Intermediate Macroeconomics

The Great Recession: A First Look

ECON 3311 – Fall 2024

UT Dallas

Introduction

In this lecture we will go over:

- The **Great Recession**, which was the biggest economic downturn in the US since the **Great Depression**
- The causes of the financial crisis, which began in the summer of 2007 and pushed the U.S. and world economies into the deepest recession in many decades
- How this recession compares to previous recessions and previous financial crises in the United States and around the world

Overview

The crisis began in the summer of 2007

- Real GDP starting declining in the fourth quarter of 2007
- Unemployment rate was 5% in December 2007 and then increased to 9.5% by June 2009
- **Home prices fell** by about 30%
- **S&P (stock) index fell by 57%** from October 2007 to March 2009
- Net worth of households and nonprofit organizations fell by $14 trillion

Downturn ‘ended’ in June 2009, but it **took several years** for certain markets **to recover**

Shocks to the Macroeconomy

Previously we talked about macroeconomic **'shocks'** that can move the economy from its long-run potential output

There were **several shocks that played a role** in the 2007 crisis

1) Housing prices declined sharply

2) Global savings glut

3) Subprime lending and rise in interest rates

4) Firms in financial risk

5) Oil prices

Housing Prices

From 1996 to 2006, housing prices tripled

- A "housing bubble" was created

What caused the increase in housing prices?

- "New economy" (dot.com boom)
- Low interest rates in the early 2000s
- Increasingly lenient lending standards

From mid-2006 to the beginning of 2012:

- **Housing prices plummeted** by 36%: The bubble burst

Since the 1950s, the next largest decline was 'only' 14% in the early 1990s

Why is decreasing housing prices a big deal? Don't we want housing to cost less?

Housing Prices

- Suppose someone buys a home for $200,000 and has a down payment of 20%, so they pay $40,000 and take a $160,000 loan
- If home prices increase by 20% to $240,000, the individual can sell the house and be left with $80,000 ($240,000 – $160,000 = $80,000)
- If home prices decrease by 20% to $160,000, the individual selling the home is left with $0 ($160,000 - $160,000 = $0)
- But what if you only have a down payment of 10% ($20,000) and home prices decrease by 20% ($40,000)?
  - Now you owe the bank $20,000
  - What if you cannot make payments on your house?
- First, you may lose your investment (house) and wealth
- Moreover, if many people do not have the money to pay back the bank, then now the bank is in trouble
- If many banks are in trouble, then the entire economy is in trouble

