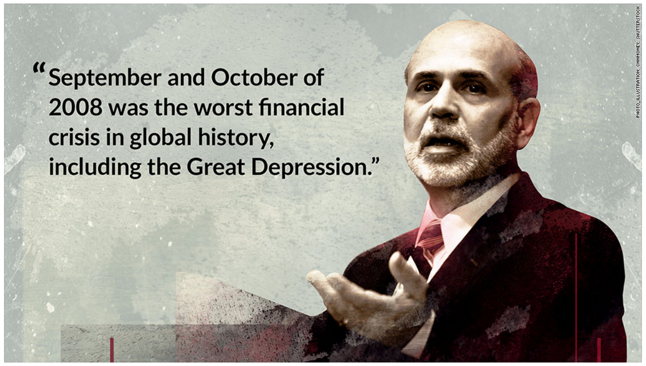


Lecture 7

Financial Crises

Content

- Introduction
- What happens to the financial system in a crisis
- Financial crises and the economy
- The Great Depressions in 1930s
- The U.S. financial crisis of 2007 - 2009
- Financial crisis in emerging countries
- Eurozone financial crisis

Readings

- Mishkin (2015), *The Economics of Money, Banking, and Financial Markets*, 11th edition, Pearson, Chapters 12 + 13

Introduction

- **Financial crises** are major disruptions in financial markets characterized by sharp declines in asset prices and firm failures
  - For example, the Great Depression in 1930s, the Mexican crisis in 1994, the Asian financial crisis in 1997-1998, the Russia's in 1998, the Argentina's in 2001-2, the Global financial crisis in 2007-2009, the Greece's crisis in 2009–2011 and the Euro debt crisis in 2012
- Financial crises are complex events. To understand them, we must understand the workings of financial markets and the banking system, the behaviour of the aggregate economy, and the policies of central banks

Introduction

- Why does a financial crisis occur? What happens in a financial crisis? Why have financial crises been so prevalent throughout history, and what insights do they provide on the current crisis? Why are financial crises almost always followed by severe contractions in economic activity?
- We will look at the events in a typical financial crisis and the various ways in which governments and central banks respond
- Then we use this background to explain the course of events in a number of past financial crises throughout the world, including the most recent subprime crisis in the United States and the European debt crisis

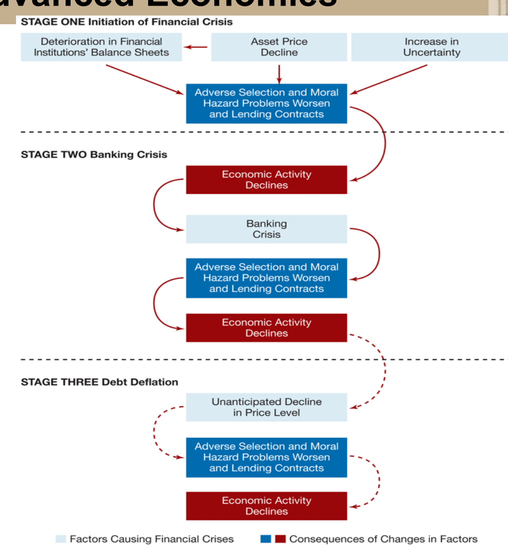
What is a Financial Crisis?

- A financial crisis occurs when there is a particularly large disruption to information flows in financial markets, with the result that financial frictions increase sharply and financial markets stop functioning

Dynamics of Financial Crises in Advanced Economies

- Stage One: Initiation of Financial Crisis
  - Credit boom and bust: Mismanagement of financial liberalization/innovation
  - Asset price boom and bust
  - Increase in uncertainty
- Stage two: Banking Crisis
- Stage three: Debt Deflation

Figure 1 Sequence of Events in Financial Crises in Advanced Economies



- **Asset Markets Effects on Balance Sheets**
  - Stock market decline
    - Decreases net worth of corporations.
  - Unanticipated decline in the price level
    - Liabilities increase in real terms and net worth decreases.
  - Unanticipated decline in the value of the domestic currency
    - Increases debt denominated in foreign currencies and decreases net worth.
  - Asset write-downs.

