Recessions and Financial Disruptions in Emerging Markets

Stijn Claessens, M. Ayhan Kose and Marco E. Terrones

Research Department, International Monetary Fund

Thirteenth Annual Conference of the Central Bank of Chile
"Monetary Policy Under Financial Turbulence"
November 19 and 20, 2009, Santiago, Chile

A Key Lesson from the Crisis

- Importance of better understanding how macro-financial linkages evolve over the business cycle
  - Recessions around the world
  - Combined with financial disruptions (credit crunches, asset price busts, and financial crises)
  - Led to the "Greatest Recession"
- What happens during recessions and financial disruptions?

Some Issues Have Been Studied

- Many aspects of macro-financial linkages in theory
- Role of financial factors (credit and asset prices) and financial sectors in business cycles
  - Wealth and substitution (direct) effects
  - Financial accelerator (indirect) effects
    - Bank lending, credit, balance sheet channels
  - (International) financial sector dynamics
    - Financial turmoil, liquidity, and leverage
    - Sudden stops

Some Empirical Evidence Exists

- Facts about procyclical nature of macro and financial variables
- Analysis of business cycles and crises, but separately
- Cycles: Burns and Mitchell (1946), Backus and Kehoe (1992); Zarnowitz (1999) etc.
- Crises: Kindleberger (1978), Reinhart and Rogoff (2009), Barro (2009)

But Still Limited Knowledge

- Few studies of recessions and financial disruptions in advanced countries

  Claessens, Kose, and Terrones (2009)

- Few studies on recessions for emerging markets

  Calderon and Fuentes (2006)

- Data limitations
  - Annual data vs. Quarterly data

- Growth versus cycle in emerging markets

Objective: Four Questions

- How long do recessions and financial disruptions last, and how severe are they in emerging markets? And are they different from those in advanced countries?

- How does the coincidence between recessions and financial disruptions affect macroeconomic outcomes?

- Are recessions and financial disruptions synchronized?

- What are the determinants of the costs of recessions?

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

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

Results

- How long do recessions and financial disruptions last, and how severe are they in emerging markets? And are they different from those in advanced countries?

  Financial disruptions in emerging markets last a long time, much longer than recessions, and can be deep. And much deeper than those in advanced countries

- How does the coincidence between recessions and financial disruptions affect economic outcomes?

  Recessions associated with disruptions tend to be deeper

Results

- Are recessions and financial disruptions synchronized ?

  Yes. They often come in bunches. Synchronized recessions are longer and deeper

- What are the determinants of the costs of recessions in emerging markets?

- **Changes in credit, coincidence with financial crises, initial conditions and duration of the events**

Outline of Presentation

- Dataset & Methodology for Cycles

1. Recessions, Crunches, Busts
   - Duration, Amplitude, and Lead/Lag,
2. Associations: Recessions, Crunches, Busts
   - Overlap, Duration, and Amplitude
3. Synchronization of Recessions and Financial Disruptions
4. Costs of Recessions

- Summary
- Caveats and Ongoing/Future Research

Dataset: Period and Countries Included

- Large quarterly dataset of macro and financial variables

- Period 1978:1-2007:4, 24 Emerging Market Countries

- Argentina, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Ecuador, Hong Kong, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, Philippines, Singapore, South Africa, Taiwan, Thailand, Turkey, Uruguay, and Venezuela.

- Comparison Group: 21 “core” OECD countries over the same period

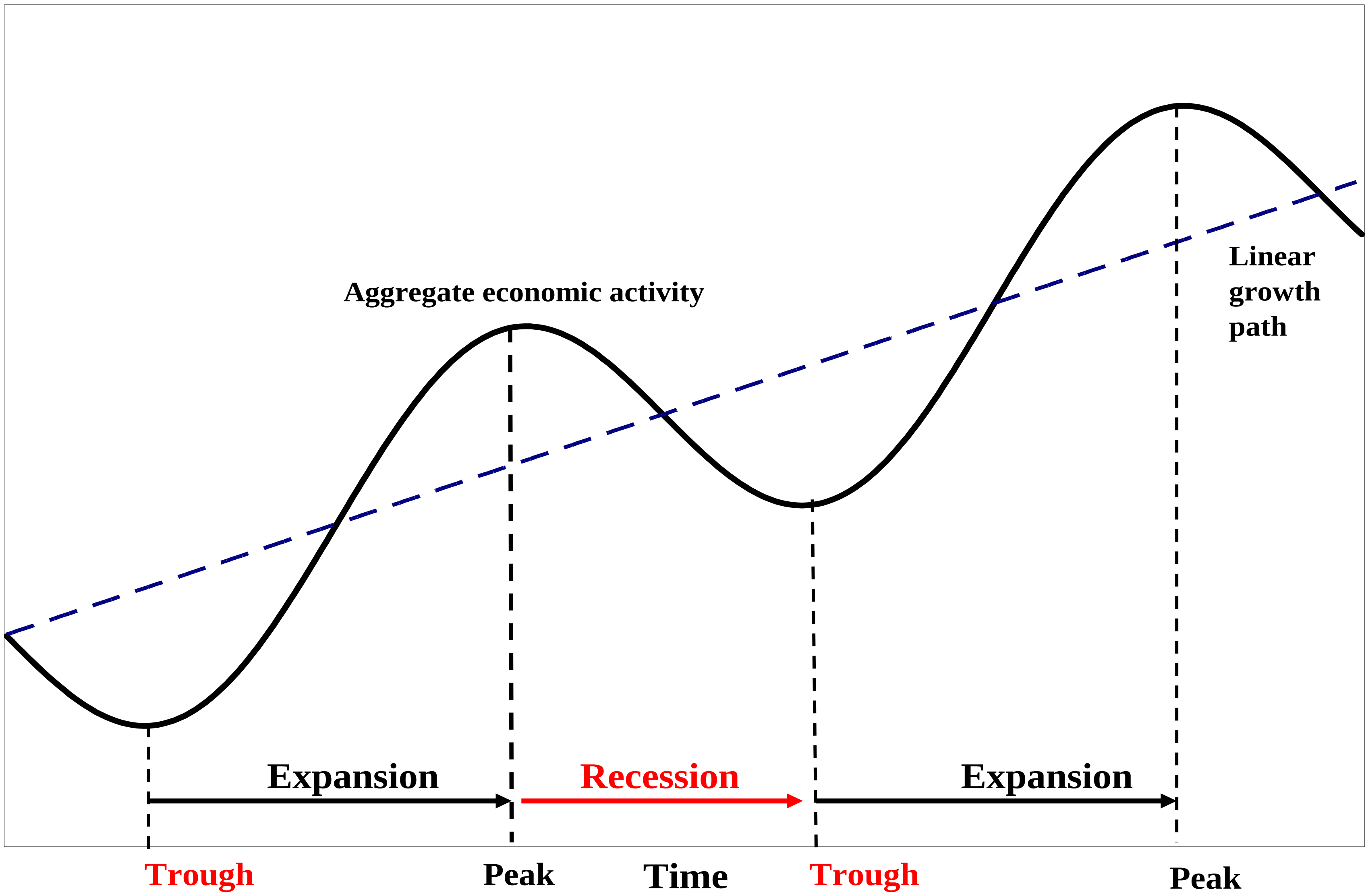
Methodology: Cyclical Turning Points

- Find turning points in macro and financial variables using a business cycle dating algorithm (Harding and Pagan, 2002)

- Episodes of Recessions, Credit Contractions, Equity Price Declines

  - **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
  - **Equity Price Bust:** a peak-to-trough decline in equity prices in the worst quartile of all price declines

Evolution of Business Cycle



Business and Financial Cycles

- Large number of recessions, crunches and busts
- Output Recessions: 84 **(21 Severe)** *[81,20]*
- Financial Disruptions
  - Credit: 107 Contractions **(26 Crunches)** *[71,17]*
  - Equity Prices: 136 Declines **(34 Busts)** *[152, 38]*

In brackets, numbers for advanced countries

1. Duration and Amplitude

- Recessions typically last 4 quarters, but credit crunches and equity price busts last much longer, up to 10-12 quarters

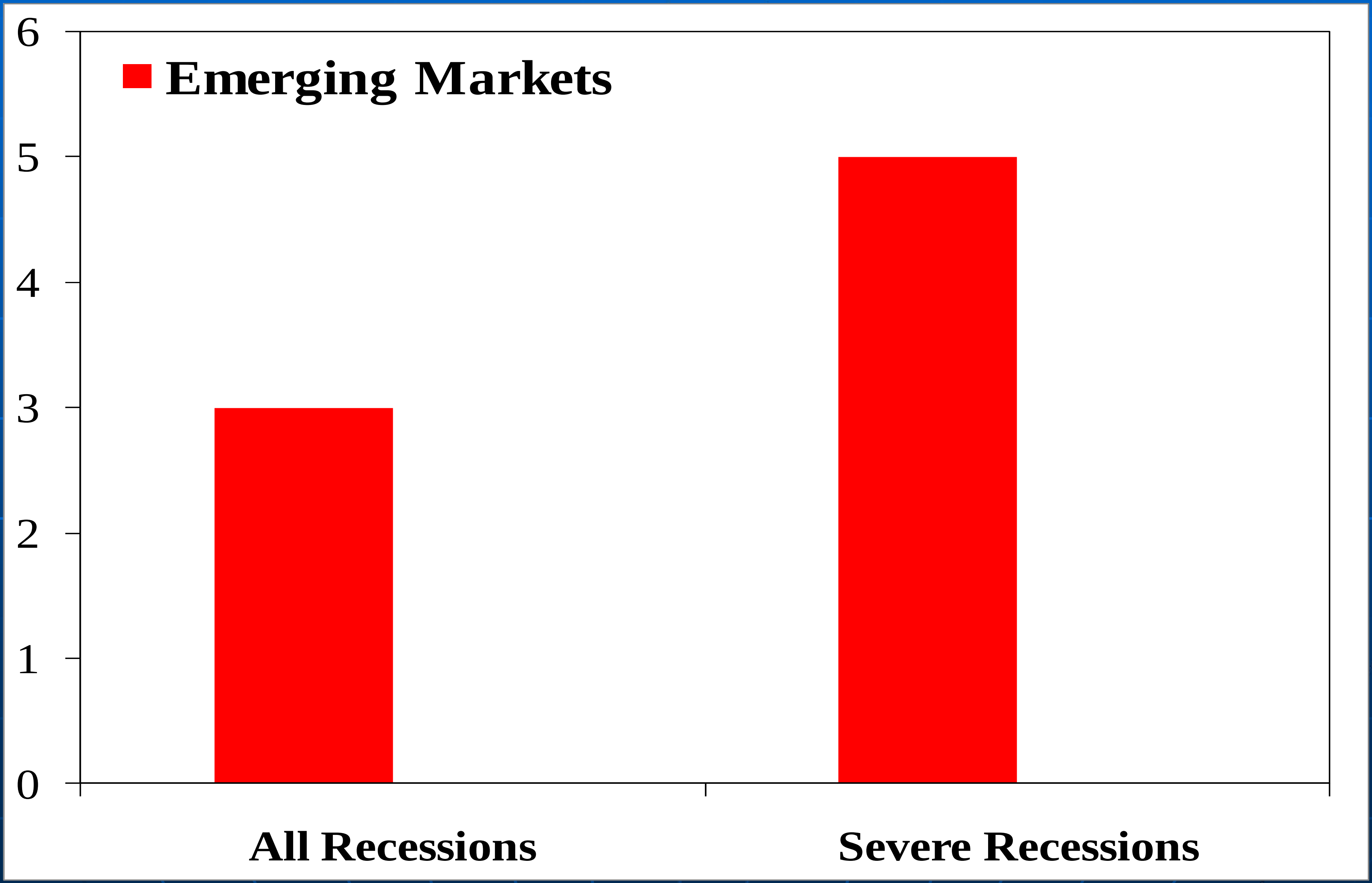
- In emerging markets, recessions mean declines (peak to trough) in GDP of 5 percent, with severe recession declines of 13 percent

- Credit crunches and equity busts mean substantial declines in credit and equity prices, 50 to 70 percent

- Recessions and financial disruptions are much deeper in emerging markets than advanced countries

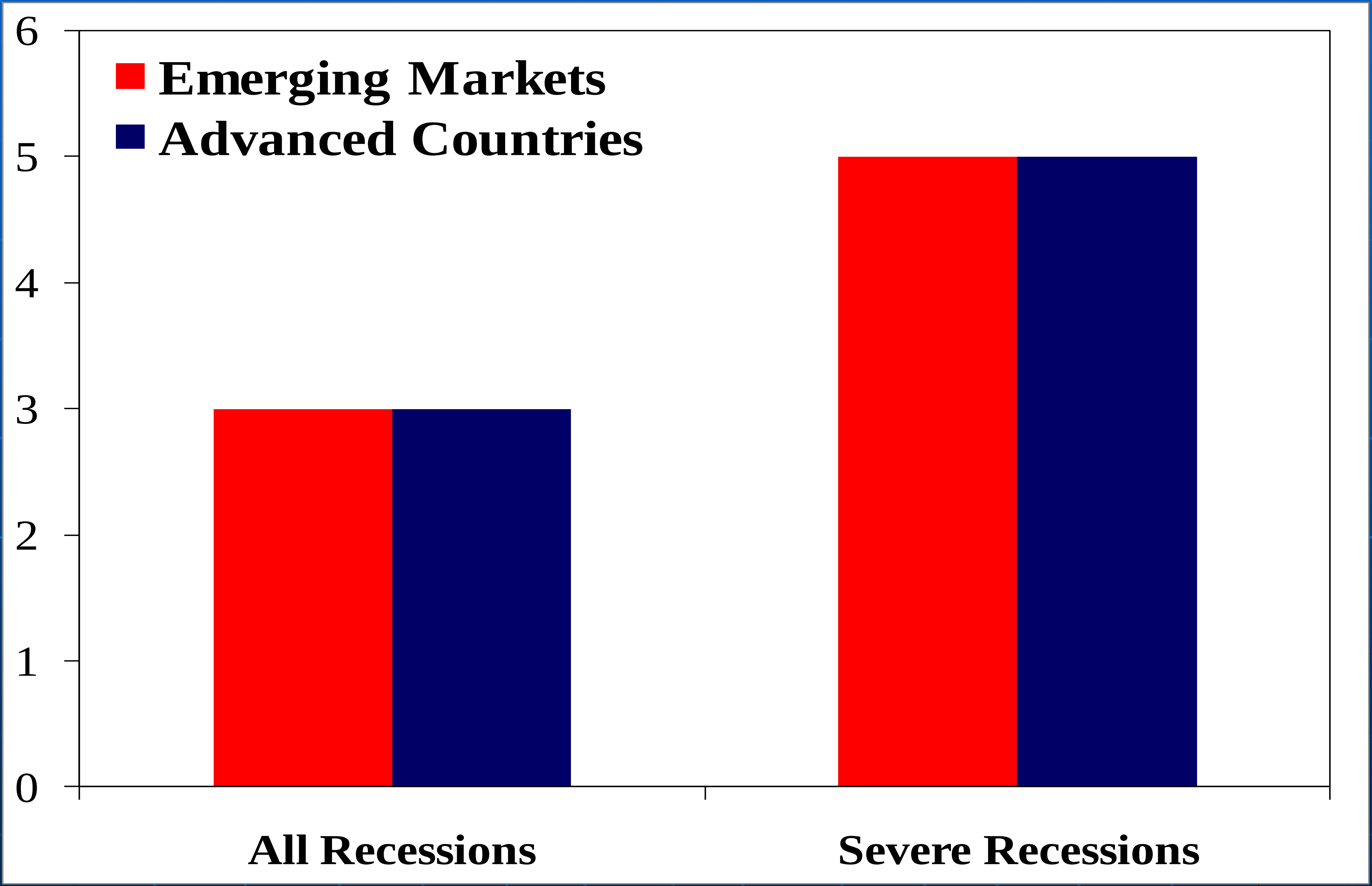
Typical Recession Lasts 4-5 Quarters

(# of quarters from Peak to Trough)