Why? … because banking funding is key for investment and the latter for growth

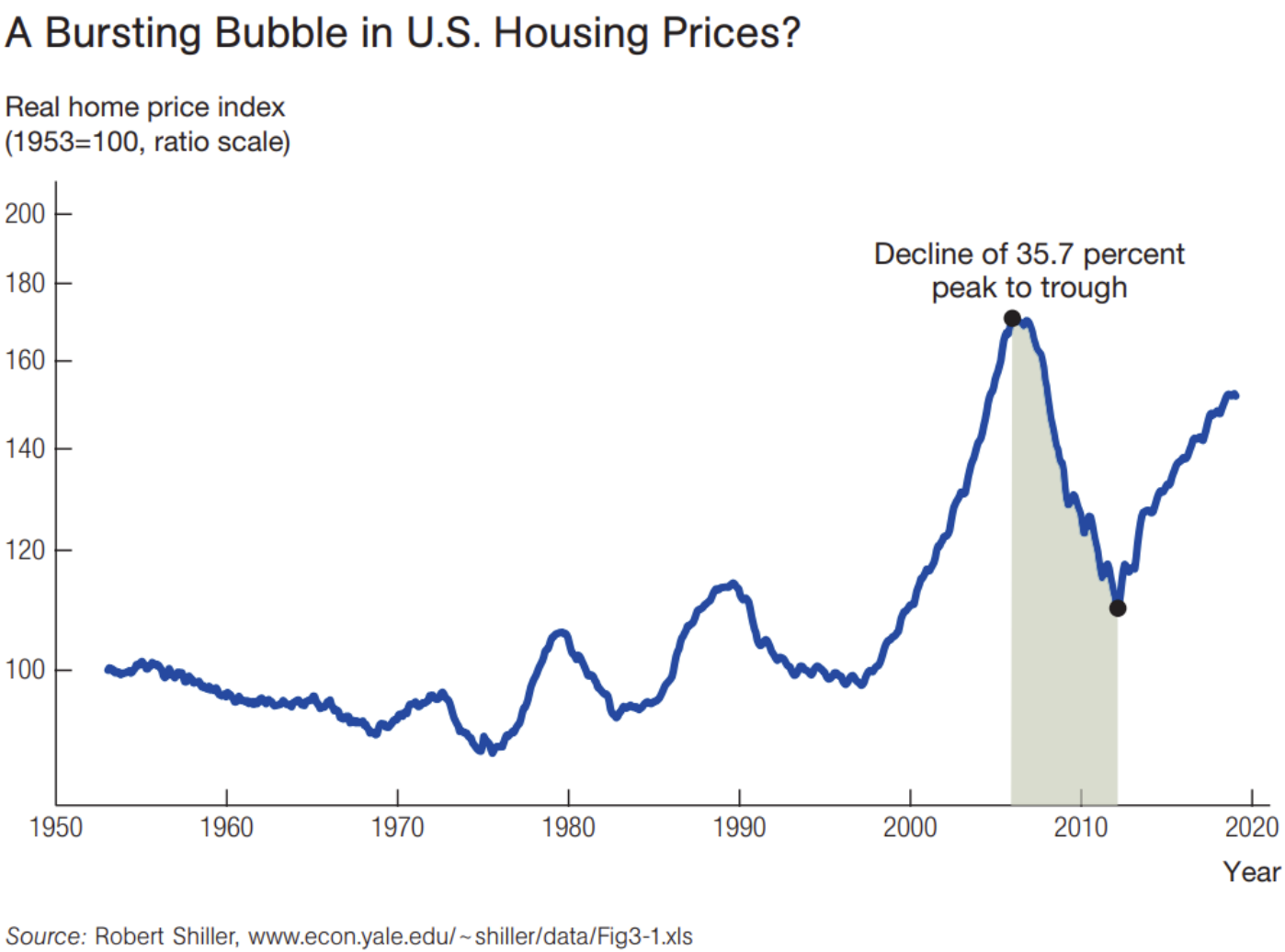
Housing Prices

With rising prices, homes are seen as a great Investment

Note the anomaly that the 1996 to 2006 period is in terms of the 'real' value of homes

Naturally, people buy more houses, using loans, that are sustainable only if the prices remain high

Otherwise, you'd rather not pay your mortgage and lose your house



Source: Robert Shiller, www.econ.yale.edu/~shiller/data/Fig3-1.xls

Global Savings Glut

Developing and Emerging countries borrowed much less from other countries and started saving more in the years prior to the crisis: **Savings 'glut' (excessive supply)**

- Looking for places to put these savings, they looked to the US in both the housing market and the stock market, inflating them even further

These resources entered the US and bought all sorts of assets: Safe, Risky, **Riskier**

Current Account Surpluses and Deficits

Date	Industrial Region	Developing Region
1996	31.1	-82.8
2000	-304.7	124.7
2004	-296.5	296.5
2005	-502.5	507.9
2006	-607.3	643.2

Source: Ben S. Bernanke speech September 11, 2007

On top of this, there was an underestimation the risk of these investments — many backed on the prices of housing themselves ("securitization" & "mortgage-backed securities").

Lending in housing market

There were many different factors leading to the housing market crash

- Key example: Fannie Mae (Federal National Mortgage Association)
- Company created during the Great Depression in 1938 to increase access to housing – this was done by buying mortgages from banks
- It became public in 1968, which led it to concentrate much more on making sure it was profitable
- In 1970, Freddie Mac (Federal Home Loan Mortgage Corporation) was created to provide some competition in this market
- One of the problems with the two firms was that even though they were private companies, they were still 'seen' as public and backed by the government
- They sold **mortgage-backed securities** because everyone believed the investments were safe – but **many loans (in the 2000s) were subprime loans**
- If the companies were scrutinized more closely, from the outside or inside, perhaps their downfall would not have been as sharp

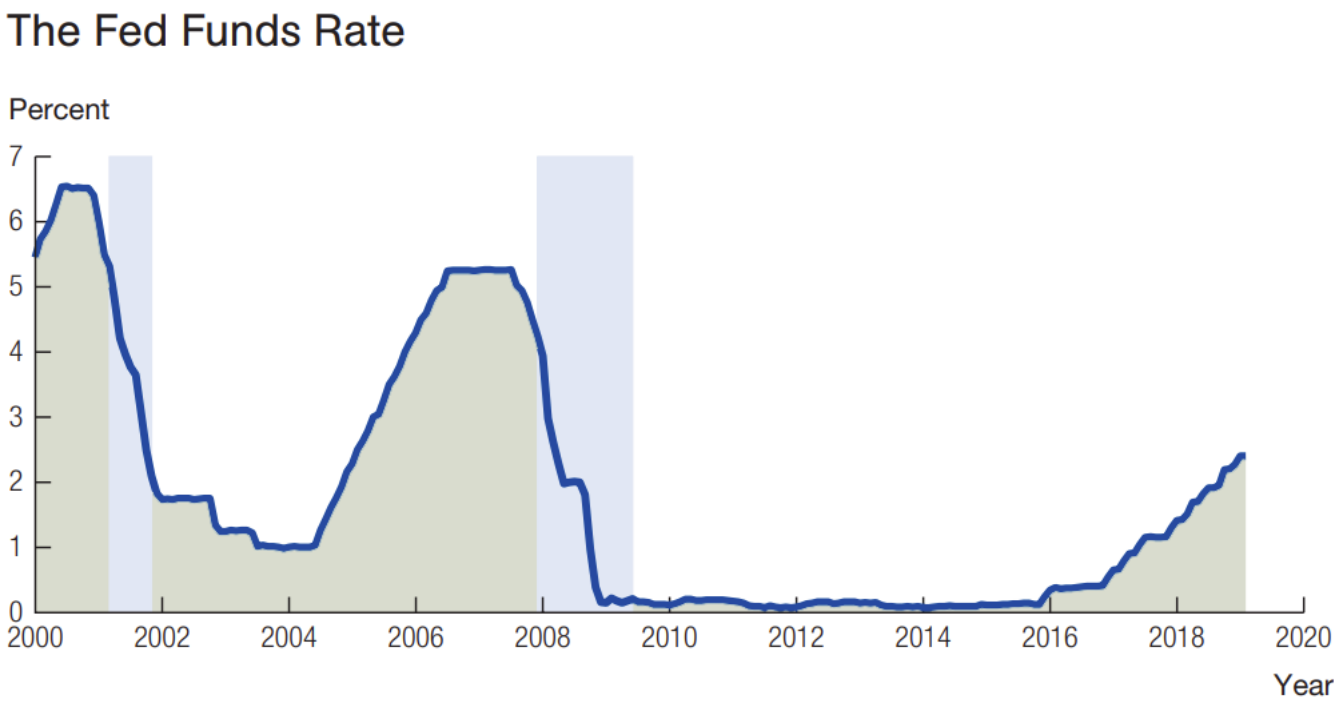
Rising interest rates

Low initial rates and optimism about the house prices led to an increase in mortgages