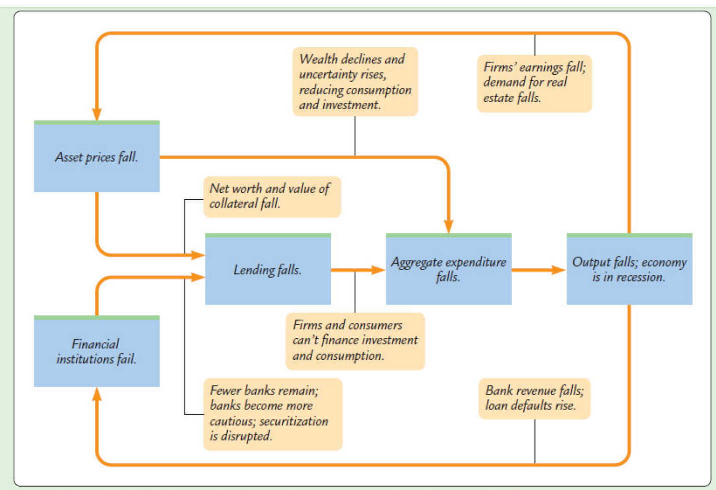
Financial crises and the economy

- Financial crises have both direct and indirect costs
  - The *direct costs* include losses to asset holders when asset prices fall. They also include losses from financial institution failures
  - Although these direct costs can be large, the greatest costs from financial crises come from their *indirect effects*. A crisis can set off a chain of events that plunges the whole economy into a recession

Financial crises and the economy

- If a financial crisis causes a recession, the recession can then exacerbate the crisis. Asset prices are likely to fall further: stock prices fall because the recession reduces firms' expected profits, for example, and real estate prices fall because of lower demand for real estate
- Because of these feedbacks, a financial crisis can trigger a vicious circle of falling output and worsening financial problems. Once a crisis starts, it can sustain itself for a long time

Financial crises and the economy

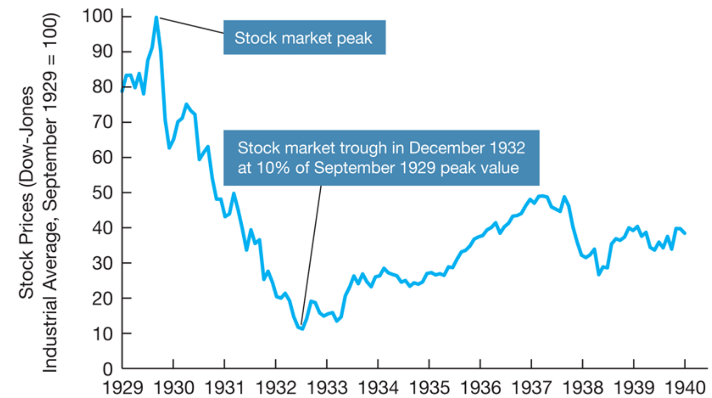


A typical financial crisis is triggered by declines in asset prices and the failures of financial institutions. A series of effects then leads to a fall in output, which reinforces the causes of the crisis.

APPLICATION The Mother of All Financial Crises: The Great Depression

- In U.S. economic history, the Great Depression stands out as a unique disaster. The unemployment rate rose from 3% in 1929 to 25% in 1933, and it was still 15% in 1940. The Depression pushed millions of middle-class families into poverty
- How did a financial crisis unfold during the Great Depression and how it led to the worst economic downturn in U.S. history?
- This event was brought on by:
  - Stock market crash
  - Bank panics
  - Continuing decline in stock prices
  - Debt deflation

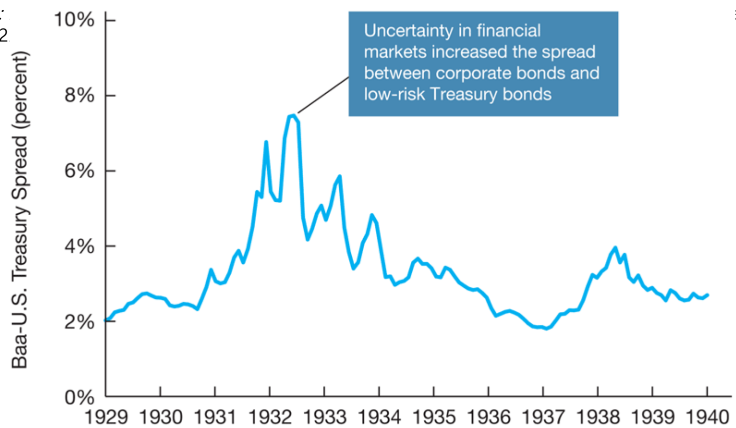
Figure 2 Stock Price Data During the Great Depression Period



Source: Dow-Jones Industrial Average (DJIA). Global Financial Data*;*
www.globalfinancialdata.com/index_tabs.php?action=detailedinfo&id=1165*.*