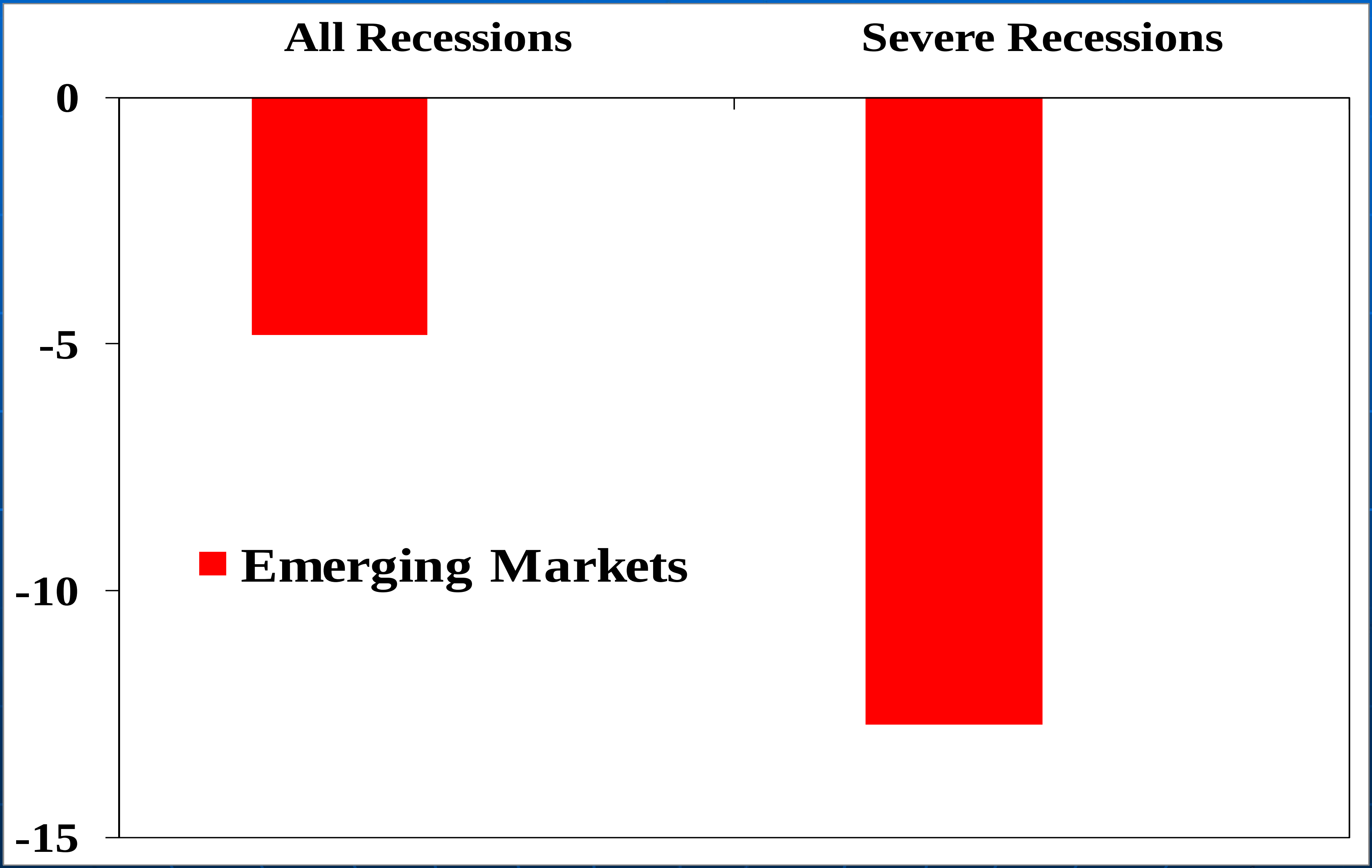
Duration in Emerging Similar to Advanced

(# of quarters from Peak to Trough)



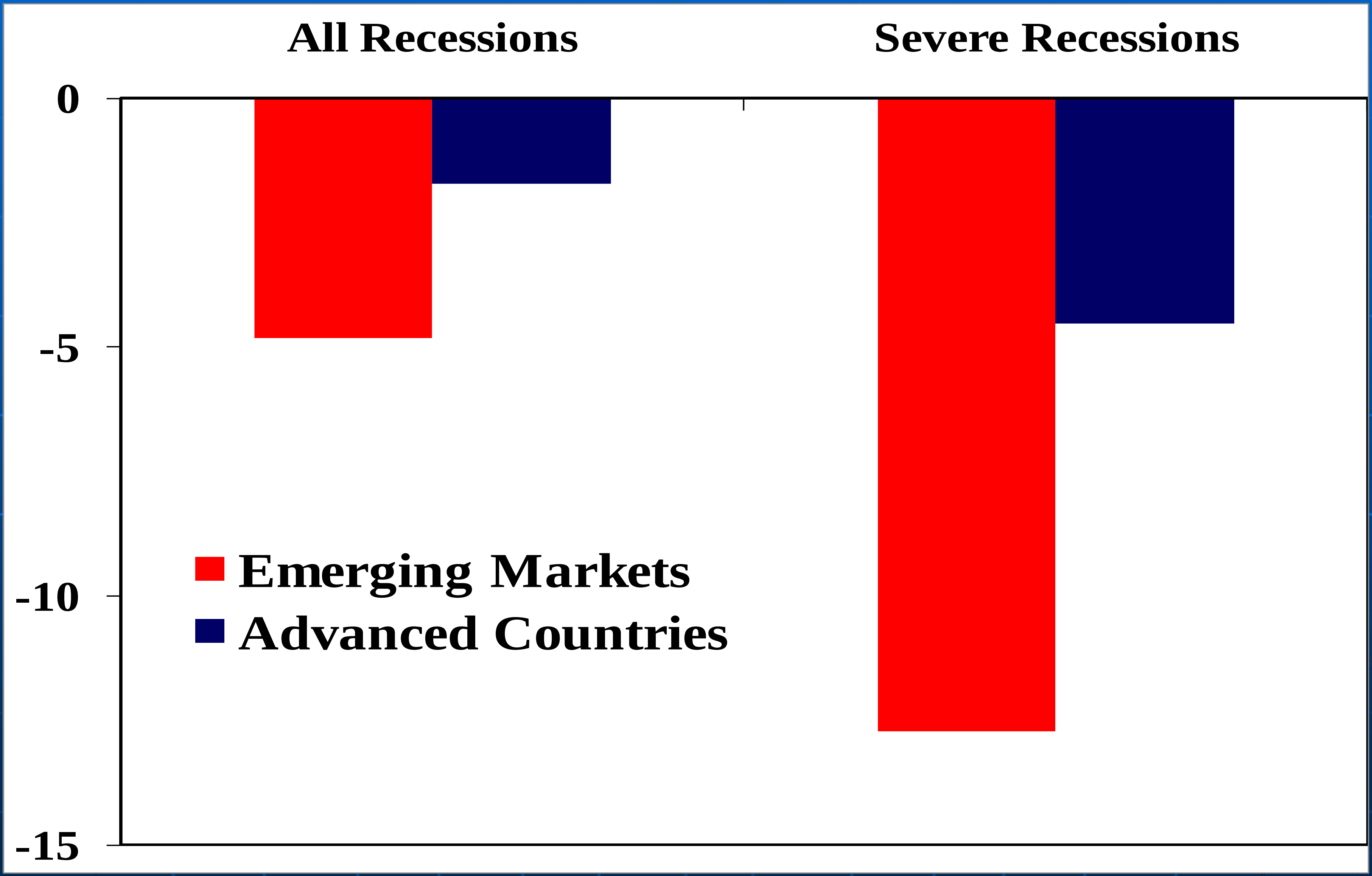
But Recessions' Severity Varies Greatly

(percent change in GDP from Peak to Trough)



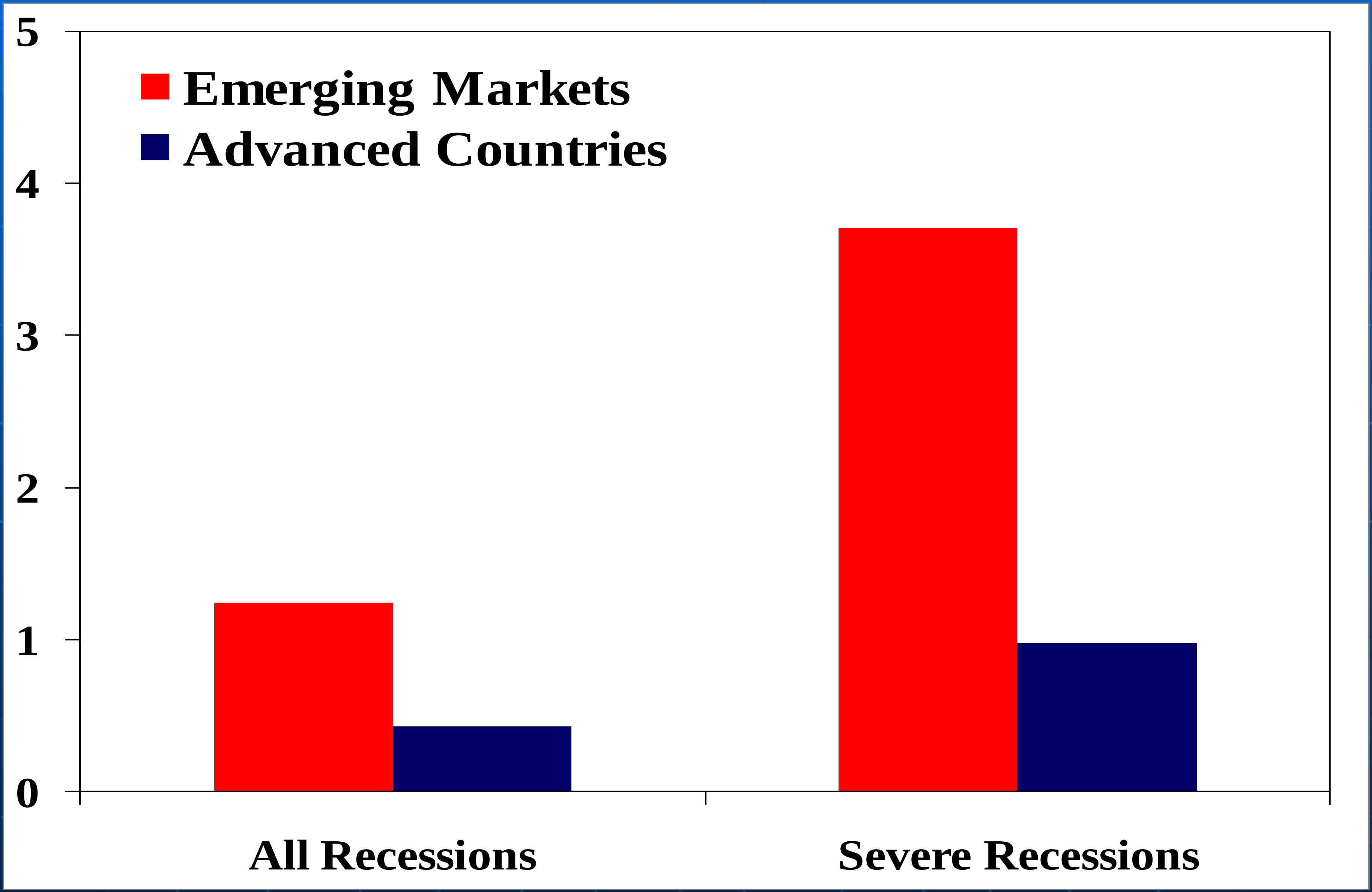
Recessions Deeper in Emerging Markets

(percent change in GDP from Peak to Trough)

