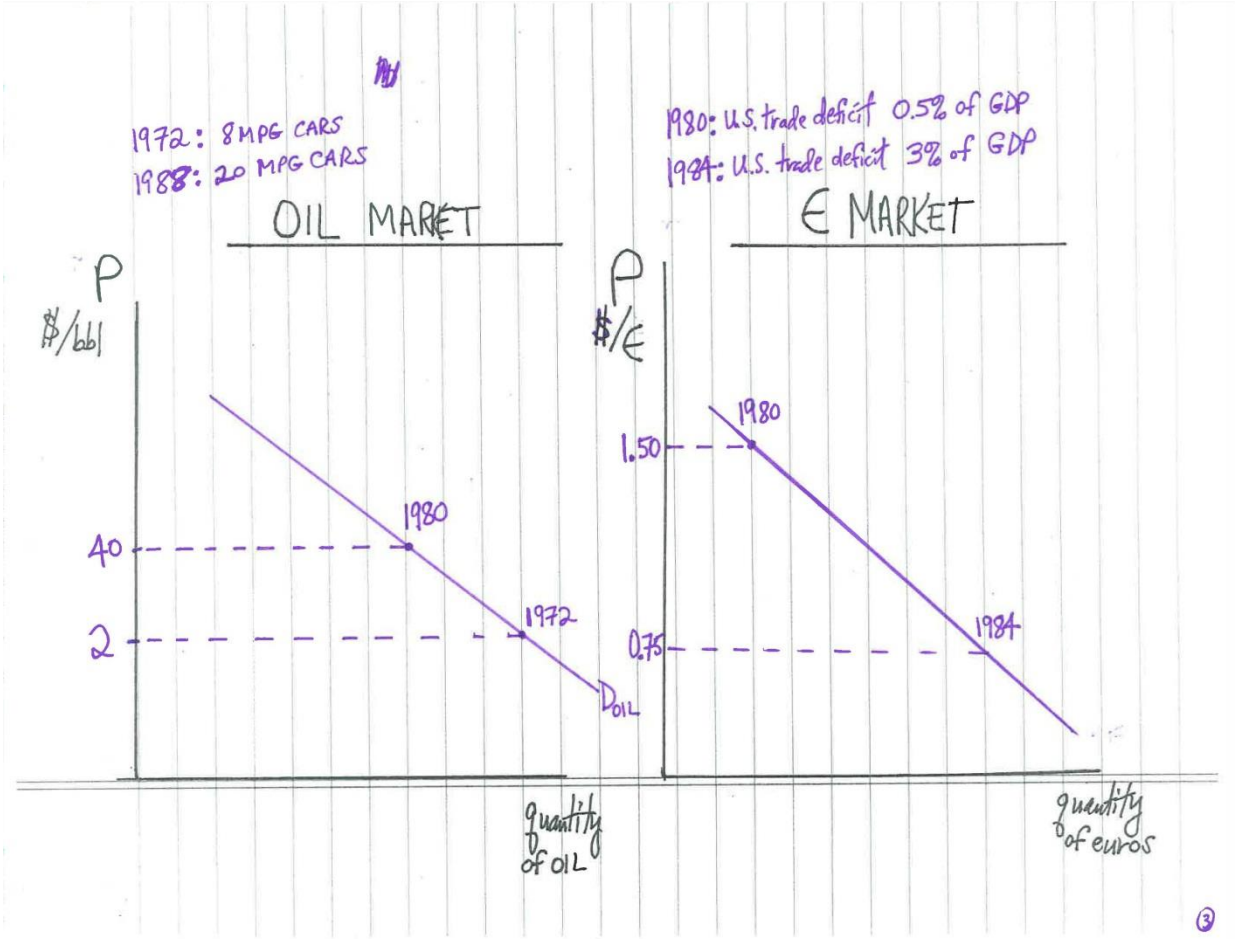
The market for euros. Just like any other market.
How many dollars for one unit of euros?

$/bbl in the oil market ***$/€ in the euro market***

The price is dollars per unit of oil. The quantity is units of oil.
The price is dollars per unit of euro. The quantity is units of euro.
And, of course, we have downward sloping demand!