Figure 3 Credit Spreads During the Great Depression

Source:
ories/22
eg



APPLICATION The Mother of All Financial Crises: The Great Depression

- A special twist in this episode was a sharp fall in the money supply
- The fall in the money supply reduced aggregate expenditure, reinforcing the effects of the stock market crash and lower bank lending
- The fall in the money supply also led to deflation: the aggregate price level fell by 22 percent from 1929 to 1933
- Deflation in turn increased debt burdens: a given nominal debt became larger in real terms – **Debt deflation**
- The depression was made “Great” because so many problems occurred at the same time

The Global Financial Crisis of 2007-2009

Causes:

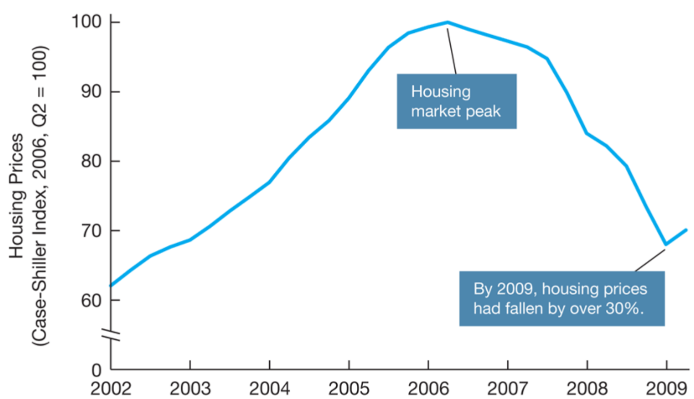
- Financial innovations emerge in the mortgage markets
  - Subprime and Alt-A mortgages
  - Mortgage-backed securities
  - Collateralized debt obligations (**CDOs**)
- Housing price bubble forms
  - Increase in liquidity from cash flows surging to the United States
  - Development of subprime mortgage market fueled housing demand and housing prices.

The Global Financial Crisis of 2007-2009

- Agency problems arise
  - "Originate to distribute" model is subject to principal (investor) agent (mortgage broker) problem.
  - Borrowers had little incentive to disclose information about their ability to pay
  - Commercial and investment banks (as well as rating agencies) had weak incentives to assess the quality of securities

The Global Financial Crisis of 2007 - 2009

- Information problems surface
- Housing price bubble bursts



Source: Case-Shiller U.S. National Composite House Price Index; www.macromarkets.com/csi_housing/index.asp.

The Global Financial Crisis of 2007 - 2009

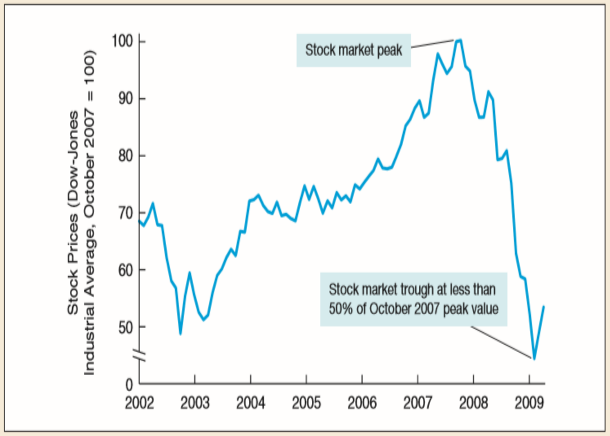
- Crisis spreads globally
  - Sign of the globalization of financial markets
  - TED spread (3 months interest rate on Eurodollar minus 3 months Treasury bills interest rate) increased from 40 basis points to almost 240 in August 2007.

The Global Financial Crisis of 2007 - 2009

FIGURE 5 Stock Prices and the Financial Crisis of 2007–2009

Stock prices fell by 50% from October 2007 to March 2009.

Source: Dow-Jones Industrial Average (DJIA). Global Financial Data: http://www.globalfinancialdata.com/index_tabs.php?action=detailedinfo&id=1165.