This included low quality lending (subprime loans) —the lending standards deteriorated

Accordingly, interest rates increased beginning in 2004

This made mortgages harder to pay — by Aug. 2007, 16% of subprime adjustable rate mortgages were in default.



Source: Board of Governors of the Federal Reserve System (US), Effective Federal Funds Rate [FEDFUNDS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/FEDFUNDS, September 22, 2019.

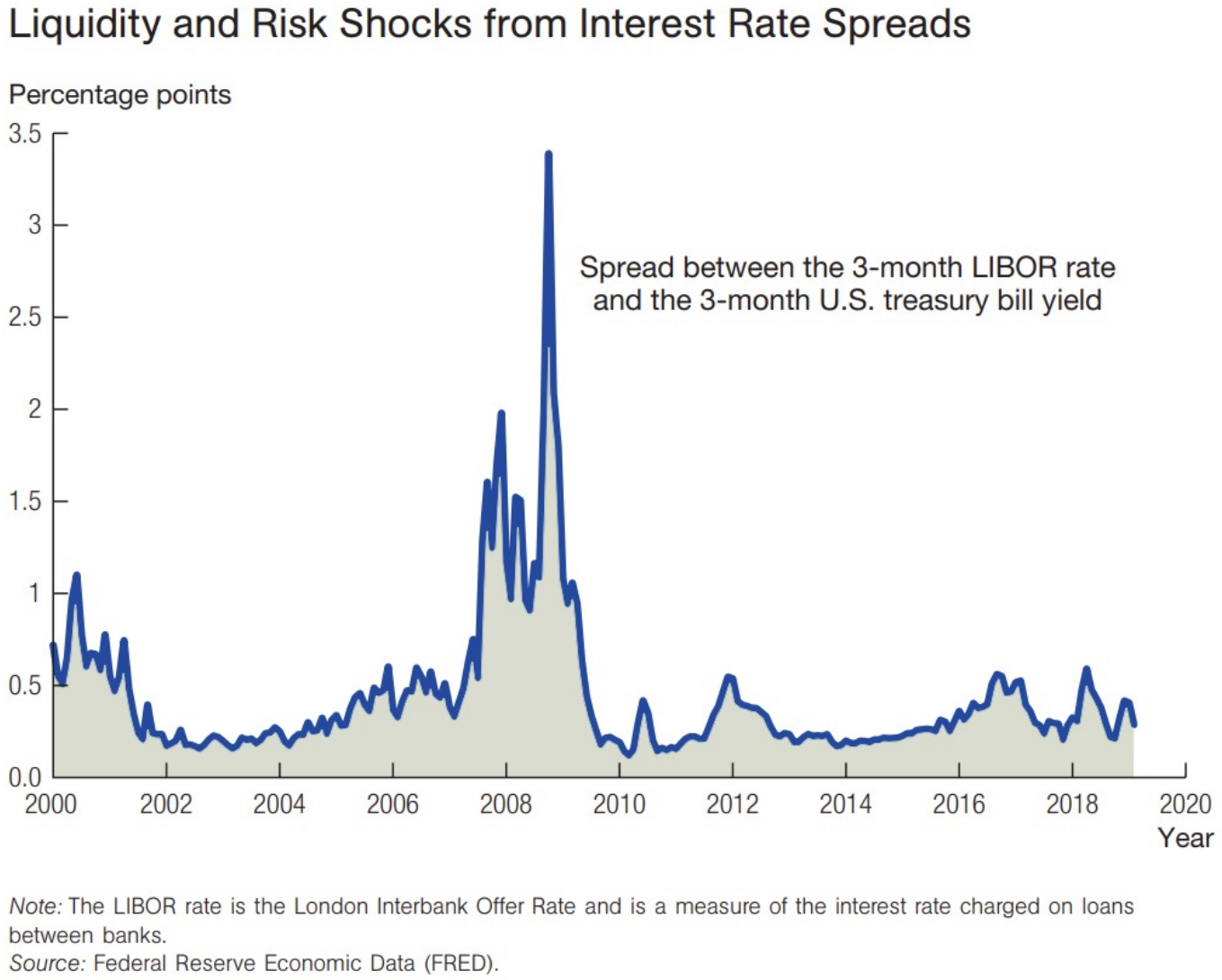
These problems created a downward spiral situation between the housing prices, the default on mortgages and cost of debt (higher rates).

Liquidity and Risk Shocks from Interest Rate Spreads

Financial innovations made difficult to know the individual exposure of banks to risk.

The rate at which banks borrow and lend to one another rose sharply in August 2007 during the subprime crisis.

This created a liquidity crisis that subsided only until banks over invested in mortgages collapsed.