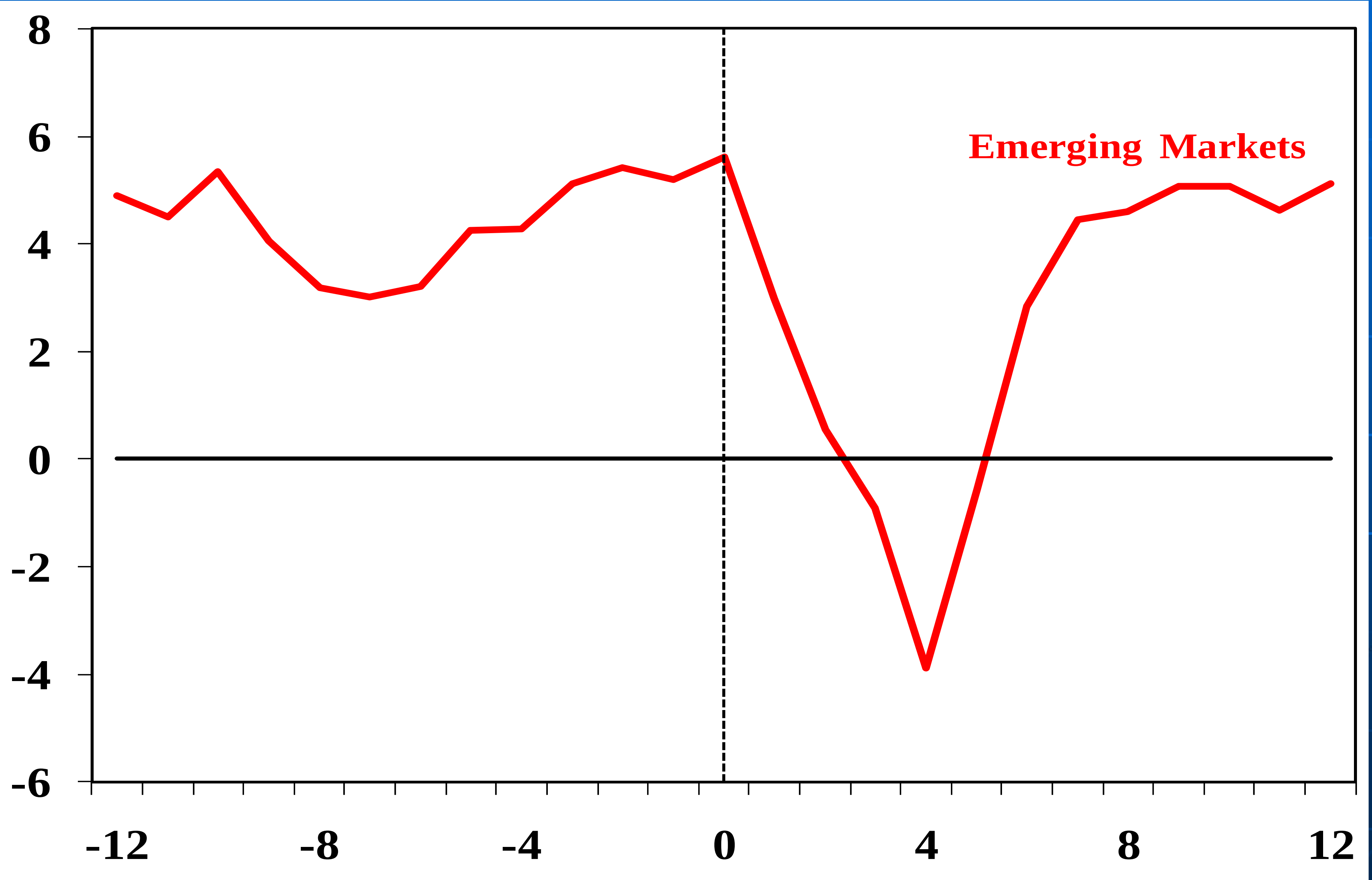


And More Violent in Emerging Markets

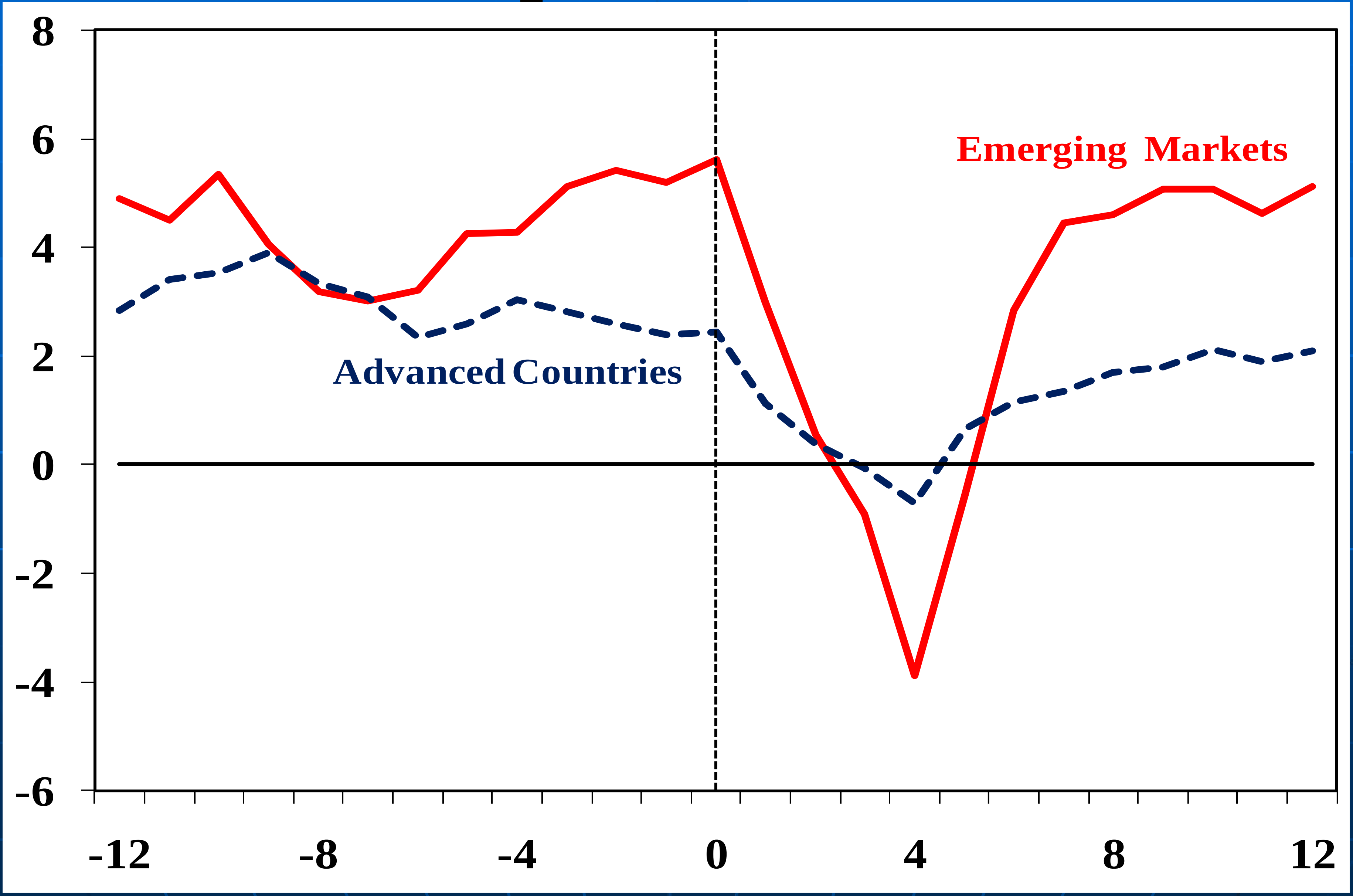
(slope of recessions, amplitude/duration)