The Global Financial Crisis of 2007 - 2009

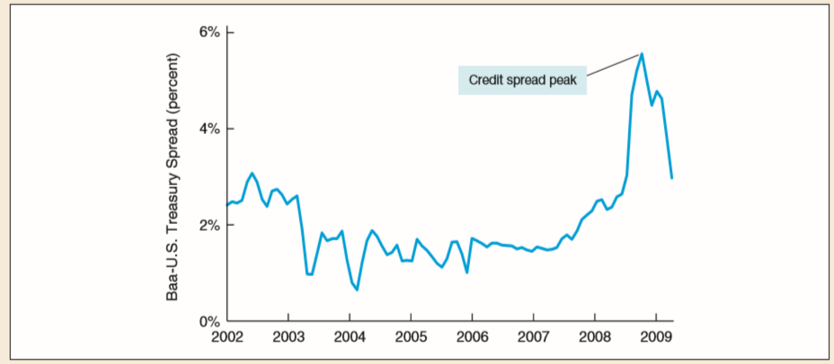


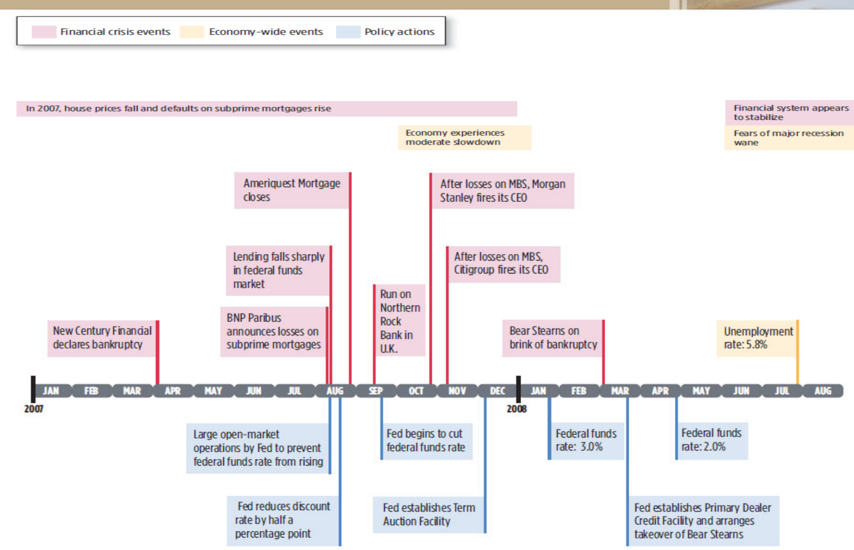
FIGURE 6 Credit Spreads and the 2007–2009 Financial Crisis

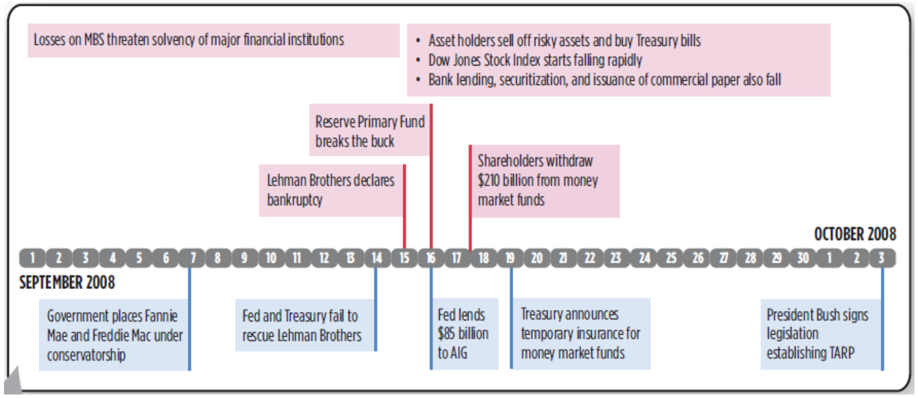
Credit spreads (the difference between rates on Baa corporate bonds and U.S. Treasury bonds) rose by more than 4 percentage points (400 basis points) during the crisis. Debate over the bailout package and the stock market crash caused credit spreads to peak in December 2008.

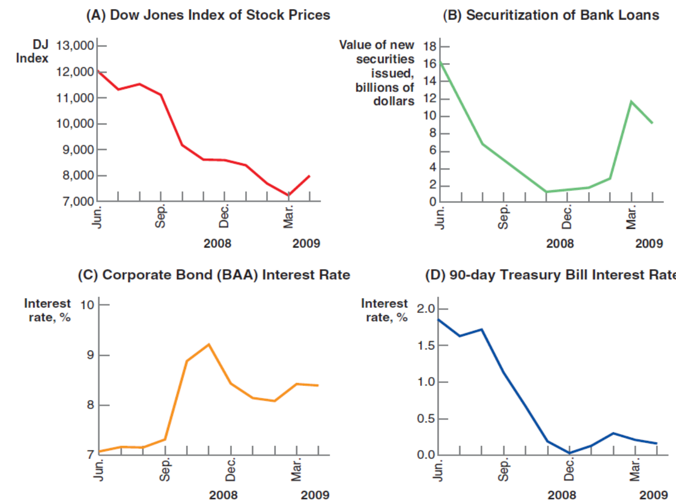
Source: Federal Reserve Bank of St. Louis FRED database: http://research.stlouisfed.org/fred2/.