The surge in oil prices, 1972 to 1980 led to much less demand for oil.
The plunge in the price of European currencies, 1980 to 1984, drove the $ price of European products sharply lower in the USA. This led to a surge in the buying of euros, to facilitate the buying by U.S. citizens, of European goods.



Global Interactions

- *Nations buy one another's goods*
  (this creates demand for other nation's currencies)

- *Nations buy other Nation's services*
  (this creates demand for other nation's currencies)

- *Nations buy one another's assets*
  (this creates demand for currencies)

Supply and demand, globally:

- *We need to think about the supply and demand for globally traded goods.*
- *We need to think about the supply and demand for globally traded services.*
- *We need to think about the supply and demand for globally traded assets.*
- ***We need to think about the supply and demand for globally traded CURRENCIES.***

Imagine a two country world that introduces the trading of cars. Imagine Alpha produces great $10,000 cars. Beta produces inferior €10,000cars.
Alpha's currency, the $, is initially set to equal Beta's currency the €. What happens?

- *Beta car buyers buy up $, in order to buy Alpha cars.*
- *The value of the $ rises versus the €.*

- *Suppose, after a bit, it takes 2€ to buy 1$.*

- *Then the price that Beta buyers must pay for a car made in Alpha is €20,000. Beta citizens will demand fewer Alpha cars.*

- *Note too, that Beta cars, in Alpha, now cost only $5,000. Given the $5,000/car price for a Beta car, those looking for a cheap car in Alpha may choose a Beta car.*

- *The lesson? Currency values will rise and fall, pushing toward* ***EQUILIBRIUM IN TRADABLE GOODS.***

Now imagine a two country world that allows for the trading of assets.
Imagine Alpha real estate is highly sought after, at $100,000 per beach house.
Beta homes, in a rotten climate, cost €100,000 per beach house.
Alpha's currency, the $, is initially set to equal Beta's currency the €. What happens?

- *Beta home buyers buy up $, in order to buy Alpha beach homes.*
- *The value of the $ rises versus the €.*

- *Suppose, after a bit, it takes 2€ to buy 1$.*

- *Then the price for a Beta buyer of an Alpha home is €200,000. Beta citizens will demand fewer Alpha homes.*

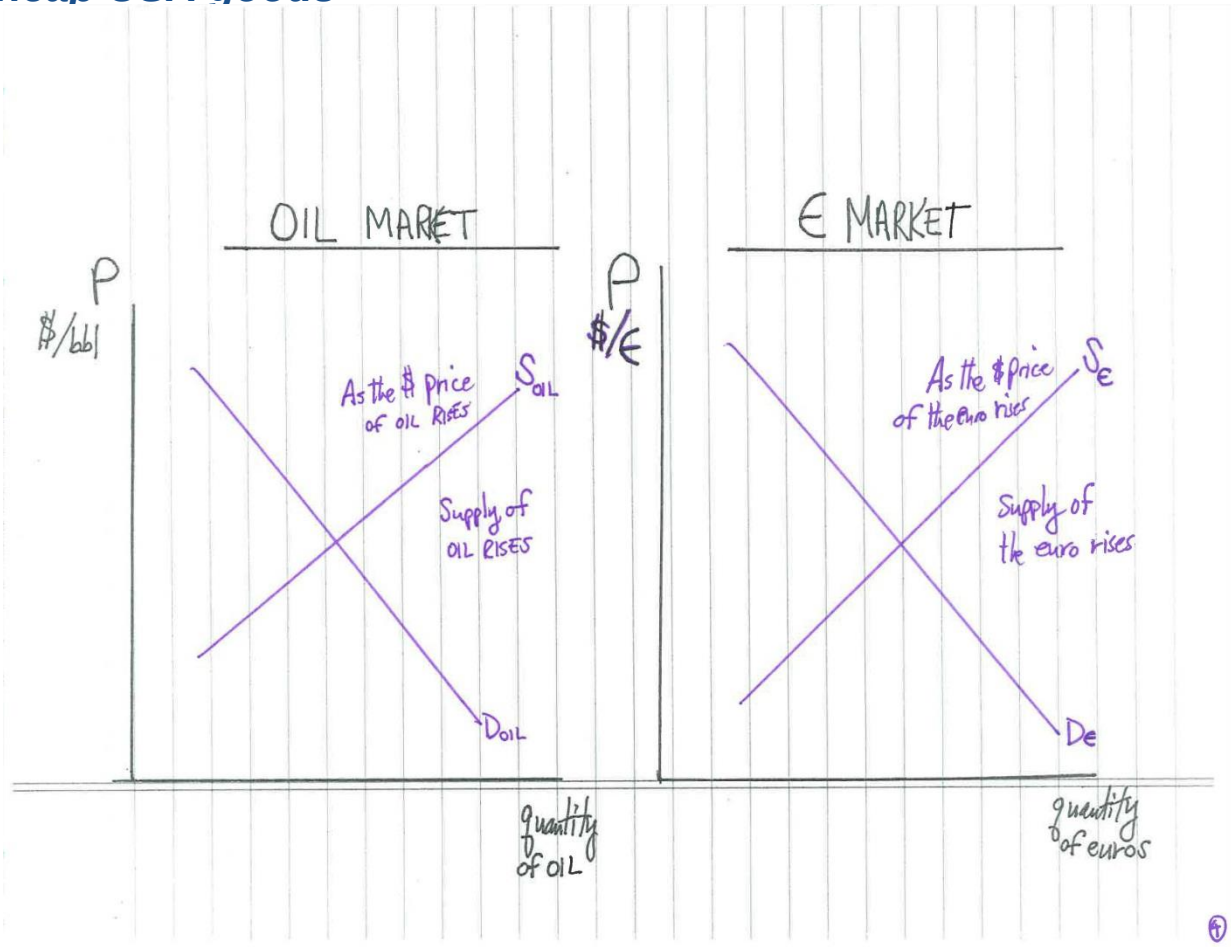
- *Note too that Beta homes, in Alpha, now cost $50,000. At $50,000/home, Alpha citizens looking for a cheap beach house may choose to buy a home in Beta.*