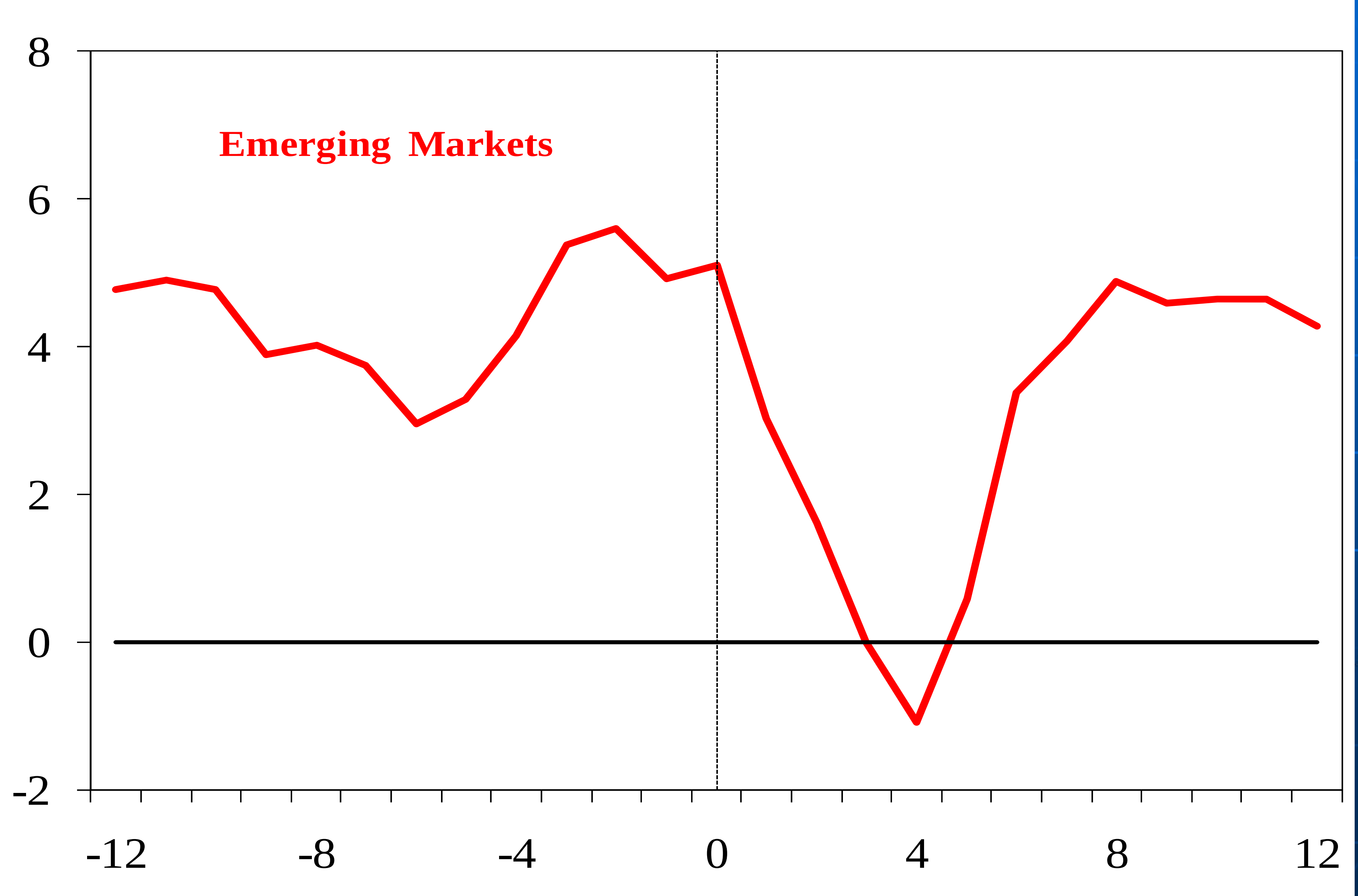
A Sharp Decline in Output in EM



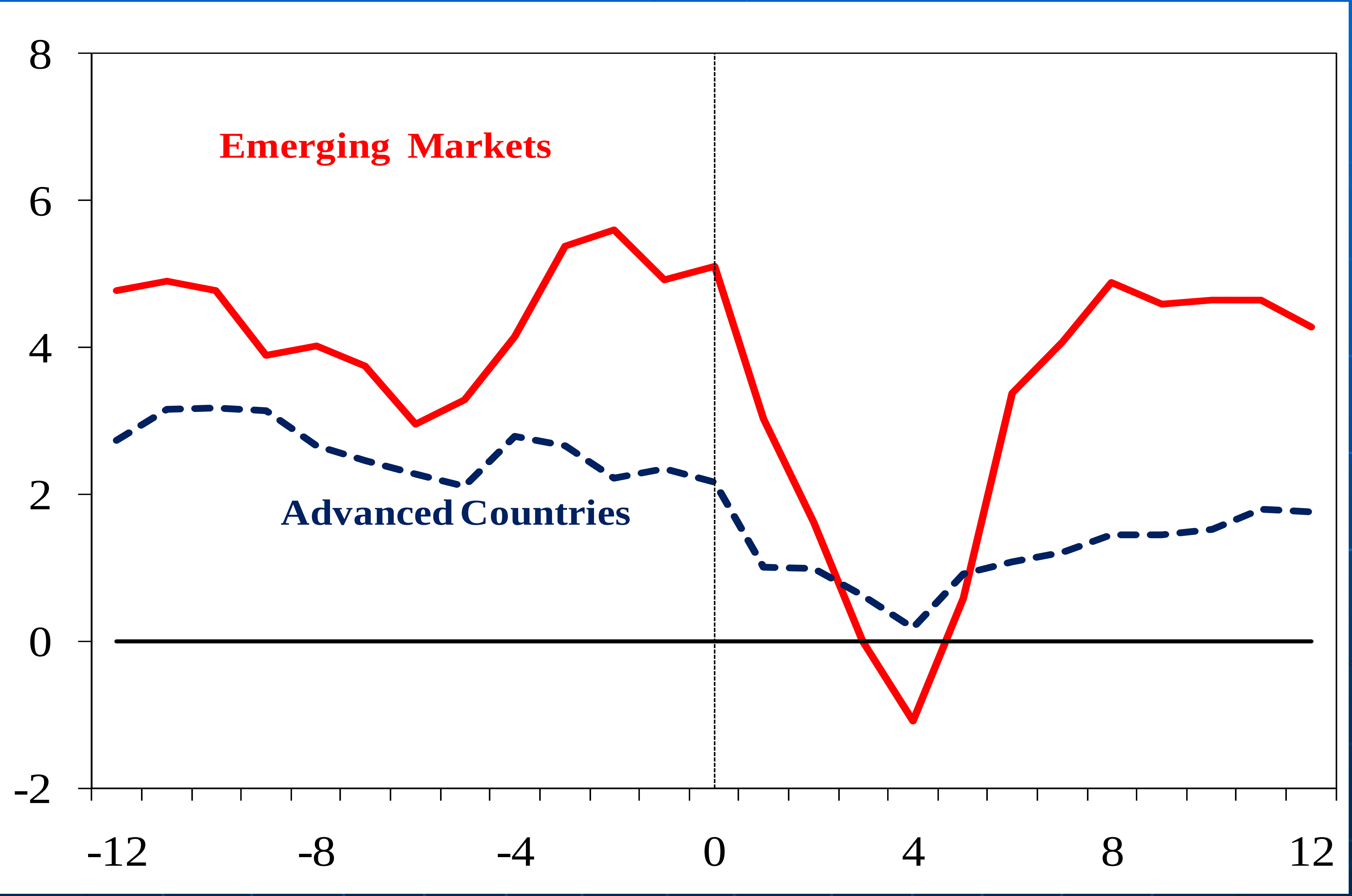
Much Sharper Than Advanced



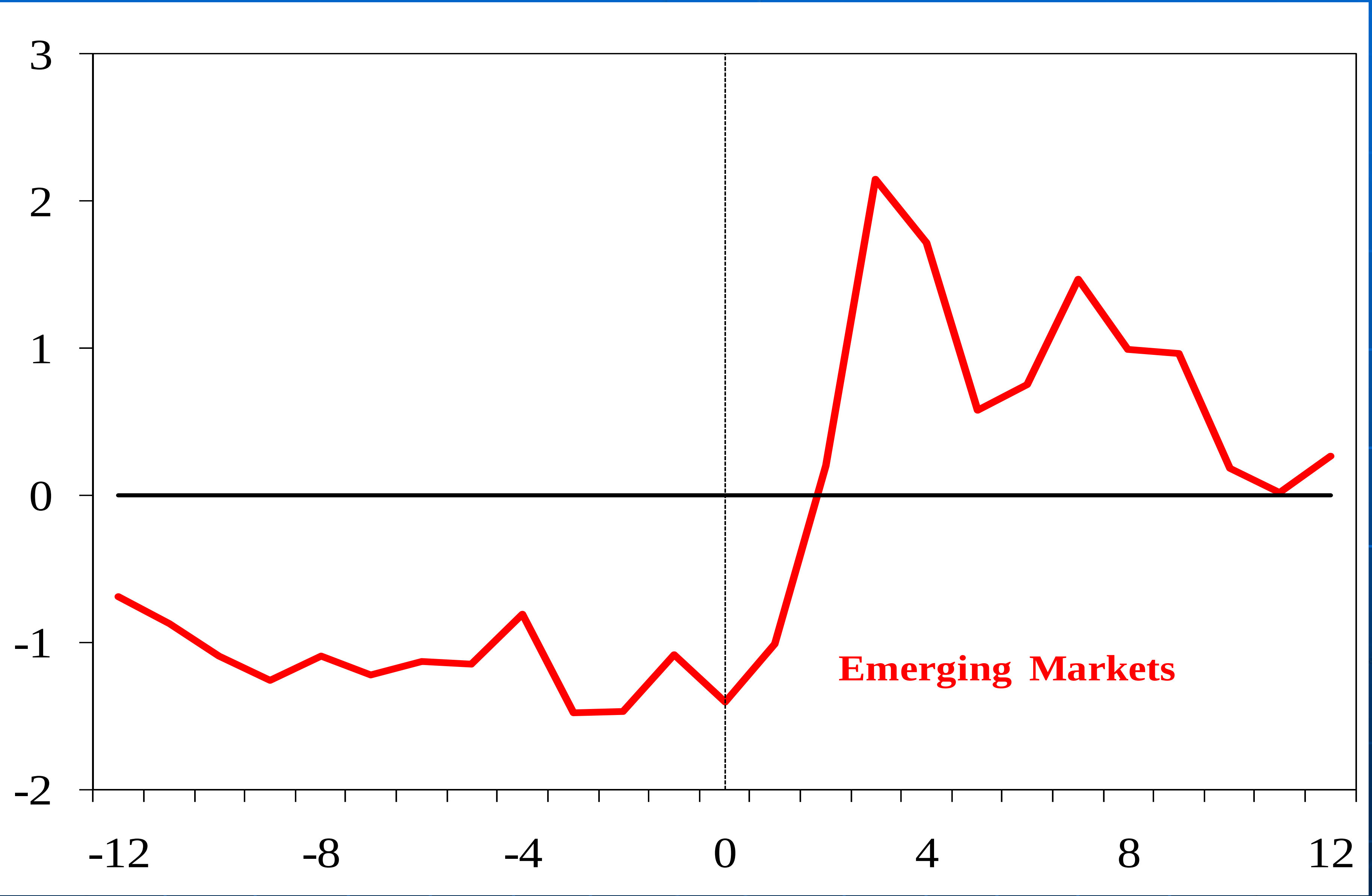
Collapse of Consumption in EM



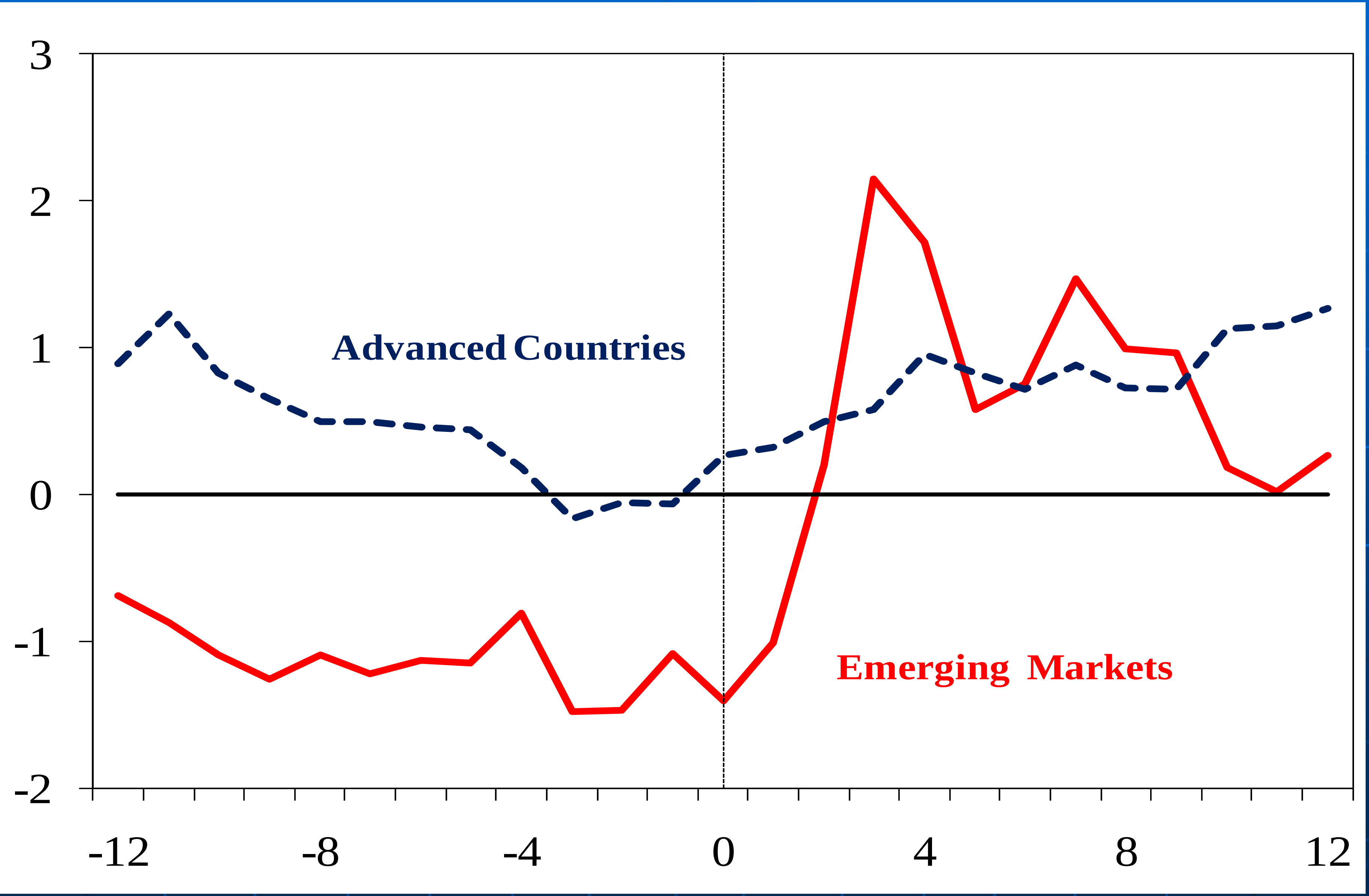
Worse in EMs than in Advanced



Net Exports: Rapid Adjustment in EMs

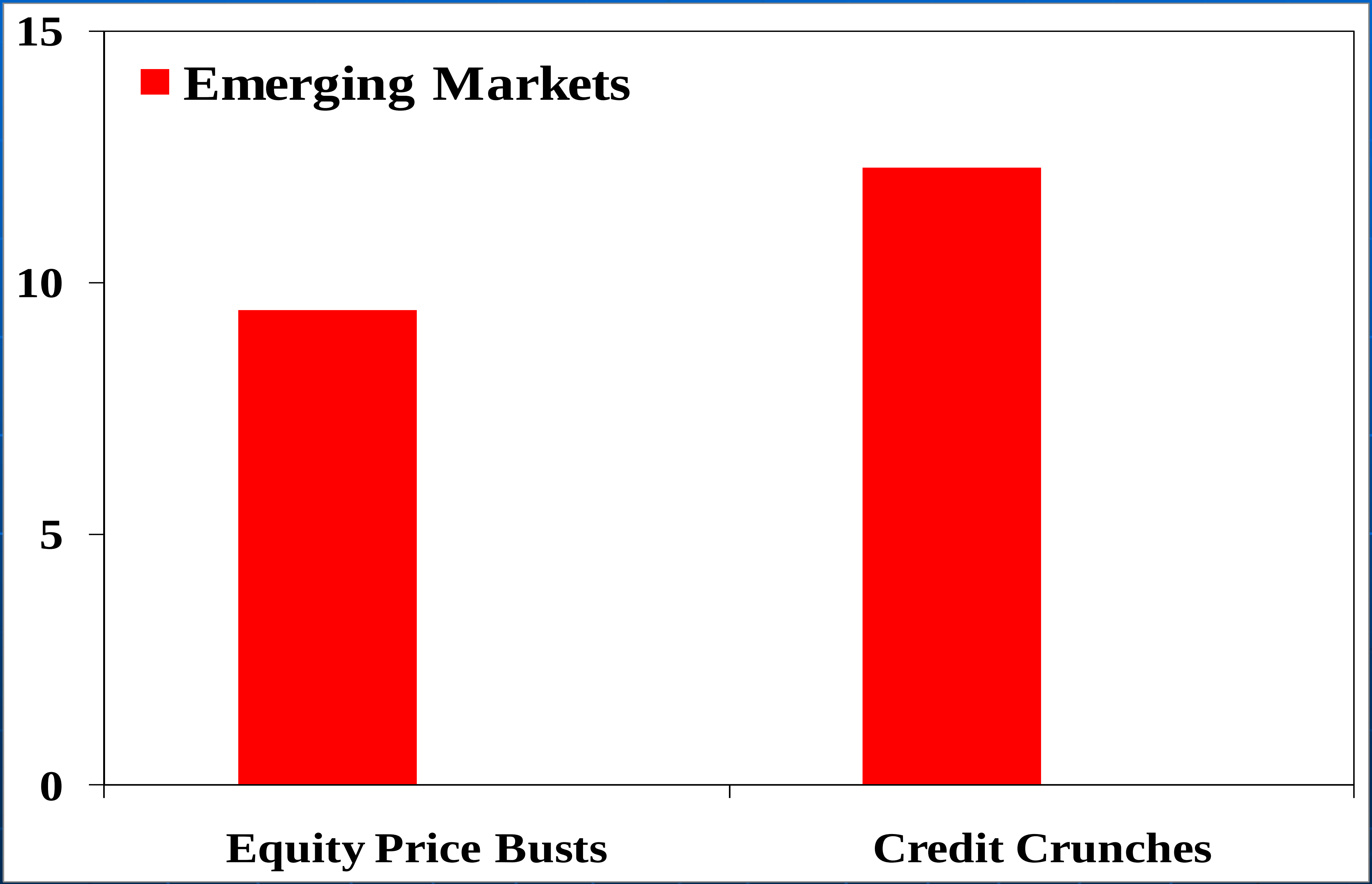


Sharper Net Exports Adjustment in EMs



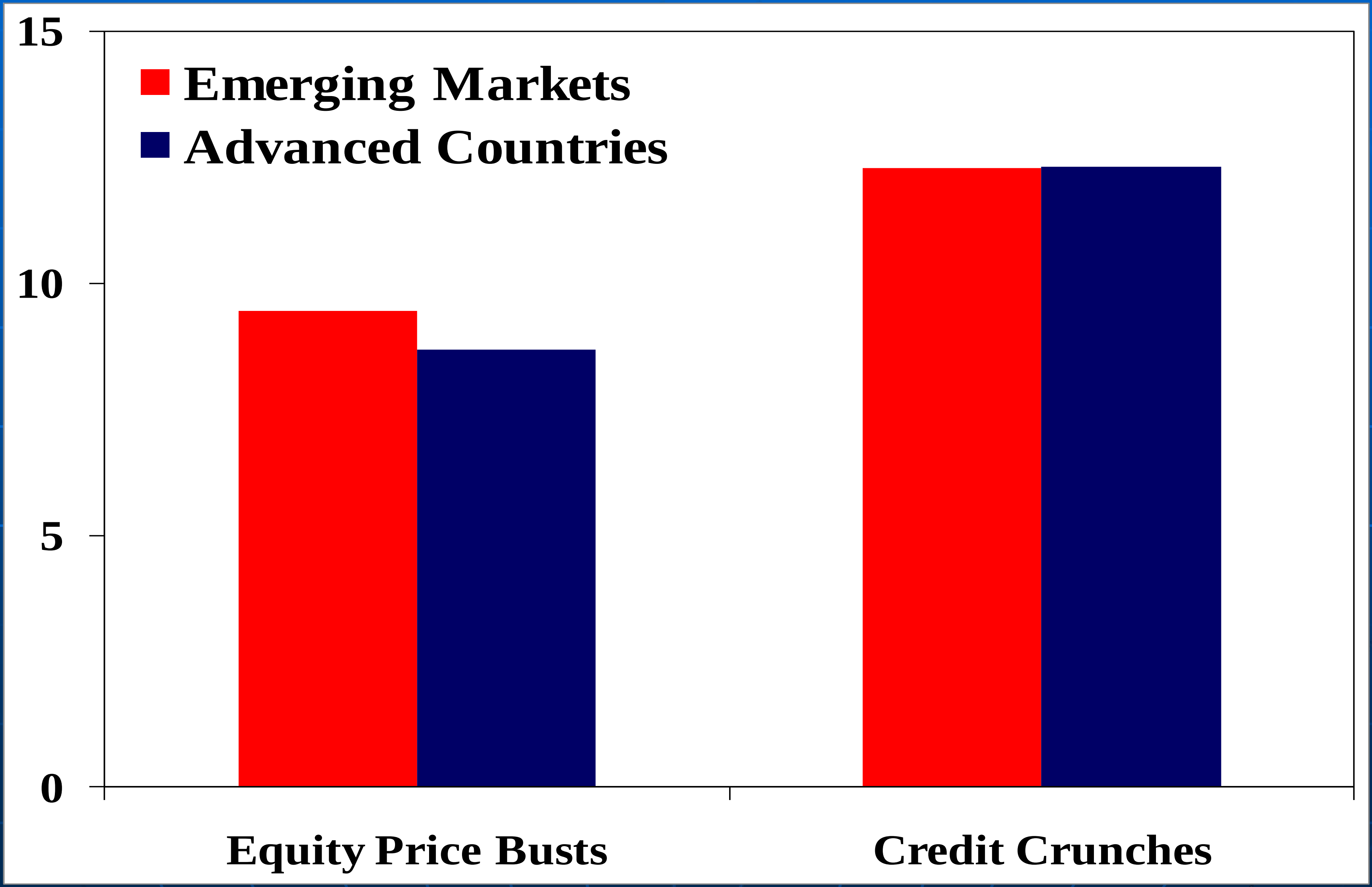
Crunches/Busts Last Much Longer than R/s

(# of quarters from Peak to Through)



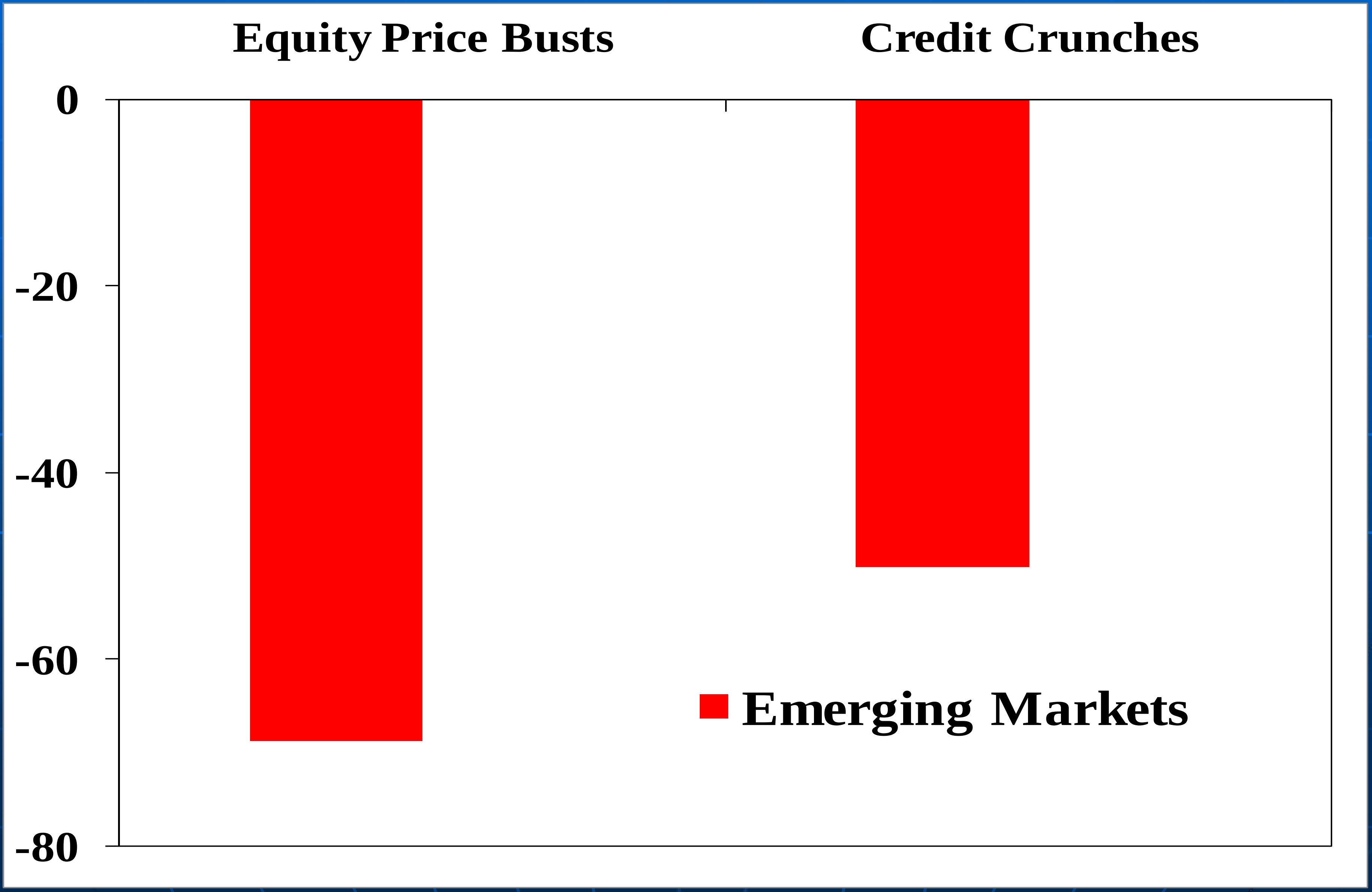
Duration in Emerging Similar in Advanced