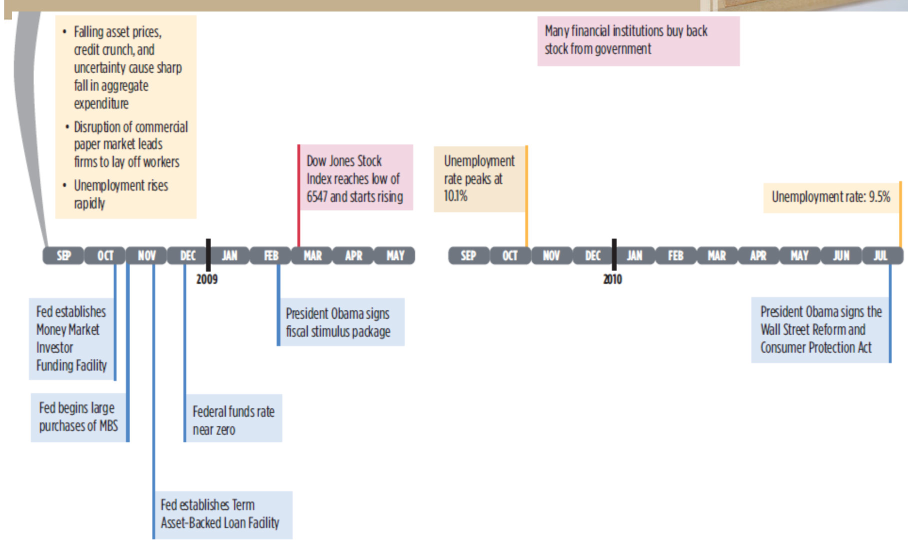
The Global Financial Crisis of 2007 - 2009

- Banks' balance sheets deteriorate
  - Write downs
  - Sell of assets and credit restriction
- High-profile firms fail
  - Bear Stearns (March 2008)
  - Fannie Mae and Freddie Mac (July 2008)
  - Lehman Brothers, Merrill Lynch, AIG, Reserve Primary Fund (mutual fund) and Washington Mutual (September 2008).









The Global Financial Crisis of 2007 - 2009

- Bailout package debated
  - House of Representatives voted down the $700 billion bailout package on September 29, 2008.
  - It passed on October 3.
- Recovery in sight?
  - Congress approved a $787 billion economic stimulus plan on February 13, 2009.

FYI Collateralized Debt Obligations (CDOs)

- The creation of a collateralized debt obligation involves a corporate entity called a *special purpose vehicle (SPV)* that buys a collection of assets such as corporate bonds and loans, commercial real estate bonds, and mortgage-backed securities
- The SPV separates the payment streams (cash flows) from these assets into buckets that are referred to as tranches

FYI Collateralized Debt Obligations (CDOs)

- The highest rated tranches, referred to as super senior tranches are the ones that are paid off first and so have the least risk
- The lowest tranche of the CDO is the equity tranche and this is the first set of cash flows that are not paid out if the underlying assets go into default and stop making payments. This tranche has the highest risk and is often not traded

Was the Fed to Blame for the Housing Price Bubble?

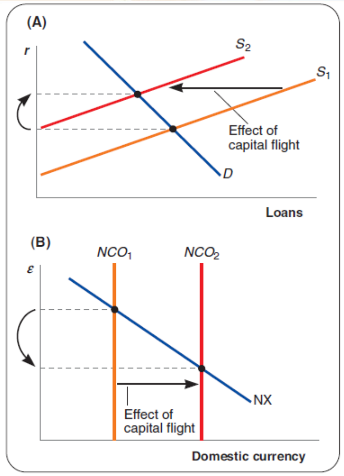
- Some economists have argued that the low rate interest policies of the Federal Reserve in the 2003–2006 period caused the housing price bubble
- Taylor argues that the low federal funds rate led to low mortgage rates that stimulated housing demand and encouraged the issuance of subprime mortgages, both of which led to rising housing prices and a bubble

Was the Fed to Blame for the Housing Price Bubble?

- Federal Reserve Chairman Ben Bernanke countered this argument, saying the culprits were the proliferation of new mortgage products that lowered mortgage payments, a relaxation of lending standards that brought more buyers into the housing market, and capital inflows from emerging market countries
- The debate over whether monetary policy was to blame for the housing price bubble continues to this day.

Financial Crises in Emerging Market Economies

- Emerging-economy crises have much in common with U.S. crises, including bank failures and asset-price declines
- However, they also have another key element: **capital flight**, a sudden decrease in net capital inflows (NCI) that occurs when foreign savers lose confidence in an economy. Capital flight creates additional channels in the vicious circle of a financial crisis



Capital flight reduces the supply of loans, increasing the real interest rate (A). It also raises net capital outflows, decreasing the real exchange rate (B).

