What Happens During Recessions, Crunches and Busts?

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The views presented here are those of the authors and do NOT necessarily reflect the views of the IMF or IMF policy

Motivation

- In some advanced countries, especially the United States
  - Sharp decline in house/equity prices; tightening credit
  - Slowdown in economic activity
  - Concerns about recession: duration and amplitude…
- But, generally, relationships between credit, asset price movements, and economic activity in recessions not well understood

Motivation

- What do we know about recessions, as they relate to credit *(crunches)* and asset prices *(busts)*? So far only a small sample of (case) studies have been studied.

*"… asset-price-bust recessions do **not** appear to be necessarily more costly than other recession episodes. Specifically, …, recessions that follow swings in asset prices are **not** necessarily longer, deeper, and associated with a greater fall in output and investment than other recessions…"*

Roger W. Ferguson, January 12, 2005

Ferguson was the Vice Chairman of the FRB over 1997-2006

Objective: Three Questions

- How do macro and financial variables behave around recessions, crunches and busts?
- Are recessions associated with credit crunches and asset price busts different than other recessions?
- What might this mean for recent developments in the United States?

How? By providing a comprehensive analysis of a large number of recessions, crunches and busts

(purely statistical exercise; event study; no discussion of causation or potential sources)

Results

- How do macro and financial variables behave around recessions, crunches and busts?

  Mostly procyclical. Residential investment and credit appear to be the key variables to understand the direction of the economy (especially in the United States)

- Are recessions associated with credit crunches and asset price busts different than other recessions?

  Yes. Recessions associated with crunches and busts tend to be longer and deeper

- What might this mean for recent developments in the US?

  Signs of a slowing economy but also an aggressive monetary policy stance already in place. Not clear whether this will be a mid-cycle slowdown or recession…

Outline

- **Data and Methodology**
- Recessions: Basic Characteristics
- Credit Crunches and Asset Price Busts
- Recessions, Crunches and Busts
- Policy Responses
- Recent Developments in US
- Conclusions

Database

- **Country Sample**: 21 OECD countries; Quarterly data; 1960:1-2007:4; OECD, BIS, HAVER, IFS
- **Macro Variables:** Output, consumption, investment, industrial production, unemployment, inflation, exports, and imports …
- **Financial Variables:** Credit, house and equity prices
- **"Policy" Variables:** Government consumption and short-term interest rates

Countries Included in Study

Australia, Austria, Belgium, Canada, Denmark,

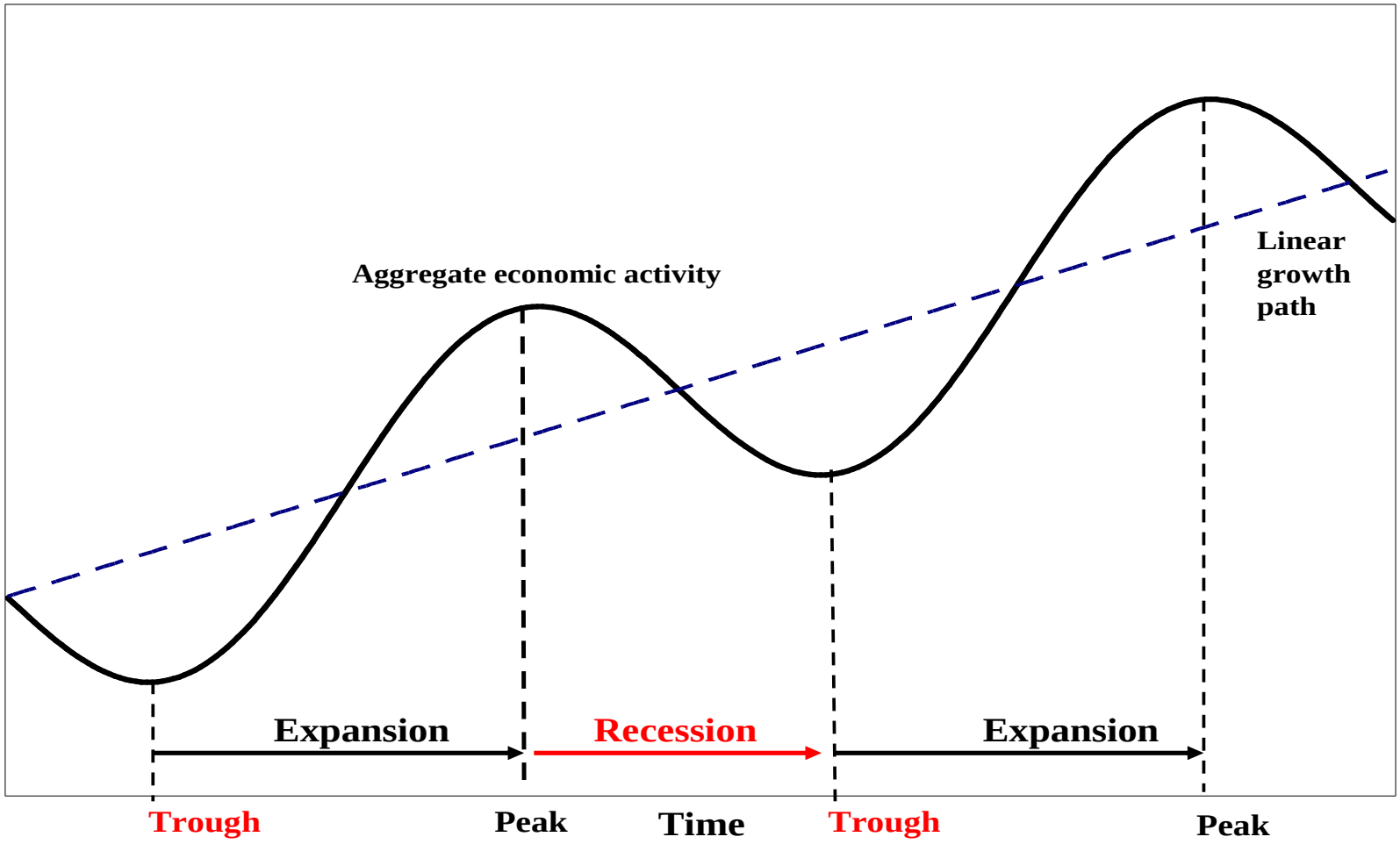
Finland, France, Germany, Greece, Ireland, Italy,

Japan, the Netherlands, New Zealand, Norway, Portugal,

Spain, Sweden, Switzerland, the United Kingdom,

and the United States

Evolution of a Business Cycle



Methodology

- Find cyclical turning points in macro and financial variables using standard business cycle dating algorithm

  (Harding and Pagan, 2002, *Journal of Monetary Economics*)

- Document chronologies of business cycles using a consistent definition; similar to the NBER turning points in the United States

- Examine the basic characteristics (duration, amplitude) and temporal patterns around recessions; analyze the macroeconomic variables in recessions coinciding with credit crunches and asset price busts

Methodology

- Identify severe recessions, credit crunches and asset price busts

Severe Recession: a peak-to-trough decline in GDP in the worst quartile of all declines

Credit Crunch: a peak-to-trough contraction in credit in the worst quartile of all credit contractions

Asset Price Bust: a peak-to-trough decline in asset prices in the worst quartile of all price declines

Macro Recessions and Financial Contractions

- Is the sample large enough? **Yes**

- Macro Recessions

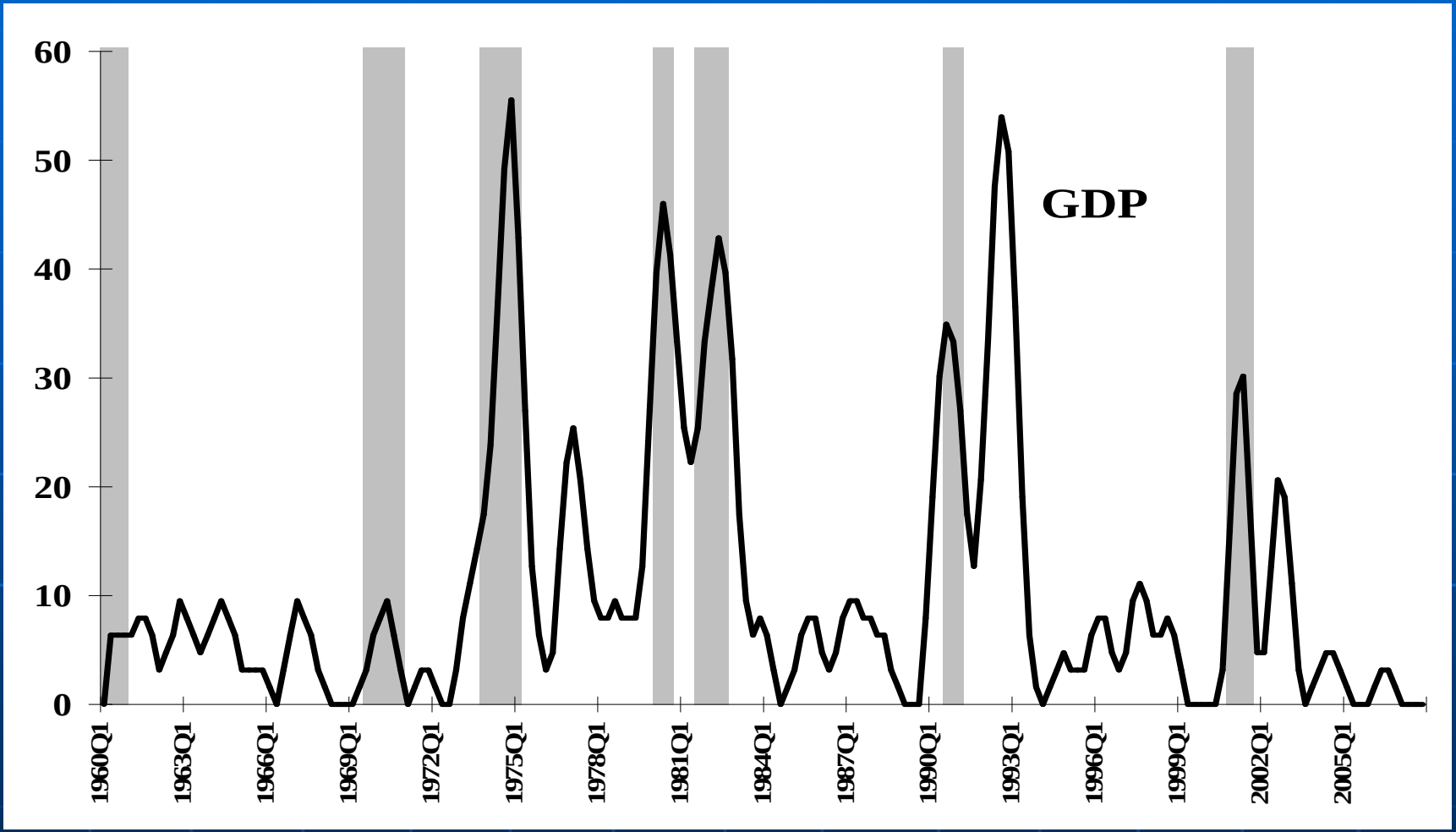
  -122 Recessions in GDP **(30 Severe),** US (7/**0**)

- Financial Contractions

  - 112 Contractions in Credit **(28 Crunch)**, US (5/**2**)
  - 114 Declines in House Prices **(28 Busts)**, US (7/**0**)
  - 234 Declines in Equity Prices **(58 Busts)**, US (14/**1**)

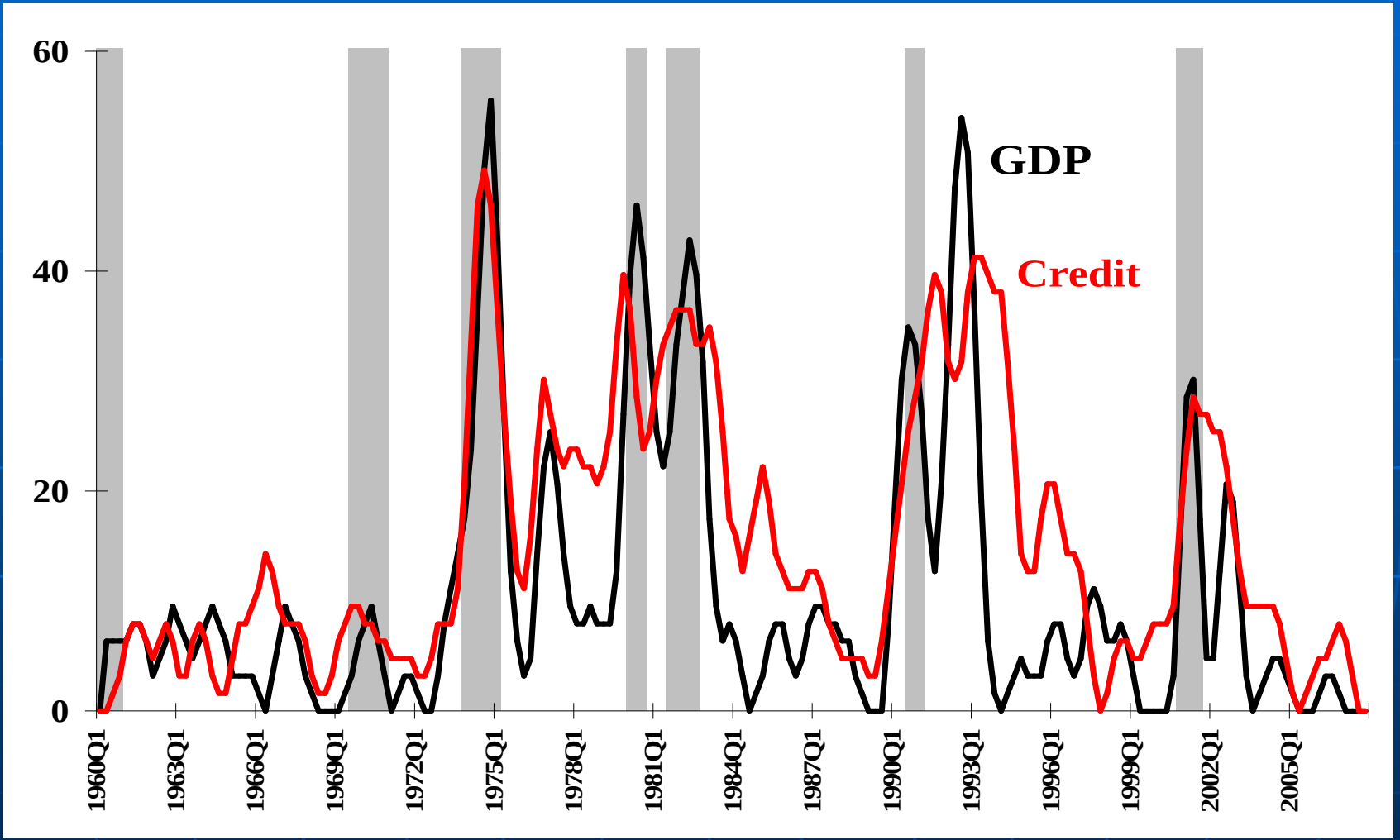
Recessions in OECD

(fraction of countries in recession; shaded bars are US recessions)



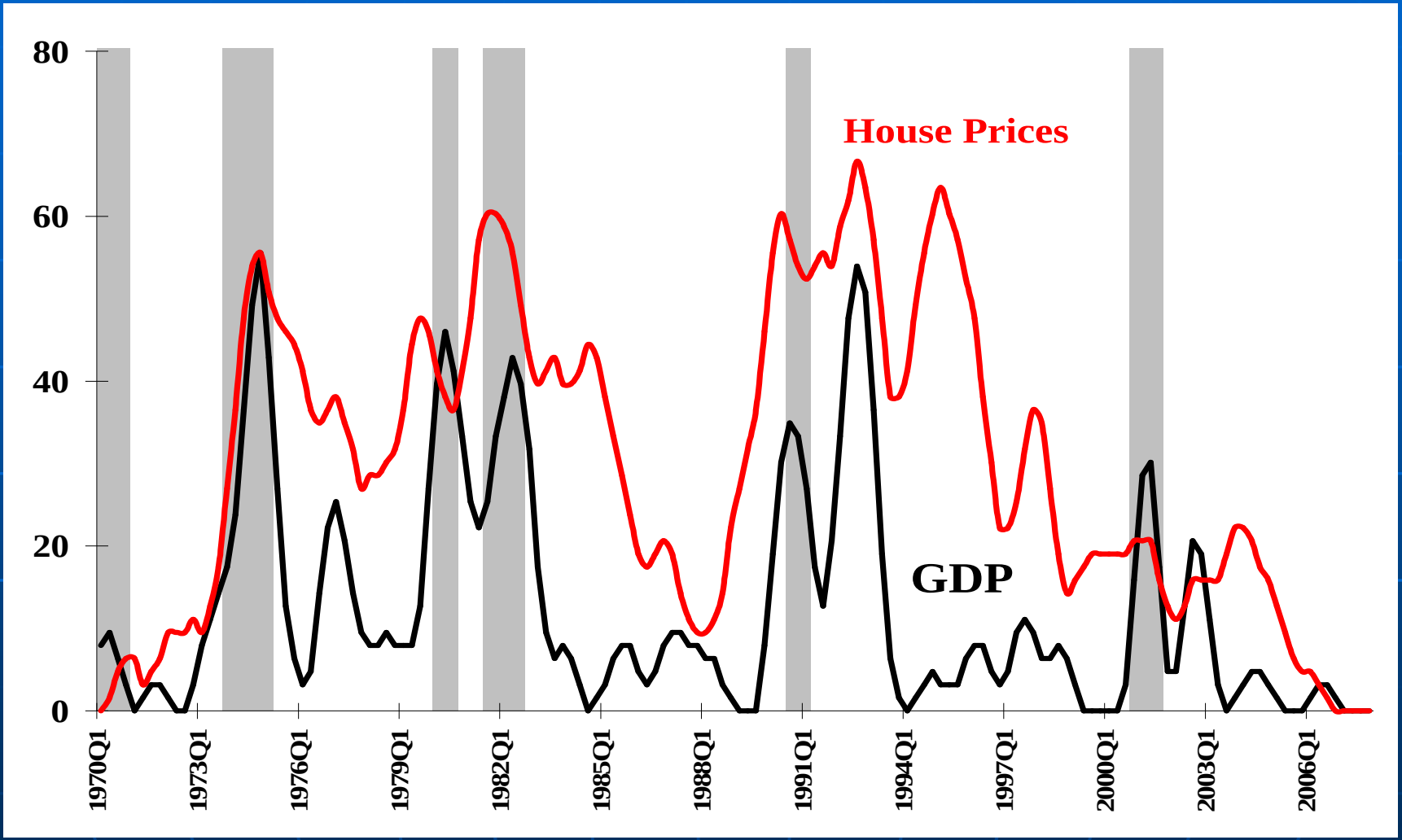
Recessions and Credit Contractions

(fraction of countries, shaded bars are US recessions)



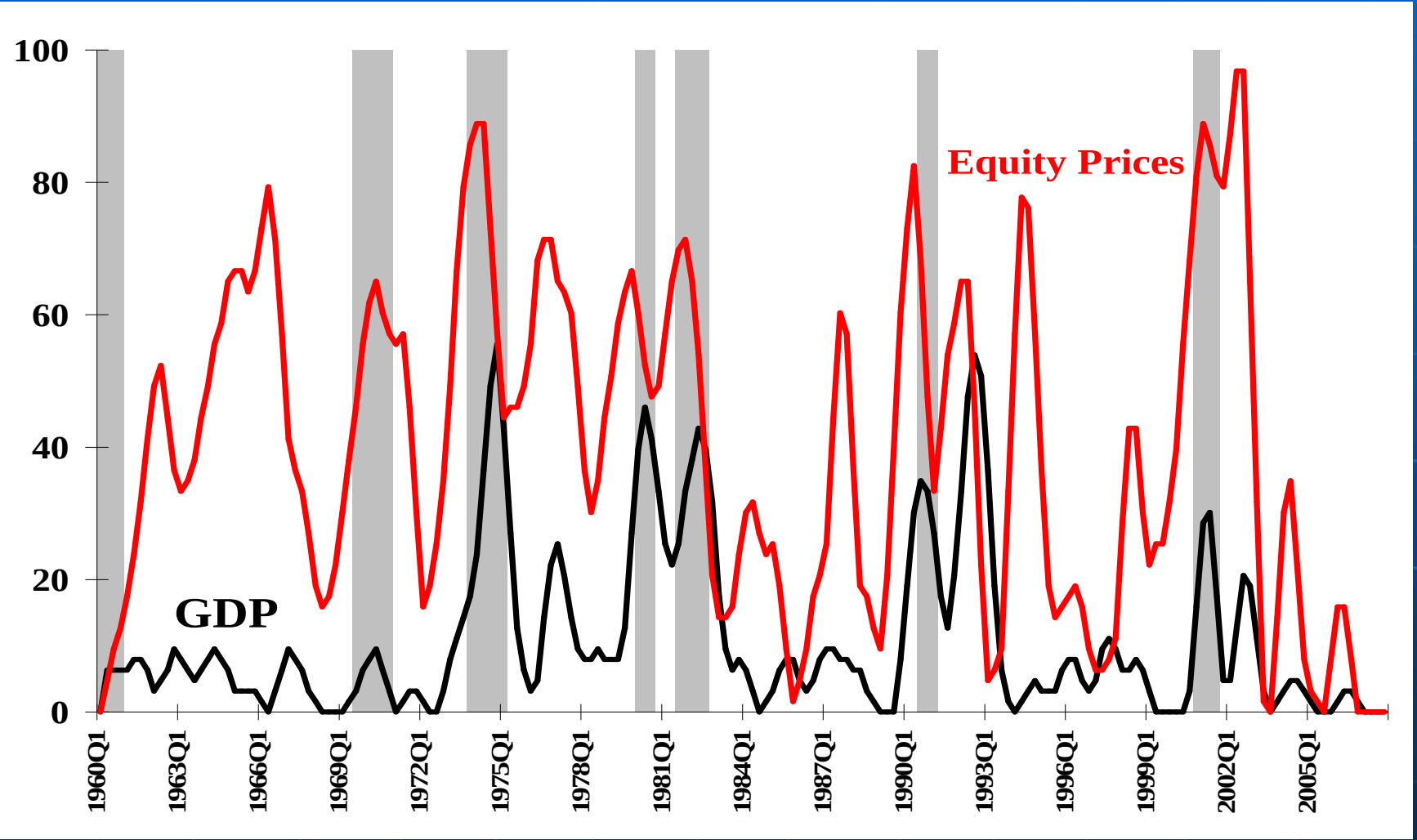
Recessions and House Price Contractions

(fraction of countries; shaded bars are US recessions)



Recessions and Equity Price Contractions

(fraction of countries, shaded bars are US recessions)



What did we learn?

