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UNIVERSITÄT
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UNIVERSITY OF
ECONOMICS
AND BUSINESS



SEEP Bridging Course

Lecture 4: Finance and Financialization

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A brief history of economic development in Western economies

Europe after WWI

- The World Wars resulted in a global economic crisis
- Power was centralized in the hands of a few players
- Post WW1, countries owed huge sums of money to each other (UK to the US, France owed to the UK)
- Versailles Treaty (1919):
 - Ended WW1 between Germany and the Allies. Divided the European territories.
 - Forced Germany pay for war expenses to other countries (War Guilt clause)
 - USD 440 billion today
 - Everyone was unhappy with it. Resulted in WW2.
- Led to the creation of the League of Nations
 - Arbitration of disputes
 - Work protection and regulation
 - Work hours, pensions, etc.
 - Access to health services, education
 - Led to the creation of the International Labor Organization (ILO)

Early trade blocs

- Mercantilist and neo-mercantilist policies blocked trade in Europe
 - High exports
 - Block cross border trades
 - High import tariffs
- UK
 - Traded with only its colonies
 - Had a negative balance of trade but a high reserve of currency
 - Colonies were encouraged to keep money in the UK
- Germany
 - Close ties with its allies
 - Pushed for high export of own goods to neighbors
- USA benefitted from trading with both
 - Neutral country
 - High export of arms kept employment levels high
 - Kept pushing for more free trade

Post War - UK

- UK, a colonial power, ran into huge financial troubles
 - Had spent a lot of money supporting allies
 - Industry was destroyed and later privatized
- Did not want to fully open its market to countries outside its colonies
- The US was aggressively pushing for entry into the UK market
- Eventually UK had to ask for money from the US and agreed to open its ports
- Trade between UK and the US became half of total world trade.

Post WW2 thinking

- Wars were caused by
 - Economic inequality
 - Trade restrictions
 - Therefore: Need to move to a free flow of goods
- Keynes (representing UK at the Bretton Woods conference)
 - Cut speculation in the financial sector and stabilize the economies
- Government intervention was considered necessary as a means of ensuring well-being
 - Creating employment (public works programs)
 - Ensuring peace
 - Ensuring a minimum standard of living

Bretton Woods meeting

- 44 allied nations agreed to meet in Washington Hotel, Bretton Woods, New Hampshire, US
 - Rethink the global financial system
 - 700+ delegates but
 - Two key architects: Harry Dexter White (US), John Maynard Keynes (UK)
 - The Bretton Wood agreement was signed on 22nd July, 1944
- Agenda
 - A new financial system is needed to oversee the financial relationships between the industrialist economies
 - Increase trade
 - Stabilize economies through monetary policies
 - Stabilize exchange rates

Bretton Woods outcomes

- International Monetary Fund (IMF)
 - Regulate world's money supply
 - Regulate exchange rates
- International Bank for Reconstruction and Development (IBRD)
 - Finance recovery in economies destroyed by war
- All countries will adopt a monetary policy
 - Regulate money supply and interest rates
 - Gold standard was still in place
- USD was made the reserve currency
 - Other countries aim to maintain a stable exchange rate with the USD
 - IMF will bridge any short-term trade imbalances

Currency of the IMF?

- A country's currency was pegged to the amount of gold stock
 - Fixed exchange rate system
 - More gold meant more currency could be issued
- If a country had a trade deficit:
 - Sell gold -> reduce money supply -> reduce demand for goods -> balance the deficit
- What will be the reserve currency for the IMF, and therefore the world?

Currency of the IMF?

- Keynes:
 - Introduce a new world currency: “bancor”
 - Which the IMF can print and regulate without any political interference
 - Both debtor and creditor countries have to pay for balances
- White:
 - USD is already very strong
 - More stable than gold prices
 - Interest could be earned on the dollar
- British Pound had weakened significantly post war
- Because of US economic dominance the US proposal was agreed upon

How was the IMF funded?

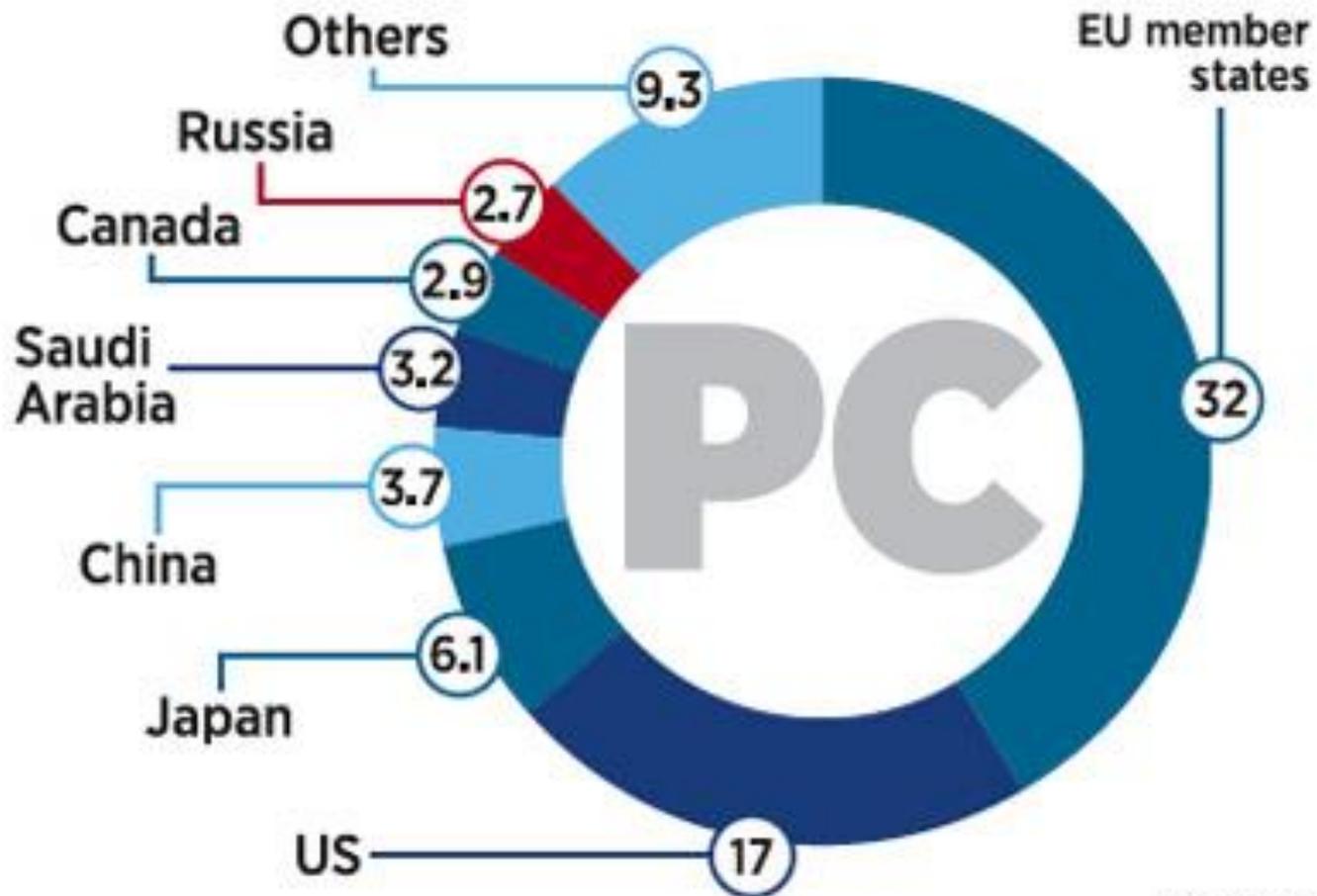
- IMF funding reflected US policy as well
- A quota system where the quota would be assigned based on economic strength
 - To be paid in currency and gold
- A country with a higher quota would be able to borrow a higher amount as well
- A voting system proportionate to quotas was also introduced
- US set its quota at 30%
 - Complete veto power

IMF Quotas

“The current [quota formula](#) is a weighted average of GDP (weight of 50 percent), openness (30 percent), economic variability (15 percent), and international reserves (5 percent). For this purpose, GDP is measured through a blend of GDP—based on market exchange rates (weight of 60 percent)—and on PPP exchange rates (40 percent). The formula also includes a “compression factor” that reduces the dispersion in calculated quota shares across members.”