Financial Crises in Emerging Market Economies

- Financial crises often involve one or more of the following:
  - **Government debt**. Rising debt levels create fears that the government will default, so foreign financial institutions stop buying government bonds. Foreigners also worry that default will hurt the economy, so they stop buying corporate securities
  - **Political risk**. Political instability can bring bad governments to power or produce armed conflicts that disrupt the economy. Signs of instability make a country's assets more risky and can spark capital flight

Financial Crises in Emerging Market Economies

- Financial crises often involve one or more of the following:
  - **Banking problems**. Loans to a country's banks from foreign banks are one kind of capital inflow. This source of funds is cut off if domestic banks encounter trouble, such as threats to their solvency from defaults on loans they have made
  - Just as a bank run can trigger runs at other banks, capital flight can spread from one country to others in a process called **contagion**

Dynamics of Financial Crises in Emerging Market Economies

- Stage one: Initiation of Financial Crisis.
  - Path one: mismanagement of financial liberalization/globalization:
    - Weak supervision and lack of expertise leads to a lending boom.
    - Domestic banks borrow from foreign banks.
    - Fixed exchange rates give a sense of lower risk.
    - Banks play a more important role in emerging market economies, since securities markets are not well developed yet.

Dynamics of Financial Crises in Emerging Market Economies

- Path two: severe fiscal imbalances:
  - Governments in need of funds sometimes force banks to buy government debt.
  - When government debt loses value, banks lose and their net worth decreases.
- Additional factors:
  - Increase in interest rates (from abroad)
  - Asset price decrease
  - Uncertainty linked to unstable political systems

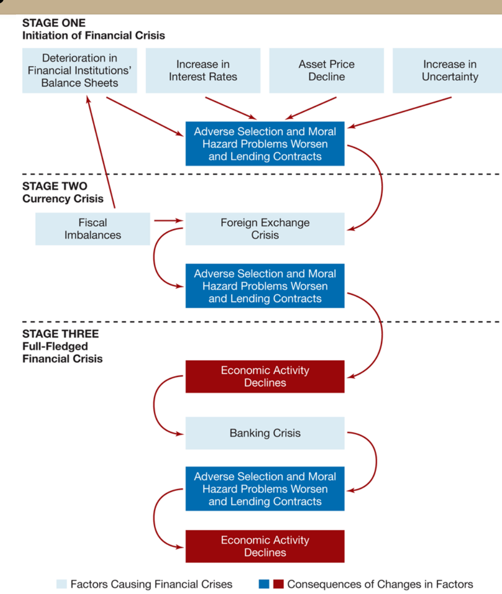
Dynamics of Financial Crises in Emerging Market Economies

- Stage two: currency crisis
  - Deterioration of bank balance sheets triggers currency crises:
    - Government cannot raise interest rates (doing so forces banks into insolvency)…
    - … and speculators expect a devaluation.
  - How severe fiscal imbalances triggers currency crises:
    - Foreign and domestic investors sell the domestic currency.

Dynamics of Financial Crises in Emerging Market Economies

- Stage three: Full-Fledged Financial Crisis:
  - The debt burden in terms of domestic currency increases (net worth decreases).
  - Increase in expected and actual inflation reduces firms' cash flow.
  - Banks are more likely to fail:
    - Individuals are less able to pay off their debts (value of assets fall).
    - Debt denominated in foreign currency increases (value of liabilities increase).

Figure 7 Sequence of Events in Emerging Market Financial Crises



APPLICATION Financial Crises in Mexico, 1994–1995; East Asia, 1997–1998; and Argentina, 2001–2002

- Mexico: Financial liberalization in the early 1990s:
  - Lending boom, coupled with weak supervision and lack of expertise.
  - Banks accumulated losses and their net worth declined.
- Rise in interest rates abroad.
- Uncertainty increased (political instability).
- Domestic currency devaluated on December 20, 1994.
- Rise in actual and expected inflation.