- Recessions coincide to some degree across OECD countries
- Recessions have been fewer as business cycles have moderated over time
- Credit contractions overlap most often with recessions
- House price declines overlap quite often with recessions
- Equity price declines are more independent from output recessions (“predict 8 out of 5 recessions”)

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- **Recessions: Basic Characteristics**
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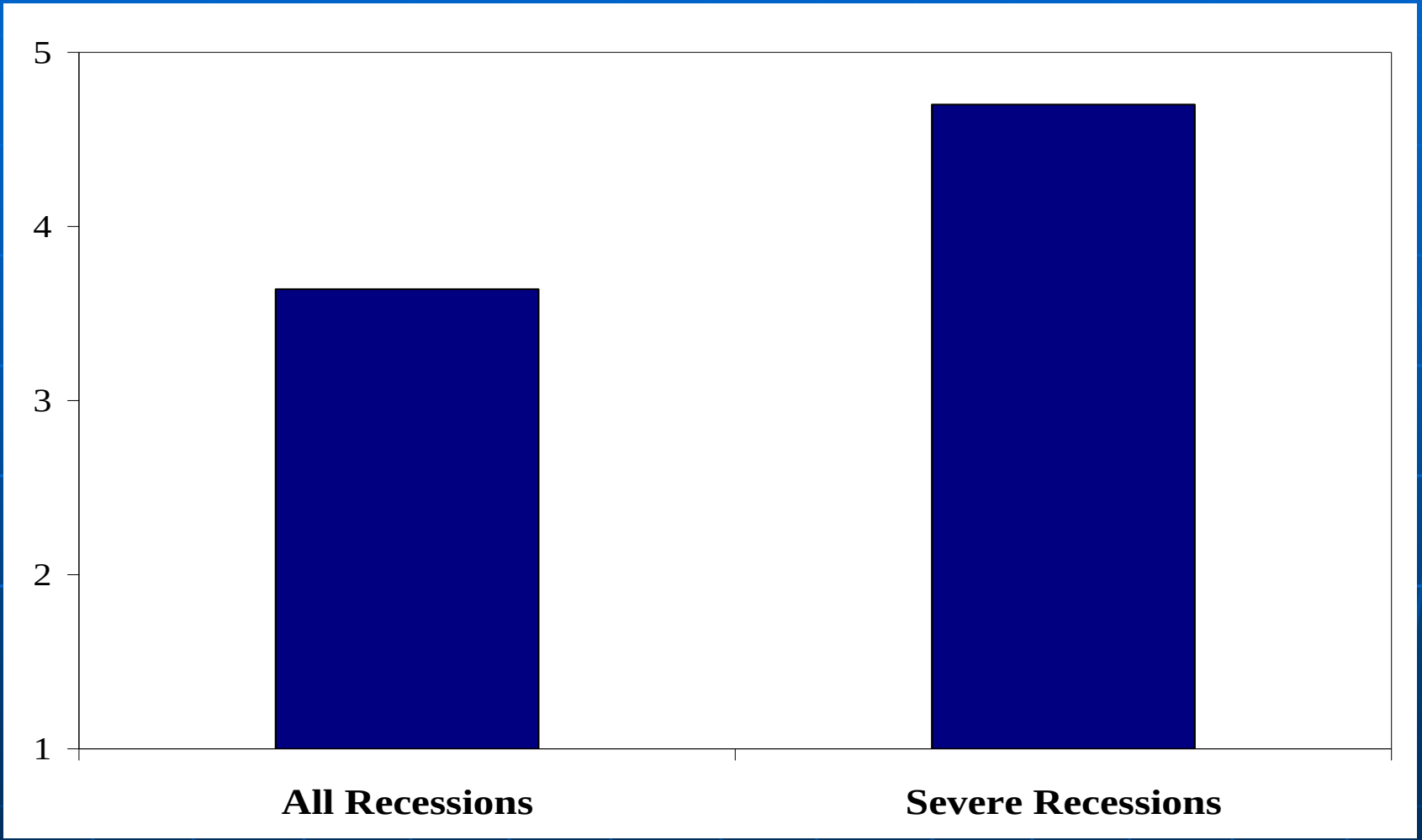
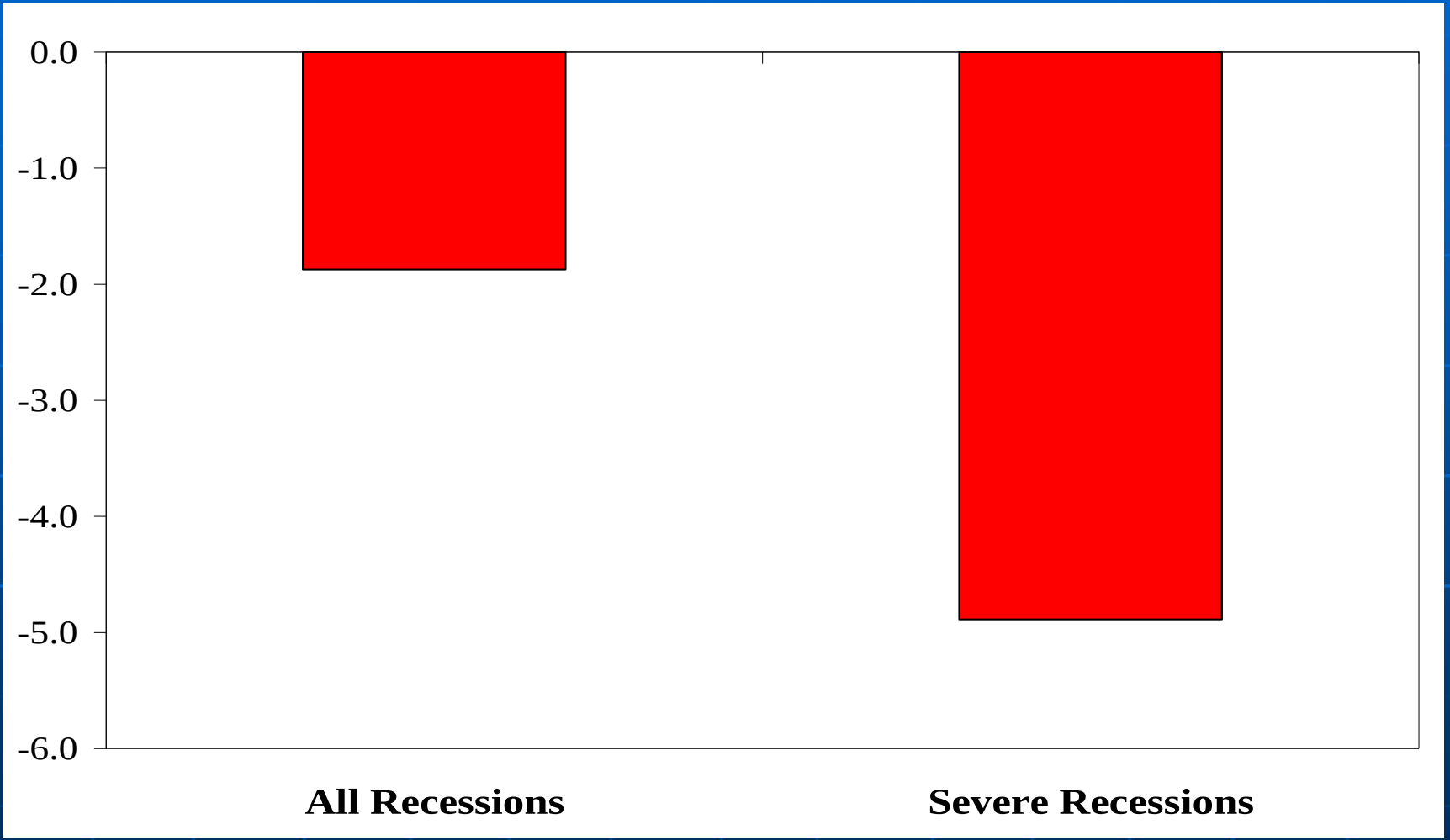
Recessions: Duration

(# of quarters from Peak to Trough)



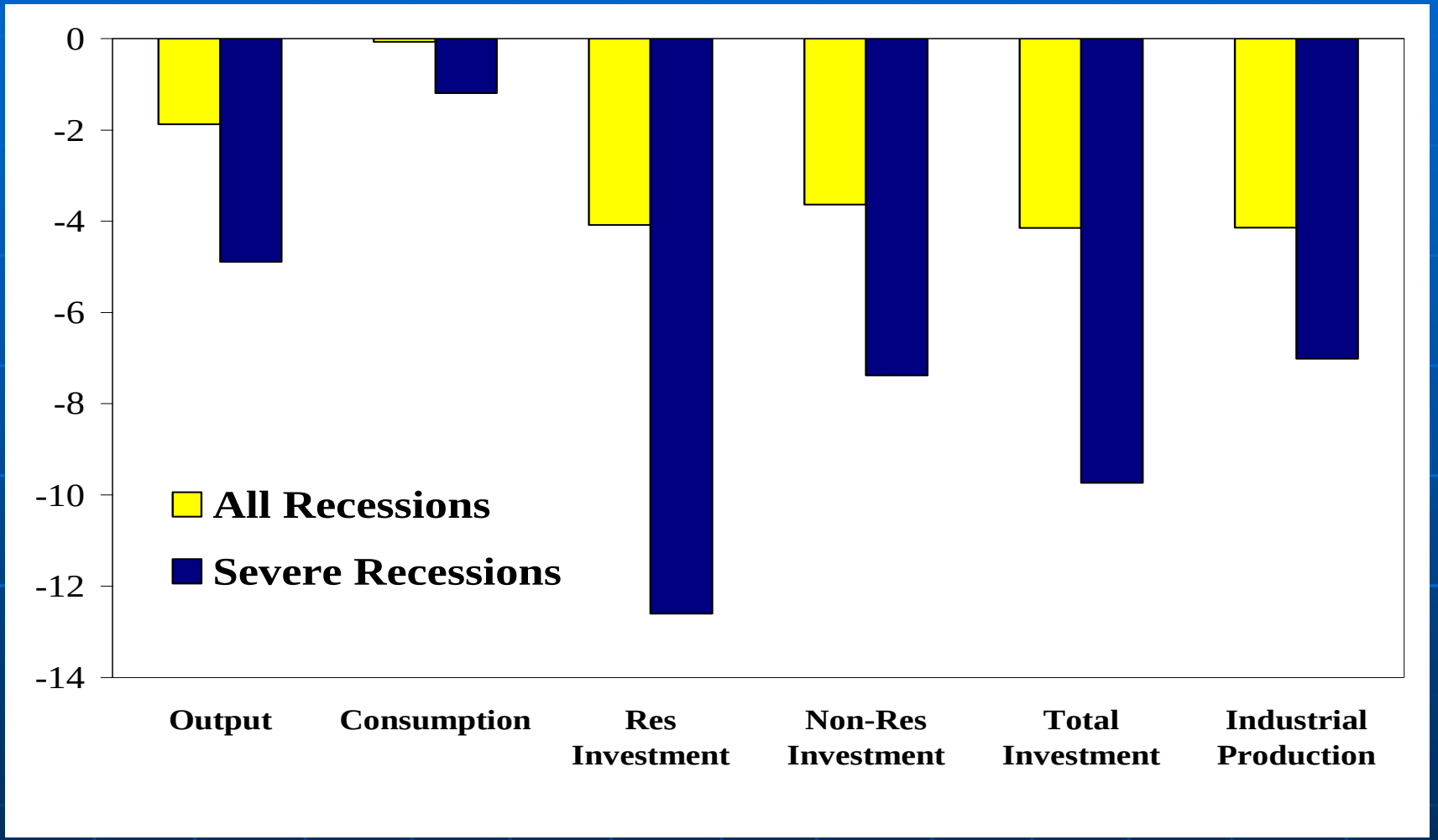
Recessions: Amplitude

(percent change in GDP from Peak to Trough)



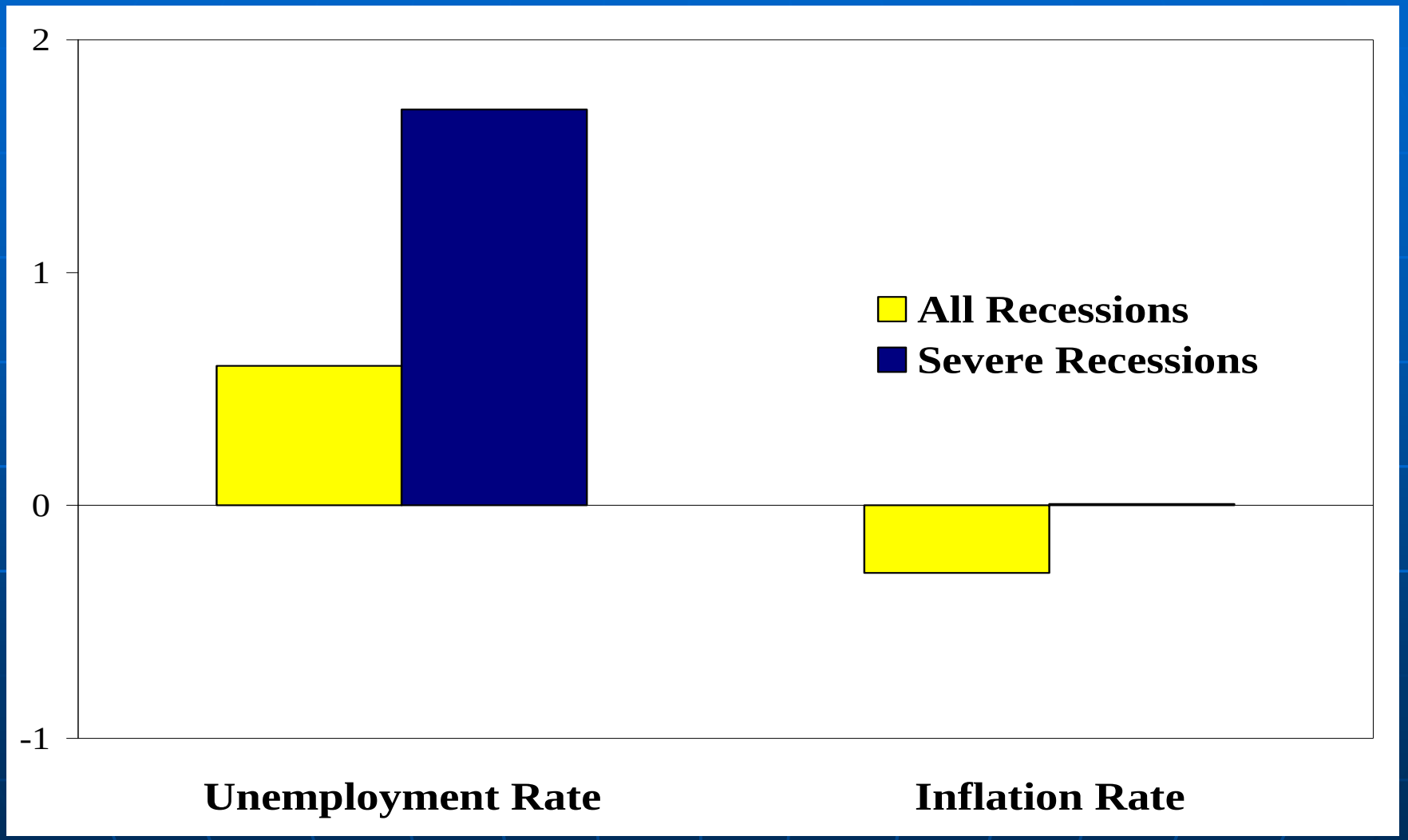
Recessions: Macroeconomic Variables

(percent change from Peak to Trough)



Recessions: Unemployment Rate and Inflation

(percentage point change from Peak to Trough)