Note: The LIBOR rate is the London Interbank Offer Rate and is a measure of the interest rate charged on loans between banks.
Source: Federal Reserve Economic Data (FRED).

Banks failures: Lehman Brothers bankrupted, Merrill Lynch was sold to BoA. The government took over Fannie Mae and Freddie Mac, and implemented bailout programs (TARP)

Other shocks: Oil prices

At the same time (2007-08) the oil prices increased to unprecedented levels: A surge in oil prices can be seen as a —negative— supply shock for most countries

For the US: If oil prices increase, the cost of inputs (and production) rises

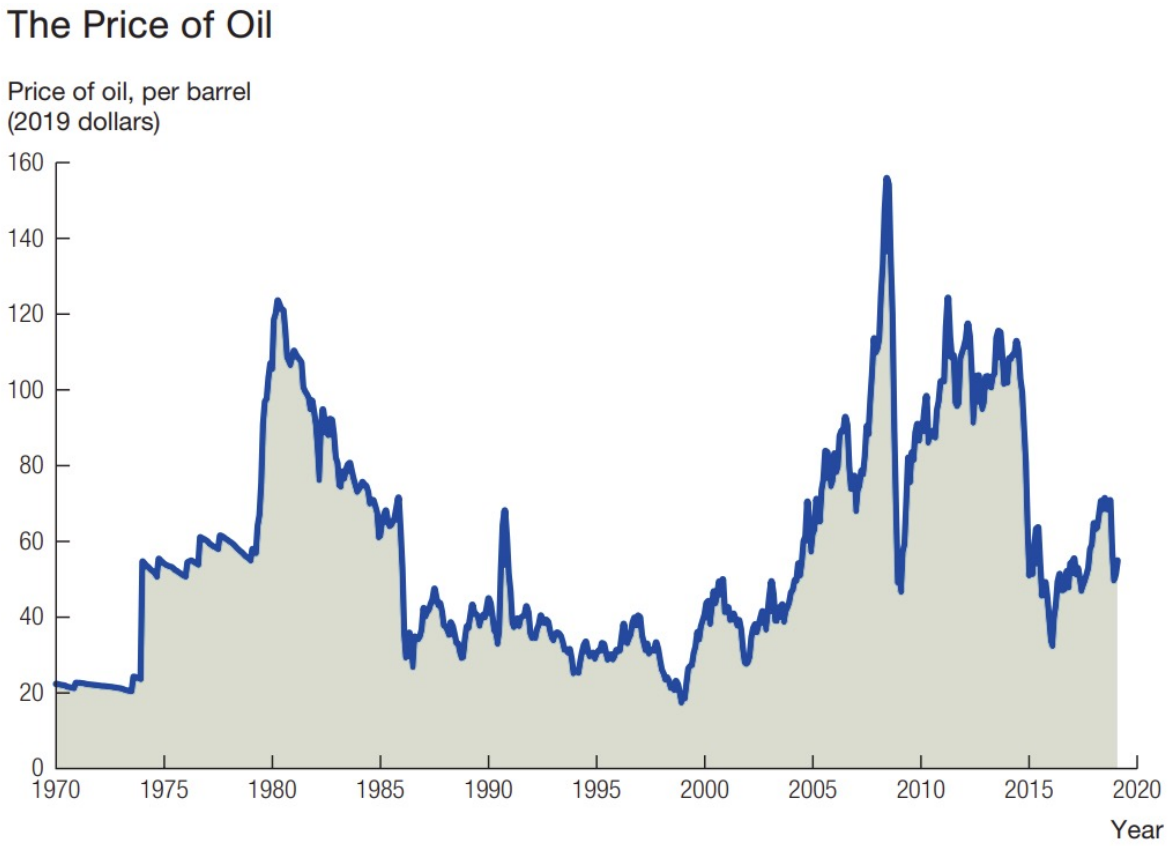
Volatility in oil prices:

- Price increase caused by increased demand coming from Emerging countries:

  China, India, and the Middle East

- The subsequent economic slowdown helped to alleviate oil demand pressures

The resulting volatility is marked: prices went from $160 to $40 in a few months



Source: The FRED database.