IMF Website

IMF Country Quotas



SOURCE: IMF

Further Boost to the Dollar

- US exports grew significantly resulting in a huge positive trade balance
 - US had all the dollars
 - The rest of the world had a demand for dollars
 - Resulted in a dollar shortage!
- Active policy to reverse the dollar flow (trade deficit)
 - Started the culture of multi-national corporations investing in other countries
 - Pushing industrialization policies in other countries
 - Aid and donations

Rebuilding of Europe

- The IBRD set up a bank to help Europe with the recovery post WW2
- IBRD didn't have a large pool of reserves
- The financial sector was very simple
 - IBRD being risk averse only did safe lending
- To boost the European recovery the Marshall Plan (European Recovery Program) was set up in 1947
 - Huge outflow of money to Europe (worth USD 130 billion today)
 - UK (26%), France (18%), German (11%)
 - Still referred to as Eurodollars
 - +other countries with a strong anti-communist agenda
 - Trade with Japan was also boosted
- USSR refusing to agree to the Bretton Wood
 - Forced neighboring countries to refuse aid as well (Czech, Poland)
 - Threat of US taking over the local economy (free market imperialism)
 - US also started expanding its military bases around communist countries

US 1950 Balance of Payment (BoP) crisis

- The outflow of dollar created two problems
 - The demand for dollar kept increasing and hence its value
 - Increased the claims on the dollar in US banks
 - Mostly Eurodollars (60s and 70s): > USD 80 billion
 - Gold was being traded on the markets and gold reserves started shifting outside of the US
 - Huge outflows created liquidity issues at home
 - E.E.C. in 1960 allow Europe to exchange its various currencies
- Started creating concerns for
 - the dollar (current account deficit)
 - and its relation to the gold (depleting reserves)

Balance of Payments (BoP)

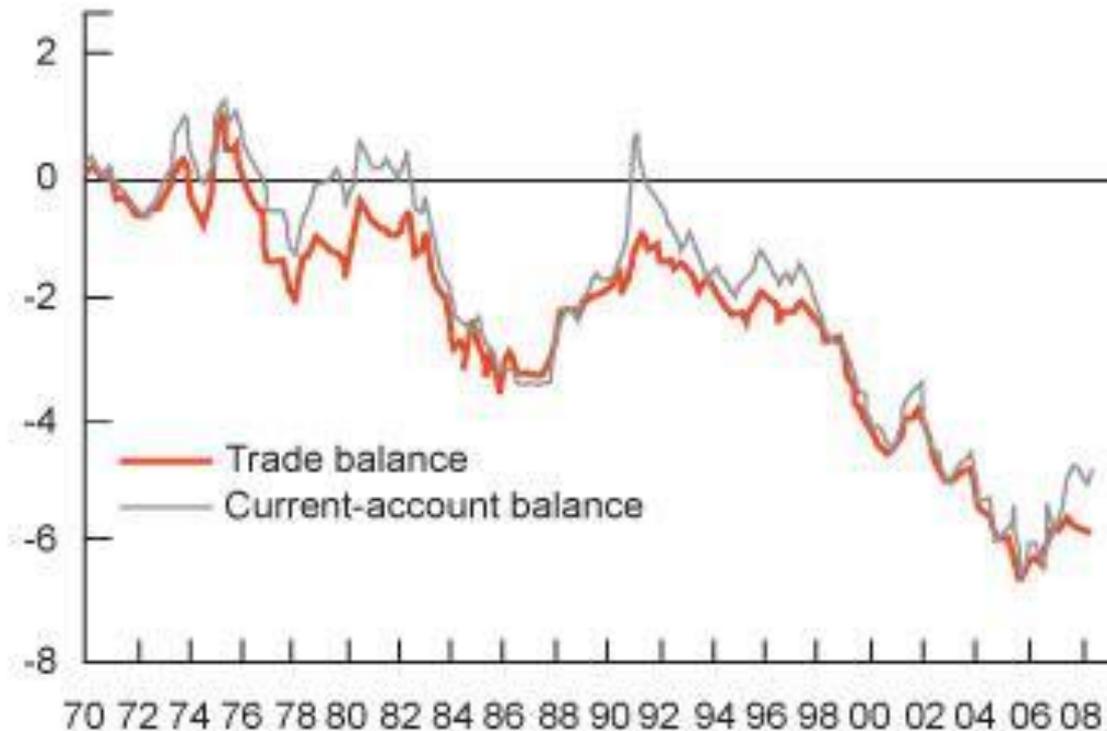
“The balance of payments is a statistical statement that systematically summarizes, for a specific time period, the economic transactions of an economy with the rest of the world.”

IMF BoP Manual

- Theoretically BoP should be zero (assets = liabilities)
- Three parts:
 - Current account:
 - Inflow and outflow of goods and services
 - Earnings on income and investments
 - Capital account
 - Acquisition and disposal of non-financial assets
 - Financial account
 - International monetary flows related to investments
 - Government assets, bonds, foreign reserves
 - Assets held abroad

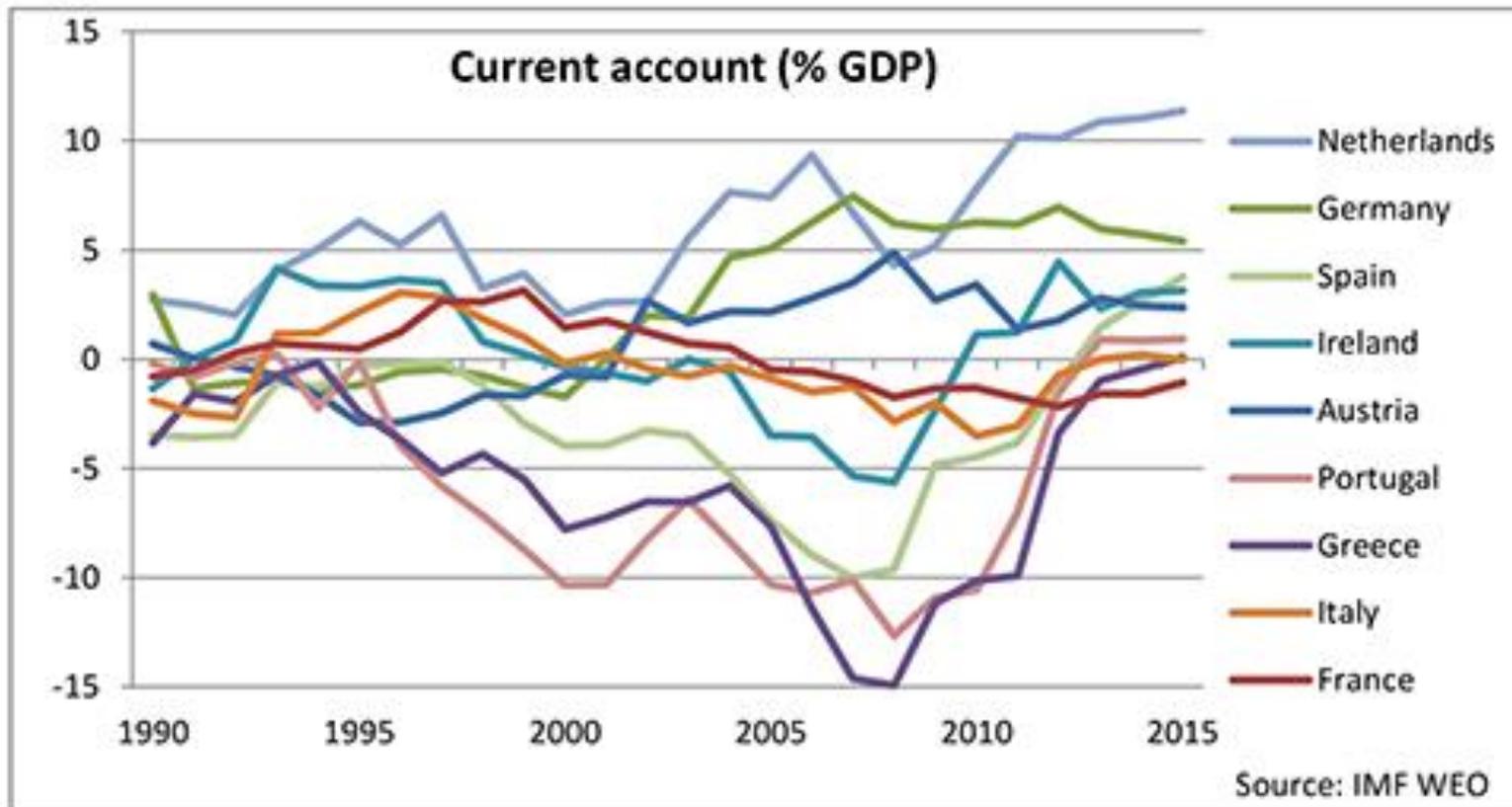
US Current Account Balance

United States: Current-account balance and trade balance (as % of GDP)



Sources: Datastream, BEA, Census Bureau, Natixis

EU Current Account Balance



Regulating the balance of payment

Several steps were taken to regulate the market

- A “London Gold Pool” (1961) was created with central banks of seven other countries
 - US (50%), Germany (11%), UK, France, Italy (9%), Belgium, Netherlands, Switzerland (4%)
 - Amount of quantity that could be traded per day was fixed
 - Price and exchange rate of gold was fixed
 - Worked for six years before collapsing
- Reduction in taxes (Kennedy)
- Limits on Gold outflows (Johnson)
- Reduce fiscal deficit

The second crisis

- The pressure on USD kept rising
 - War financing (Vietnam)
 - Decline in demand for US goods
 - More demand for European goods
 - Energy crisis
 - Resulted in a BoP deficit
- Europe and Japan boosted trade
- Currencies revaluated
 - Deutsch Mark and Yen were undervalued making their exports cheap
 - USD was assumed overvalued
- Gold trade on the stock markets kept increasing
 - US lost gold reserves

Next series of crisis and responses

- Currency revaluations in Europe (1968-69)
 - Mark revalued, Franc devalued
 - Rush to dump pounds, dollars and buy gold, mark
- Rising BoP crisis, high inflation rate in the US
- US lost more gold in the international markets

Nixon Shock

- Nixon took drastic measures
 - Economic Stabilization Act of 1970: 90 days of economic freeze
 - Wage and price controls
 - Higher tax on imports
 - Dollar no longer pegged to gold reserves
 - To stop a run on US gold reserves
- The Bretton Woods agreement came to an end and the world shifted to the floating exchange rate post 1971
 - Over time other countries shifted to a floating exchange rate as well
- Rise of financial capitalism