(# of quarters from Peak to Through)



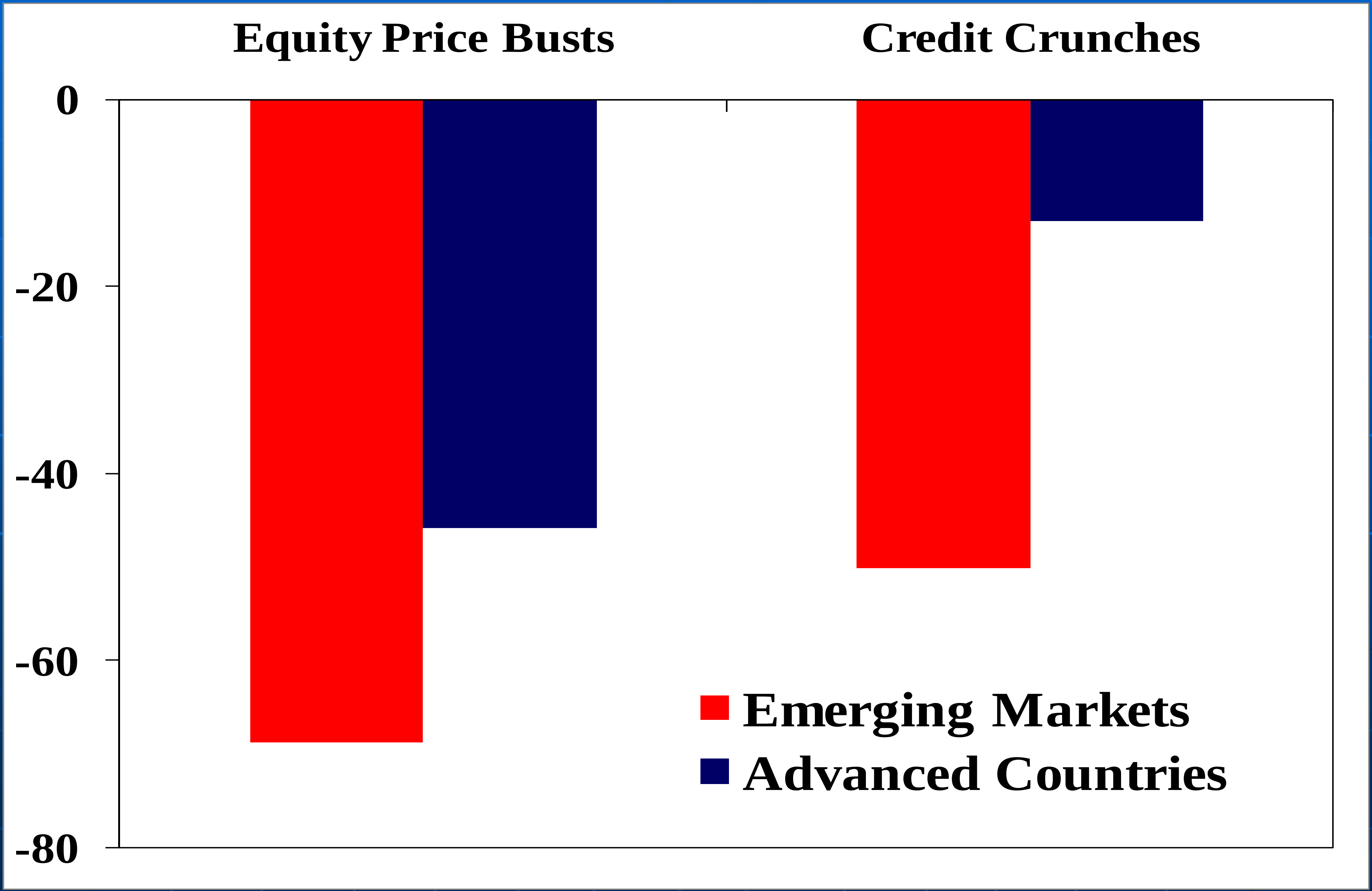
Disruptions are Deeper than Recessions

(percent change from Peak to Trough)



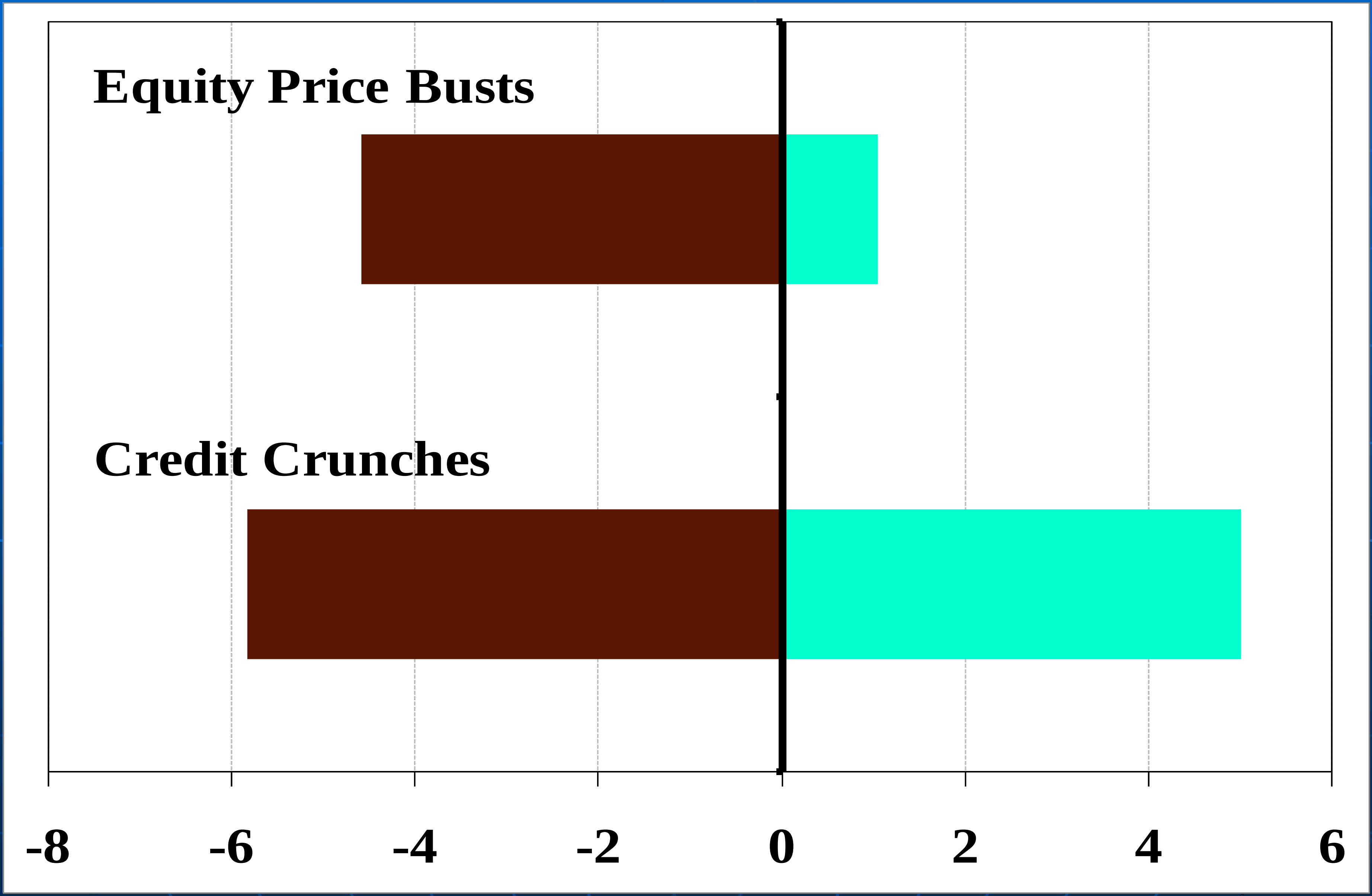
And Deeper in Emerging than Advanced

(percent change from Peak to Trough)



Crunches and Busts Begin Earlier, End Later

(# of quarters crunches/busts lead/lag recessions, 0 start of recession)



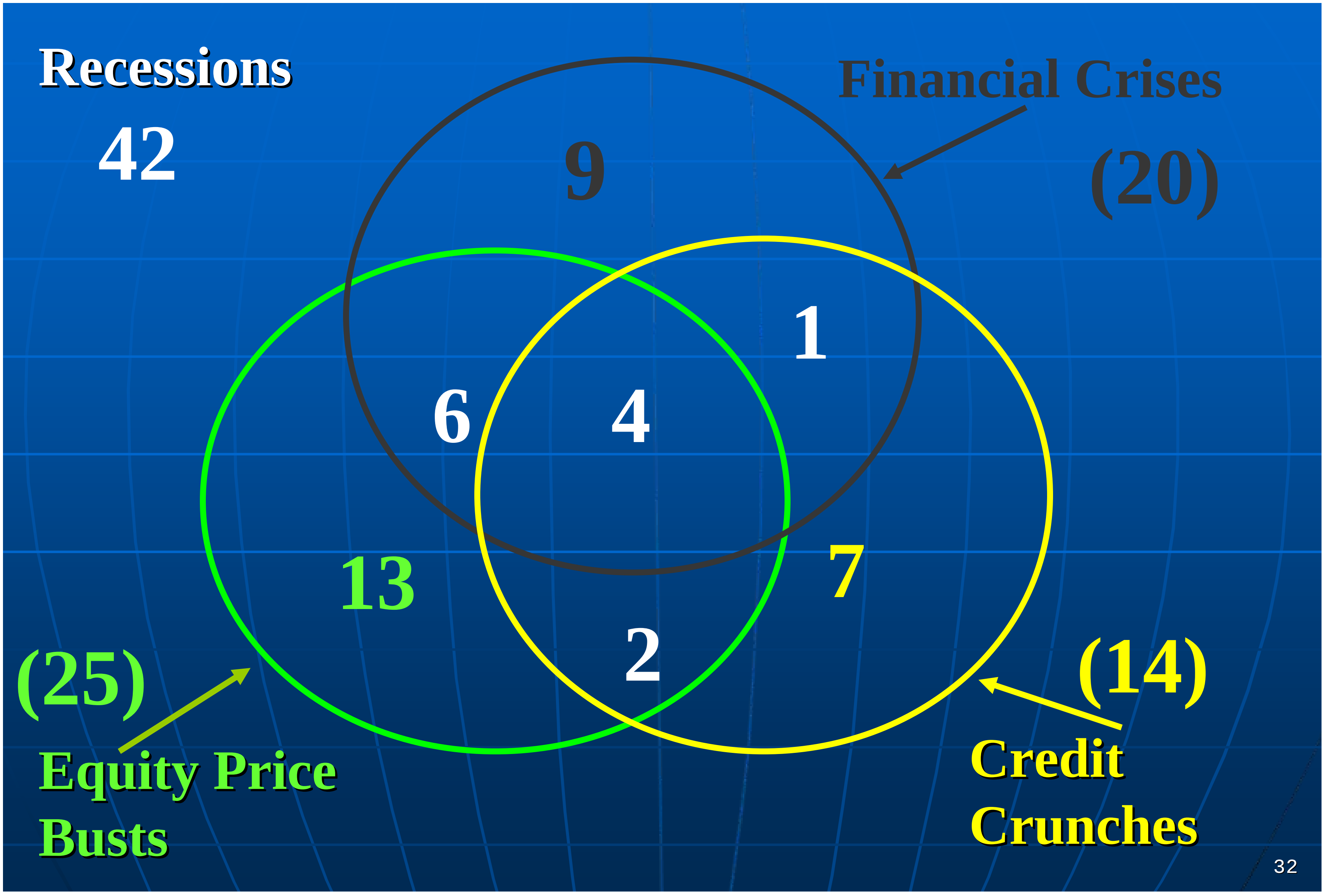
2. Recessions, Crunches and Busts

- Identify recessions coinciding with credit crunches, equity busts, and financial crises (starting before or occurring at the same time)

  - 14 Recessions overlap with Credit Crunches
  - 25 Recessions overlap with Equity Price Busts
  - 20 Recessions overlap with Financial Crises