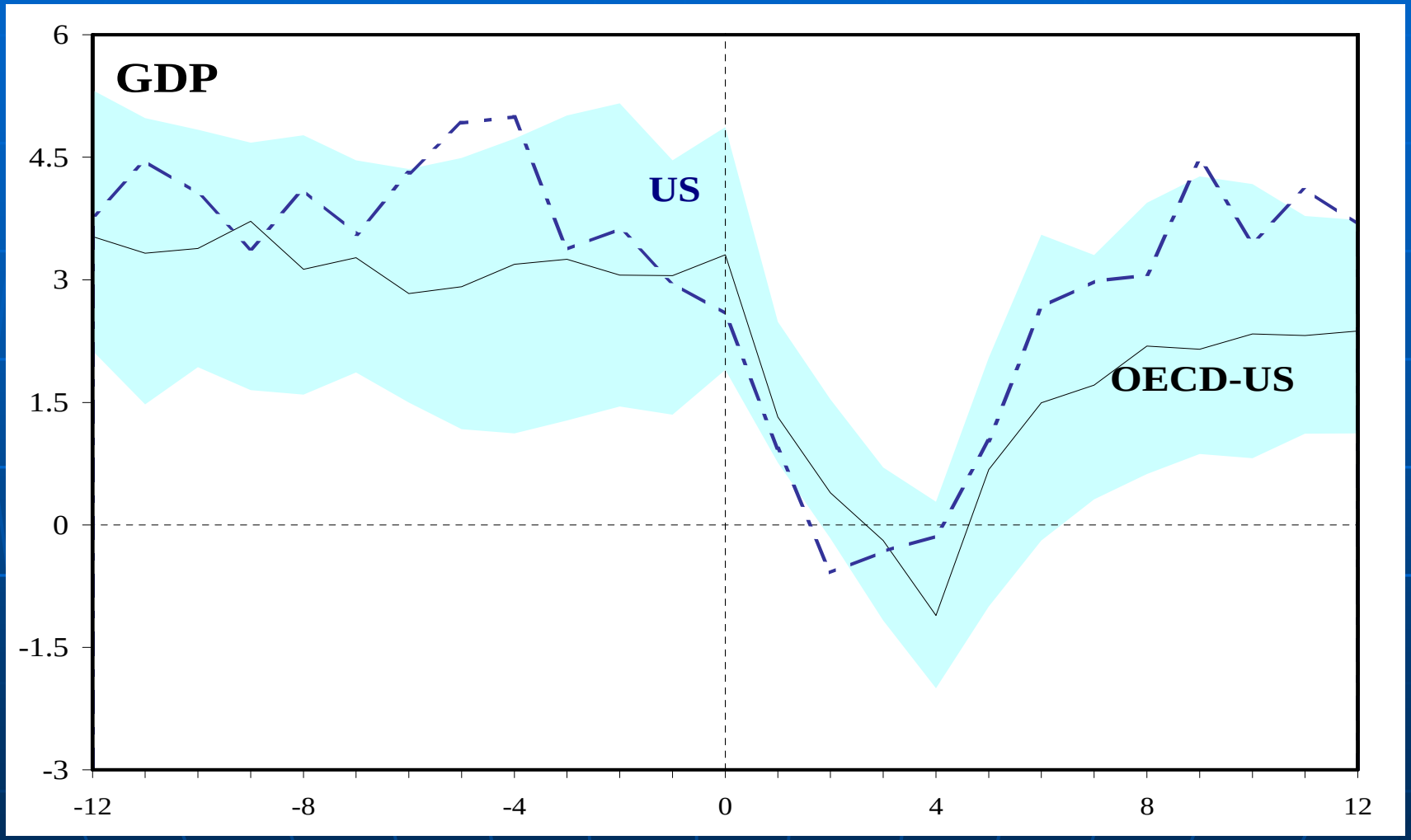


Typical Recession Dynamics

- Compare the evolution over 12 quarters before and after peak of economic and financial data with the medians of past recessions in the United States and other OECD countries
- Percent changes from a year earlier; zero denotes the peak, or the beginning of a recession
- Shaded areas are upper and lower quartiles of past recessions in other OECD countries

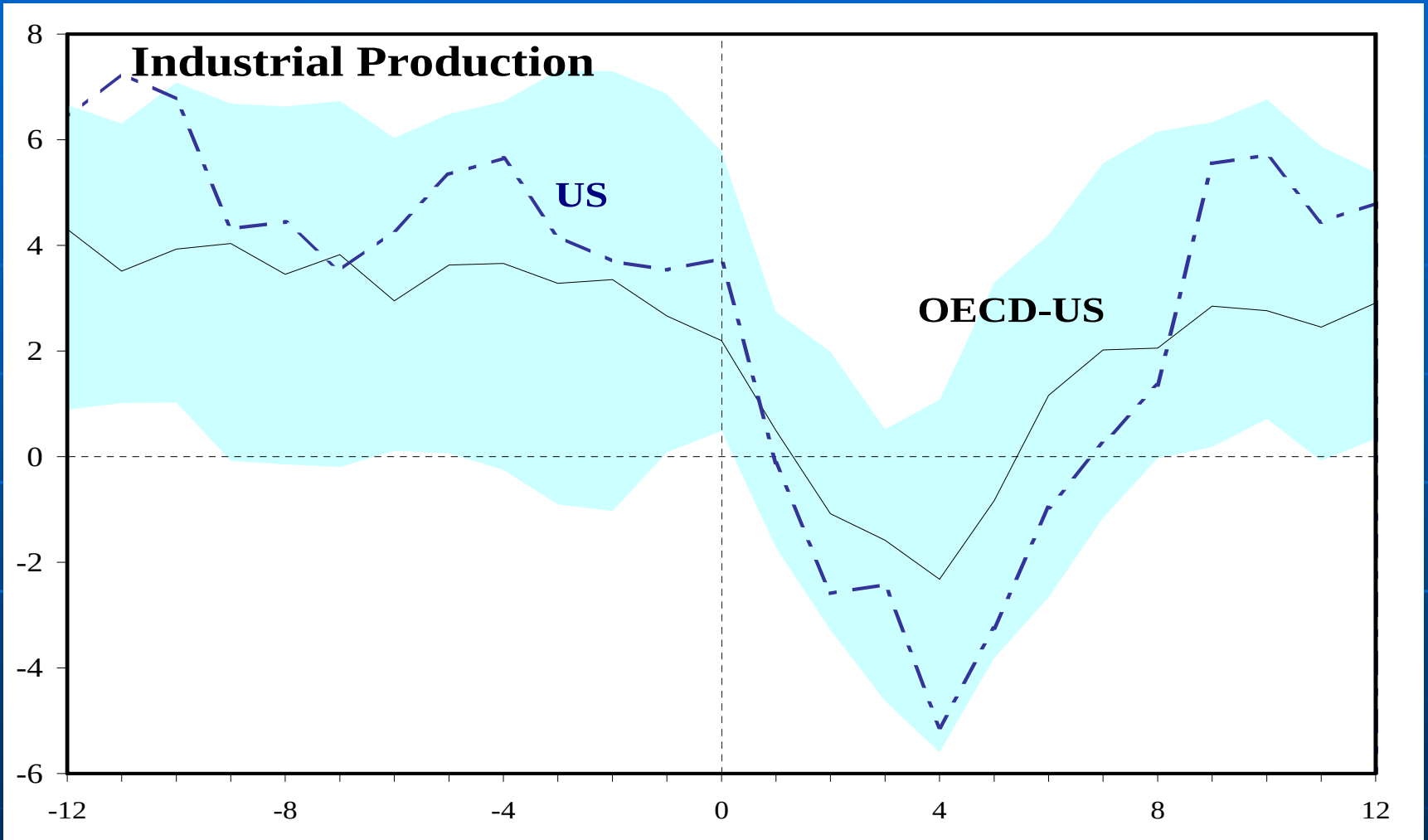
Recessions: GDP

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



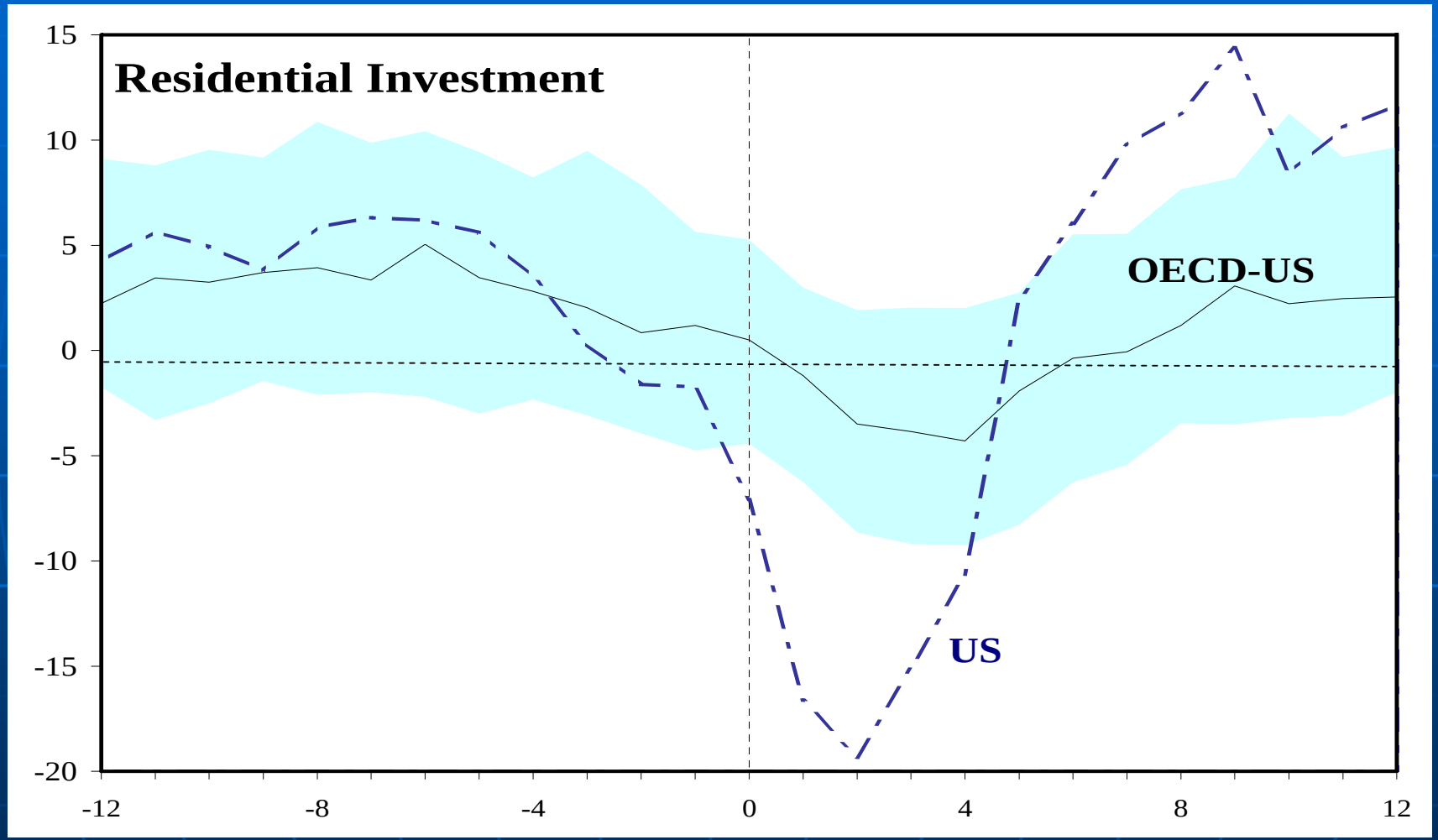
Recessions: Industrial Production

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



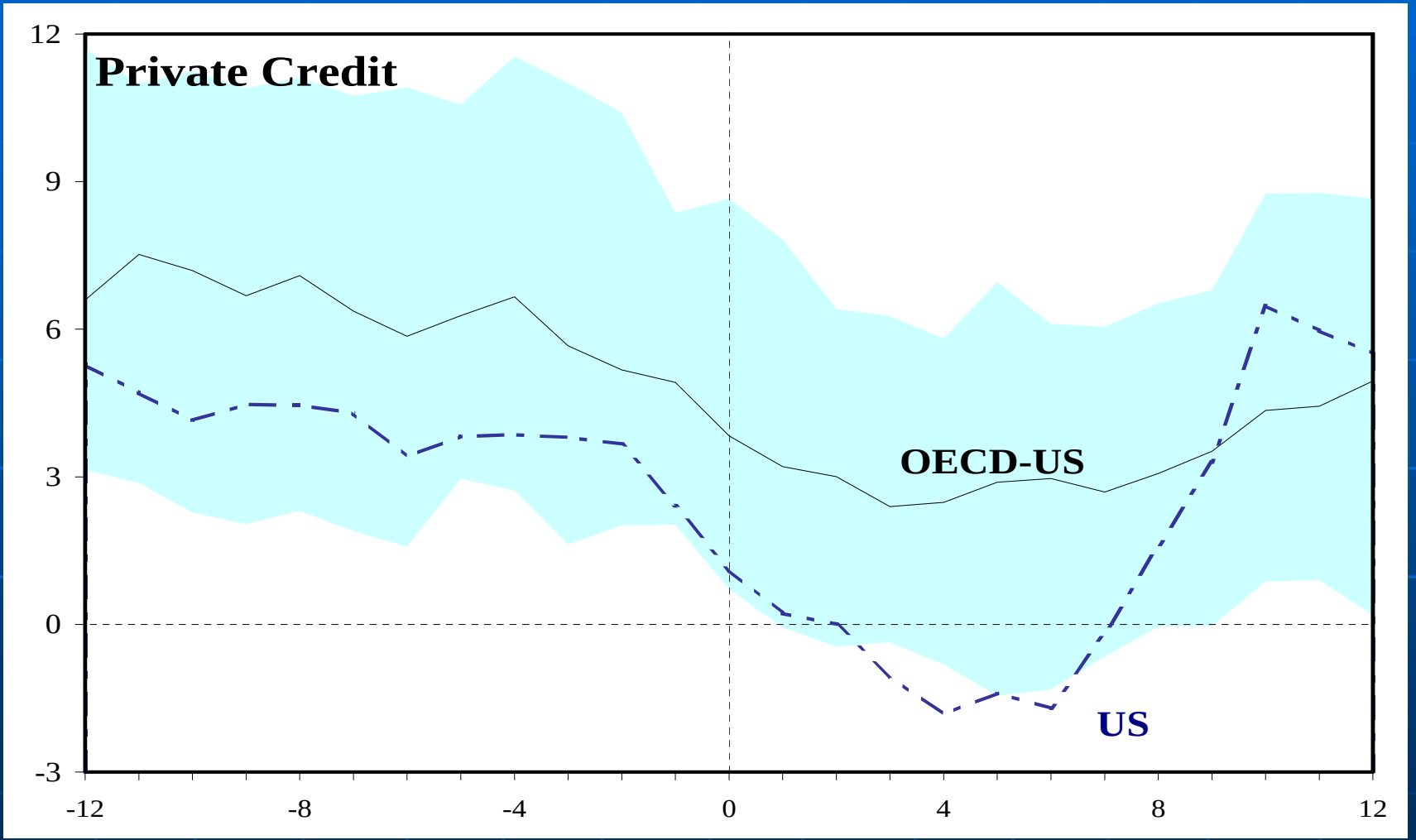
Recessions: Residential Investment

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



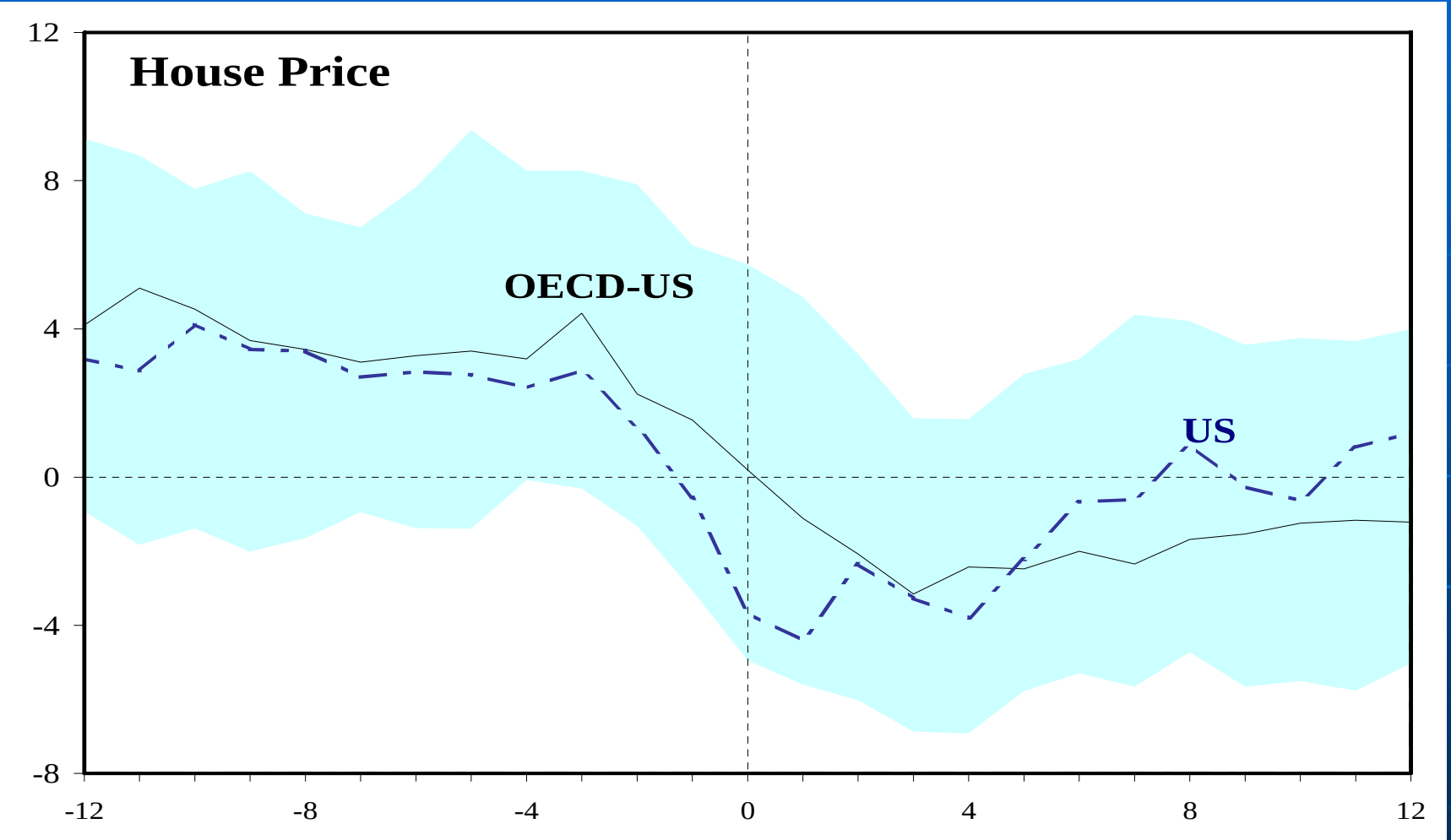
Recessions: Private Credit

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



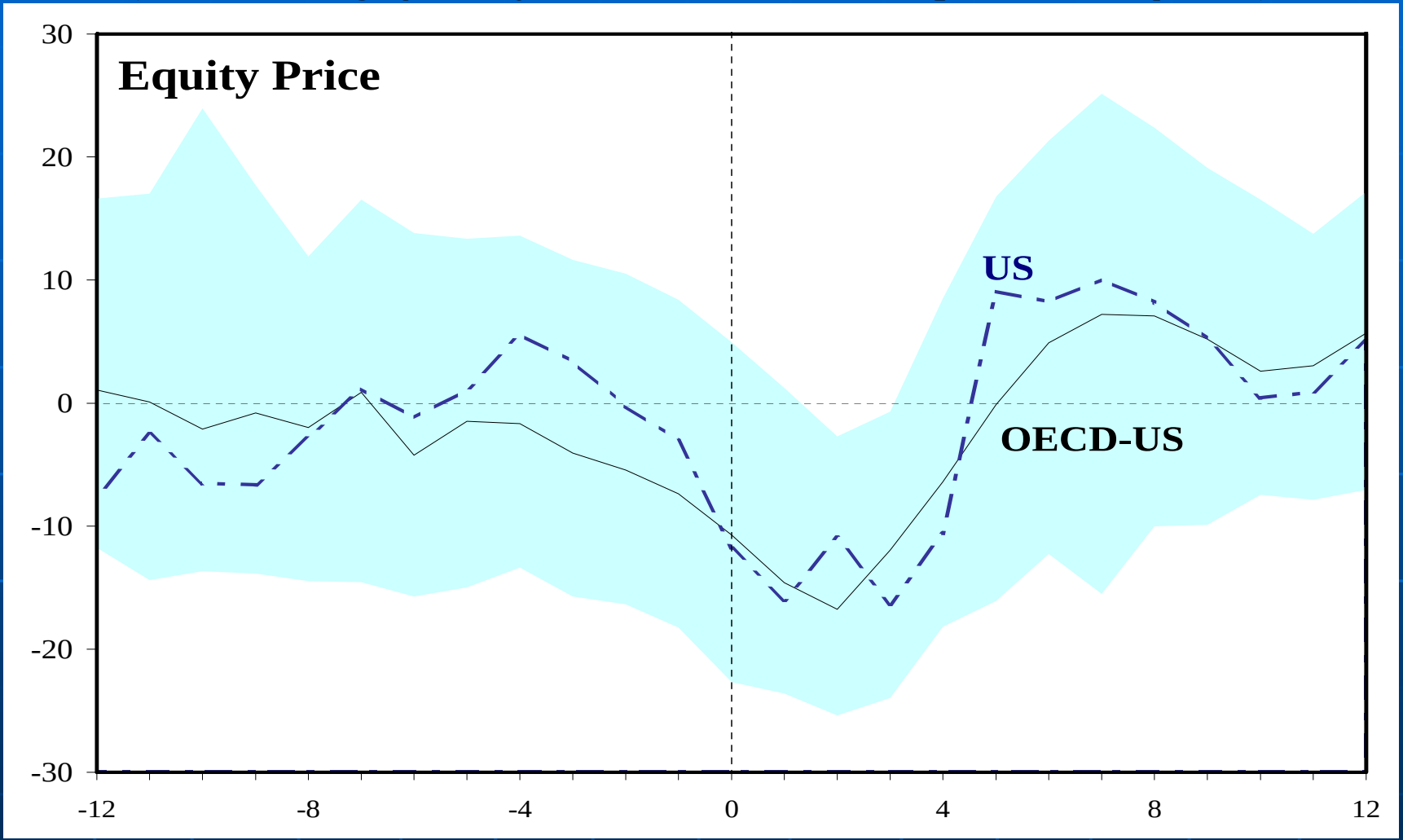
Recessions: House Prices

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



Recessions: Equity Prices

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



What did we learn?