APPLICATION Financial Crises in Mexico, 1994–1995; East Asia, 1997–1998; and Argentina, 2001–2002

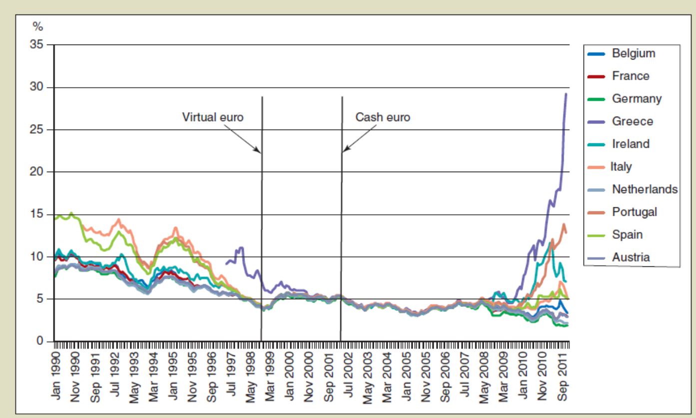
- East Asia: Financial liberalization in the early 1990s:
  - Lending boom, coupled with weak supervision and lack of expertise.
  - Banks accumulated losses and their net worth declined.
- Uncertainty increased (stock market declines and failure of prominent firms).
- Domestic currencies devaluated by 1997.
- Rise in actual and expected inflation.

APPLICATION Financial Crises in Mexico, 1994–1995; East Asia, 1997–1998; and Argentina, 2001–2002

- Argentina: Government coerced banks to absorb large amounts of debt due to fiscal imbalances.
- Rise in interest rates abroad.
- Uncertainty increased (ongoing recession).
- Domestic currency devaluated on January 6, 2002
- Rise in actual and expected inflation.

Dynamics of Eurozone Financial Crisis

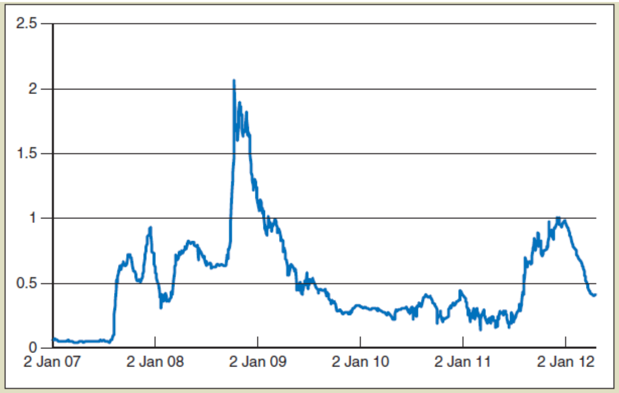
- Cheap credit, fiscal imbalances and mismanagement of financial innovation



Long-term interest rates of eurozone countries, January 1990–March 2012

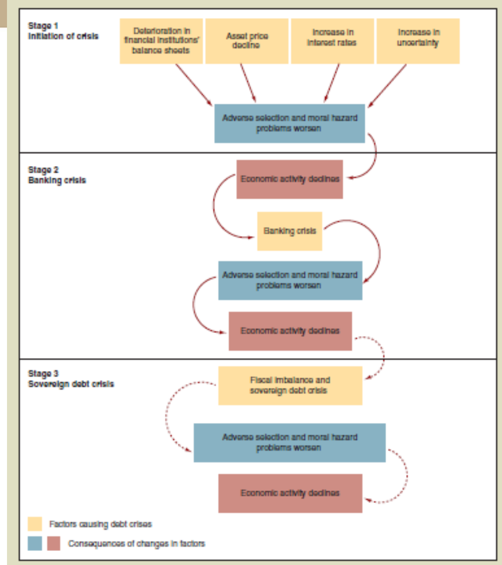
Source: Based on data from OECD.

Dynamics of Eurozone Financial Crisis



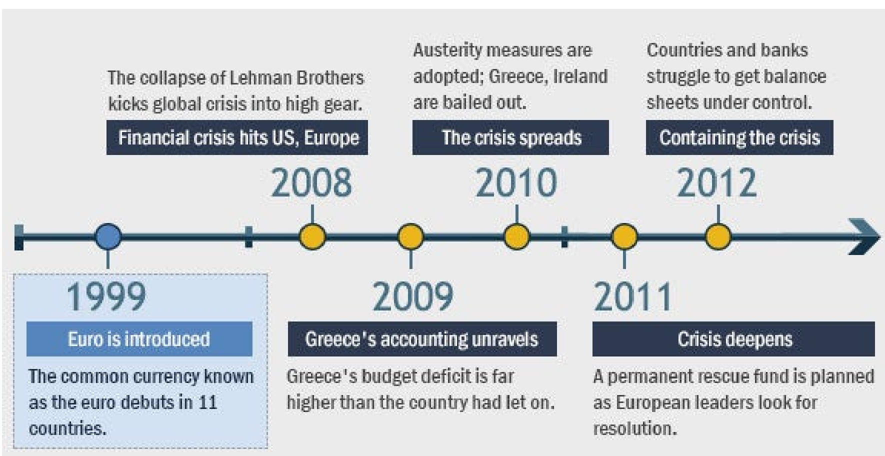
Spread between 3-month Euribor and OIS rates, January 2007–March 2012
Source: Based on Bloomberg.