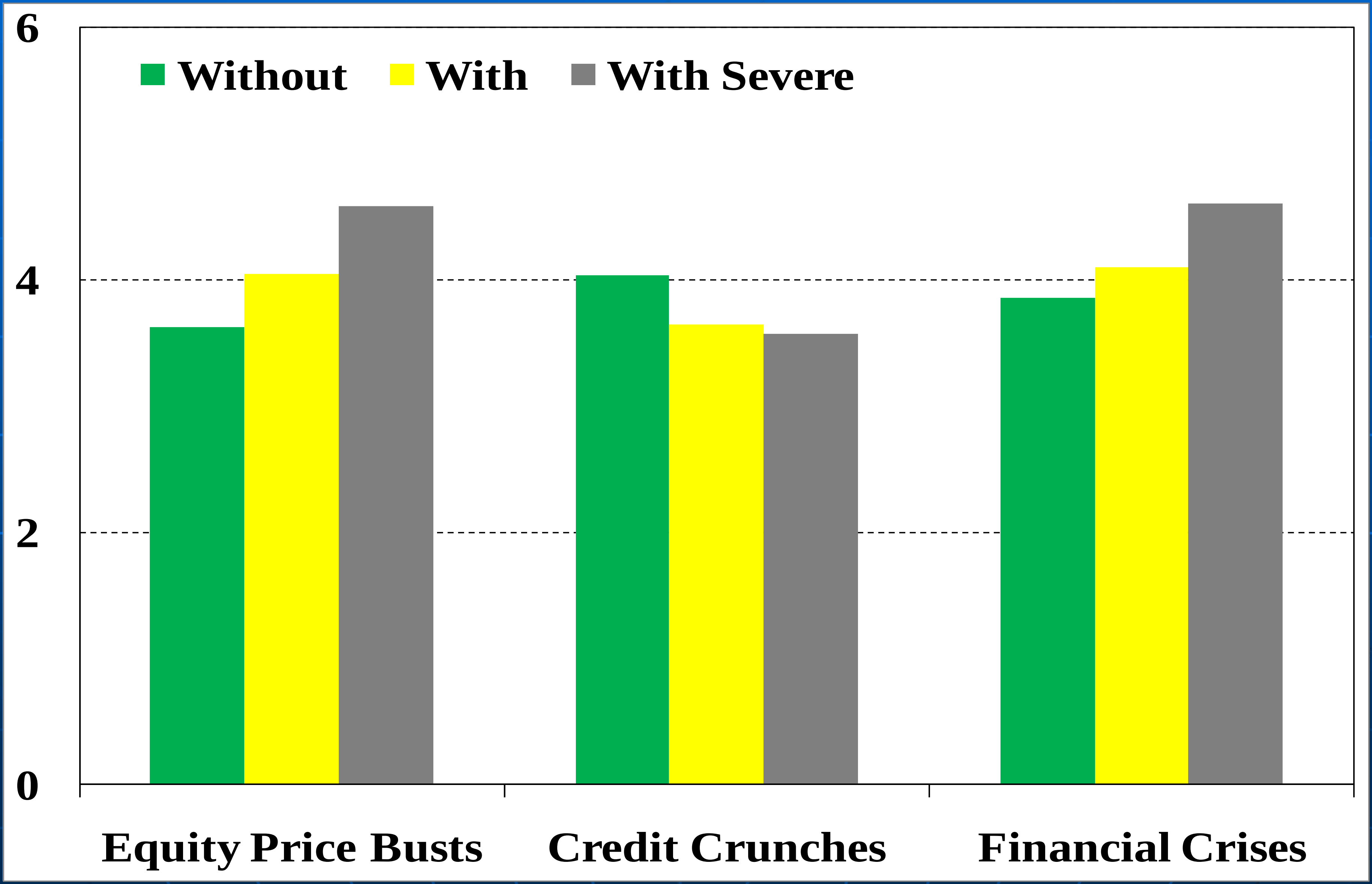
- **Main Finding:** Recessions associated with financial disruptions tend to be deeper, with greater declines in investment and consumption

Associations: Recessions and Disruptions



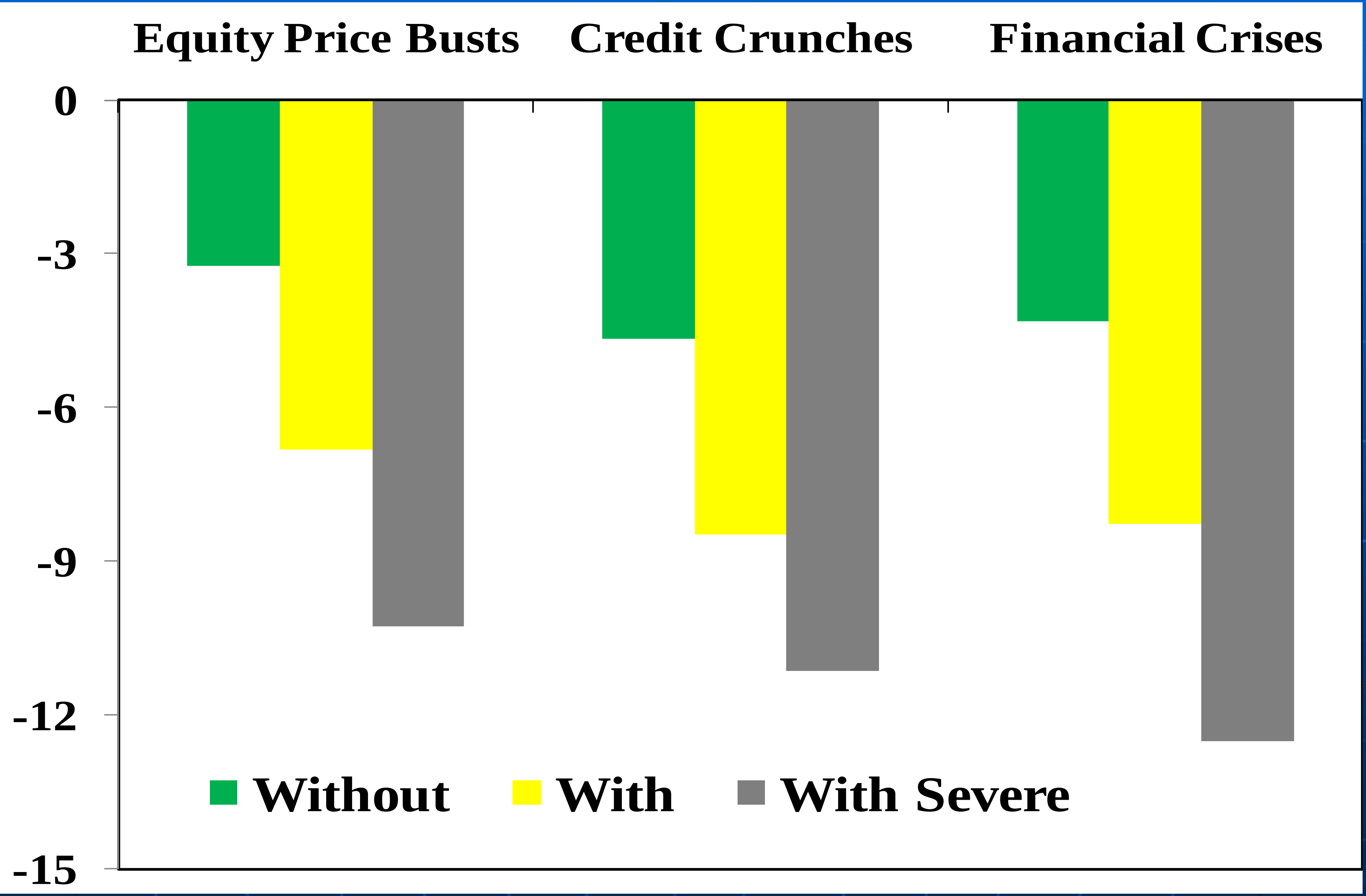
Recessions w/ Disruptions: Often Longer

(# of quarters from Peak to Trough)



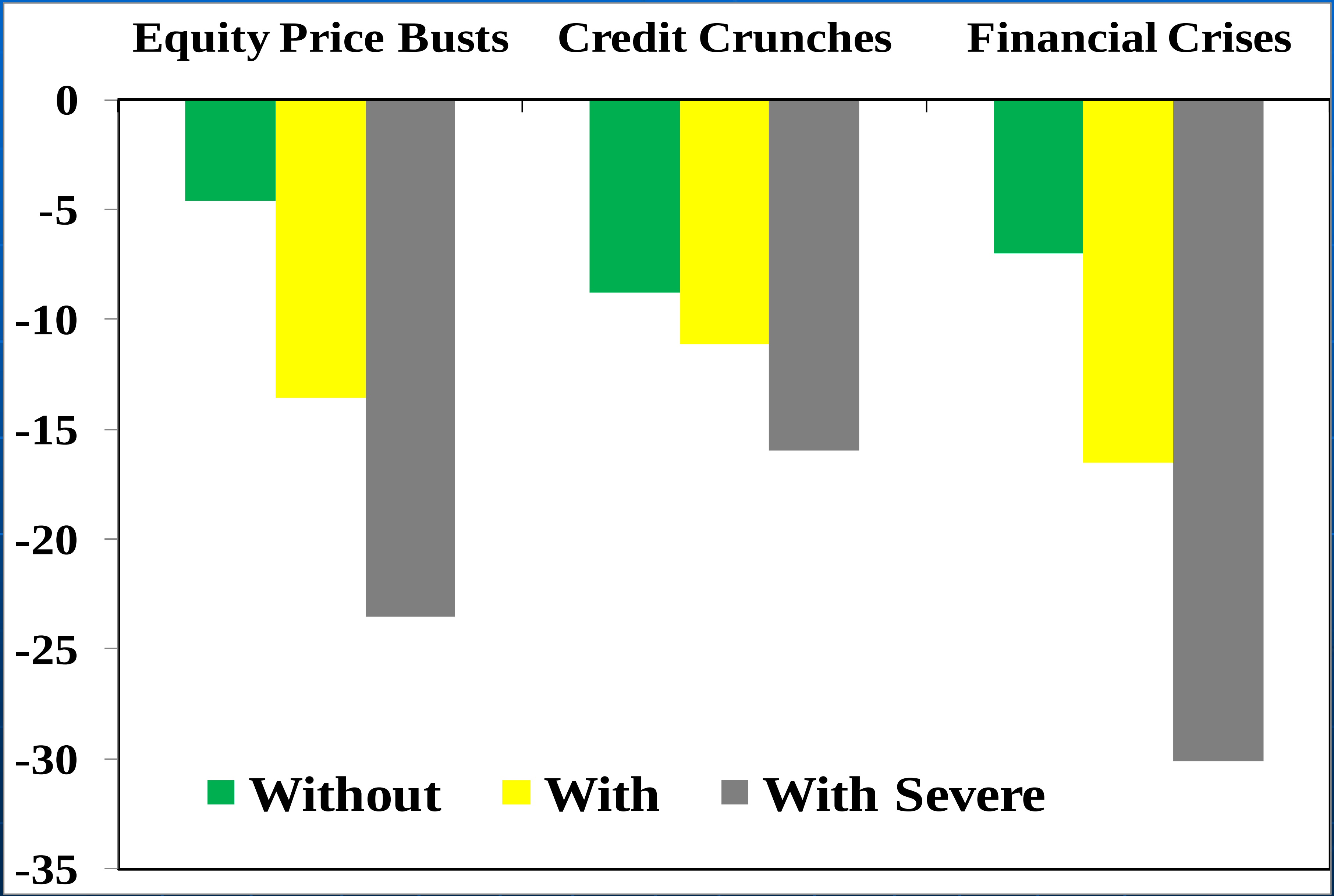
Recessions w/ Disruptions: Greater Declines

(GDP percent change from Peak to Trough)



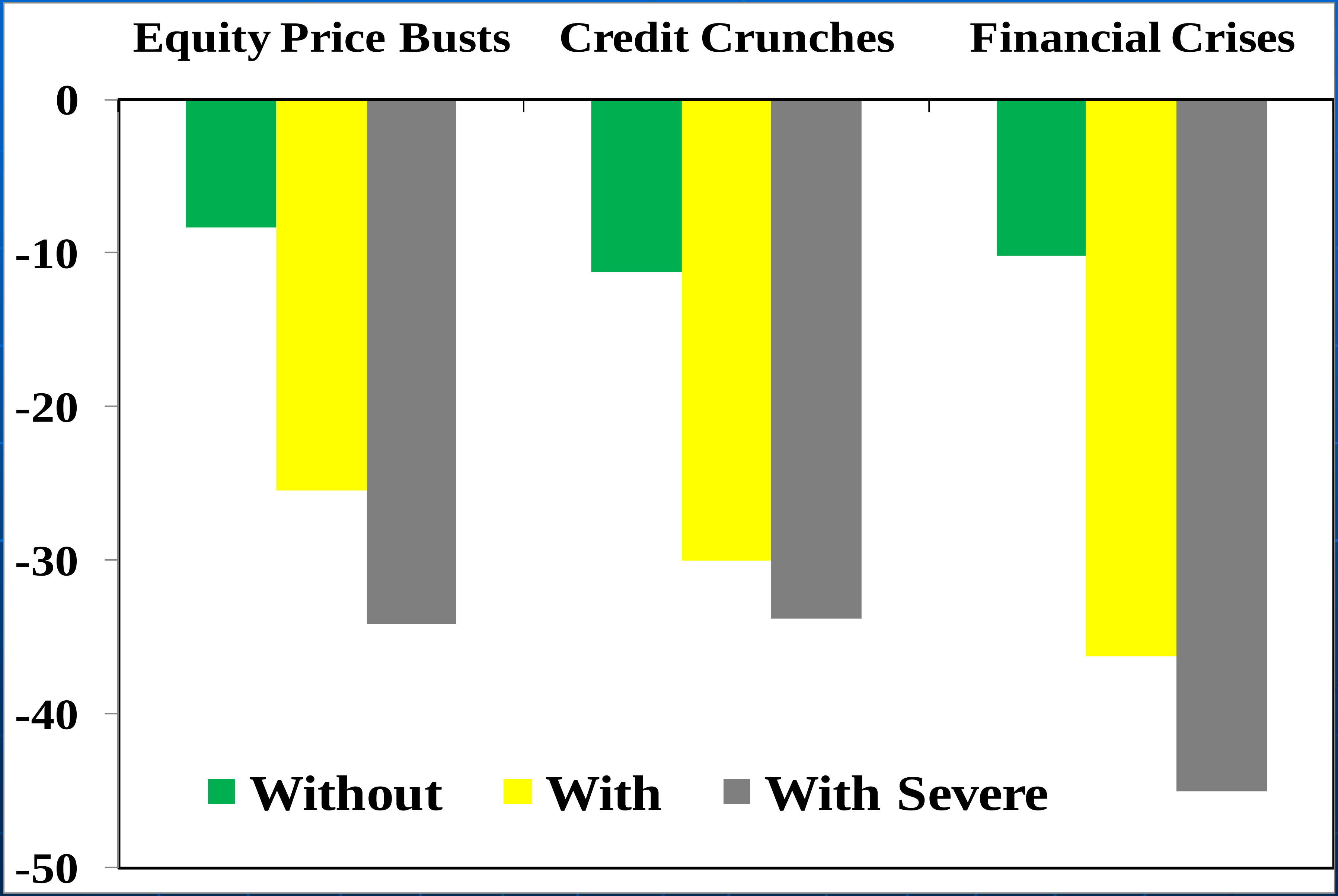
Recessions w/ Disruptions: Larger Losses

(Cumulative GDP loss, percent, from Peak to Trough)