Traditional Financial System

The financial crisis

- Traditional banks hold
 - Deposits (Liabilities)
 - Short-term (checking – available on demand)
 - Long-term (saving – pay an interest to households)
 - Interest income due
 - Loans (Assets)
 - Given against deposits
 - Financial instruments e.g. Long-term government bonds
 - Interest income received

Confidence in banking

- Usually a small portion of deposits are withdrawn at a given point in time
- Remaining money is either in the form of loans or invested in financial assets e.g. govt. bonds
- If for some reason everyone loses confidence in a bank and want to withdraw money
 - The banks will usually not have all that money at hand

Bank run

- This happened during the financial crisis of 1920s and 2008
 - Northern Rock Bank (UK)
 - Landsbanki (Iceland)

Managing confidence

- If one bank runs others might follow (**contagion**)
- Banks need to work together to manage confidence
- Here the Central Bank (CB) comes in: lender of last resort, deposit insurance
- **Liquidity crisis**
 - Liquidity crisis: Loans > Deposits
 - CB prints money and gives a cash advance
 - Banks can either repay this loan later or
 - Selling its assets to pay the money

Financial crisis

- If a bank's total liabilities are greater than its assets total loans
- Cash advance from the CB won't help anything
- Bank has two options
 - File for **bankruptcy**
 - Ask for a **bail-out**
- A lot of both happened in the US and the EU
 - Sold: Merrill Lynch (USD 38 billion) – bought by BoA
 - Bankruptcy: Lehman Brothers (USD 600 billion)
 - Bail-out packages: US (250 billion)

Bailouts in the Eurozone

- In the Eurozone, whole countries have been given bailout packages by the ECB post 2008:
 - Greece – EUR 110 billion
 - Spanish banks – EUR 100 billion
 - Portugal – EUR 78 billion
 - Ireland – EUR 67.5 billion

Rebuilding confidence

- Deposit insurance: If banks cannot pay, the CB pays (EUR 100,000 in the Eurozone)
- Prudential regulation (leverage): Banks cannot lend out more than a certain multiple of their deposits
- Better regulation of financial investments ratings
 - Basel I (1988)
 - Basel II (2004)
 - Basel III (2011, comes into effect in 2018)
- But: ECB does not have mandate to be lender of last resort (only CB world wide)

Basel Agreements

- 1973 Herstatt Bank in Germany was sent payments in Deutsch Marks in exchange for releasing payments in New York
- Because of time differences between Germany and New York, the release of payments was delayed
- In between this time, German regulators liquidated the Bank
 - People in the US did not receive the payment
 - Highlighted risk of international transactions
- In 1974 the Basel Committee was formed by private banks to deal with banking regulations
 - Committee does have the authority to enforce rules
 - Variations of the Basel Accords are accepted

- Set in 1988 in Basel by the Group of 10 (G-10 nations)
- Minimum capital requirements for banks
 - Credit risk
 - Risk weighting of assets
- Assets of banks classified in 5 categories based on credit risk
 - E.g. Government bonds had 0% risk, corporate debt 100%
- Banks were required to hold capital equal to 8% of their risk weighted assets (RWAs)
 - Report non-balance items as well (letter of credits, derivatives) that count towards risk

- Banks need to maintain capital against three risk types
 - Credit risk
 - Operational risk
 - Market risk
 - Residual risk
- Recommended risk measurements but banks could develop their own risk measures
- Market discipline: Banks required to release risk information (good corporate governance)

Basel II

- Implemented over a long time horizon
 - Right before the crisis
- Bank risk was way more complex than suggested in Basel II: systemic risk (all fail at once, cascading effect)
- Does not discuss collateral
- Bank credit and risk correlated with business cycles
 - Basel II requirements might have accentuated the financial crisis

Basel III

- To be implemented in 2018
- Additional capital requirements
 - Additional buffer stock of capital
- Maintain a minimum leverage ratio
 - Ranges from 3-6%
- Liquidity ratio
 - Hold liquid funds for 30 days to cover all net cash outflows

Development of financial markets

The Golden age of capitalism

- Post 1970s Western economies developed a strong financial system
- Rise of the financial markets
 - Stock markets
 - Allow firms to sell its shares to anonymous buyers
 - To raise capital
 - Bond markets
 - Government bonds
 - Corporate bonds

- When a company offers shares to the public
 - It changes its status from private to public
 - First batch of shares are called the Initial Public Offering (IPO)
 - Apple in 1980: IPO (\$22), now (\$102)
 - Google in 2004: IPO (\$85), now (\$870)
 - Facebook in 2012: IPO (\$38), now (\$74)
 - Twitter in 2013: IPO (\$26), now (\$50)
- Why go public?
 - To raise funds
 - Allows companies to be bought or sold (market for corporate control)
 - A single or a group of shareholders can gain majority voting power allowing them to determine the fate of the firm

Mergers and Takeovers

- Acquisitions or Takeover
 - When one firm buys another firm
 - GM in the USA
 - 1908: Buick, 1909 took over: Oldsmobile, Cadillac, 1918: Chevrolet
 - Microsoft: Took over Nokia, Skype
 - Google: Taking over all the time!

- Merger
 - When two firms decide to become one firm
 - Disney-Pixar
 - Exxon-Mobil
 - AOL and Time Warner (later split up)
 - GlaxoSmithKline

Stock markets

- Stock markets were formed for the buying and selling of these shares
- Physical stock exchanges. Three largest post WWII
 - NYSE (1817)
 - LSX (est. 1801)
 - TSE (1878); now part of the JEG
 - Euronext (2000)
- Virtual stock exchanges
 - NASDAQ (1971): Globally second largest in market capitalization after NYSE

Tracking stock markets

- Market capitalization
 - Daily/Hourly
 - Value of stocks at the end of a given time period
- Trade volume
 - Daily/Hourly
 - Amount trade in a given time period
- Stock market index
 - Daily/Hourly basis
 - Measures the movement of a selected group of firms/stocks
 - Weighted averages
 - Tracked by private firms
 - Hundreds of indices
- All short term measures

Tracking stock markets

Stock market	Market capitalization	Monthly Trade Volume	Stock market performance tracked by
	(USD Billion)	(USD Billion)	
NYSE	19223	1520	S&P 500
NASDAQ	6831	1183	NASDAQ Composite
LSX	6187	165	FTSE 100
JEG	4485	402	Nikkei 225
Euronext	3321	402	EURO STOXX 50

Other types of financial instruments

- Firms/Govt can also issue bonds
 - IOUs which are paid back later
 - Pay an interest rate
 - Corporate bonds are a small fraction even in the US
 - In the EU, banks issue bonds frequently
- Govts issue bonds to raise money
 - Treasury Bills (TBills)
- Safe long-term low yield investment

Rise of financial capitalism

Types of Banks

- Commercial/Deposit banks
 - Dealing with end users
 - Deposits
 - Withdrawals
 - Bill payments
 - Loans

- Investment banks
 - Dealing with the investment portfolios of corporations
 - Wealthy individuals
 - Other financial institutes

Investment banks

- In the EU banks can perform both functions
 - Deutsche Bank
 - Commerzbank
- In the US they could not for some time (Glass-Steagall Act 1933-1999)
 - Barclays and Barclays capital
 - JP Morgan Chase and JP Morgan
- Some banks are purely investment banks
 - Goldman Sachs
 - Morgan Stanley
 - Lehman Brothers

What are investment banks?

- Help companies raise money from investors
- Organization issuing and selling of shares and bonds
- Deal with large buyers
 - Institutional investors
 - Really rich people
 - Private pension funds (401k in the US)
 - Sovereign welfare funds (Govt. pension fund of Norway)
 - Mutual funds (money pooled by small investors)
 - Hedge funds (high risk investments by pooling money)
 - Private equity funds (buying, restructuring and selling firms)

What more do they do?

- They can buy and sell shares/bonds themselves as well
 - Proprietary trading
 - Make profits
- Facilitate mergers and acquisitions (M&A)
 - Consultancy services
 - Make profits
- Create new financial products
 - Create new investment opportunities
 - Make profits

Financial products

- History of loans
 - Loans had to be backed by collateral (physical assets)
 - Banks “owned” the investment made with the loan until the loan was paid back
- Problem with loans
 - Some people cannot pay back their loans
 - Bankruptcy
 - Banks can take over collateral and sell it
 - High cost activity
 - High monitoring costs

Asset Backed Securities (ABS)