- Most macro variables are procyclical during recessions in the US and other OECD countries

- Credit, house prices and equity prices start weakening ahead of recessions

- Recessions in the United States vs. other OECD countries

  - Similarities: Duration and amplitude of output

  - Differences: Typically, deeper contractions in industrial production, residential investment and credit in the US than in other OECD countries

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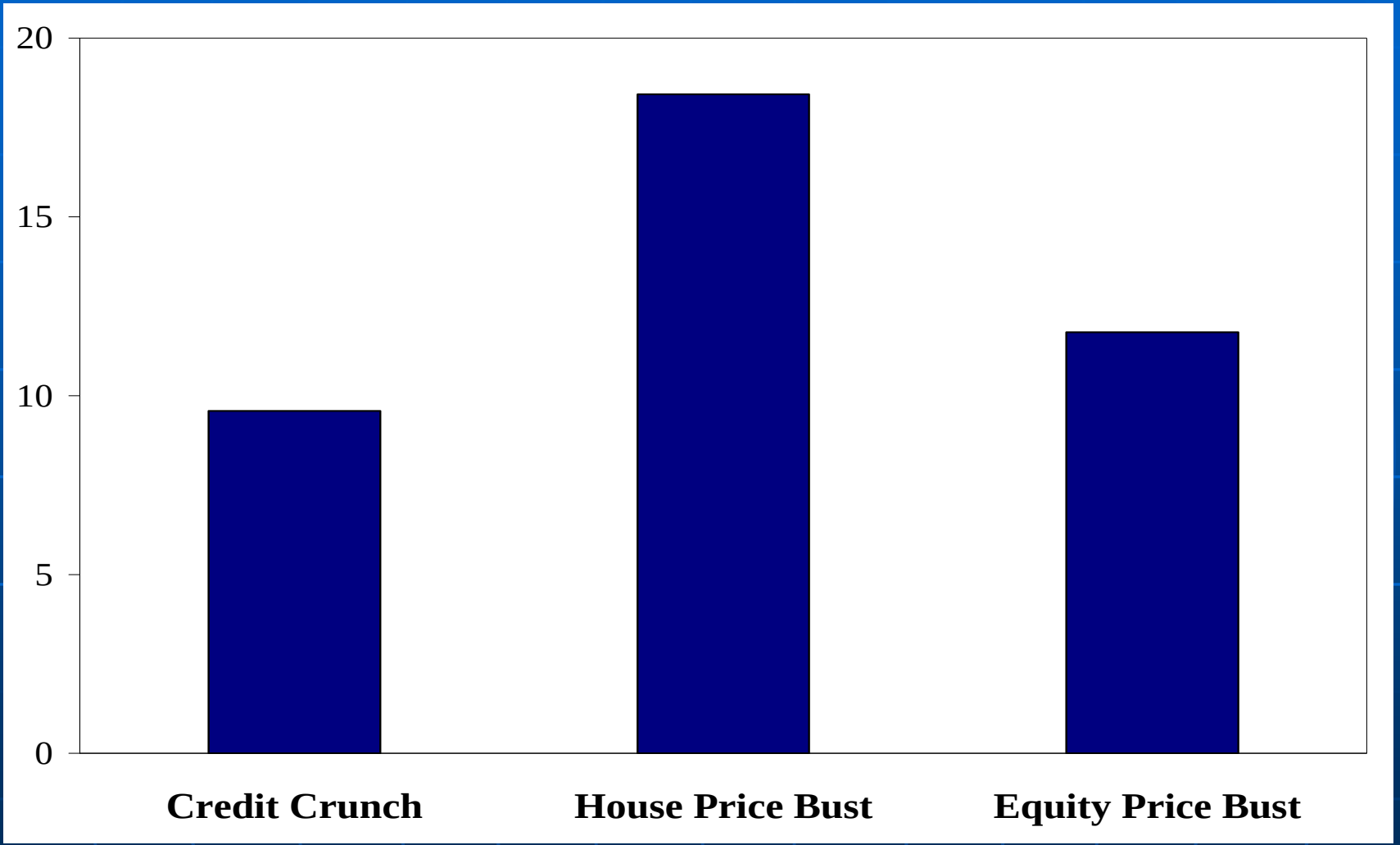
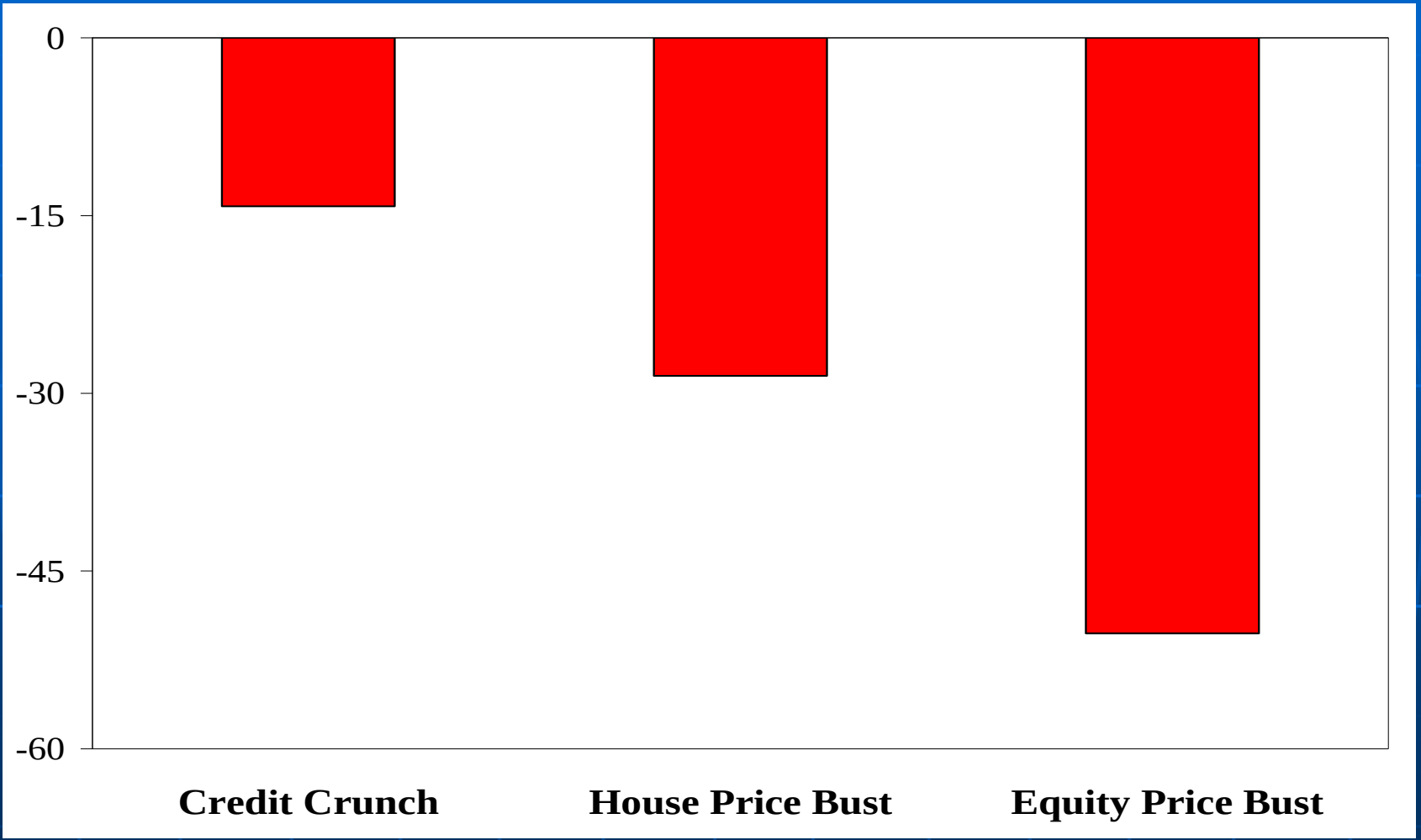
Crunches and Busts: Duration

(# of quarters from Peak to Through)



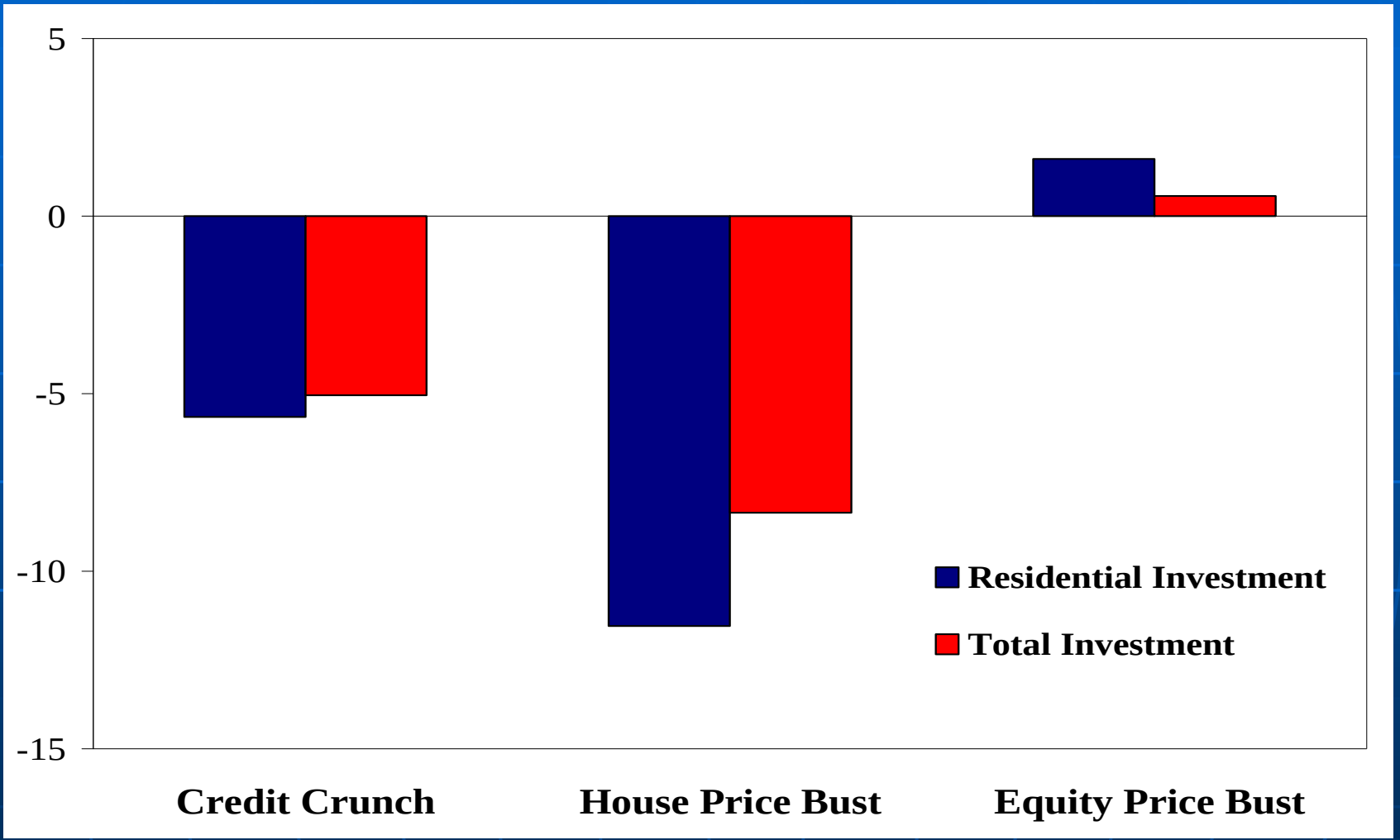
Crunches and Busts: Amplitude

(percent change from Peak to Trough)



Crunches and Busts: Investment

(percent change from Peak to Trough)



What did we learn?

- Credit crunches and asset price busts can last a long time, typically longer than output recessions
- Credit crunches and asset busts are associated with substantial declines in credit and asset prices
- While output can recover during a credit crunch or housing bust, (residential) investment drops significantly

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- Data and Methodology
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- Recessions: Macro Variables
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Recessions, Crunches and Busts

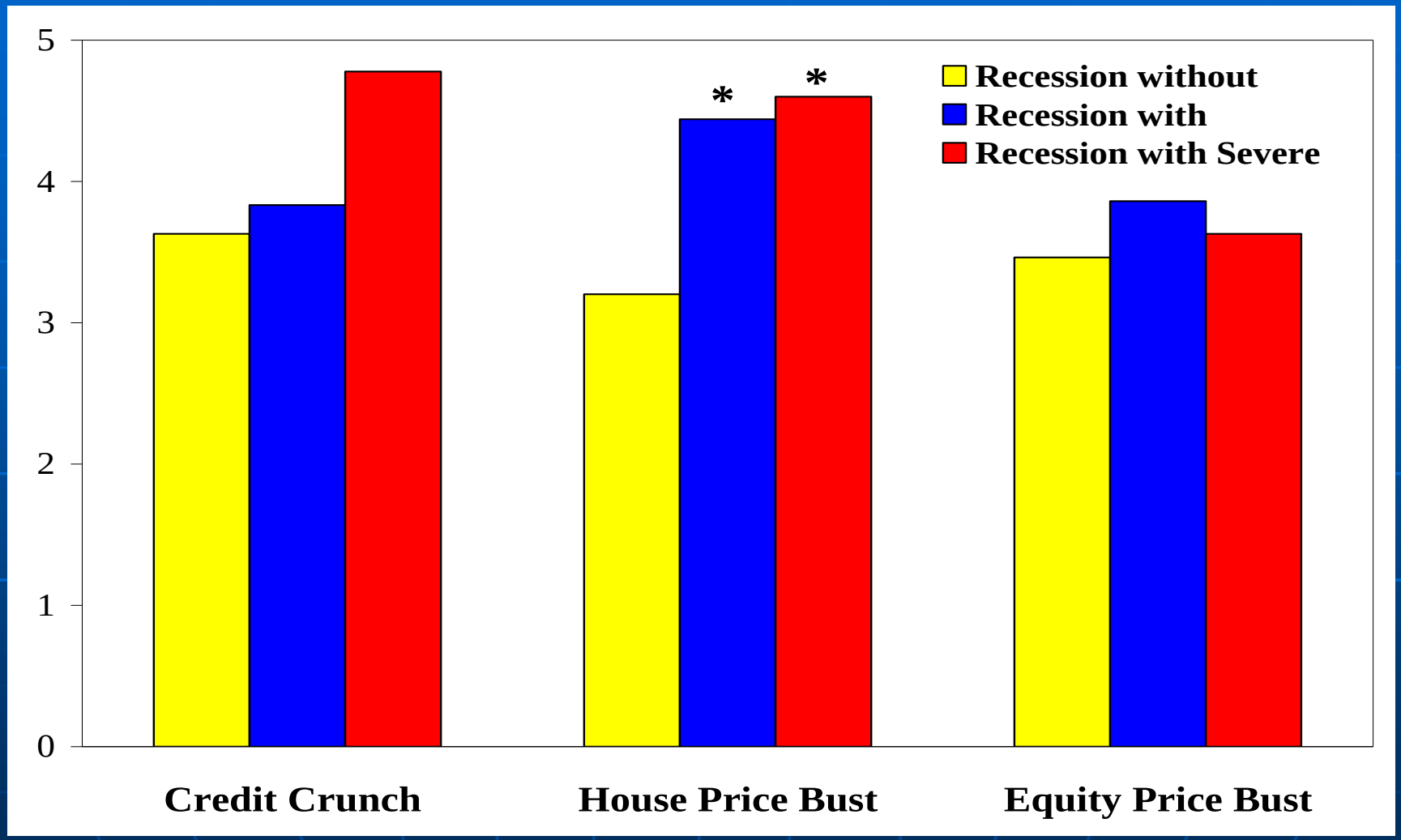
- Identify recessions coinciding with credit crunches and asset price busts (a crunch or bust starting before or occurring at the same time)

  - 18 Recessions overlap with Credit Crunches
  - 34 Recessions overlap with House Price Busts
  - 45 Recessions overlap with Equity Price Busts

- Study duration and amplitude of these events; Focus on certain macroeconomic variables

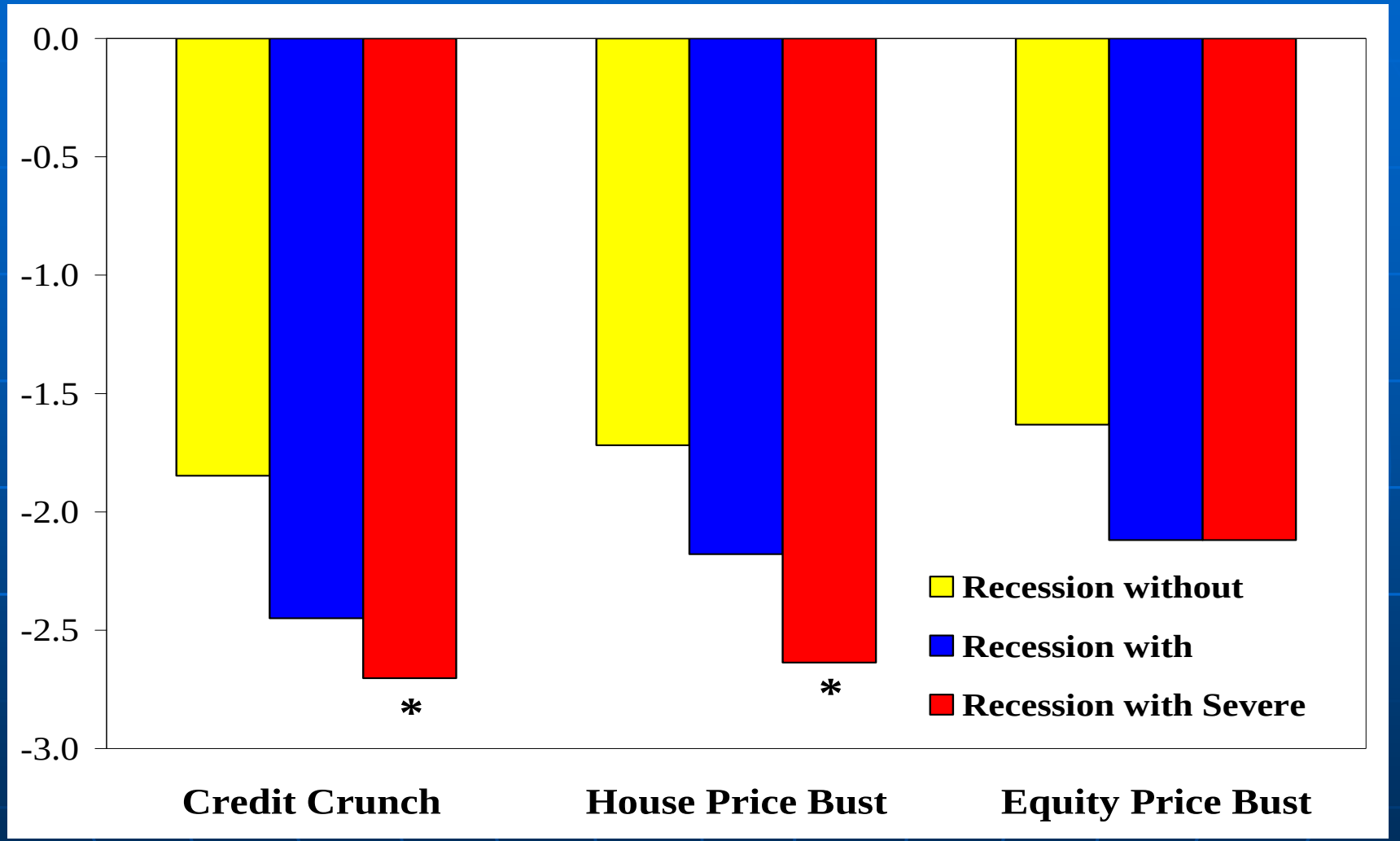
Recessions w/ Crunches and Busts: Duration