Dynamics of Eurozone Financial Crisis

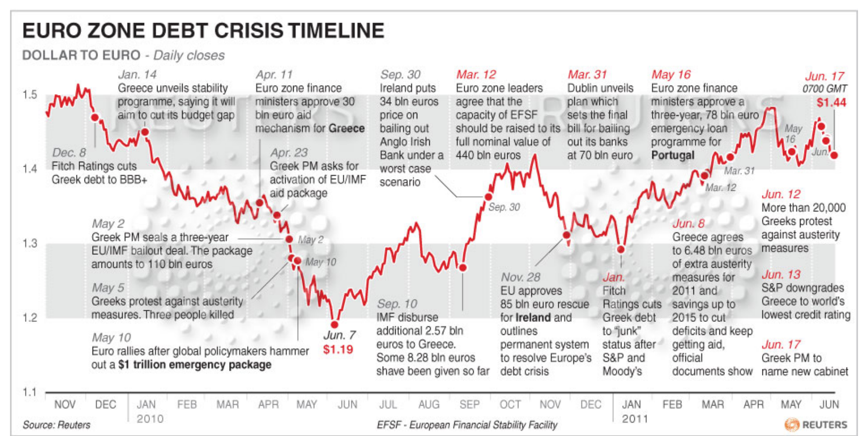


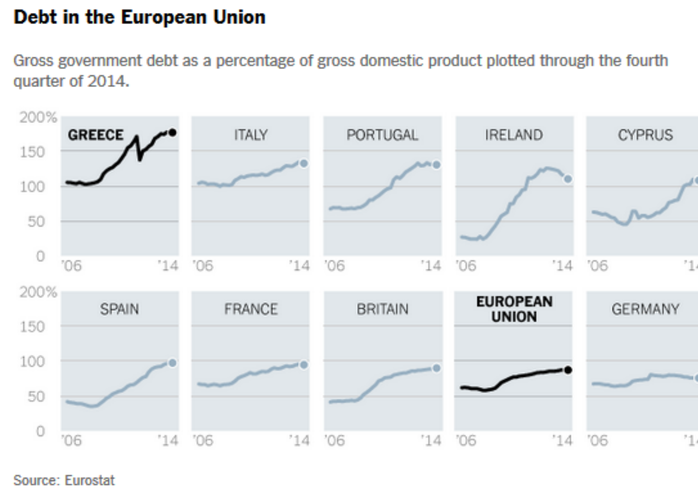
Sequence of events in the eurozone financial crisis
Source: The arrows trace the sequence of events of the eurozone financial crisis.

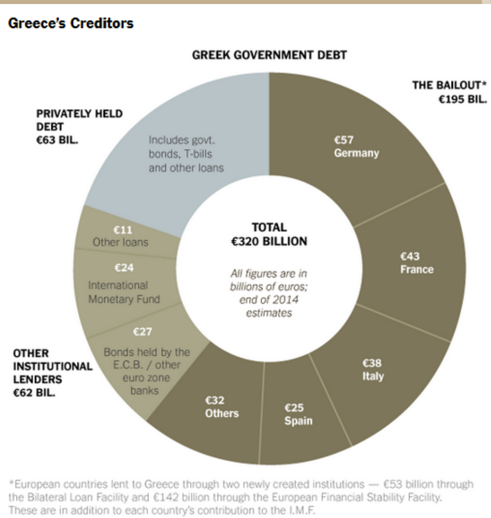
The European debt crisis – Timeline



The European debt crisis – Timeline







Practical exercise (to be completed in your own time)

- Do some Internet research to learn what happened to Greece's financial system and economy since the fall of 2010. Has the crisis worsened or eased? Has it affected other European or non-European economies? Have events followed the typical pattern of financial crises described in this lecture?

Other readings

- Amartya Sen: http://www.nybooks.com/articles/archives/2009/mar/26/capitalism-beyond-the-crisis/
- Martin Wolf: http://www.ft.com/cms/s/0/c6c5bd36-0c0c-11de-b87d-00779fd2ac.html?nclick_check=1
- Paul Krugman: http://www.nytimes.com/2009/09/06/magazine/06Economic-t.html?_r=1&pagewanted=all
- Brooksley Born: http://www.pbs.org/wgbh/pages/frontline/warning/view/?utm_campaign=homepage&utm_medium=tp5&utm_source=top5