

# Sowing the Seeds of Financial Imbalances: The Role of Macroeconomic Performance

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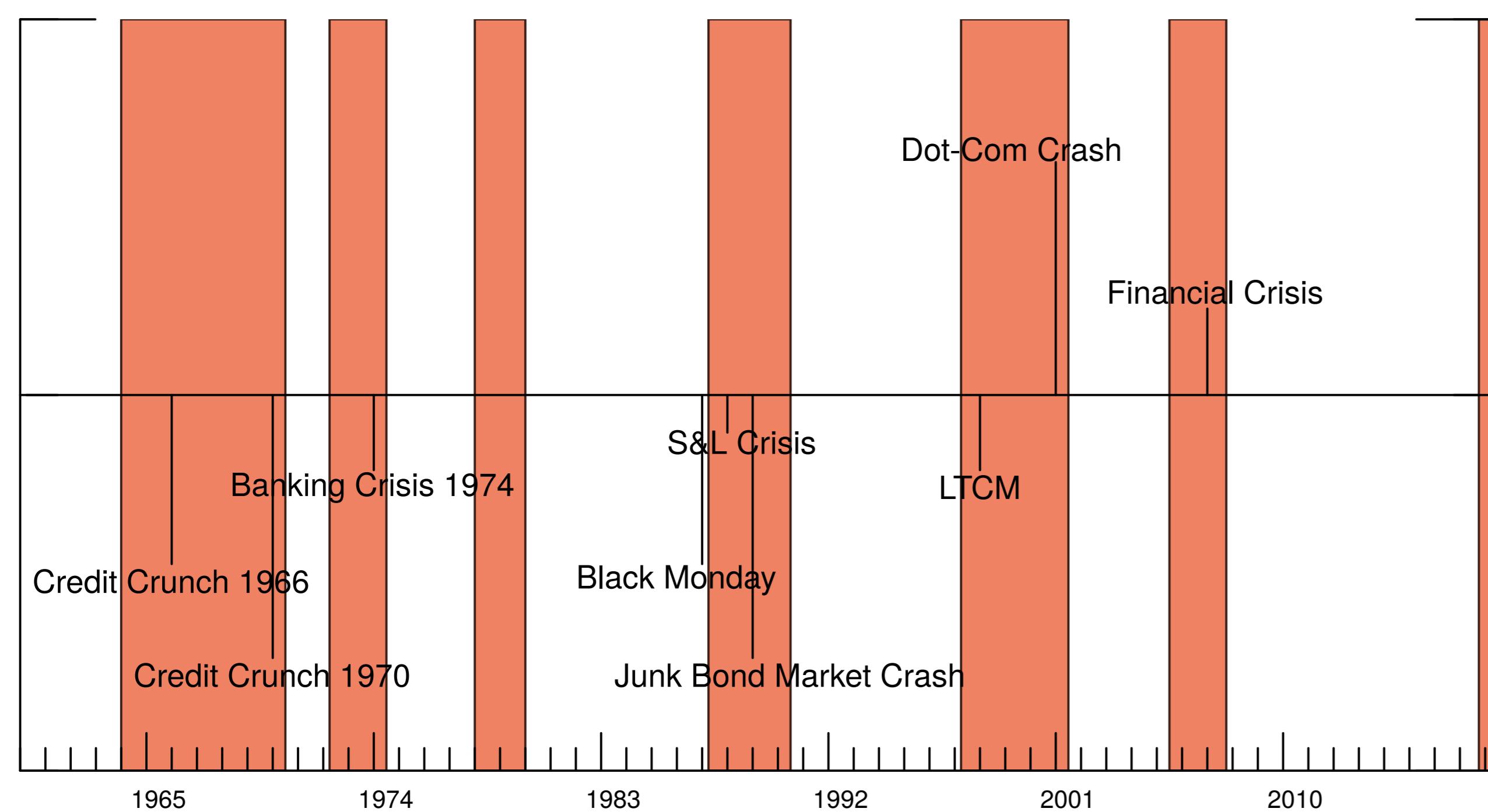
Federal Reserve Board

## Are Seeds of Financial Imbalances Sown in Good Times?

Yellen (2017): "...I think that allowing the economy to run markedly and persistently "hot" would be risky and unwise... The combination of persistently low interest rates and strong labor market conditions could lead to undesirable increases in leverage and other financial imbalances, although such risks would likely take time to emerge"