(# of quarters from Peak to Trough)



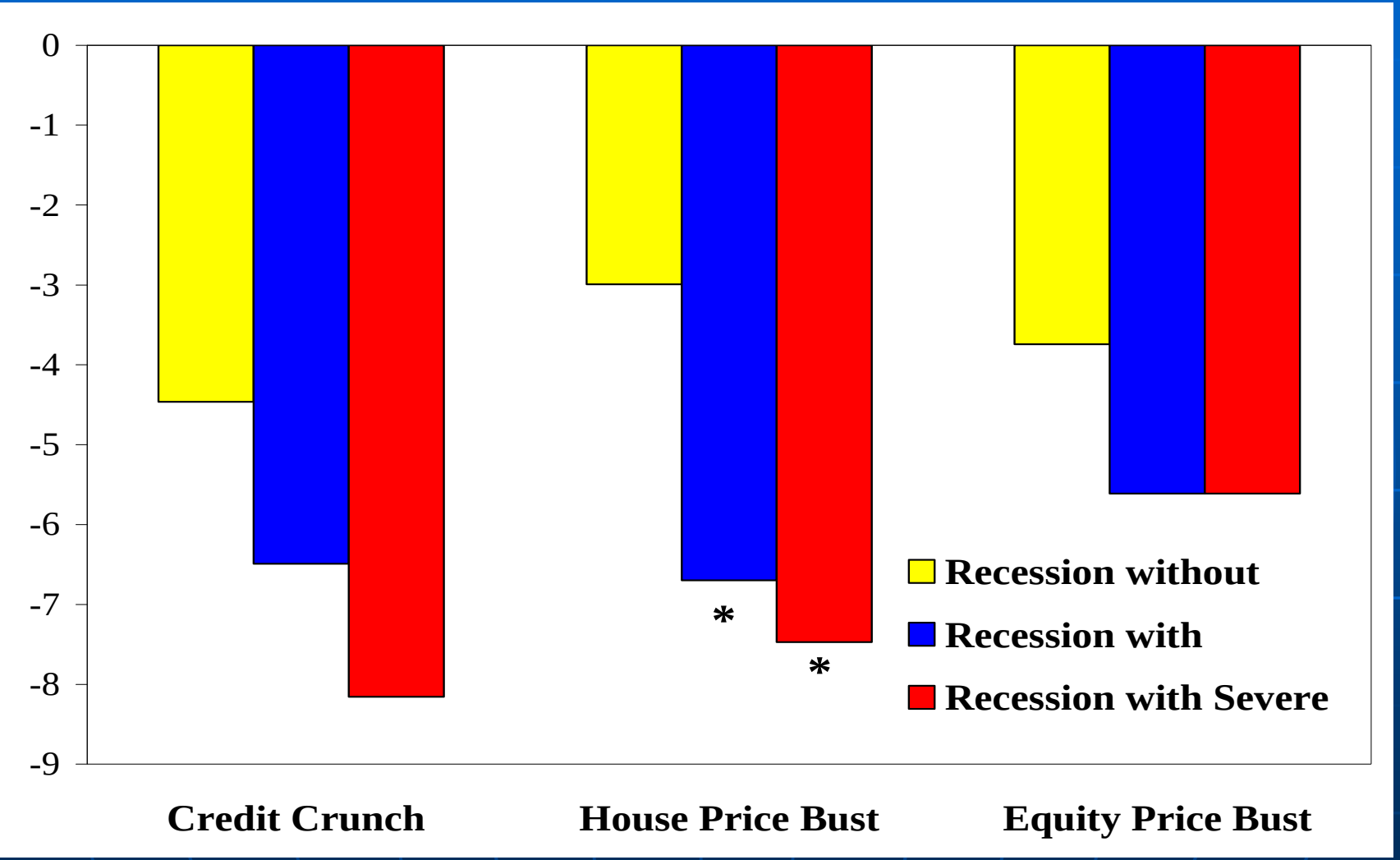
Recessions w/ Crunches and Busts: GDP

(percent change from Peak to Trough)



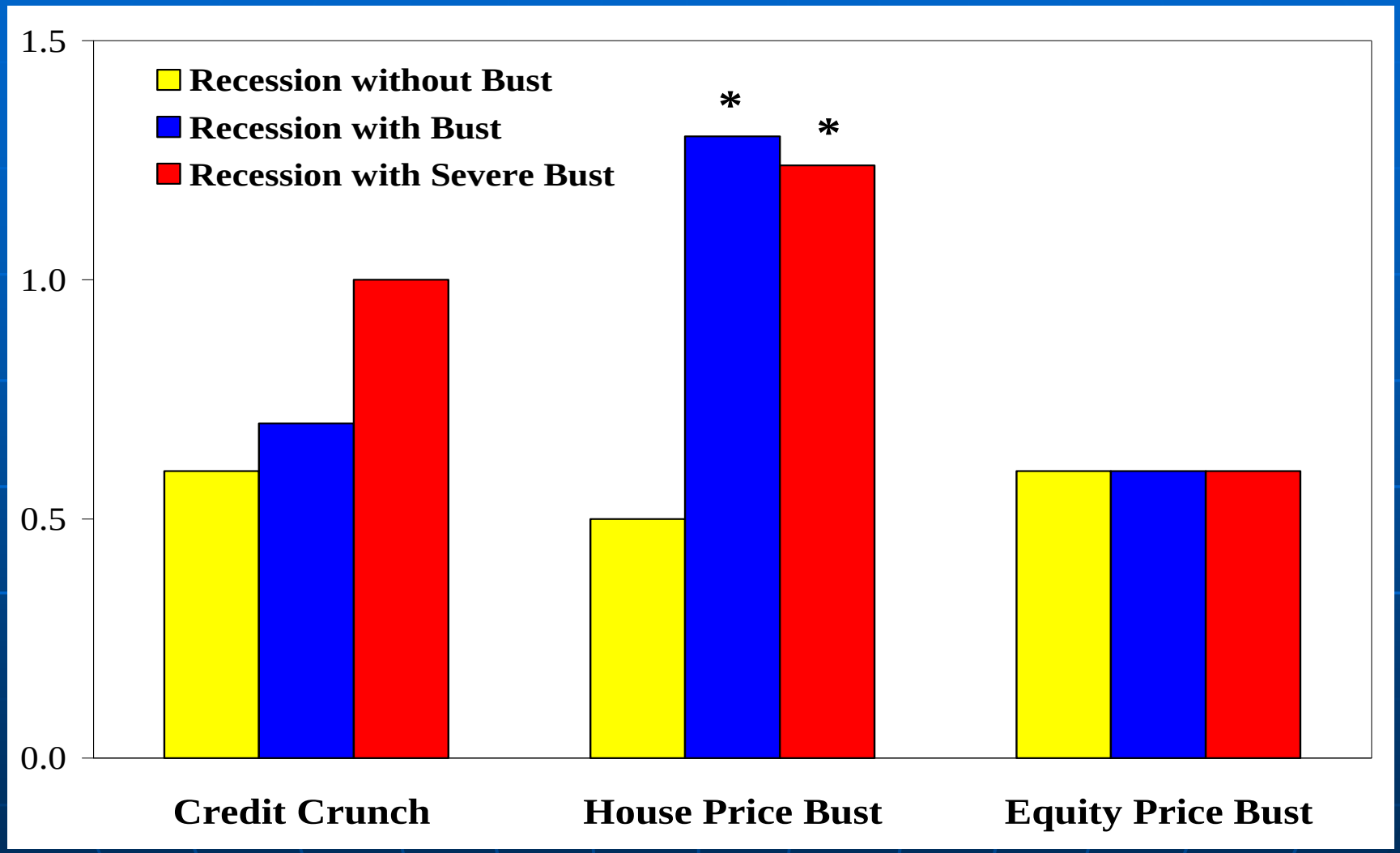
Recs w/ Crunches and Busts: Residential Investment

(percent change from Peak to Trough)



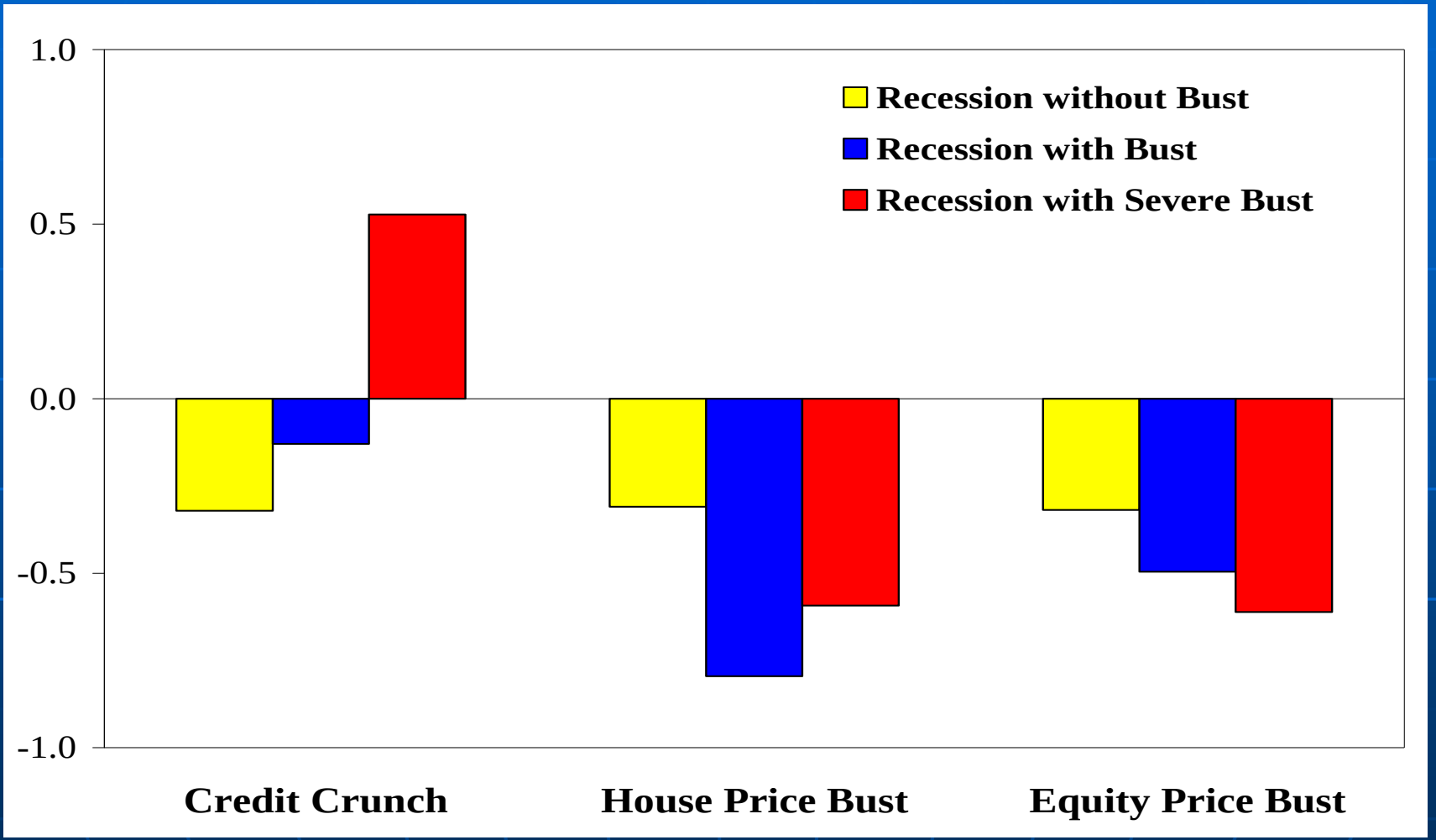
Recessions w/ Crunches and Busts: Unemployment

(percentage point change from Peak to Trough)



Recessions w/ Crunches and Busts: Inflation

(percentage point change from Peak to Trough)



What did we learn?

- Are recessions associated with credit crunches and house price busts different than other recessions in OECD countries?

- Yes. Recessions with credit crunches and housing price busts are on average associated with slightly longer and deeper recessions, with greater declines in residential investment and higher unemployment

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- **Policy Responses**
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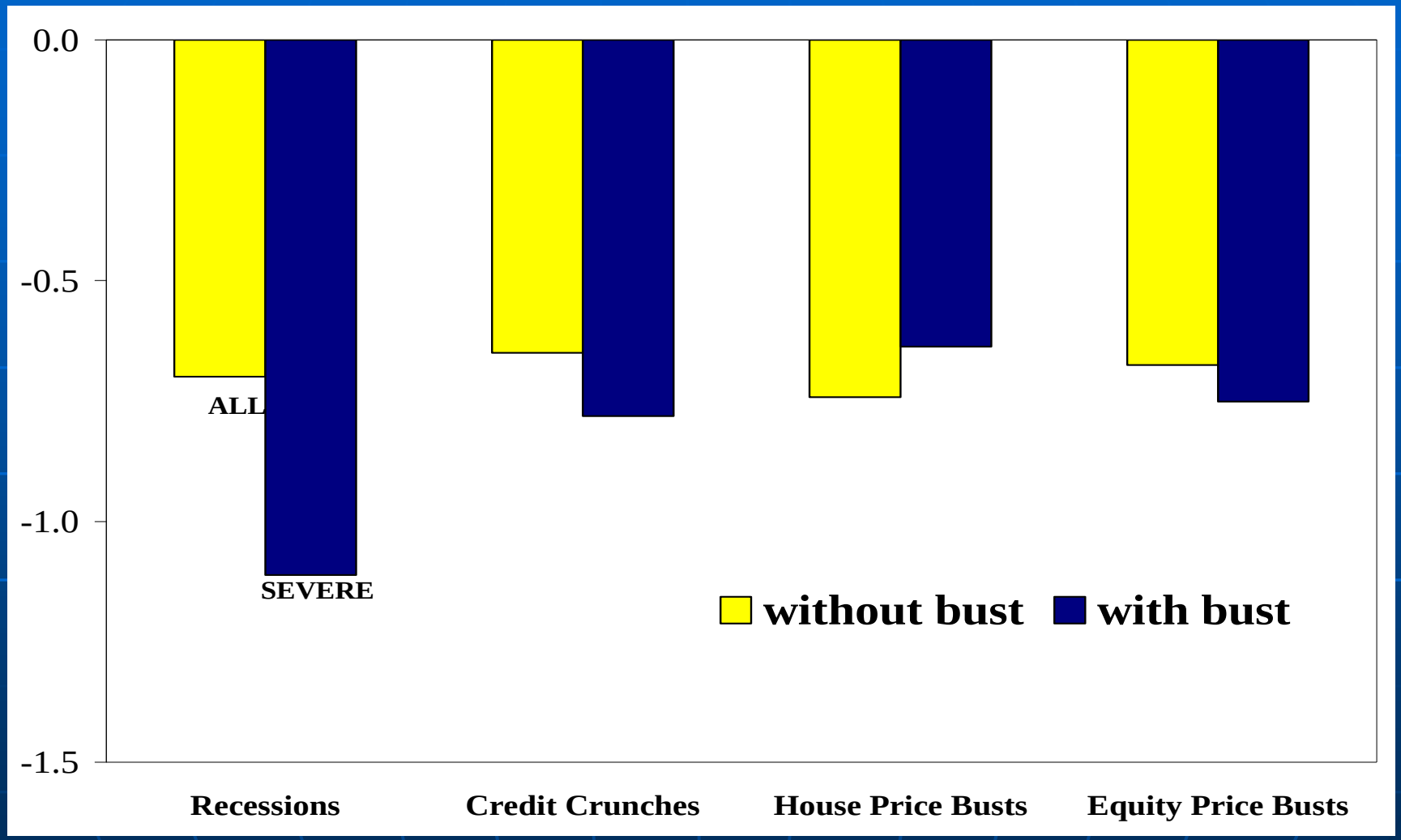
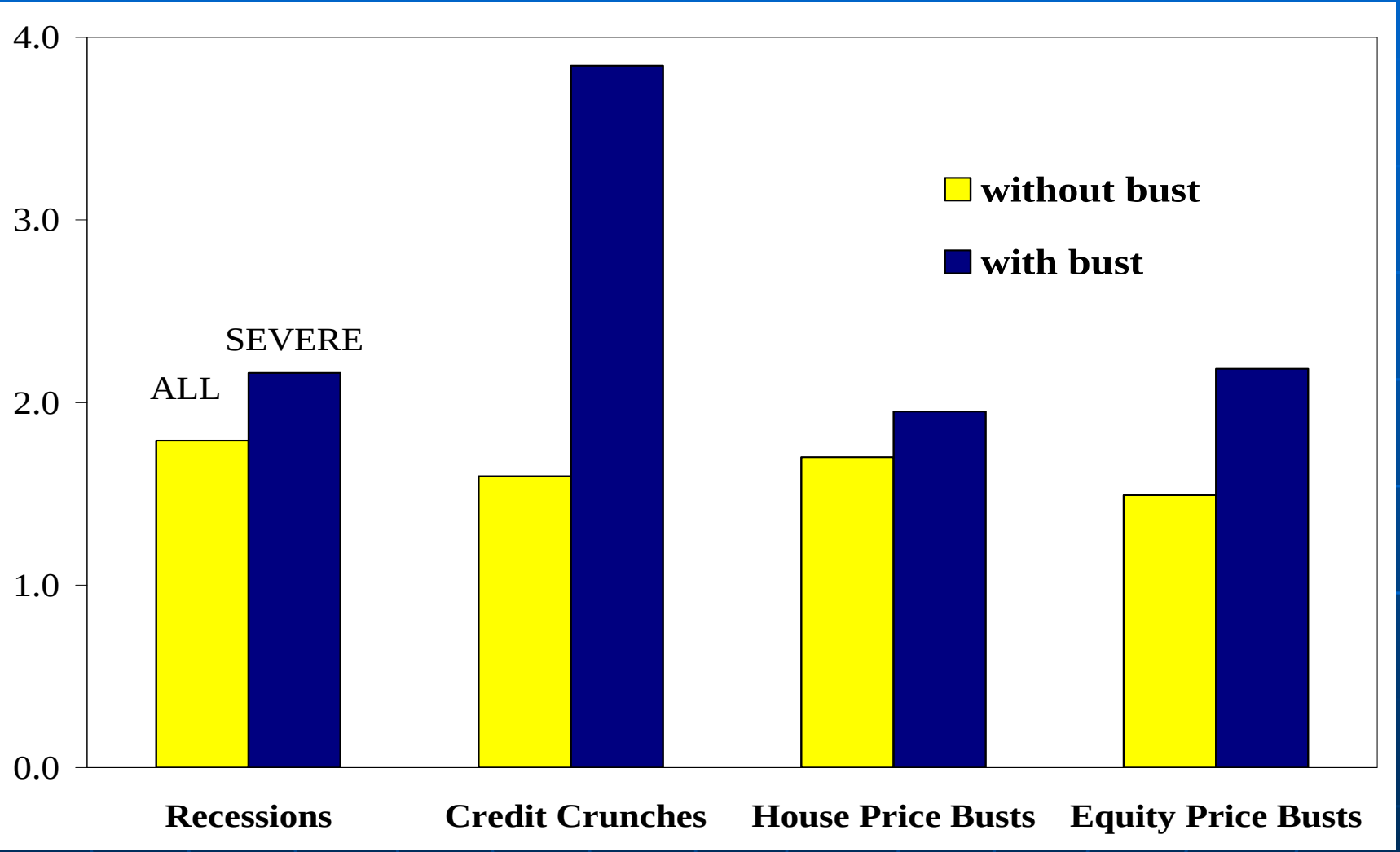
Recessions w/ Crunches and Busts: Interest Rates

(short-term real rates; percentage point change from Peak to Trough)



Recessions w/ Crunches and Busts: Gov Cons

(percent change from Peak to Trough)



What did we learn?