Response of the Fed and Treasury

Emergency Economic Stabilization Act of 2008

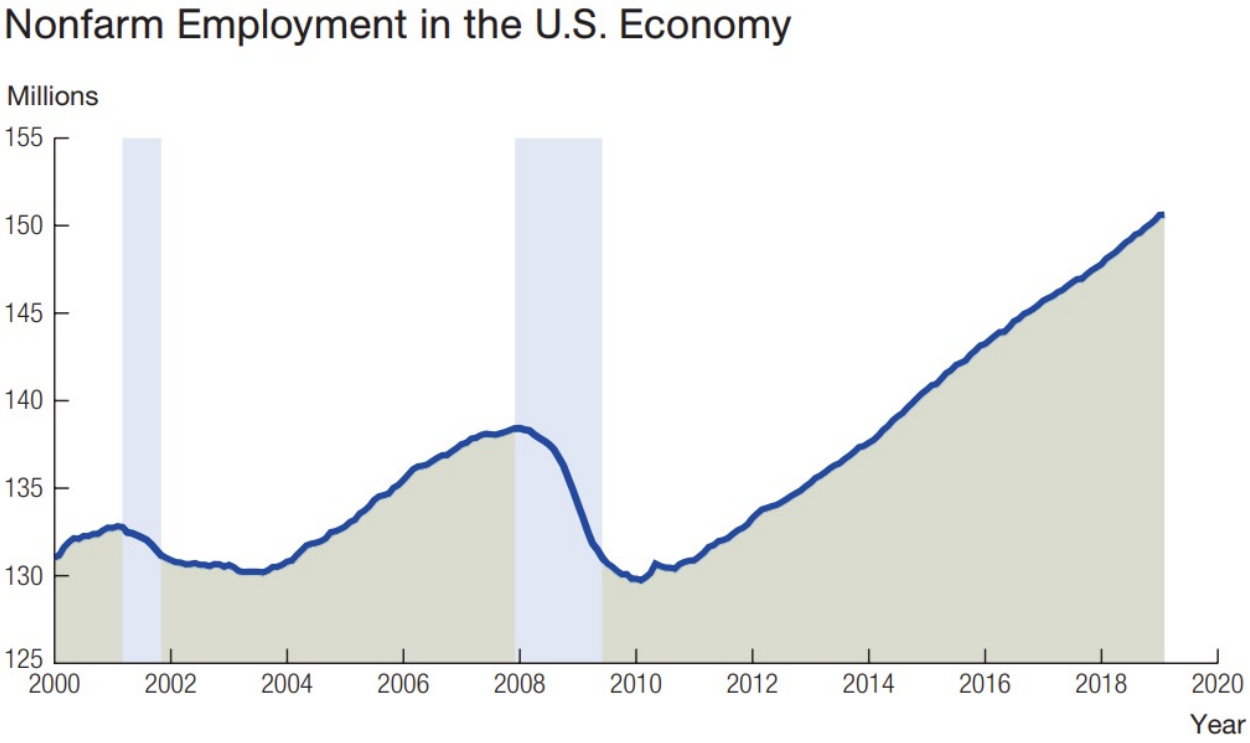
- Created $700 billion Troubled **Asset Relief Program** (**TARP**)
- Allowed banks to get rid of distressed assets

American Recovery and Reinvestment Act of 2009

- Extend unemployment benefits
- Food stamps
- Cash payments to individuals
- Highway repair and bridge construction
- Repair federal buildings
- Money to states to help with Medicaid
- Money to states to prevent cuts in education due to decrease in tax revenue
- Tax credits to individuals

Macroeconomic outcomes of the recession

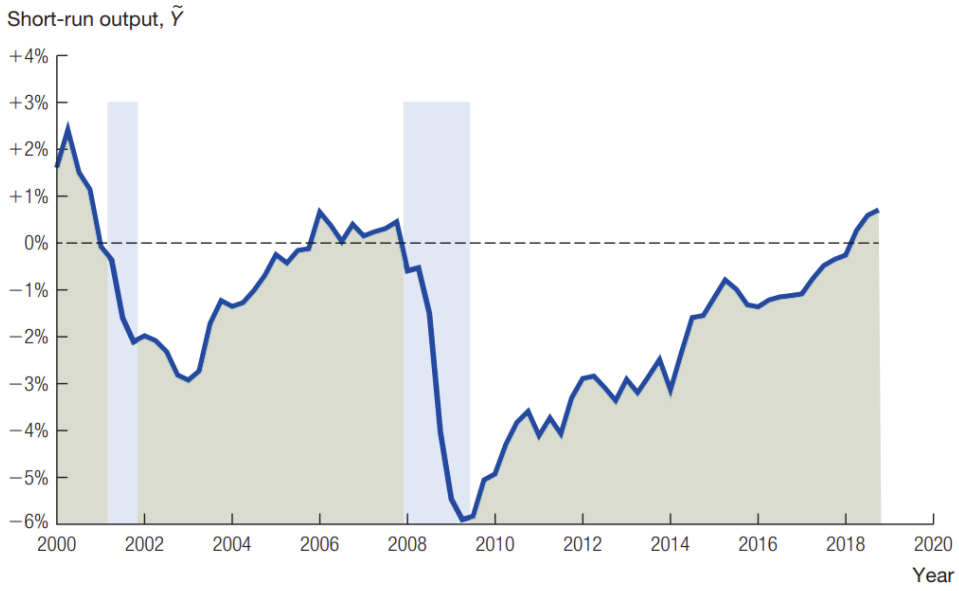
- Decrease in employment began in December 2007
- By 2009, output was 7% below potential, and unemployment was more than 10%
- By February 2010, 8.5 million jobs were lost



Source: U.S. Bureau of Labor Statistics, All Employees: Total Nonfarm Payrolls [PAYEMS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/PAYEMS, September 23, 2019.