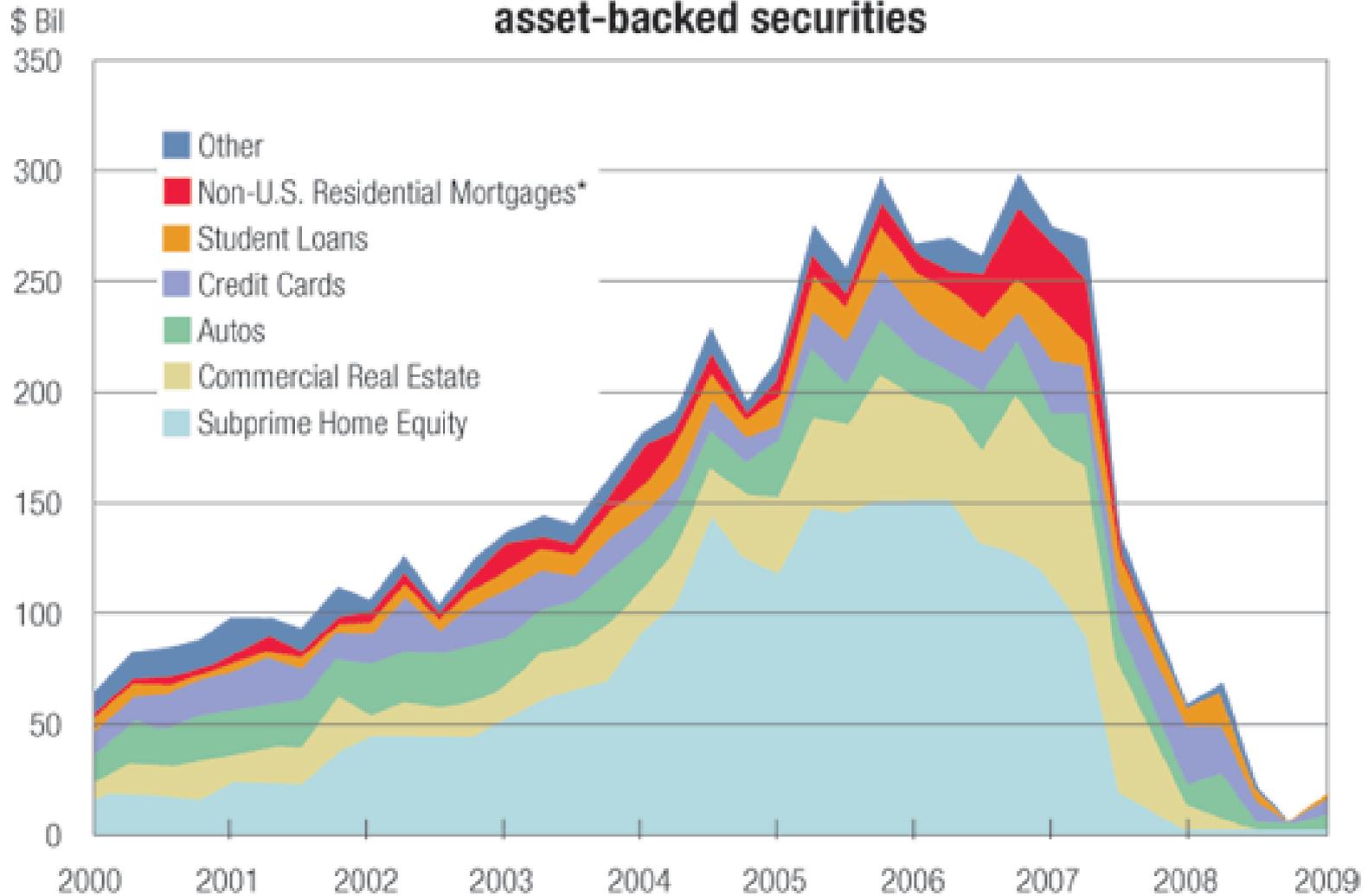
- Pool all loans together
 - On average people pay back loans
 - So the collective pool has a positive return value
 - A loan default has a zero recovery rate
- The pool can give a return based on the recovery rate
 - Asset backed securities (ABS)
- ABS can now be sold on the financial market as a product
 - High return in normal times

The housing market

- Loans on houses are usually called “mortgage”
 - Loan taken against the value of the property
- Individual home owners are risky borrowers
 - High risk of default
- Collectively mortgage loans become less risky
 - On average people pay back
 - Individual mortgages cannot be bought or sold (tied to assets)
- This pool is called “Residential Mortgage Backed Security” (RMBS)
 - High-risk borrowers known as ‘subprime’ mortgage in the US

Figure 1

New issuance of asset-backed securities



*No reliable data after Q3 '08

Source: Morganmarkets, JPMorgan Chase

Rise of the ABS

- Mortgages for houses, cars for houses, credit card loans are pooled together to form a “composite bond”
 - Can be bought or sold
 - “securitization”: diversification of risk
- Deregulation of the financial sector saw the growth of ABS during the 1980s and 1990s
 - Anyone can issue an ABS and sell it
- But everyone knows that ABS are tied to loans and are risky

Making ABS safer - CDOs

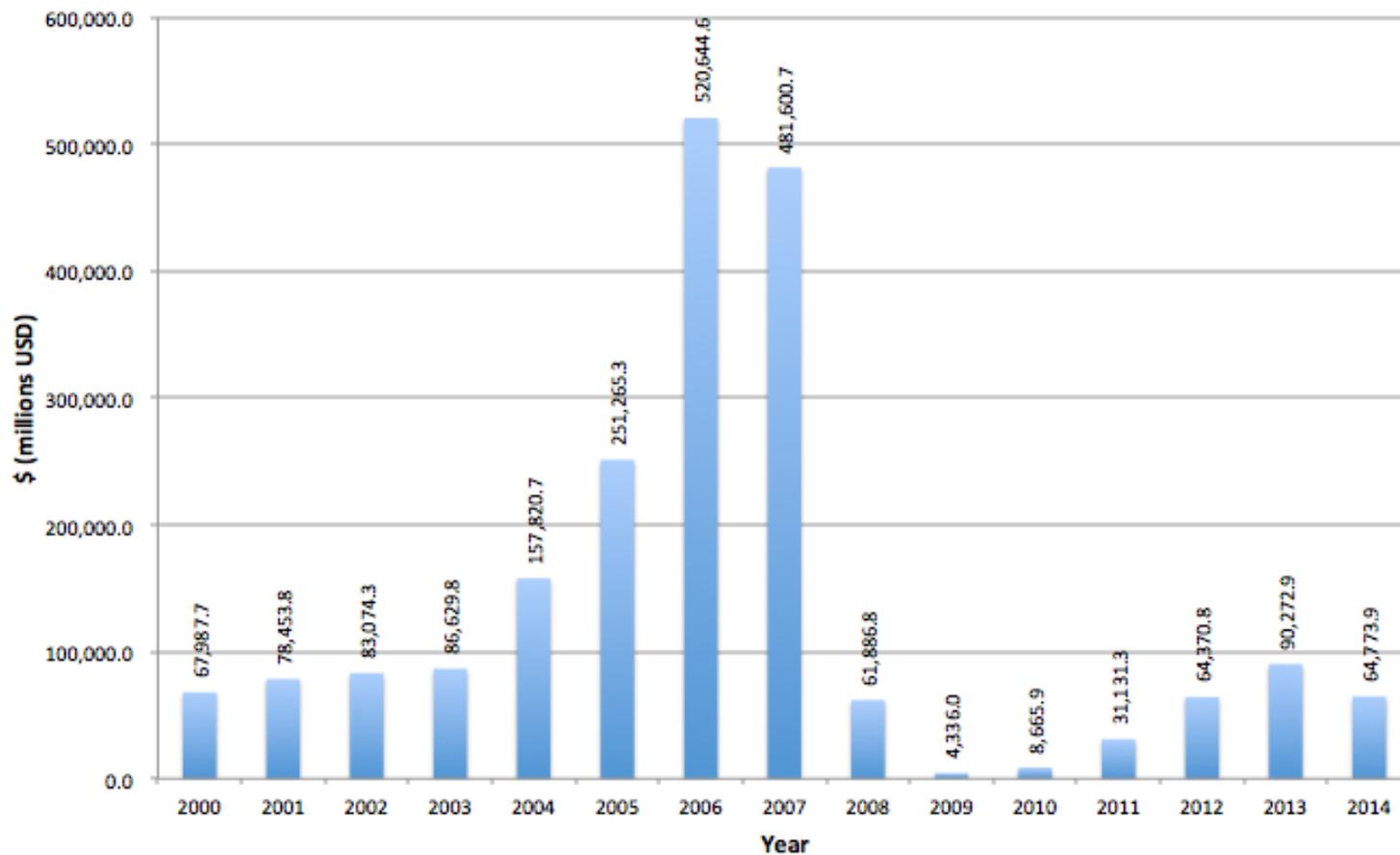
- Make financial products even more complex
- Restructure ABS as CDOs
 - Collateralized Debt Obligations (CDOs)
 - Break them into tiers or tranches: on average people pay back loans, but some almost always pay back their loans
 - Any return on CDOs
 - Senior tranches: get first share of returns, low risk, low return
 - Junior tranches: first to bear losses, high risk, high return
 - Create “safe” returns out of a pool of “unsafe” assets
 - CDOs are given asset ratings:
 - AAA: usually reserved for the safest assets (govt. bonds, selected very safe companies)
 - AA+, AA, BB, etc.