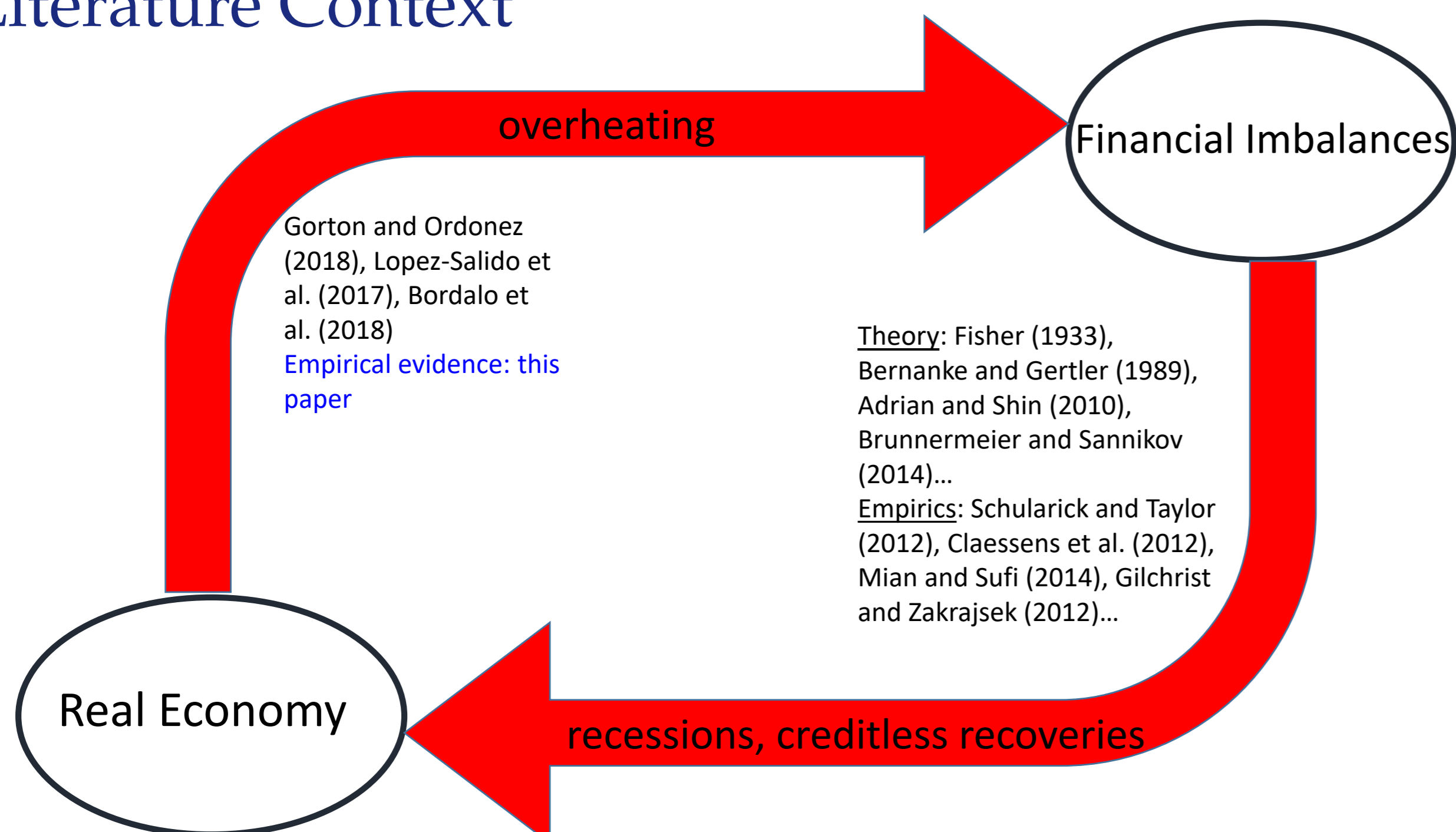
### Financial Disturbances and the Overheated Economy

**Buoyant macroeconomic conditions** are a common denominator to the financial disturbances in the U.S.



Note: Shaded area when either the unemployment rate was below its U.S. Congressional Budget Office (CBO) estimate of natural rate or in which the output was above its CBO estimate of potential.