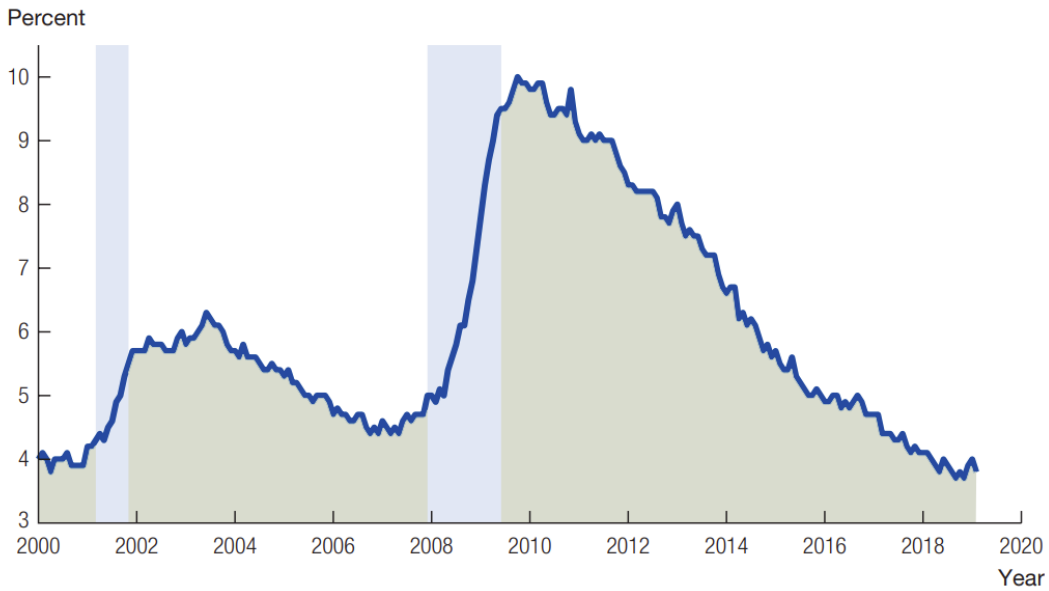
Macroeconomic outcomes of the recession

U.S. Short-Run Output, $\tilde{Y}$



Source: The FRED database and author's calculations.

The U.S. Unemployment Rate



Source: The FRED database.

Short-run output fell sharply: To 6% below the potential output.

The fall was of such magnitude that has prompted economist to ask two questions:

- How stronger was this recession previously to past ones?
- Did such severe downturn affect potential output too?

(the second one goes beyond this course but know that this concern has led to a large number of studies recently)

Severity of recession

This recession was unusually strong

However, there are two stronger recessions:

The 1929 Great Depression

The 2022 COVID lockdown

However, the 2022 one was much more short-lived.

Changes in Key Macroeconomic Variables: Previous Recessions and the Great Recession

	Average of previous recessions since 1950	The Great Recession
GDP	−1.7%	−4.7%
Nonfarm employment	−2.5%	−6.3%
Unemployment rate	2.5	4.5
Components of GDP		
Consumption	0.4%	−3.4%
Investment	−14.4%	−34.0%
Government purchases	1.2%	5.5%
Exports	−1.5%	−10.3%
Imports	−4.2%	−18.7%

Source: The FRED database.

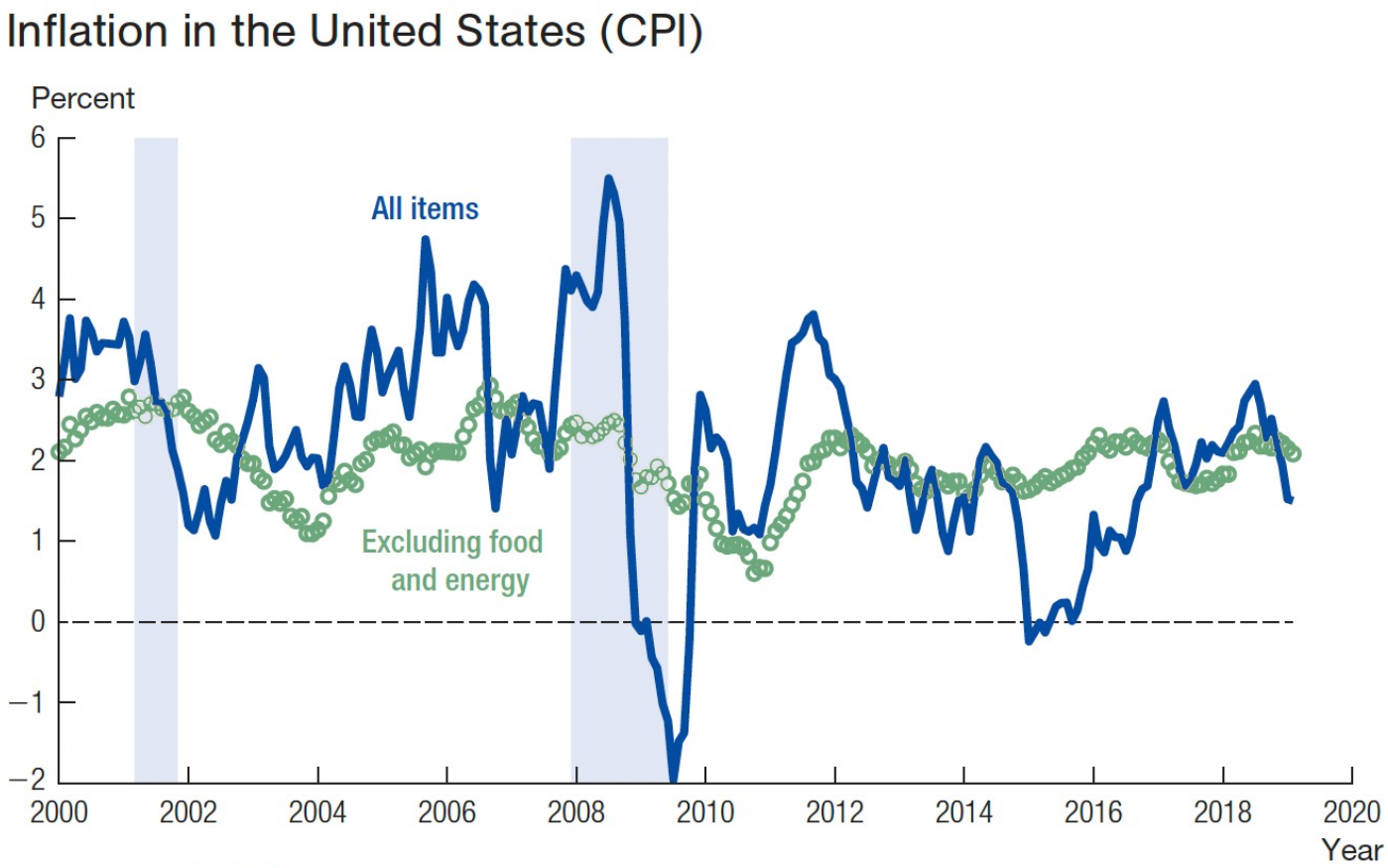
Then, the 2007 Great Recession was **atypically bad** (but not the only atypical one)