Investment in CDOs

- By giving CDOs, AAA rating, are sold to
 - Pension funds
 - Insurance companies
 - Charity organizations
- These traditionally make conservative investment decisions:
 - Higher return relative to traditional AAA asset
 - Allowed for higher liquidity/profitability
- CDOs, and the market for other structured debt products multiplied

CDOs

Global CDO Issuance by Year



- Derivatives: financial instruments 'derived' from the value of other things
 - Bets on how things might unfold over time
 - For example betting on a match
- Historically derivatives were limited to commodity (rice, oil, wheat) markets
 - These markets usually have "forward" contracts
 - A price is pre-determined before a harvest happens, or oil is extracted
 - You have to pay the agreed price (can make losses or profits)
 - Betting on the future price (producer side: insuring against price declines)

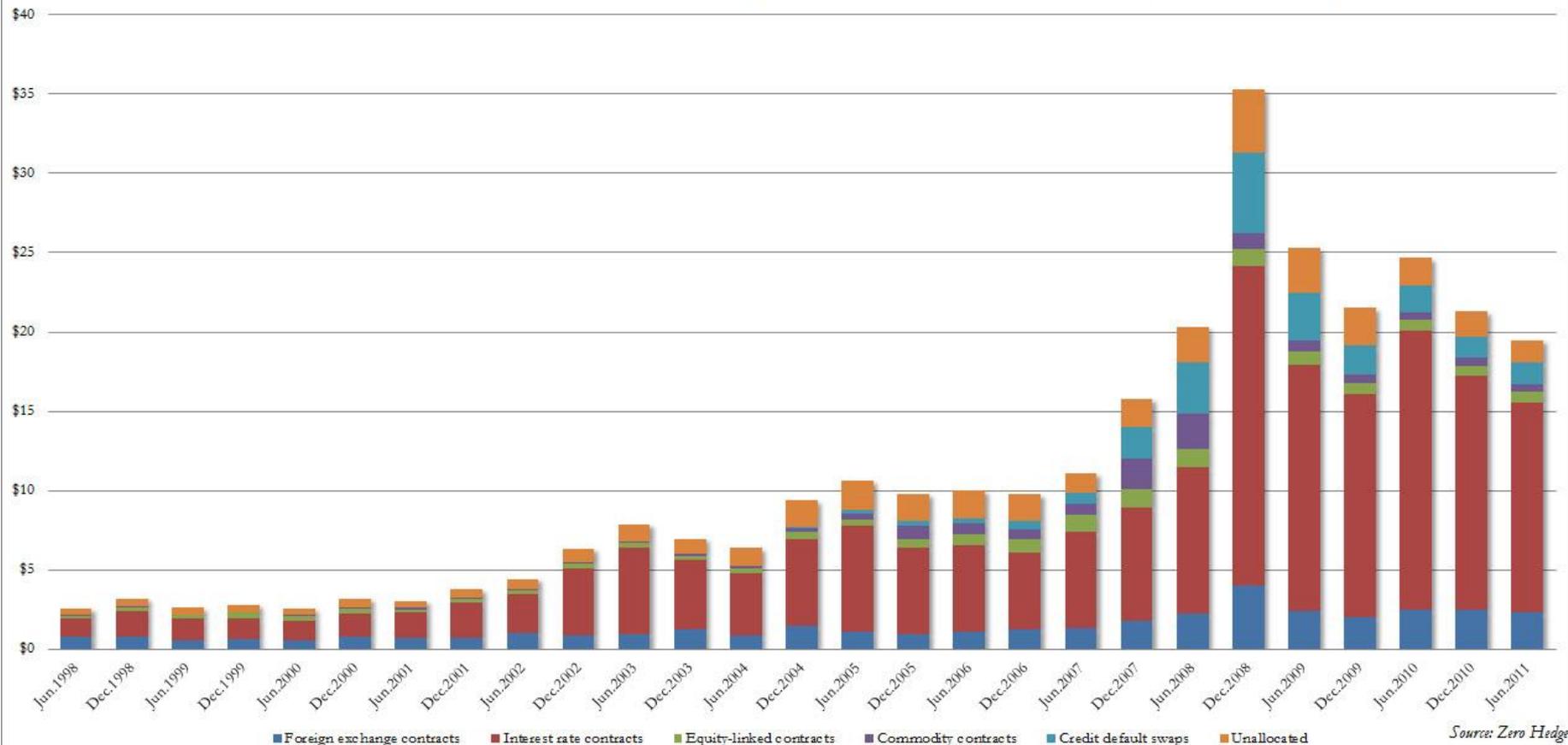
- In 1982 two institutions in the US made a decision
 - Securities and Exchange Commission (SEC)
 - Chicago Board of Trade (CBoT)
- Settlement of derivatives does not need to have the actual product delivered
 - Payment can be made in cash as well
- Multiplied the Derivatives market since derivatives could be made out of anything

Financial Derivatives

- Companies can protect themselves against future market/exchange rate fluctuations
- Contract between two parties
 - Over-the-counter (OTC) derivatives
 - E.g. Forward contracts with financial institutions
- Can be traded over stock-exchanges as well
 - Chicago Board of Trade
- 2011 conservative estimates: USD 600 trillion

Derivatives

Gross Market Value Of Total Outstanding Over The Counter Derivatives (\$ In Trillions)



Source: Zero Hedge

- Futures
 - Agreement to buy a fixed quantity at a fixed price in the future from whoever is holding the contract
- Futures allow for hedging against future risk but also allow for speculation
 - e.g. oil sellers and buys
- But anyone can hold a futures contract and speculate the oil market purely from a profit motive
 - Can make the commodity market fluctuate by external players
- Variations of Futures
 - Options
 - Swaps

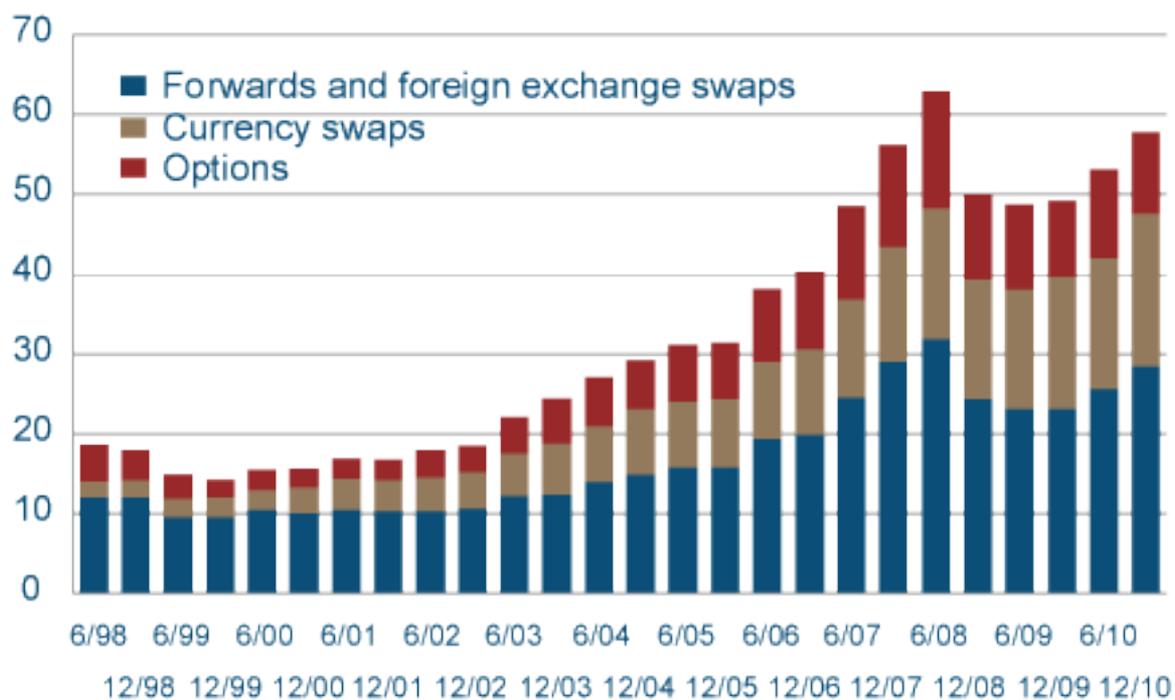
Options and Swaps

- Options contract
 - Gives the contracting party the right (but not the obligation) to buy/sell at fixed price in the future
 - For example firm managers might be given options contract forcing them to manage firms better, or raise share prices
 - Call vs Put options: Buyers vs sellers
- Swaps
 - Forward is a bet on one event
 - Swaps are a bet on a sequence of events (multiple forwards)
 - Substitute a series of future earnings with fixed earnings
 - Analogy: you buy mobile phone contracts even though your usage might be lower or higher than what you pay for