- "Policy"-related variables differ by severity of and type of recessions
  - In severe recessions, observe lower real interest rate and higher government consumption
  - In recessions with credit crunches, government consumption increases much more than in other recessions

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- Data and Methodology
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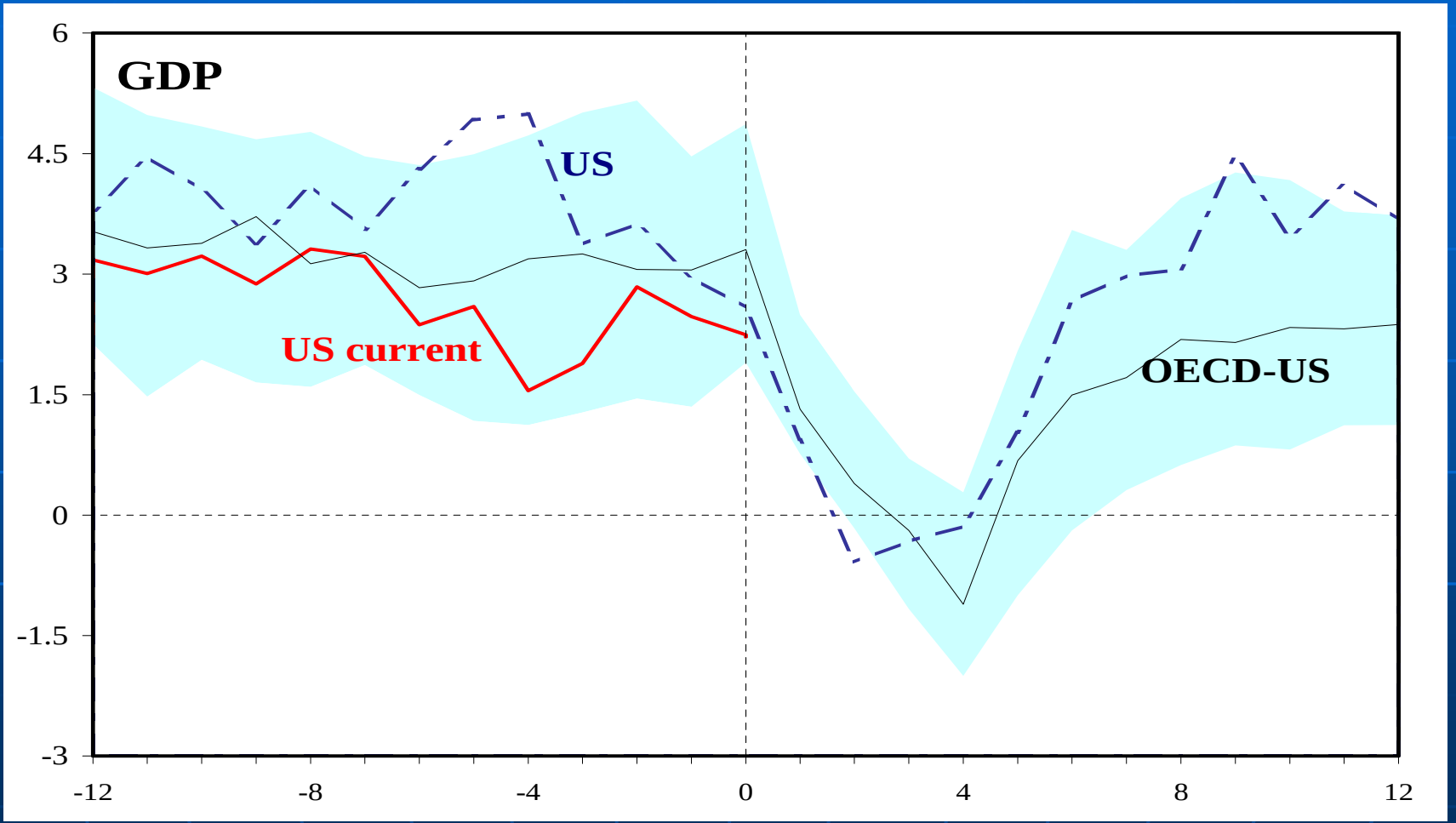
- **Current Slowdown in US**
- Conclusions

Current Slowdown in US

- Compare the evolution over past three years in US economic and financial data with the medians of past recessions in the United States and other OECD countries
- Shaded areas are upper and lower quartiles of past recessions in other OECD countries
- **For presentational purposes**, the last available observation, 2008 first quarter, is assumed to be the peak of the current US business cycle