Moreover, what makes the Great Recession special is its **Financial Nature** which led to its after-effects to be much longer lasting than other recessions.

Food for thought: The severity of the recessions is not independent of the policy response. Policy actions can make the recession considerably milder/worse.

Inflation during the recession

- If looking at 'all items', inflation fluctuated significantly due to changing oil prices
- When excluding food and energy, there was a slight decrease in the rate of inflation during the recession



Source: The FRED database.

We can say inflation was not as concerning as output dynamics. If something, it has been relatively puzzling how dormant the inflation was ("missing inflation puzzle")

Which was totally in contrast to the aftermath of the COVID recession.

Global GDP Changes

The 2009 financial crisis led to significant GDP declines in many developed countries.

Japan, the United Kingdom, and the Euro area were hit particularly hard, with GDP decreases of 6.3%, 4.9%, and 4.3%.

In contrast, China and India continued to experience economic growth in 2009, with increases of 9.2% and 6.8%.

This has led to the idea that although Global, this was mainly a crisis of the Developed world.

Percentage Change in Real GDP around the World

	2009	2012	2018*
Japan	−6.3	2.0	0.9
United Kingdom	−4.9	−0.2	1.4
Euro area	−4.3	−0.4	1.8
Italy	—	−2.1	1.0
Spain	—	−1.4	2.5
United States	−3.5	2.3	2.9
Brazil	−0.6	1.0	1.3
India	+6.8	4.5	7.3
China	+9.2	7.8	6.6

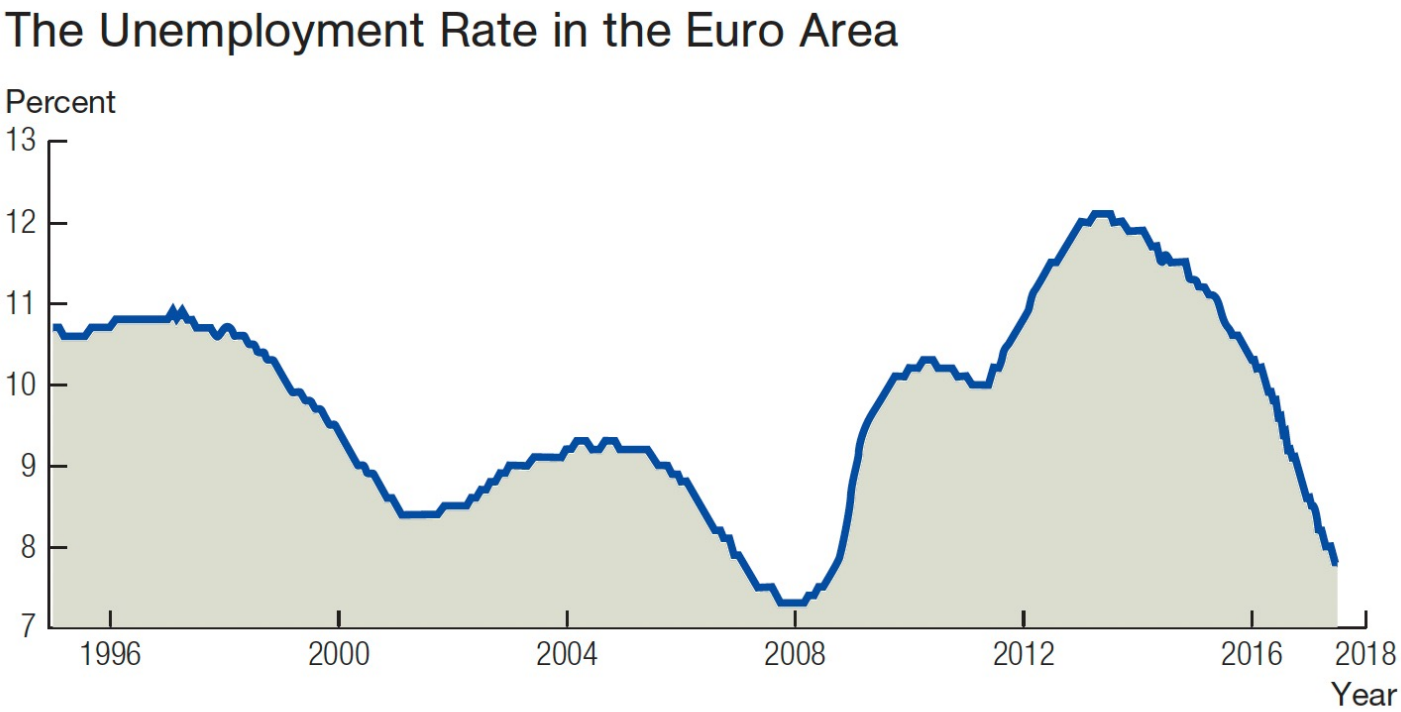
Source: IMF World Economic Outlook. *2018 is an estimate.