Foreign Exchange Futures

Foreign Exchange Contracts: Notional Amounts Outstanding

Trillions of U.S. dollars

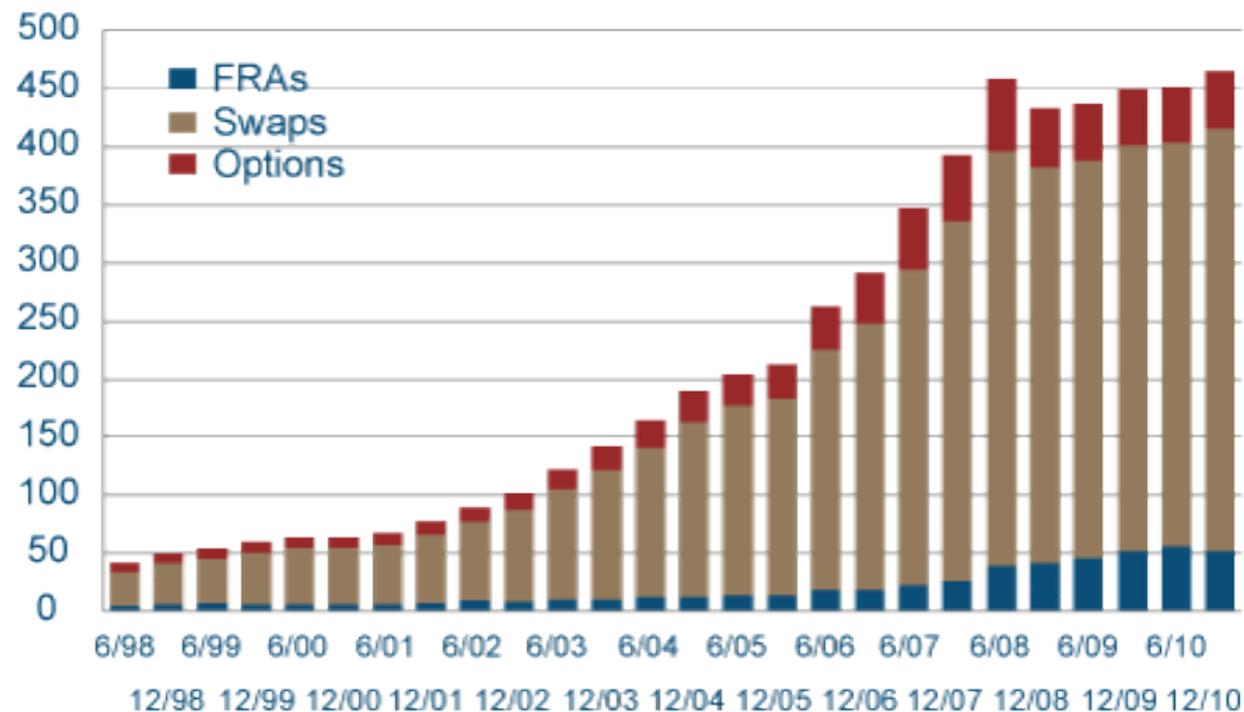


Source: Bank for International Settlements.

Interest Rate Futures

Interest Rate Contracts: Notional Amounts Outstanding

Trillions of U.S. dollars



Source: Bank for International Settlements.

- Swaps can be made out of numerous transactions
 - Interest rate swaps
 - Currency/Exchange rate swaps
 - Commodity/Price swaps
 - Share price/Equity swaps

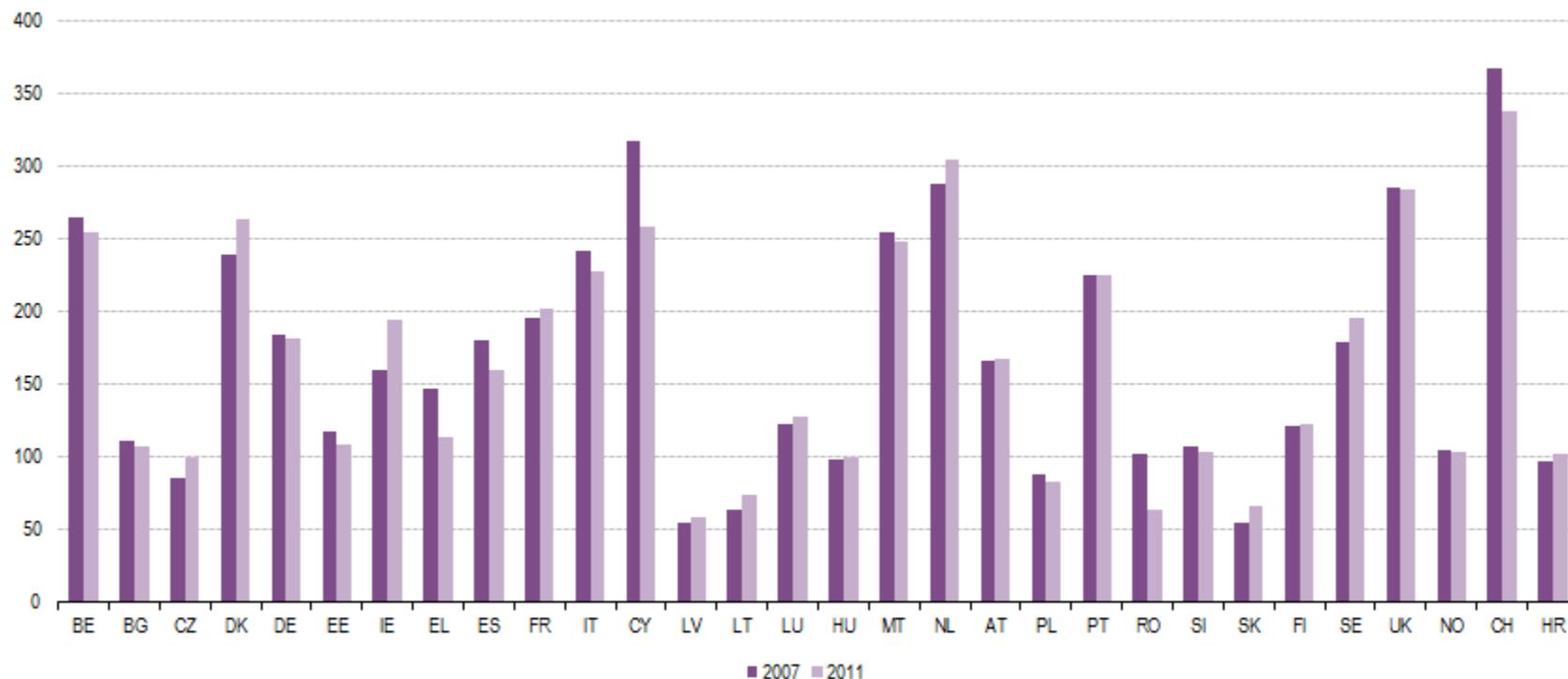
and even

- **CDO swaps**

- If you own a junior (high risk) CDO, a CDO swap allows you a safer return over a risky asset

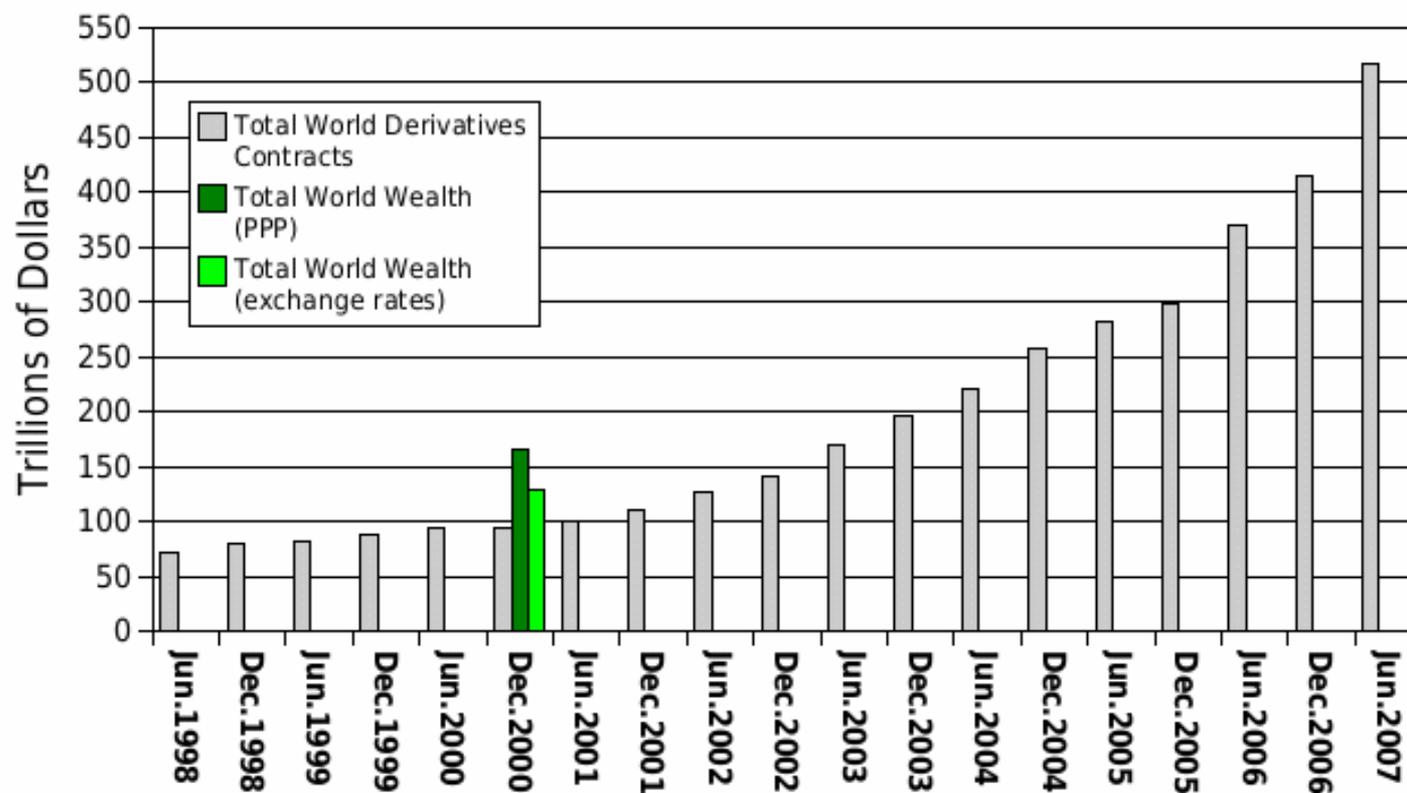
Growth of the financial sector

- Total worth of financial assets:
 - US (2014): USD 122 trillion (723% of GDP)
 - EU financial assets to GDP ratio below:



Relative value of Derivatives

World Wealth vs World Derivatives 1998-2007



Impact of financial sector

- According to Chang (2014)
- Financial sector has made the non-financial sector short-term oriented
 - High returns in the short-run are preferred by shareholders
 - Average shareholding time has fallen from 5 years (1960s) to 7.5 months (2007)
 - Focus on making profits as opposed to improving output/work conditions
 - Short-term returns are rewarded with very high salaries
 - Firms make higher investment in financial sectors as well
 - Education specialization is now mostly in finance
- Complex market coupled with deregulation

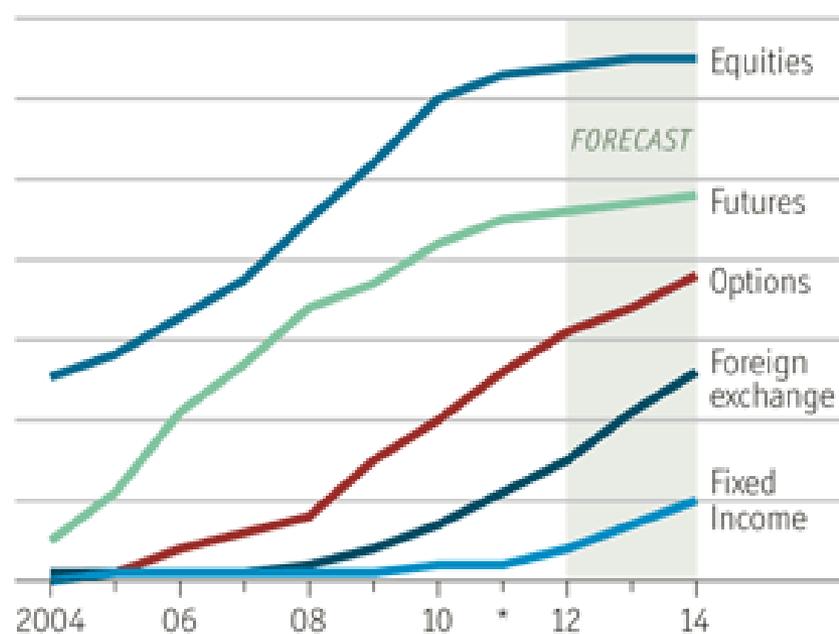
Machine trading

- Focus has shifted to faster trading algorithms
 - High frequency trading (HFT)
 - 70% of all equity trade in 2009
- How long does it take to make a HFT on average?
- 1 millisecond (1/1000th of a second)