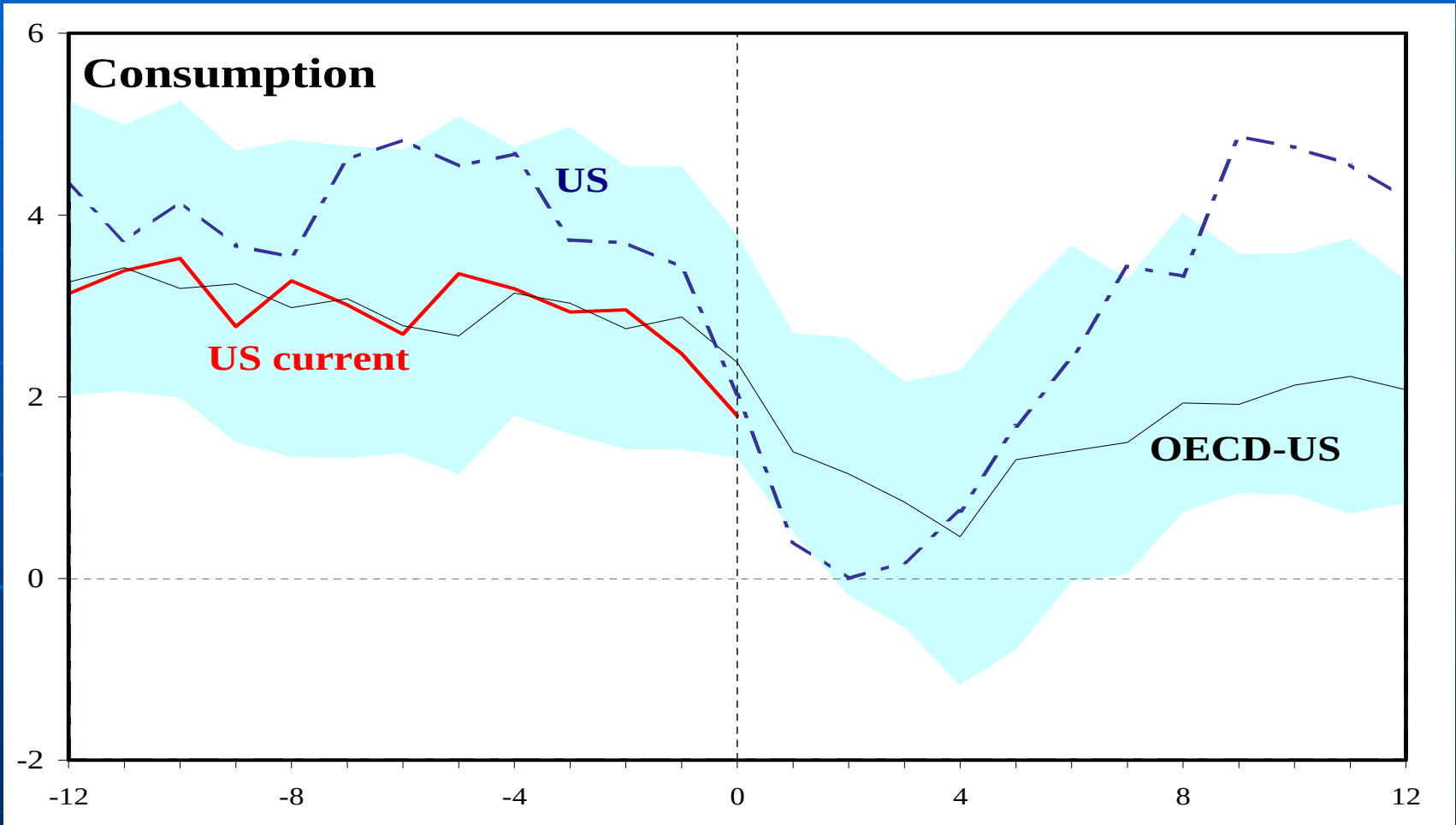
GDP Growth Somewhat Below Typical

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



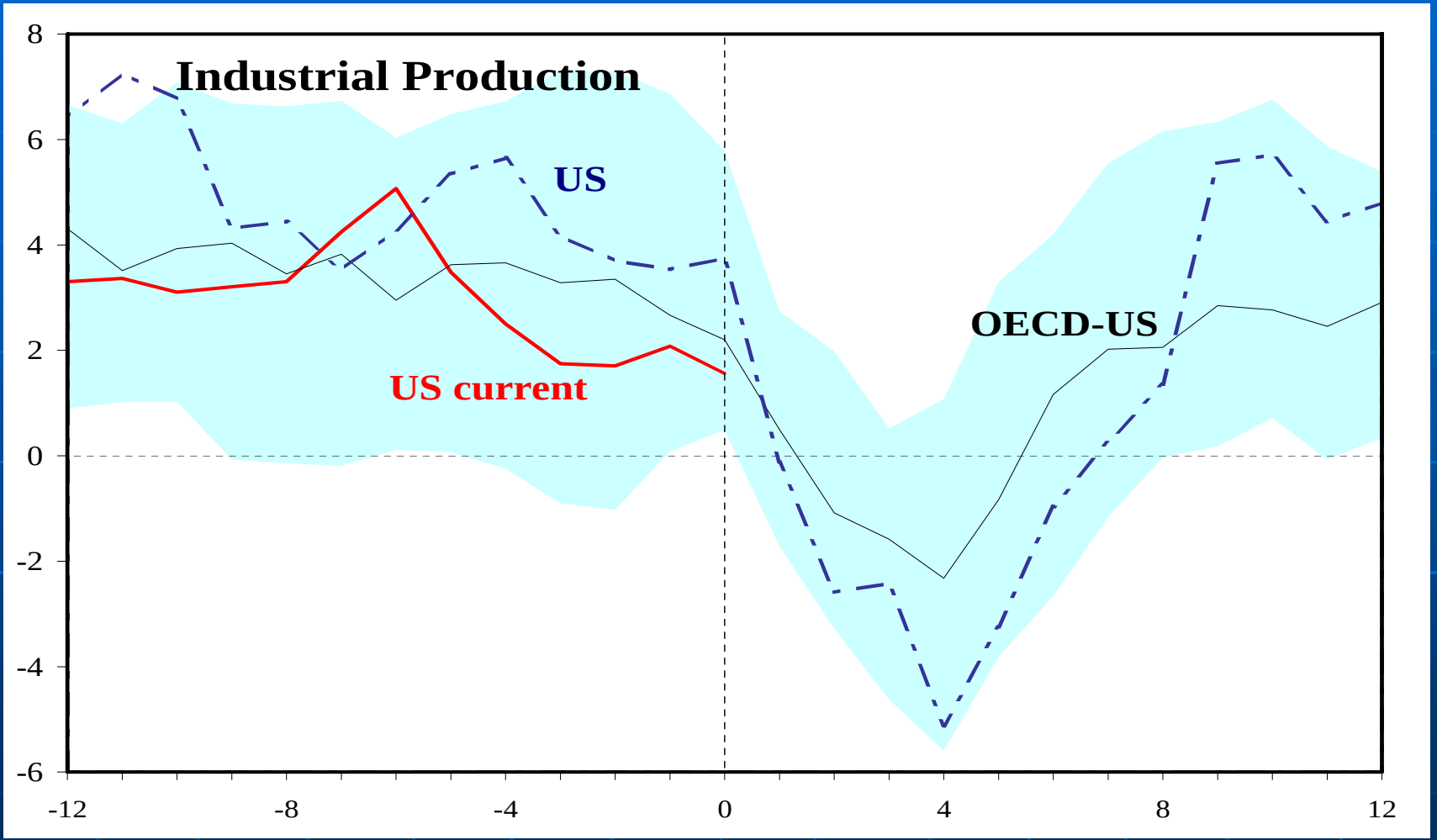
Consumption on Typical Path

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



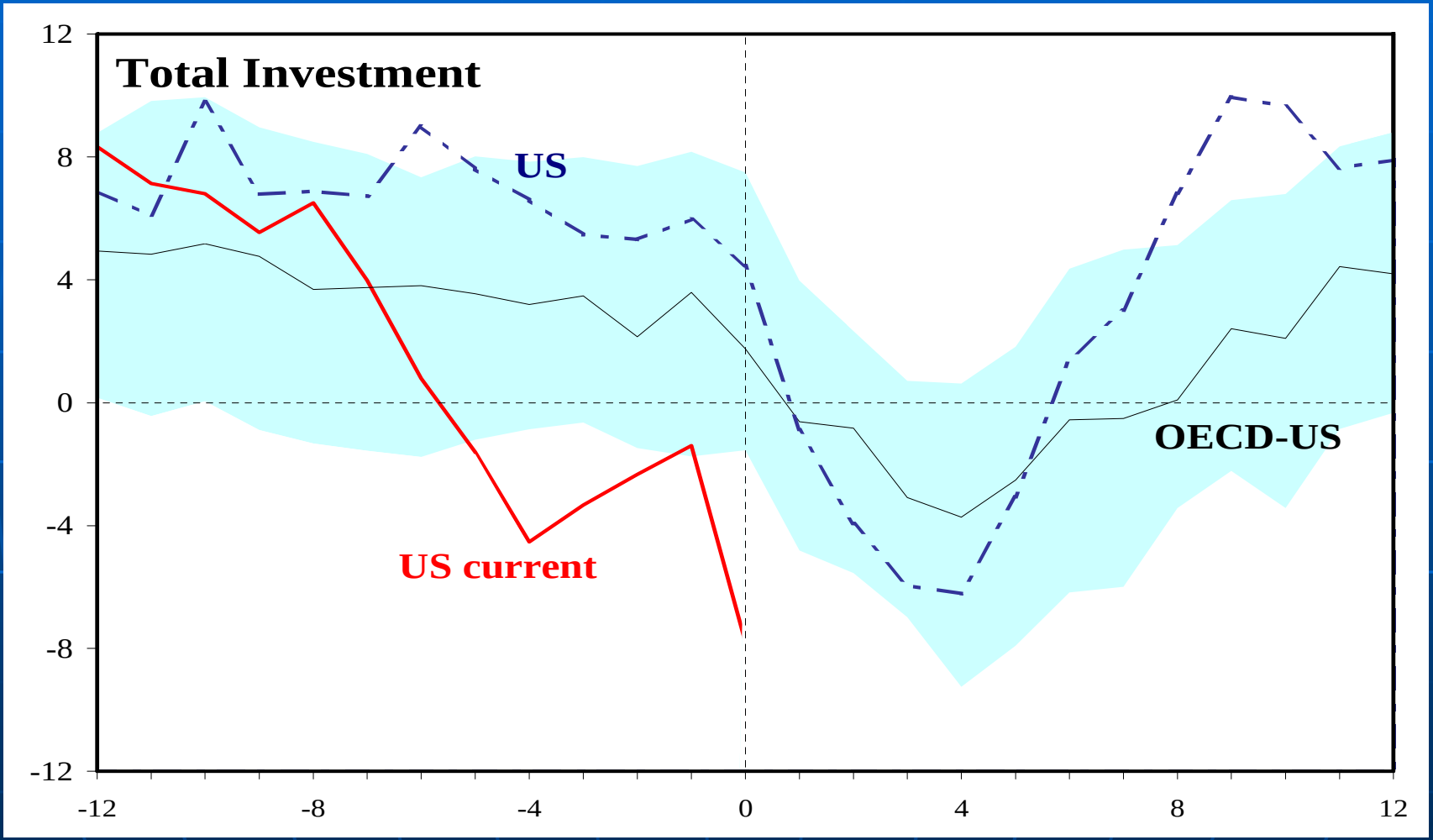
Ind'l Prod' Somewhat Below Typical

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



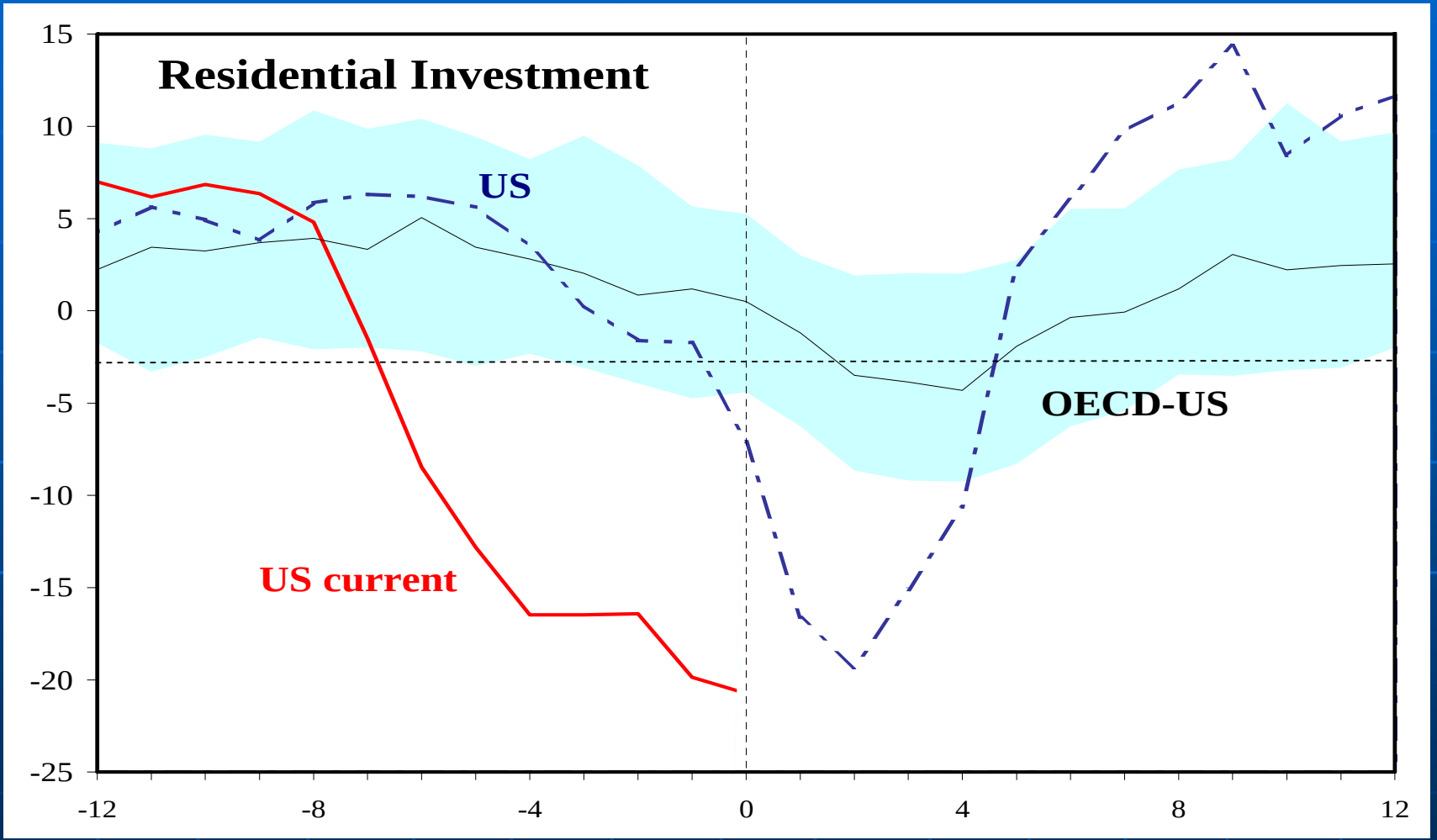
Total Investment Down Steeper

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



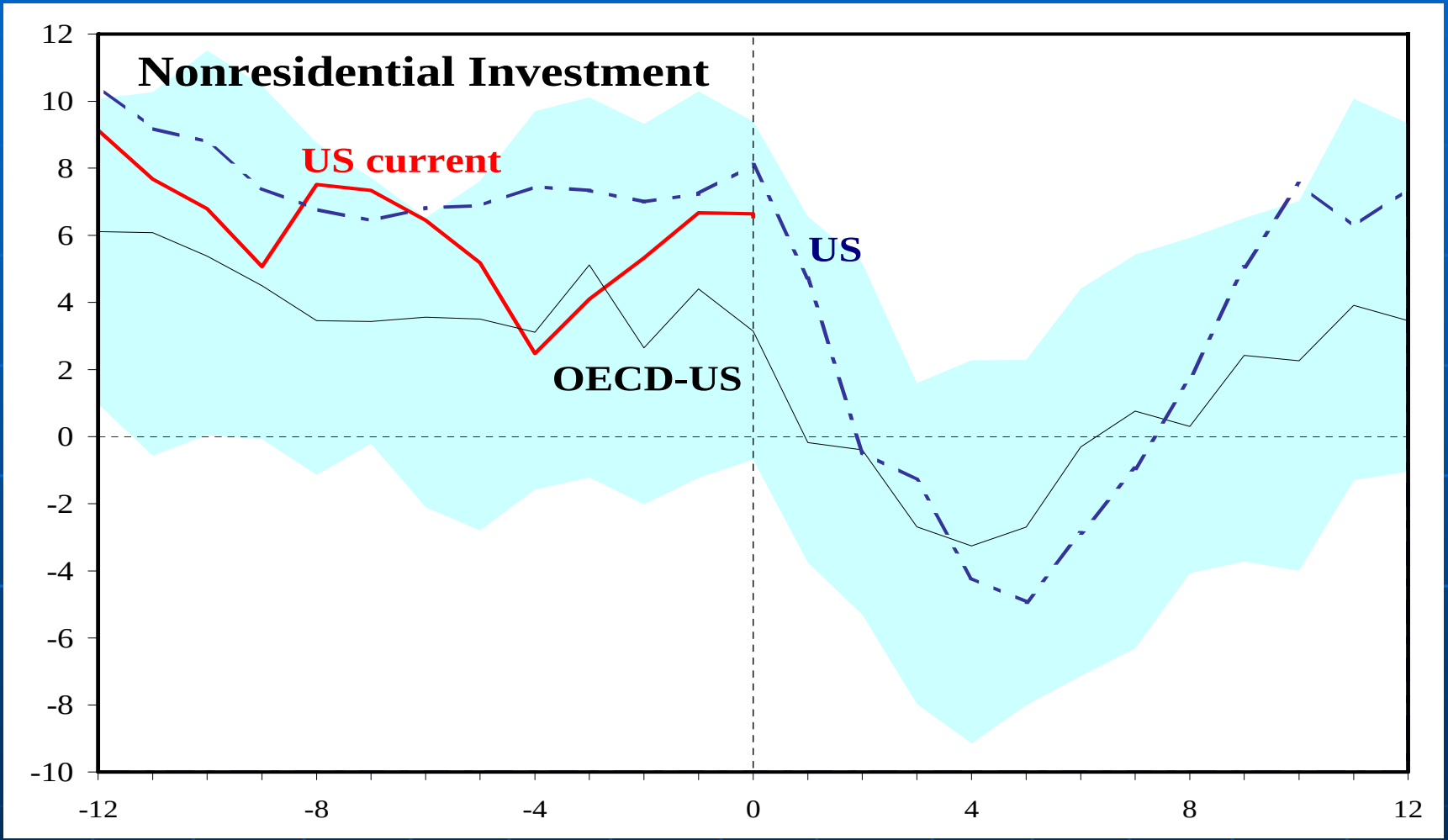
Res'l Investment Down More Sharply

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



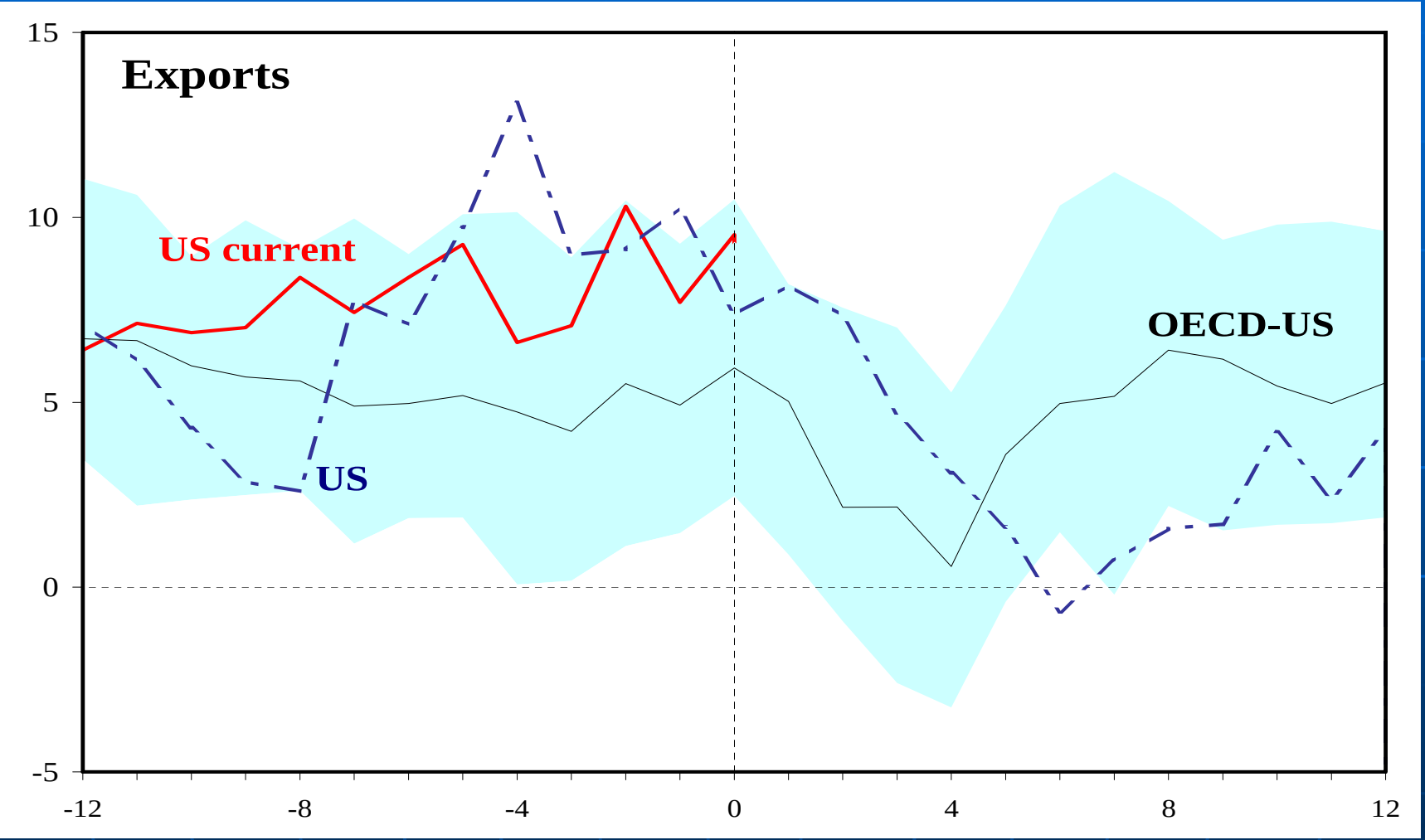
Non Res Investment Staying Up

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



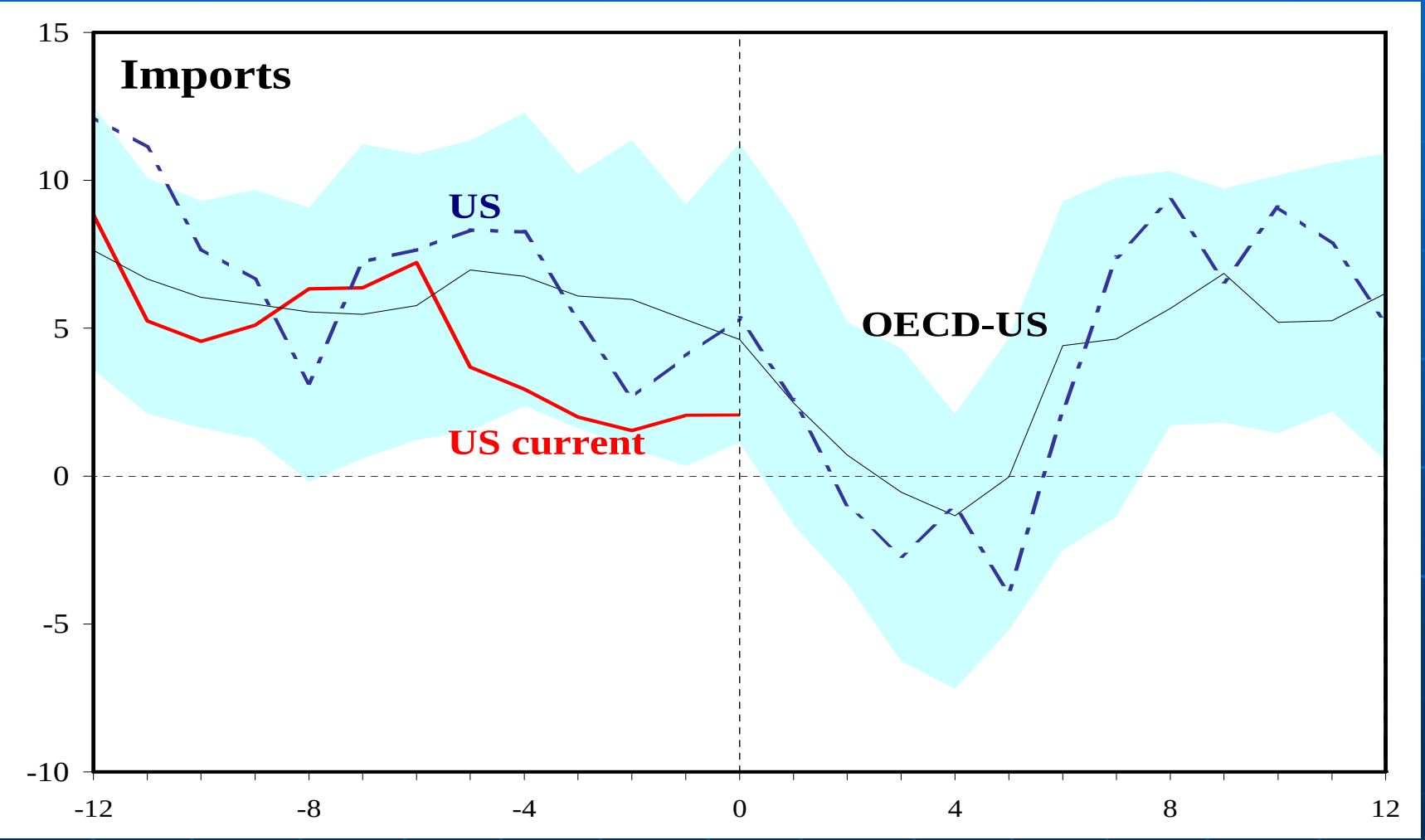
Exports Growing Above Typical

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



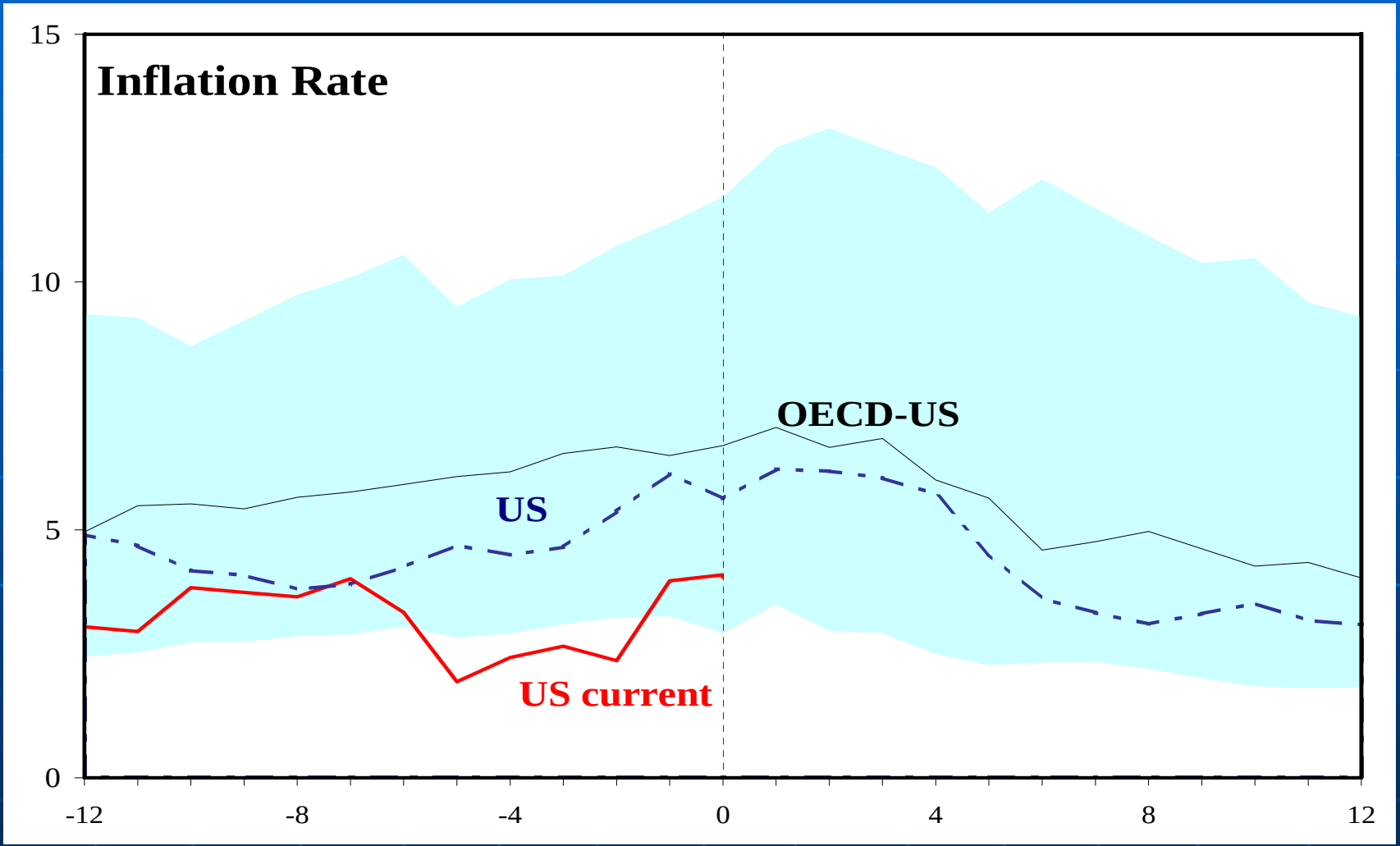
Imports on Typical Slowdown Path

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



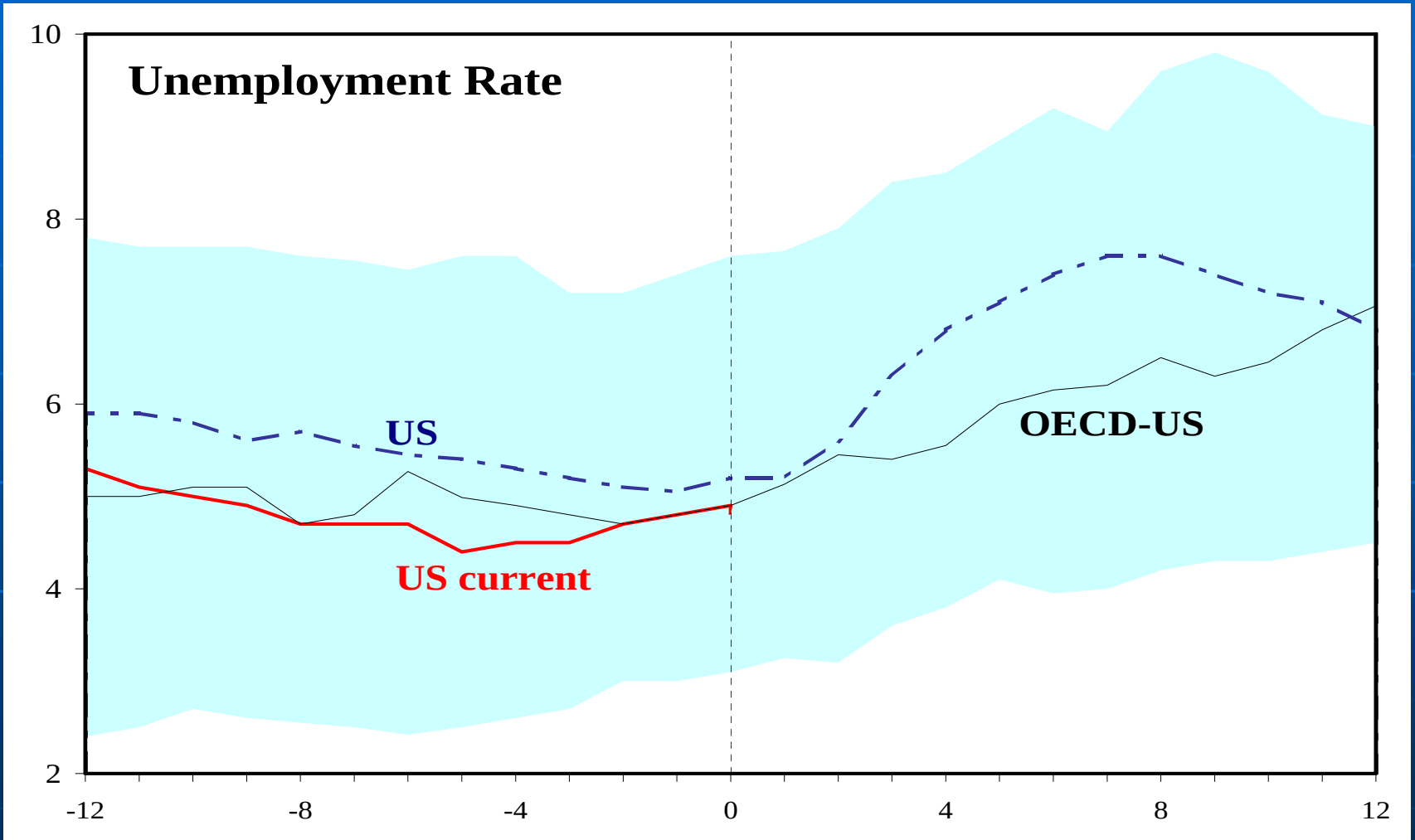
Inflation Going Up from Below Typical

(Percent; zero denotes peak; x-axis quarter)