Unemployment in the Euro Area

Major impact on the Euro area unemployment rate: Peaked at over 12% in 2013.

Subsequent **slow** decline in unemployment as the economy recovered.

Italy and Spain experienced a particularly slow recovery: Due to the secondary impact of the sovereign debt crisis.



Source: www.tradingeconomics.com. Reprinted with permission.

Some Fundamentals of Financial Economics

As hinted, the Great Recession was financial and thus requires some financial economics background to understand it better.

Net Worth: Difference between its total assets and its total liabilities.

Leverage: Ratio of total liabilities to net worth

Prior to the crisis, the banks were highly leveraged. In that case a drop in the price of assets can hugely impact the net worth leading to bankruptcy.

A Hypothetical Bank's Balance Sheet (billions of dollars)

Assets		Liabilities	
Loans	1,000	Deposits	1,000
Investments	900	Short-term debt	400
Cash and reserves	100	Long-term debt	400
Total assets	2,000	*Total liabilities*	1,800
		Equity (net worth)	200

Some of the assets were tied to the value of Mortgages as that's how the housing prices drop let do a generalized balance sheets deterioration.

What's special in this case? The **after-crisis recovery is slow** because it requires an initial **"deleveraging"** that postpones the investment grow necessary to normalize the economy

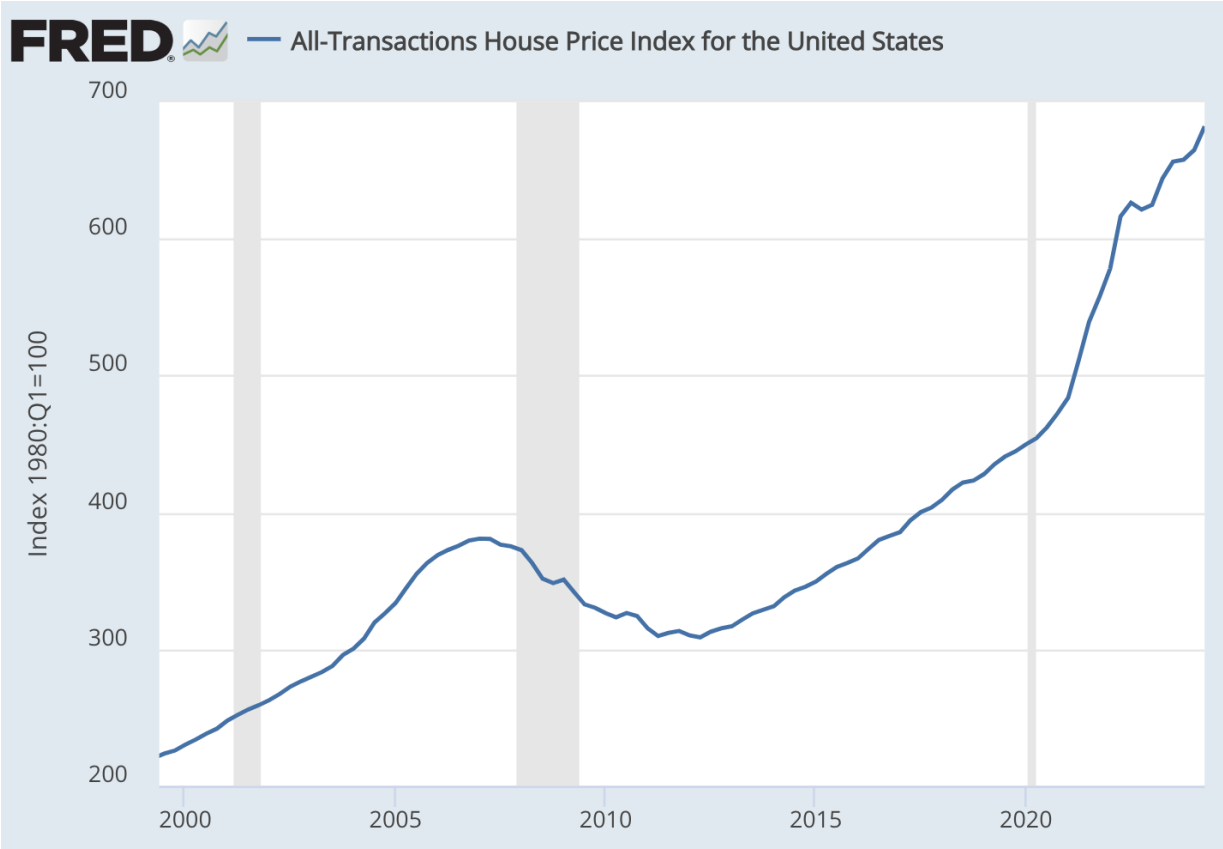
Conclusion

The Great Recession stands out for its **magnitude and duration**

The main **cause** was the **bursting of the housing bubble** and then other factors contributed to its severity

Early policy actions was key:

The Federal Reserve and Treasury combined to take unprecedented steps to try and stabilize the economy



Source: U.S. Federal Housing Finance Agency