- *The lesson? Currency values will rise and fall, pushing the cross national real estate markets toward* ***EQUILIBRIUM.***

IN THE REAL WORLD, HOW DOES THIS WORK?

- *THERE IS GLOBAL DEMAND FOR GOODS, AFFECTING CURRENCY VALUES.*
- *There is global demand for services, affecting currency values.*
- *There is global demand for assets, affecting currency values.*
- *Currency values reflect these supply and demand forces across goods/services and asset markets.*

Supply: upward sloping. Oil leaps to $100/bbl, fracking is invented, output soars.
The price of the euro soars, this means you get many more $ per euro.
The purchasing power of the euro jumps, you swap your euros for dollars to buy cheap USA goods



Idea! We use the foreign exchange market's Chinese ¥/US$ exchange rate, to convert China's real GDP, valued in ¥, into a U.S. $ value for Chinese real GDP: (2017 values)

$$¥82.7 \text{ TRILLION} \times \left(\frac{\$1}{¥6.7}\right) = \$12 \text{ trillion}$$

HUH???

The IMF Report Claims China's Real GDP = $23 trillion

The IMF does not believe market exchange rates are the best guide to equating Nations' real GDP levels. They evaluate the PURCHASING POWER of currencies

Purchasing Power Parity: what exchange rate lets you buy the same amount of stuff for a specified amount of money:

Purchasing Power Parity:

In nation Alpha, I spend $100,000 per year:

I buy a 3000 ft^2 house, an SUV, and good food and wine.

In Nation Beta, I spend ¥500,000 per year:

I buy a 3000 ft^2 house, an SUV, and good food and wine. (same stuff)

What exchange rate gives me the same purchasing power?

$1 = ¥5

The Economist Magazine Offers us the Big Mac Index (updated by RJB for 11/18)

USA: ($5.74)/(1 burger) *China: (¥21.00)/(1 burger)*

We calculate what the rm/$ exchange rate needs to be, so as to equalize the cost of the burger:

$$\frac{\$5.74}{1\ burger} \times \frac{¥??}{1\ \$} = \frac{¥21}{1\ \text{burger}}$$

$$\frac{¥??}{1\ \$} = \frac{¥21}{1\ burger} \times \frac{1\ \text{burger}}{\$\ 5.74}$$

1$ = ¥3.66

The current ¥ /$ market exchange rate is ¥7.0 to get 1$.