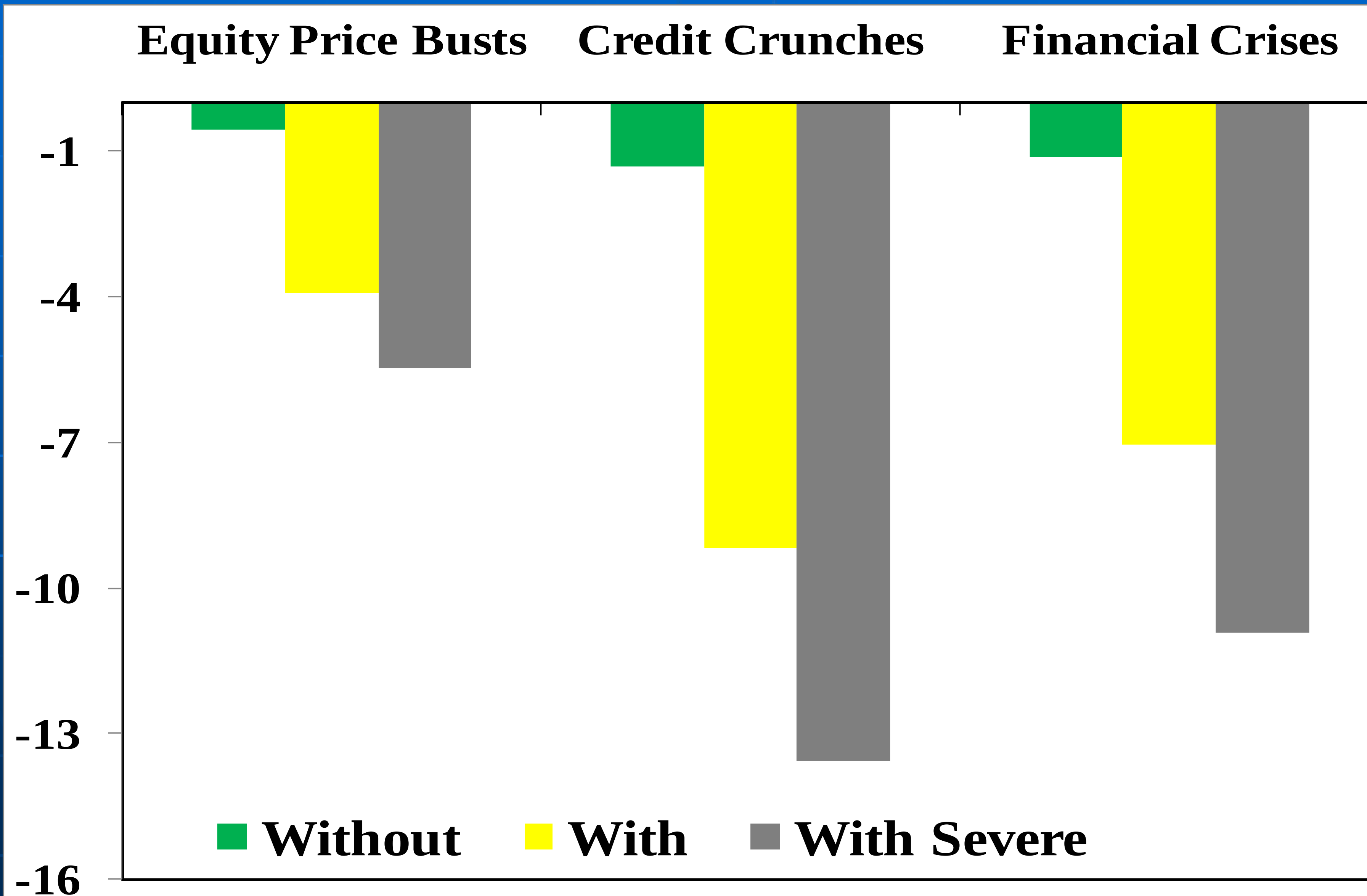
Recs w/ Disruptions: Investment Falls More

(percent change from Peak to Trough)



Recs w/ Disruptions: Consumption Falls More

(percent change from Peak to Trough)



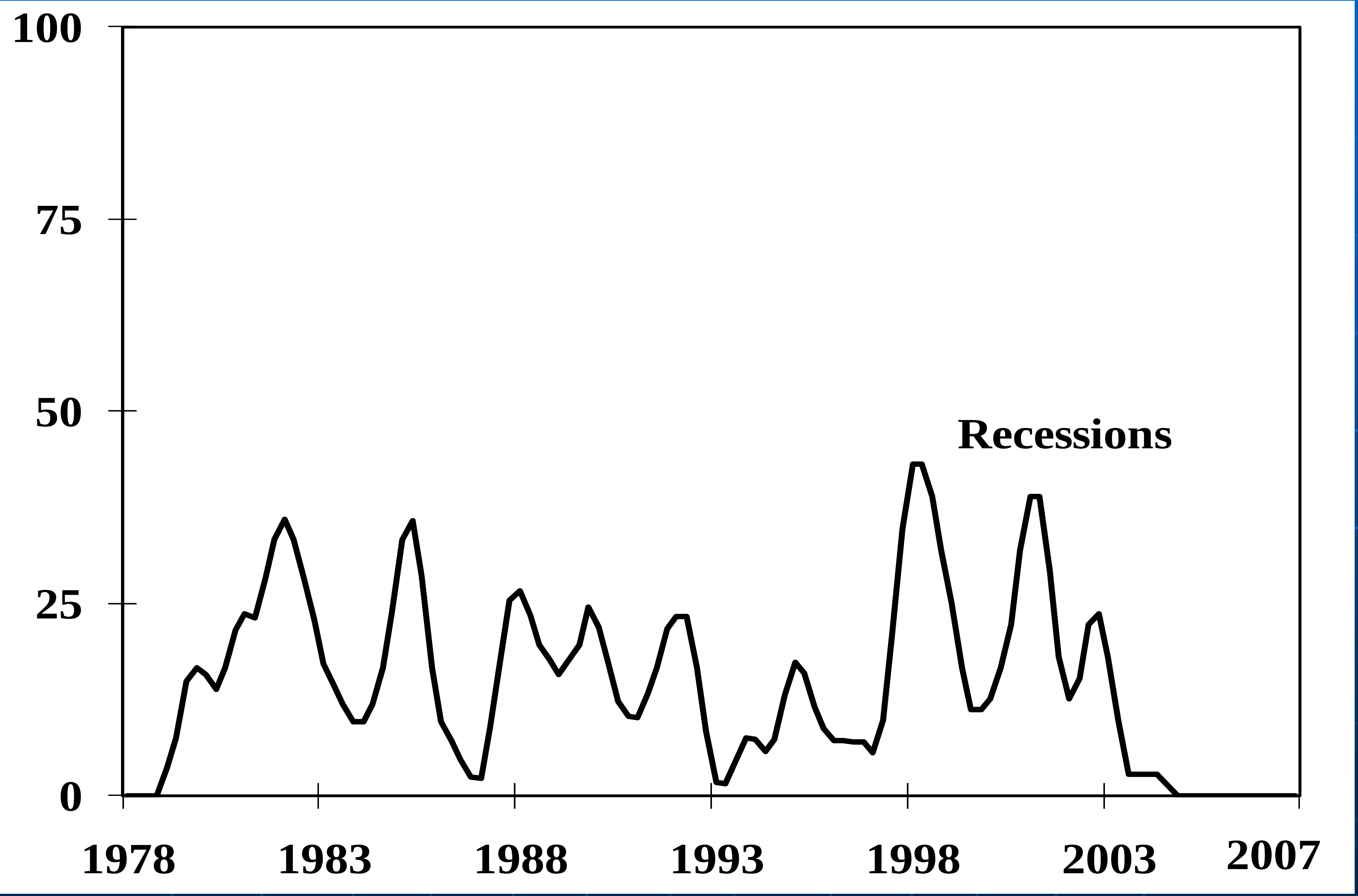
3. Synchronization of Recessions and Disruptions

- Recessions often coincide across emerging markets
- Synchronized recessions are longer and deeper

  (35 percent of emerging economies in recession)
- And episodes of financial market disruptions tend to overlap with recessions
  - Credit contractions: most often coincide
  - Equity price declines: more independent

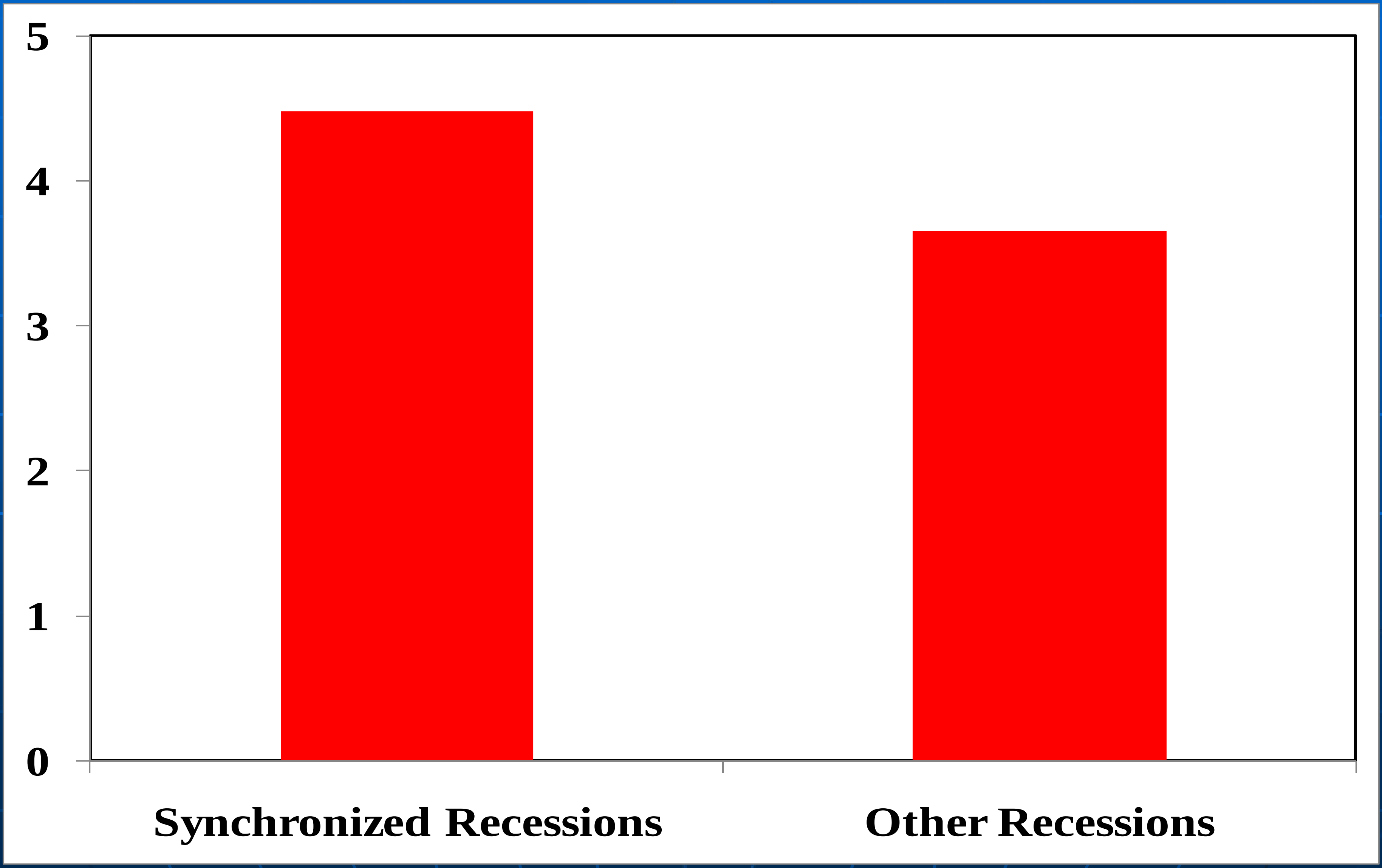
Recessions Come in Bunches

(fraction of countries in recession)



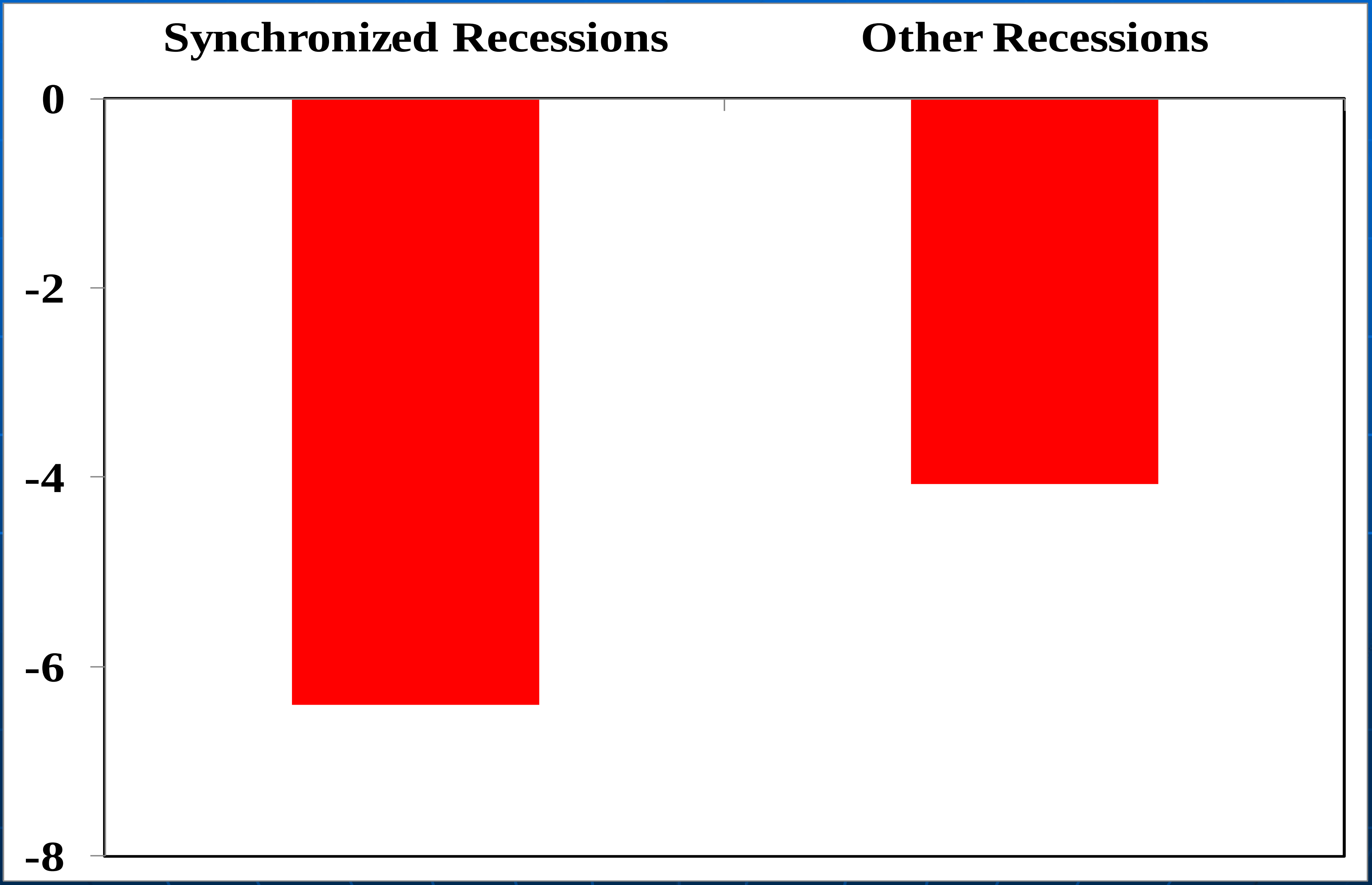
Synchronized Recessions Last Longer

(# of quarters from Peak to Trough)