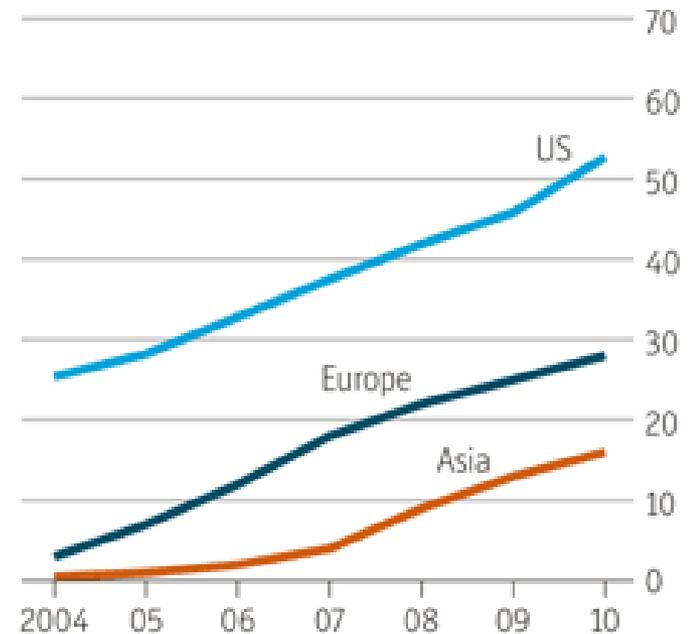
Machine Trading

Rise of the machines

Algorithmic trading, % of total trading



Source: Aite Group

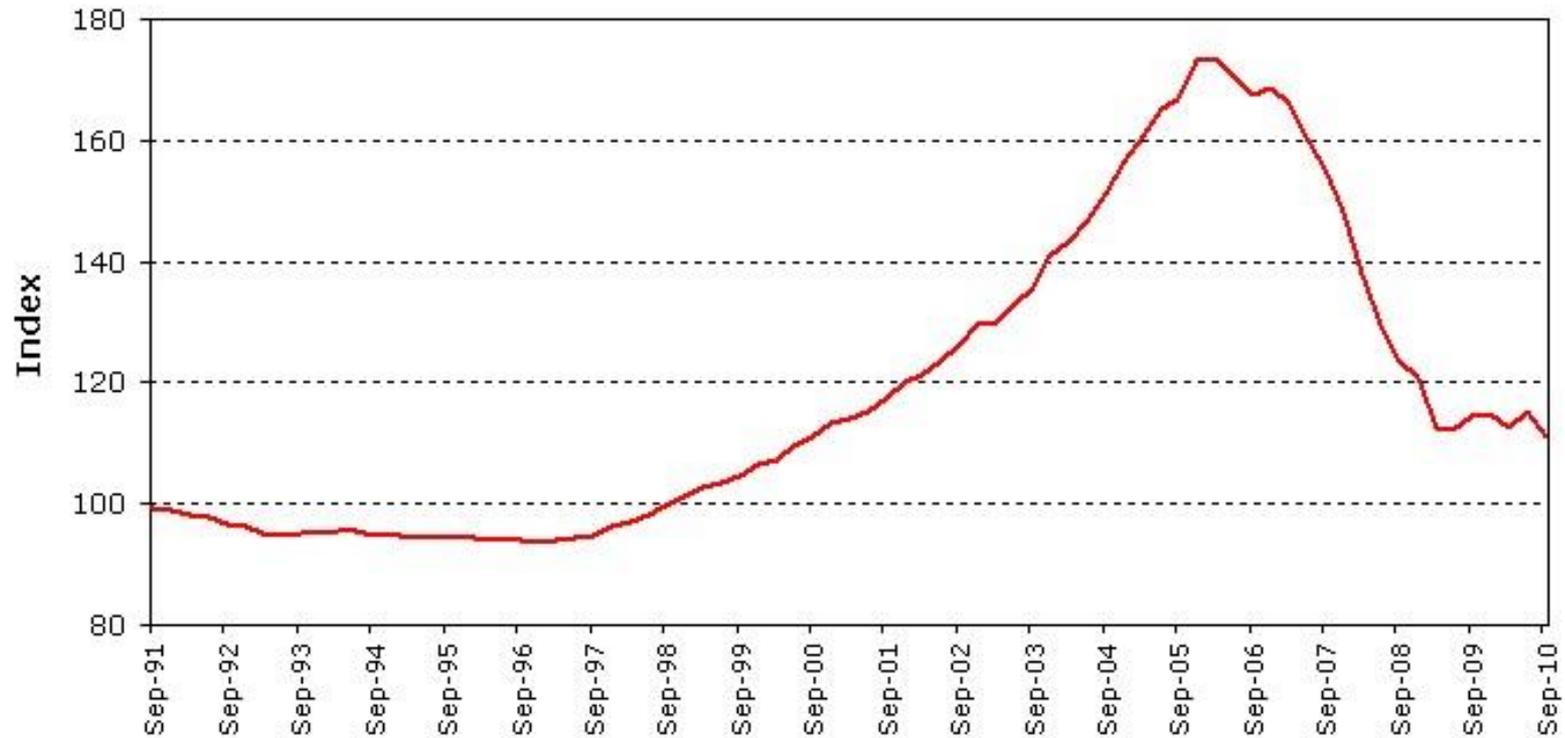


*Estimate

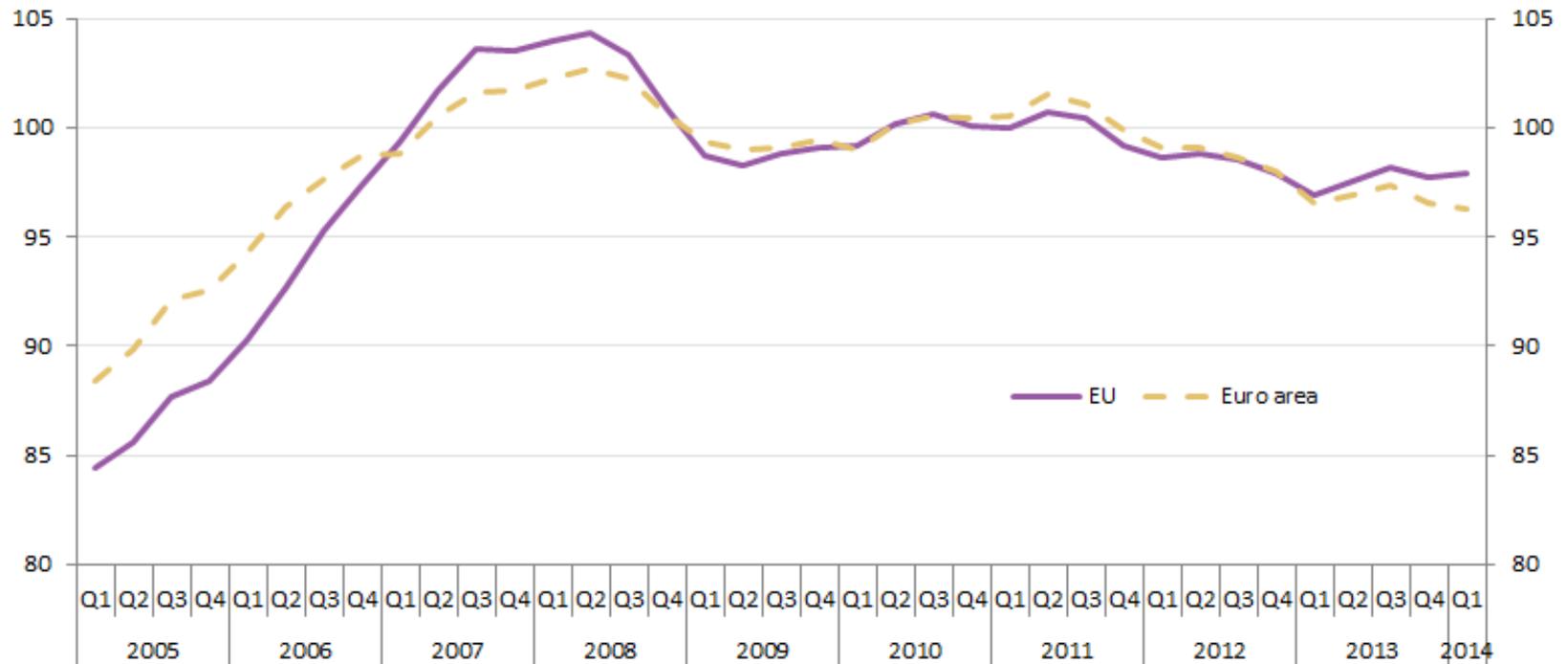
- Since all of this financial sector was based on household debt
- What was happening with debt?
- Most debt is house financing
 - In the US the savings rate is negative
- Money is borrowed against property value
 - Price kept on increasing at a fast rate

Housing Price Index - US

S&P Case-Shiller Real House Price Index (March 1991 = 100)



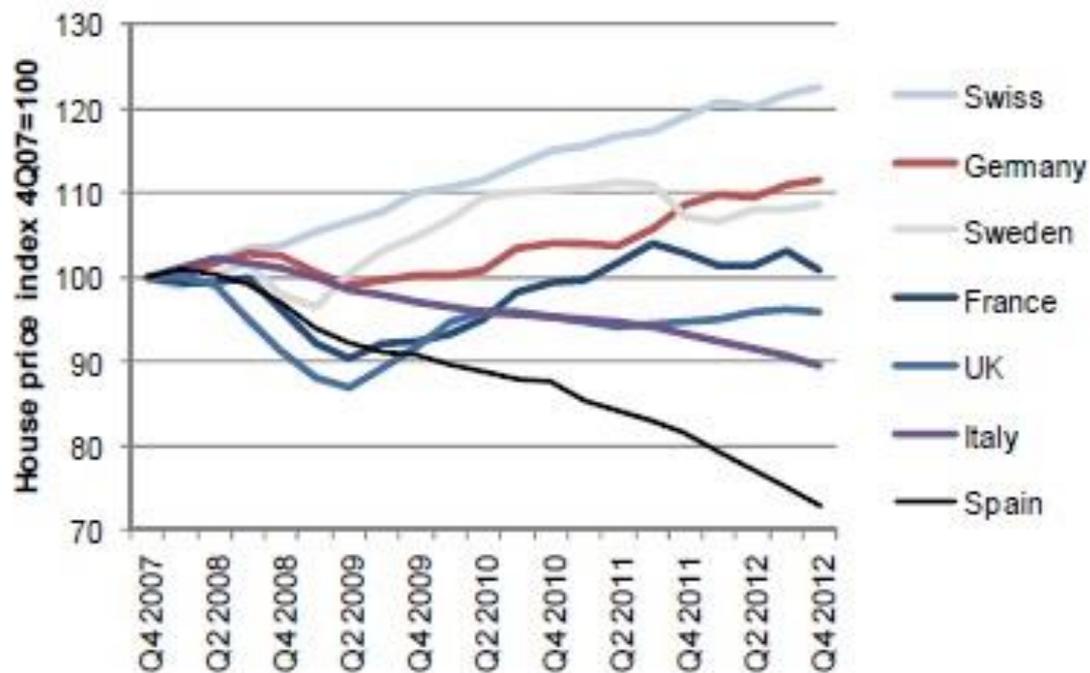
Housing Price Index - Europe



Housing Price Index - Europe

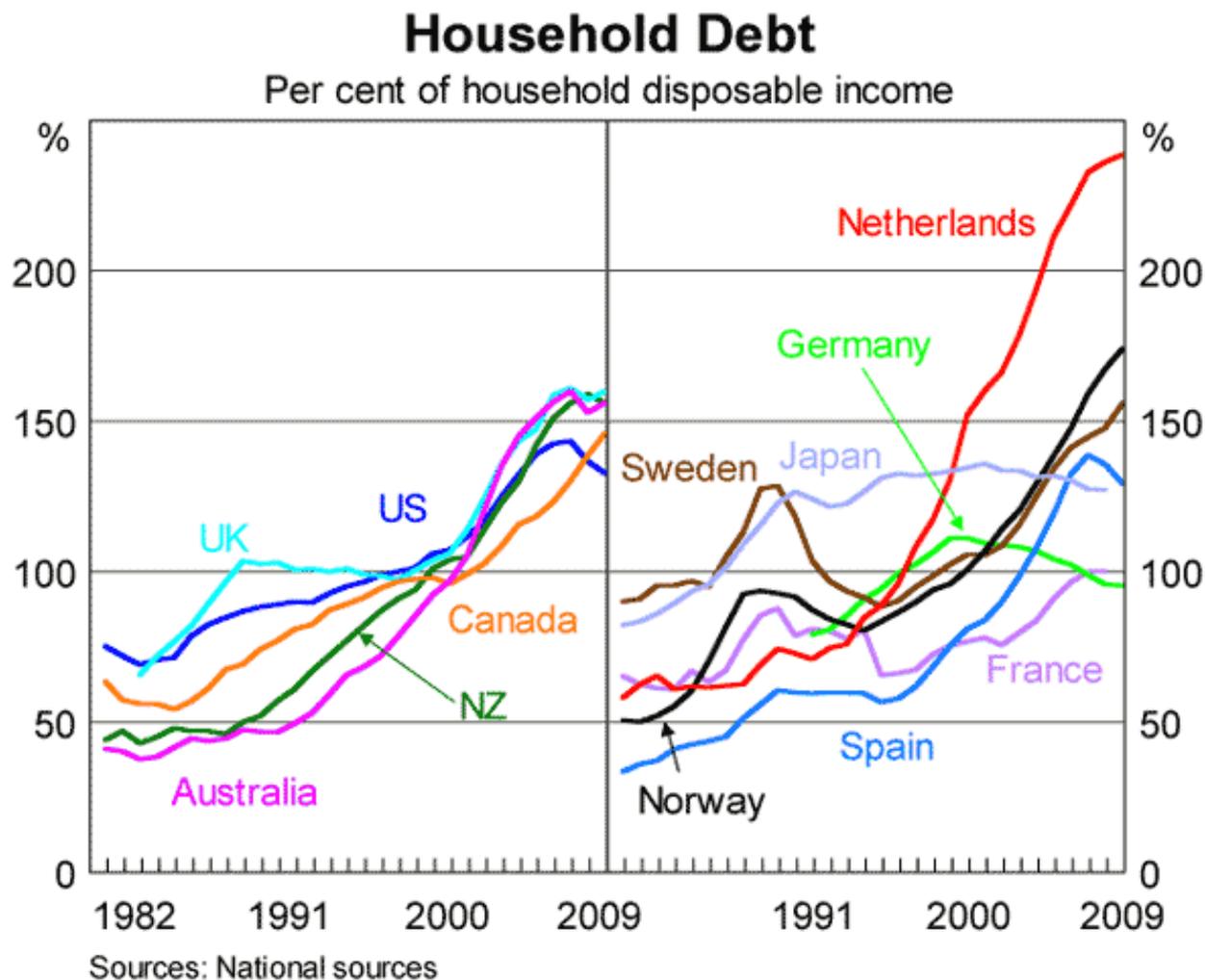
Fig. 11: House price index

4Q 2007 = 100



Source: Datastream, Nomura research

Debt/Disposable income



Spillover in Europe

- European Banks bought toxic assets
 - Did not understand the assets
 - German banks bought a large volume of financial assets
- Spillover of crisis through trade
 - Devaluation of the dollar
 - Euro has become more expensive
 - European exports more competitive
- Financial crisis became a debt crisis
 - Balance of payment issues
 - Perceived risk of default went up
 - Panic on financial markets led to increase in spreads
 - Actually exacerbated the crisis

Spillover in Europe

- Debt panic in Greece (Italy on the border)
 - Troika (ECB,EC,IMF) intervened, imposed austerity measures
- Housing market bubbles in Spain and Ireland
 - Housing price bubbles: low interest rates, high investment
- ECB claimed that it will be the lender of last resort to save the Euro
 - Technically it is not allowed to directly finance governments
 - Or purchase their debt
 - Can only buy/sell on the open market
 - Banks bought debt and then sold it to the ECB

Revaluating the system?

- Higher financial transaction tax in the EU
- Derivatives are in the process of being excluded from financial markets
- Western economies have called a revaluation of the financial system
 - Bretton Woods II
- There is debate about better regulation of financial markets
 - Basel III