The Big Mac index says it should only take ¥3.66 to buy 1$.

$\frac{¥3.66}{1\ \$}$ *, so ¥1= 27 cents versus* $\frac{¥7.0}{1\ \$}$ *, or ¥1= 14.3 cents*

$\frac{14.3\ \text{cents}}{27\ \text{cents}}$ *= 53%*

Thus the Big Mac index says the ¥ is 47% undervalued.

The IMF USES the PPP exchange rate value to calculate the real $ value of Chinese Real GDP In 2018 Chinese nominal GDP was ¥90 TRILLION:

We can use our BIG MAC INDEX as a proxy:

$$¥90 \text{ TRILLION} \times \left(\frac{\$1}{¥3.66}\right) = \$ \text{ 24.6 trillion}$$

The IMF looks at the prices of thousands of goods and services to calculate PPP. In doing so they assert that real GDP in 2018 in China equaled $25.6 trillion. The *Economist Magazine's* BIG MAC Index got us close to that value.

How Economies are Connected

- *Goods flow between nations*
  - *USA sends soybeans to China*
  - *China sends flat screen TVs to the USA*

Services flow between nations
- *USA processes European transactions, via Mastercard*
- *India fields questions on IPAD usage, via call centers*

Financial Assets flow between nations
- *China's central bank bought billions of U.S. treasuries*
- *U.S. Companies invest $billions building factories in China*

Trade Balances Globally. Different reasons for surpluses and deficits. (POLYTROPOS)

Trade Surpluses	2017 (% of GDP)		Trade Deficits	2018 (% of GDP)
Germany	6.7%		Brazil	0.5%
Saudi Arabia	12.8%		France	-0.8%
Russia	10.0%		Mexico	-1.9%
Korea	5.4%		Canada	-2.1%
Italy	2.5%		Argentina	-2.0%
China	0.8%		U.S.A.	-4.5%
Source: World Bank Data				

USA Buys Chinese made flat screen TVs
China buys U.S government T-Bonds (2016 data)

- *U.S. citizens, yearly, buy $475b worth of Chinese goods.*
  China collects 475 billion DOLLARS

- *What do the Chinese with the 475 billion DOLLARS?*
  Chinese citizens buy $115 billion worth of U.S. goods