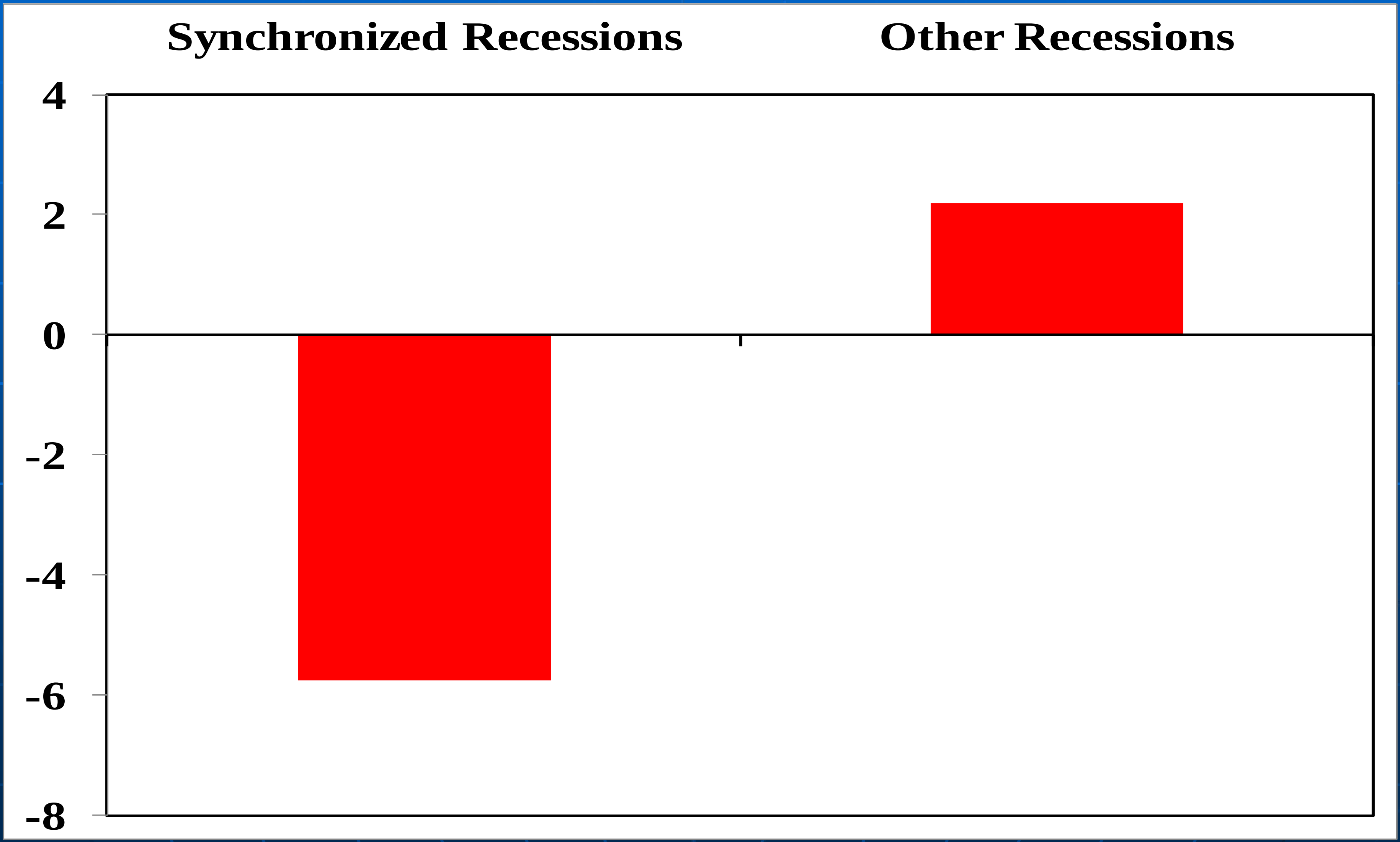
Synchronized Recessions Are Deeper

(Cumulative GDP loss, percent, from Peak to Trough)



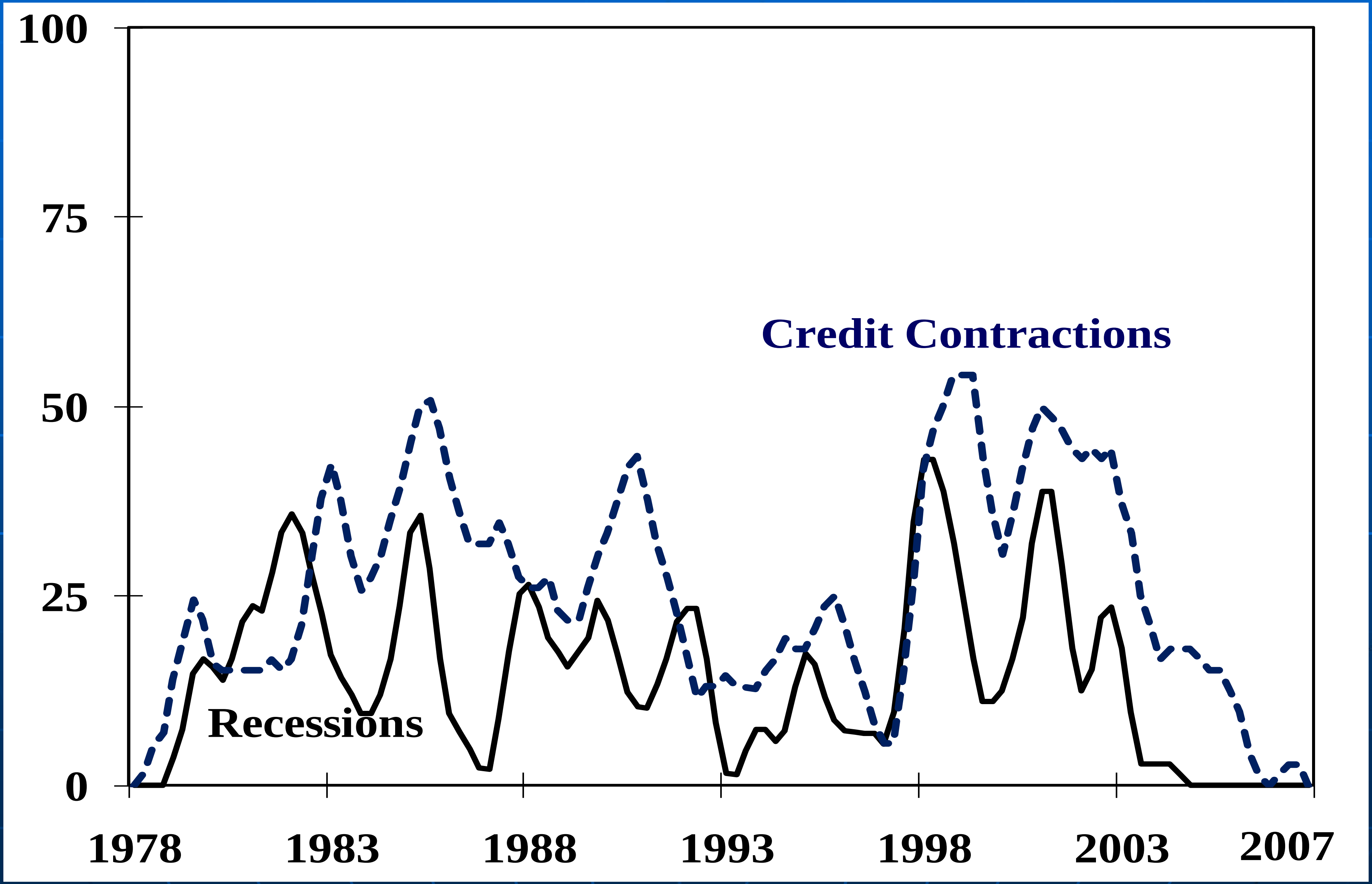
Exports Suffer During Synch Recessions

(Cumulative GDP loss, percent, from Peak to Trough)



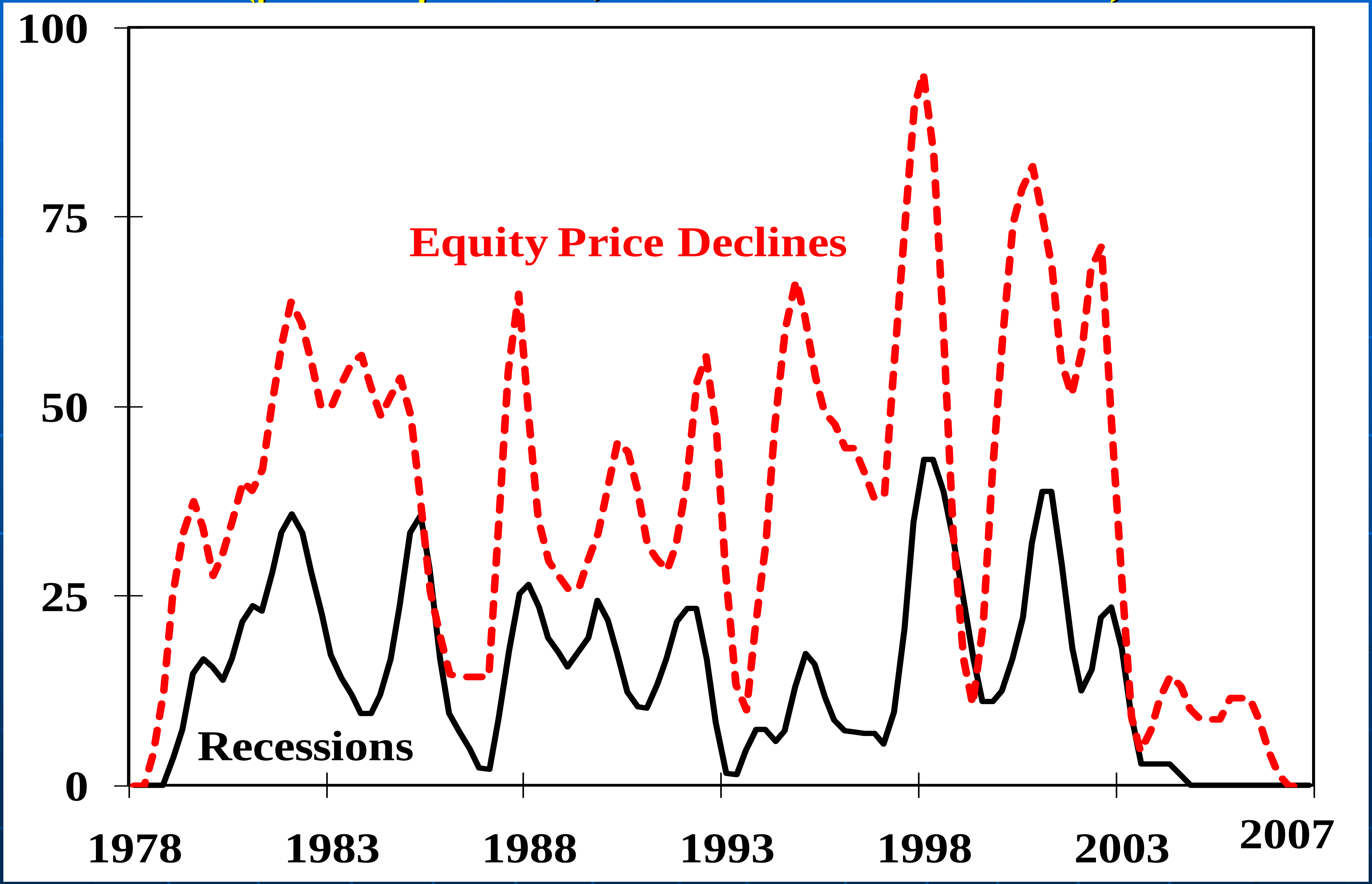
Recessions and Credit Contractions Overlap

(fraction of countries, shaded bars are US recessions)



Recessions and Equity Declines Coincide Too

(fraction of countries, shaded bars are US recessions)



4. Cost of Recessions & Financial Factors

- Analysis of the empirical links between cost of recessions and changes in financial market conditions

- Regress declines in output during recessions on changes in financial variables during recessions

- Also include/control for
  - Changes in domestic and global economic conditions
  - Changes in oil prices; Changes in economic policies;
  - Great Moderation; Financial crises; Duration of recessions

- **Main Result:** declines in credit are significantly positively correlated with the costs of recessions; financial crises, initial conditions and duration of recessions also matter

Correlates of Cost of Recessions: Summary

- Changes in credit: significant (+)
- Financial crises: significantly (+)
- Initial conditions: some evidence but not robust
- Duration: significant (+)
- External factors (exports and oil price): some evidence but not robust
- Policy variables (fiscal & monetary): not significant
- Robust to other controls, fixed effects, and outliers etc.

Correlates of Cost of Recessions: FE Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
Initial Output	***0.224****	***0.148***	***0.234*****	***0.160***	***0.236*****	***0.162***
	[0.124]	***[0.117]***	***[0.109]***	***[0.103]***	***[0.109]***	***[0.104]***
Openness	-5.003	-3.493	-3.892	-2.520	-3.740	-2.466
	[3.546]	[3.659]	[3.282]	[3.351]	[3.422]	[3.385]
Crisis Dummy	***4.116******	***4.052******	***3.144*****	***3.204*****	***3.251*****	***3.262*****
	[1.456]	***[1.375]***	***[1.498]***	***[1.447]***	***[1.502]***	***[1.454]***
Terms of Trade	0.066	0.033	…	…	0.061	0.032
	[0.082]	[0.071]	…	…	[0.081]	[0.071]
Real Exchange Rate	…	…	0.045*	0.039	0.044*	0.038
	…	…	[0.025]	[0.024]	[0.025]	[0.024]
Credit	***0.106****	***0.095****	***0.109*****	***0.099*****	***0.112*****	***0.101*****
	[0.056]	***[0.049]***	***[0.053]***	***[0.047]***	***[0.055]***	***[0.049]***
Duration of Recession [1]	***…***	***1.279******	***…***	***1.227******	***…***	***1.218******
	…	***[0.406]***	***…***	***[0.376]***	***…***	***[0.383]***
Constant	21.116	11.861	16.384	7.934	15.942	7.812
	[13.543]	[14.810]	[12.594]	[13.508]	[13.026]	[13.565]
Adjusted R-squared	0.214	0.351	0.272	0.400	0.259	0.386
Number of observations	74	74	75	75	73	73

Results

- How long do recessions and financial disruptions last, and how severe are they in emerging markets? And are they different from those in advanced countries?

  Financial disruptions in emerging markets last a long time, much longer than recessions, and can be deep. And much deeper than those in advanced countries

- How does the coincidence between recessions and financial disruptions affect economic outcomes?

  Recessions associated with disruptions tend to be deeper

Results

- Are recessions and financial disruptions synchronized ?

Yes. They often come in bunches. Synchronized recessions are longer and deeper

- What are the determinants of the costs of recessions in emerging markets?

- **Changes in credit, coincidence with financial crises, initial conditions and duration of the events**

What about Chile?

- 3 recessions since 1980

  1981:3-1982:4; 1990:1-1990:3; 1998:2-1999:1

- 1981 a severe recession, the other two were typical emerging market recessions

- Chile more stable: 10 percent of the time in recession; relative to 20 percent in typical emerging market

Some Caveats

- No causal inferences made or intended as to how financial variables affect macroeconomic outcomes or vice-versa
- Difficult to identify and measure the initial conditions and policy responses that affect the paths economy and financial markets follow (by focusing on only recessions)
- Also external conditions, demand and supply shocks matter

Ongoing and Future Research

- Putting together ***"A Global Database of Business and Financial Cycles"*** … ongoing

- Studying commonality and differences in business and financial cycles (recessions and recoveries; and credit/asset price booms and busts)… ongoing

- Collecting quarterly capital flows series, analyzing external financing role in recessions and disruptions… ongoing

- Identifying causes/shocks driving business and financial cycles... Why are recessions in emerging markets deeper?