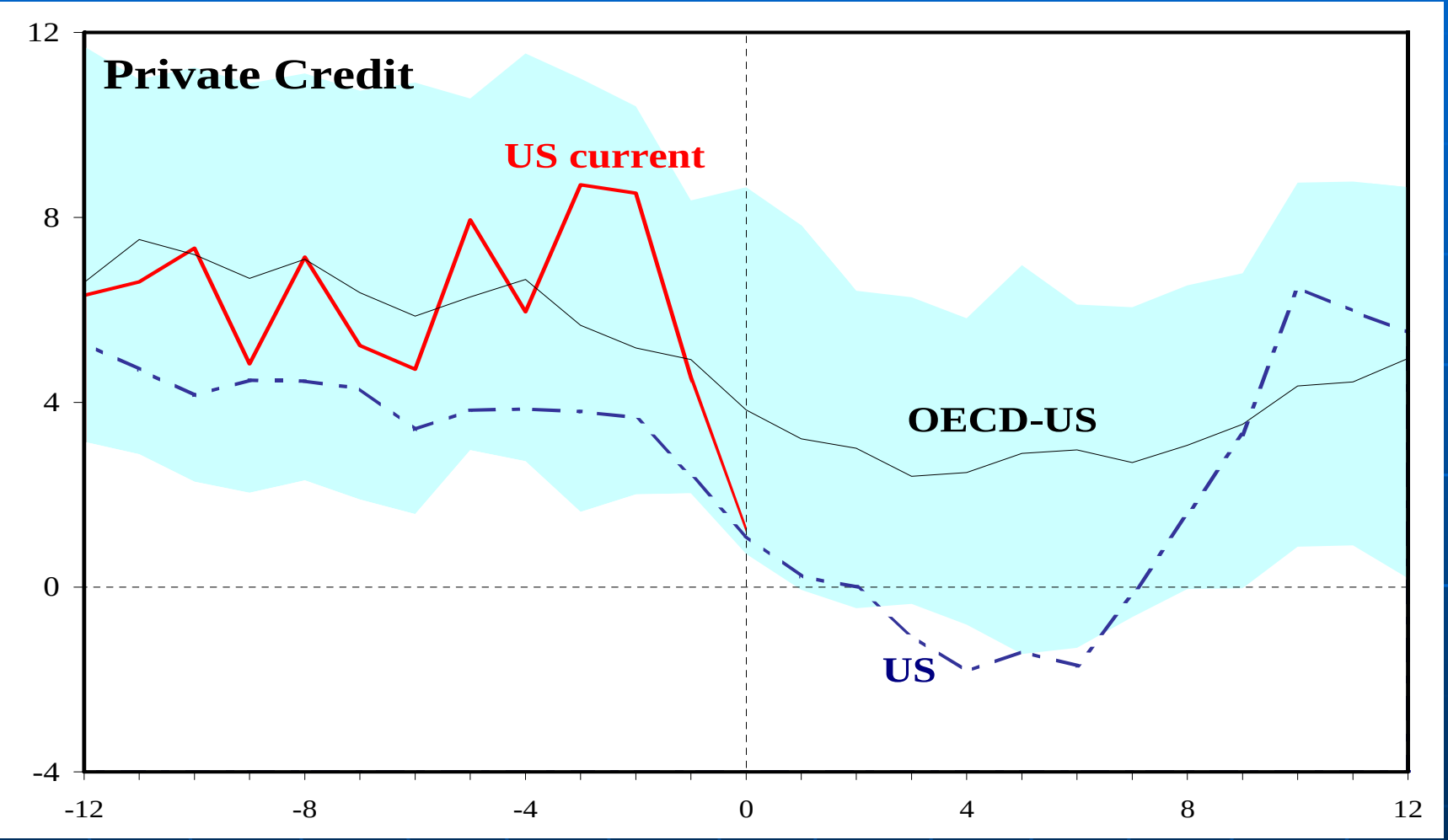
Unemployment on Typical Path

(Percent; zero denotes peak; x-axis quarter)



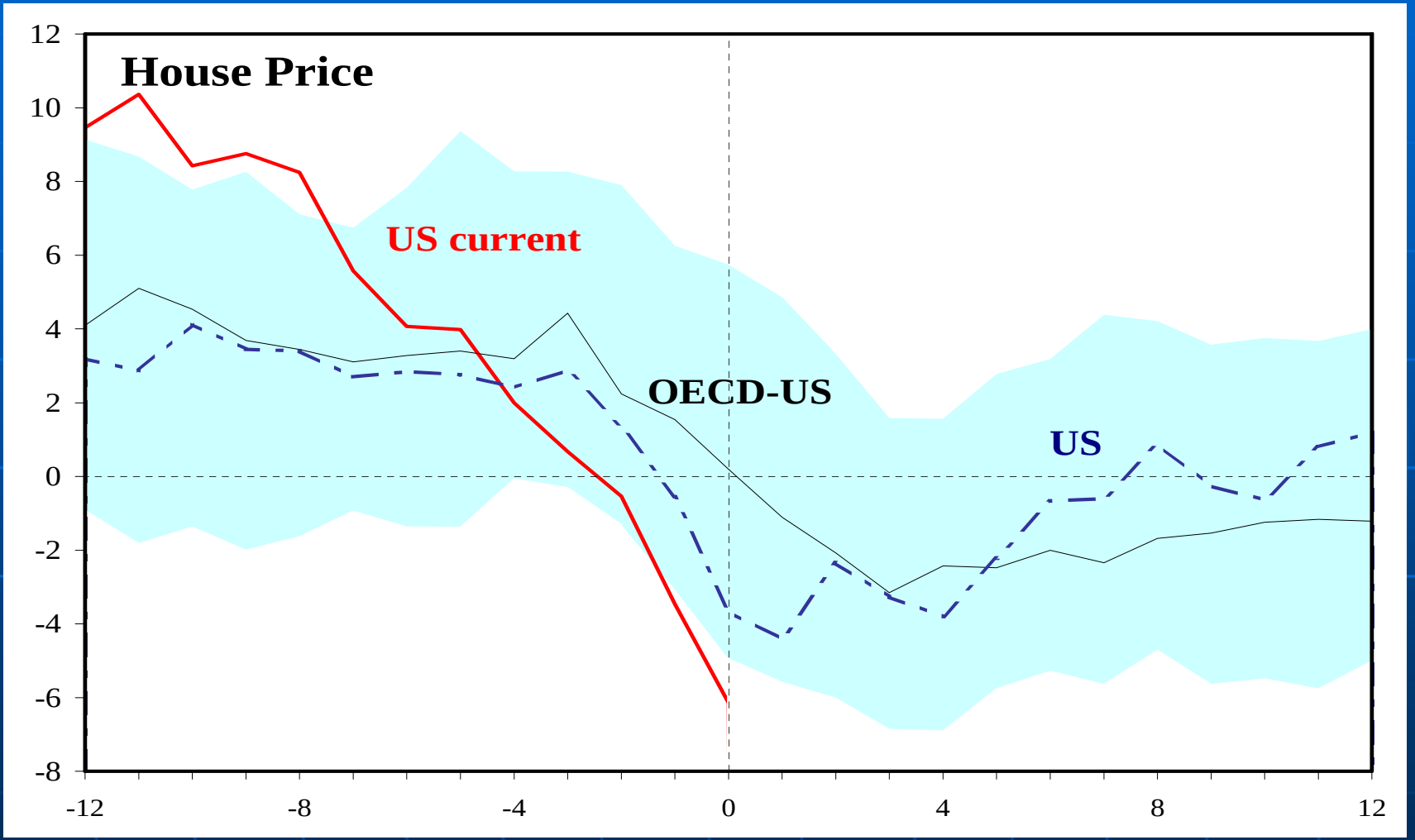
Credit, after Growth, on Downward Path

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



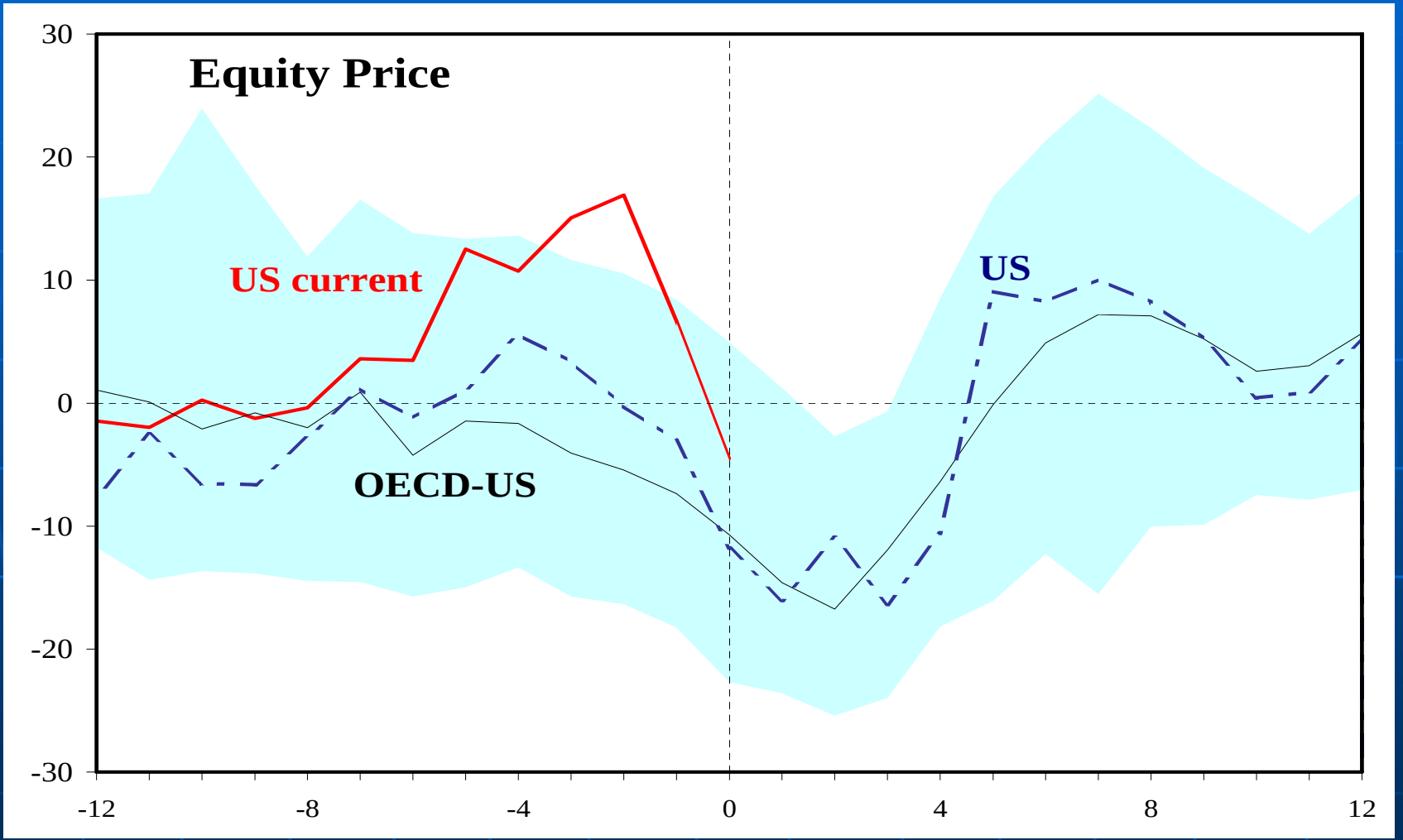
House Prices Growth Down Sharply

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



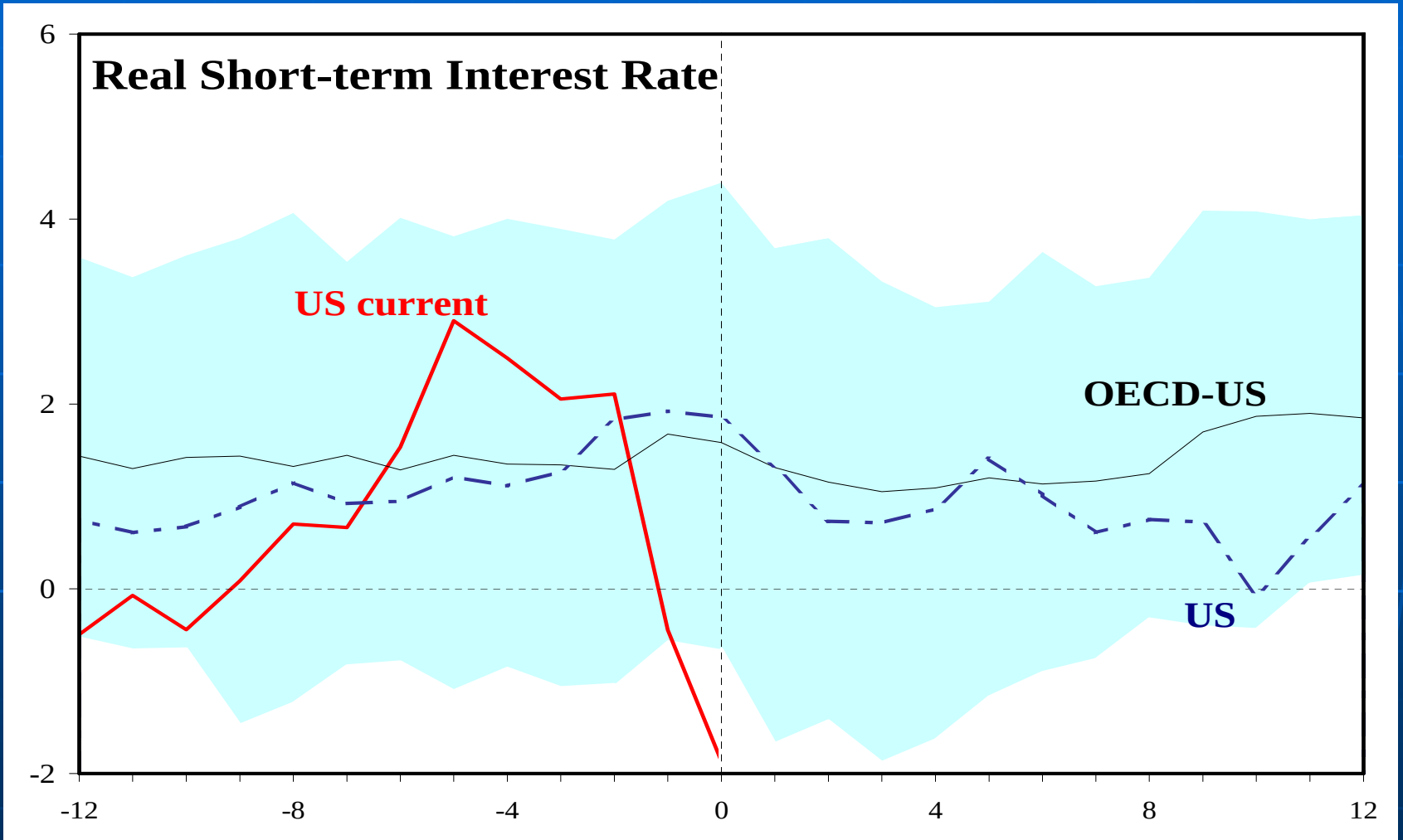
Equity Prices Increase, after Up, Down

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



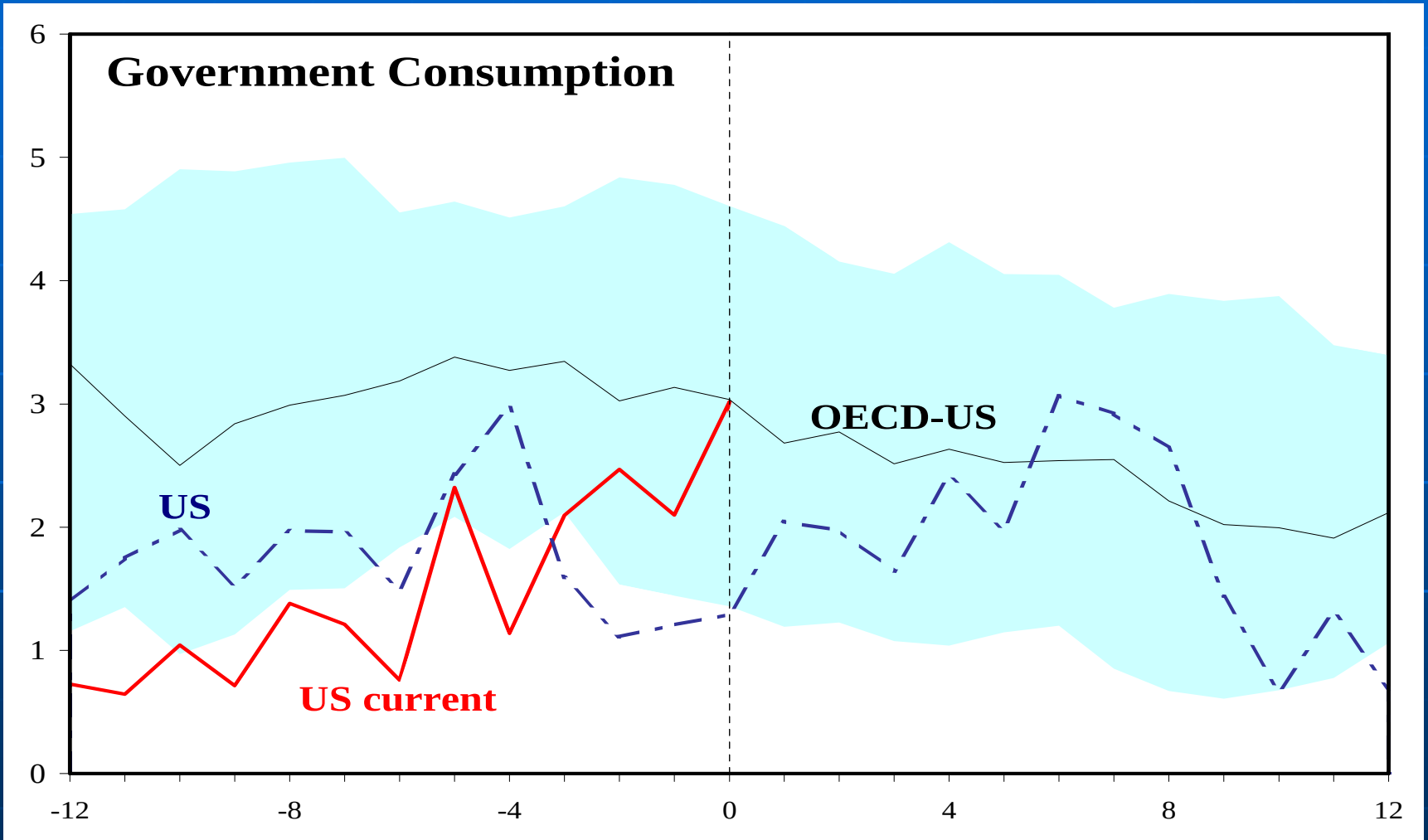
Short-term Interest Rates Down Sharply

(Percent change from a year earlier; zero denotes peak; x-axis quarter)



Gov Consumption on Upward Path

(Percent; zero denotes peak; x-axis quarter)



What did we learn?

- Signs of a slowing economy…
- The declines in house prices and residential investment in the current episode are sharper than those observed in earlier recessions
- Yet, the monetary policy response appears to be more aggressive relative to earlier episodes
- Not clear whether this will be a mid-cycle slowdown or recession…

Outline

- Data and Methodology
- Recessions: Basic Characteristics
- Credit Crunches and Asset Price Busts
- Recessions, Crunches and Busts
- Policy Responses
- Recent Developments in US
- **Conclusions**

Conclusions

- How do macro and financial variables behave around recessions, crunches and busts?

  Mostly procyclical. Residential investment and credit appear to be the key variables to understand the direction of the economy (especially in the United States)

- Are recessions associated with credit crunches and asset price busts different than other recessions?

  Yes. Recessions associated with crunches and busts tend to be longer and deeper

- What might this mean for recent developments in the US?

  Signs of a slowing economy but also an aggressive monetary policy stance already in place. Not clear whether this will be a mid-cycle slowdown or recession…

Some Caveats

- No causal inferences made or intended as to how financial variables affect macroeconomic outcomes
- Initial conditions and policy responses affect the path economy follows
- External conditions, demand and supply shocks matter as well
- Business cycles have moderated over time

Future Research

Future research can focus on

- Alternative metrics of economic activity (output gap)
- Different pattern in financial stress/crisis episodes
- Interactions with global business cycles and emerging market cycles
- Micro/corporate behavior around recessions/busts

Questions & Comments

Thank you!

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