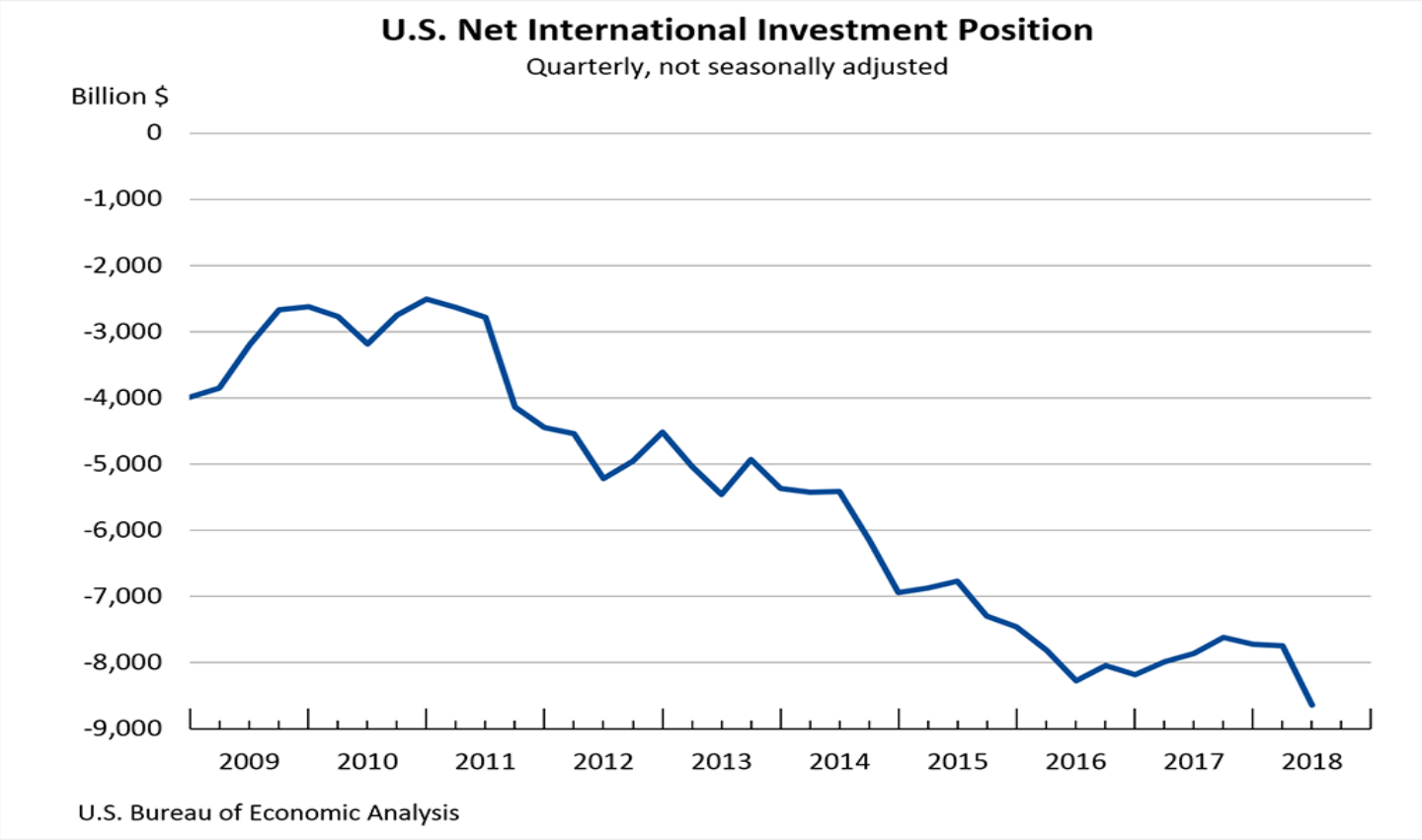
- *China still has 360 billion Dollars to spend!*
  China accepts $360 billion IOUs from USA:
    China receives $360 billion of U.S. assets:
      China, via their central bank, buys U.S. t-bonds
      Chinese elites buy U.S. stocks
      Chinese elites buy Seattle real estate

The USA runs a trade deficit, therefore they must run a capital account surplus. LET'S SIMPLIFY:

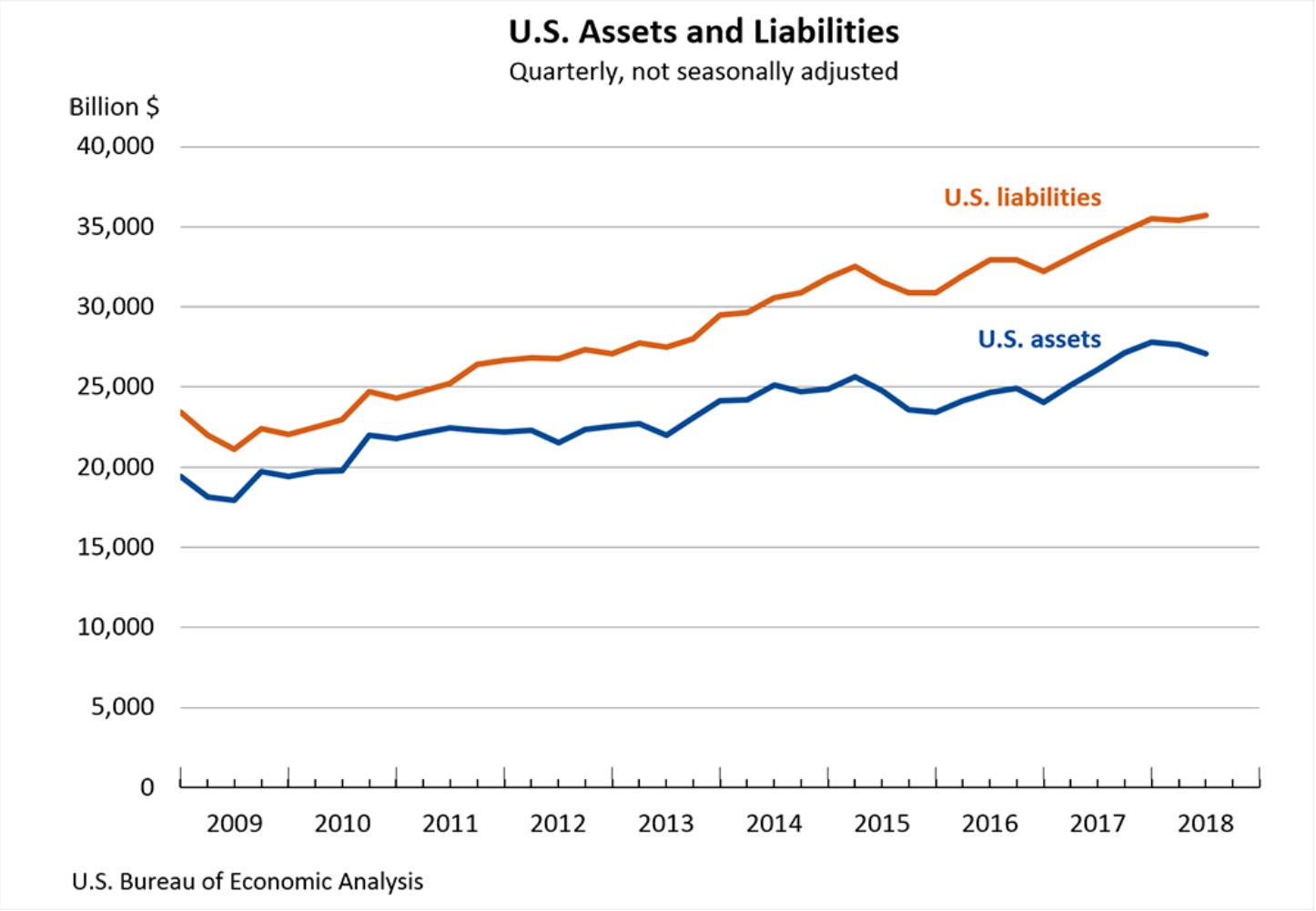
- *USA, in Sept. bought $52 billion MORE, goods and services, than we sold to ROW.*
- *Therefore ROW bought $52 billion MORE of USA assets than the ROW sells to the USA*
- *USA invests in factories in China (buy factory asset)*
- *USA buys European Stock (buy equity asset)*
- *ROW buys USA treasuries (buy government asset)*
- *ROW buys shares of USA companies (buy equity asset)*
- *ROW buys USA houses in Florida (buy tangible asset)*

- *ROW purchases of USA assets must be $52 billion higher than USA purchases of ROW assets*

The U.S. has consistently had a deficit, in its goods ands service account. That means it has consistently run a capital account surplus. These accumulated net foreign inflows have increased the size of its NET DEBTOR POSITION.



What is also clear? The U.S. owns a very large sum of ROW Assets. The 'net' of our net debtor status is small relative to gross cross national asset ownership



As of Q1:2019, USA international asset position:

	2019:Q1 $ trillions
U.S. net investment position	-10.1
Assets	27.1
Liabilities	37.1

USA Net debtor position akin to U.S. government debt

- *The US runs a budget deficit.*
- *Each yearly deficit contributes to an increase in the size of government debt.*
- *The USA runs a current account deficit (CAD).*
- *Each yearly CAD contributes to an increase in the size of the USA international investment position.*

- *The USA NET DEBTOR STATUS, is a measure of the mismatch between USA ownership of foreign assets vs ROW ownership of USA assets*
-

Moreover, despite the U.S. 'net debtor' status, it collects more on its assets, than more than it pays on its liabilities.

- *Income received in U.S. investments abroad:*

  $928 billion in 2017

- *Income paid on foreign owned U.S. investments:*

  $706 billion in 2017

USA collects $928 billion on $27 trillion (3.4%)
USA pays $706 billion on $35 trillion (2.0%)
Why does USA do have a much better return on assets (ROA)????

What assets does U.S. own around the world? What are the biggest holdings, by foreigners, of U.S. Assets?

USA owns factories around the world

Foreigners own U.S. treasury bonds and notes

Factories yield more than treasuries.

(Think Baa vs T-notes)