## Literature Context

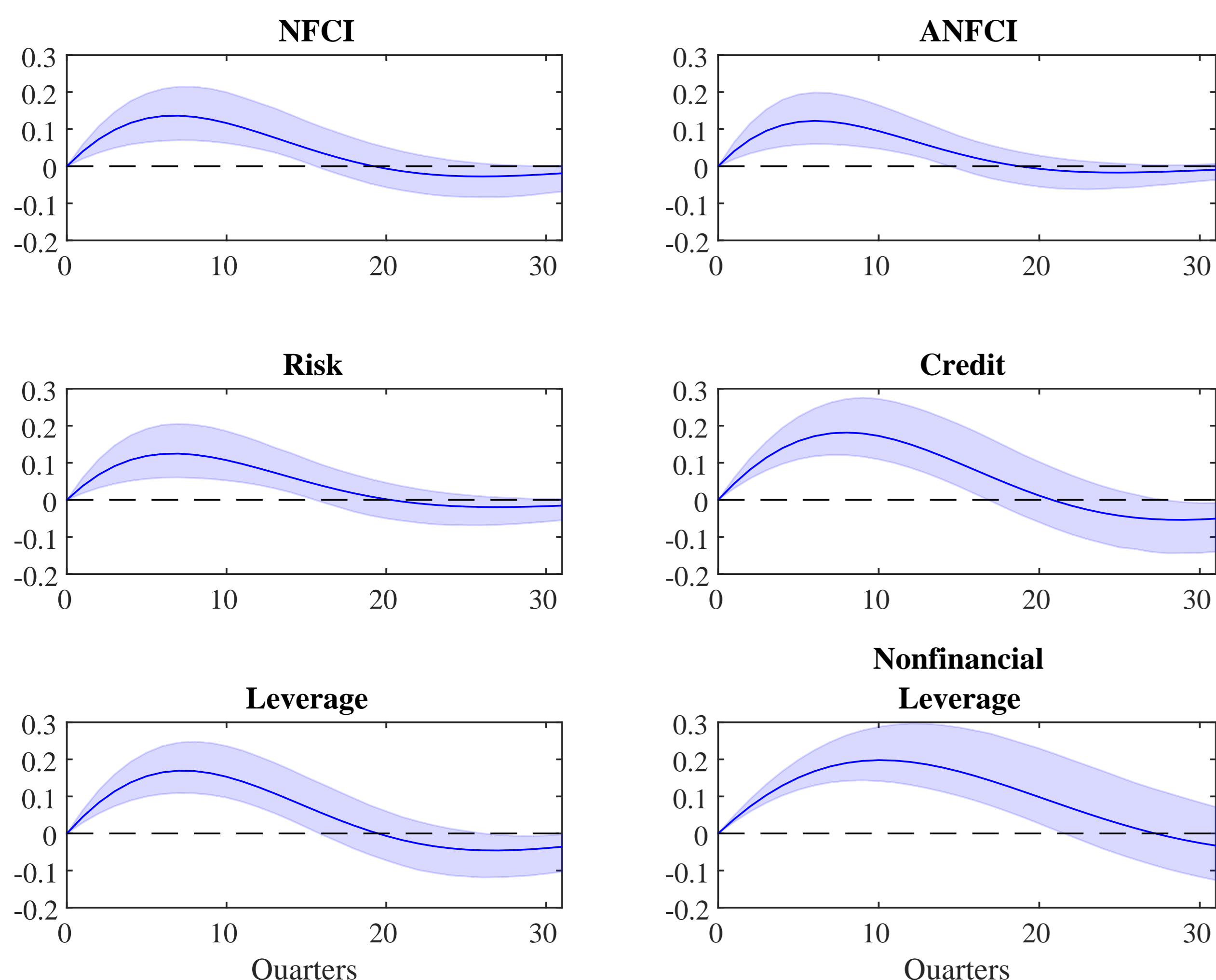


## What we do: Question, Approach, Findings

- Study the relationship between macroeconomic performance (economic growth, slack) and financial vulnerability.
- Focus on the U.S. experience since the 1960s.
- Broad definition of vulnerability: collection of factors that contribute to the potential for widespread financial externalities. Operationalize with NFCI and its subcomponents.
- Combine quantitative analysis and the narrative approach.
- Main finding: there is a strong relationship between macroeconomic overheating and the nonfinancial leverage component of financial vulnerability.

## In-Sample Linkages: GIRFs

- Increase in economic slack leads to future increase in financial imbalances.



Generalized Impulse Response Functions a la Pesaran and Shin (1998). Time is in quarters.

## Out-of-Sample Linkages

- Based on the bivariate VARs with financial vulnerability indexes and one-sided gaps.
- Models estimated recursively starting in 1973Q1.
- Evaluation sample from 1980Q1 to 2017Q4.
- Accuracy: ratio of the RMSFEs produced by the VAR and the AR processes for the financial vulnerability index. If below one business cycle predicts financial cycle.
- Diebold-Mariano test for equal accuracy.

horizon	NFCI			ANFCI		
	y-o-y growth	output gap	unempl. gap	y-o-y growth	output gap	unempl. gap
1	1.24	1.24	1.24	1.16	1.17	1.30
	0.15	0.14	0.14	0.26	0.25	0.06
4	1.06	1.06	1.06	1.05	1.05	1.14
	0.45	0.34	0.34	0.28	0.17	0.51
8	1.13	1.14	1.14	1.07	1.07	1.43
	0.42	0.37	0.37	0.43	0.38	0.21
Risk			Credit			
1	1.26	1.26	1.38	1.00	1.00	0.90
	0.13	0.13	0.07	0.99	0.99	0.71
4	1.07	1.07	1.10	1.39	1.41	1.95
	0.10	0.08	0.65	0.21	0.18	0.22
8	1.07	1.07	1.40	1.26	1.27	1.25
	0.57	0.56	0.25	0.10	0.10	0.17
Leverage			Non Fin. Lev.			
1	1.06	1.06	1.05	<b>0.65</b>	<b>0.65</b>	<b>0.74</b>
	0.26	0.27	0.30	0.01	0.01	0.05
4	0.94	0.95	1.12	<b>0.74</b>	<b>0.72</b>	<b>0.69</b>
	0.54	0.57	0.26	0.01	0.01	0.01
8	1.04	1.04	1.12	<b>0.84</b>	<b>0.84</b>	<b>0.88</b>
	0.39	0.41	0.11	0.04	0.04	0.02

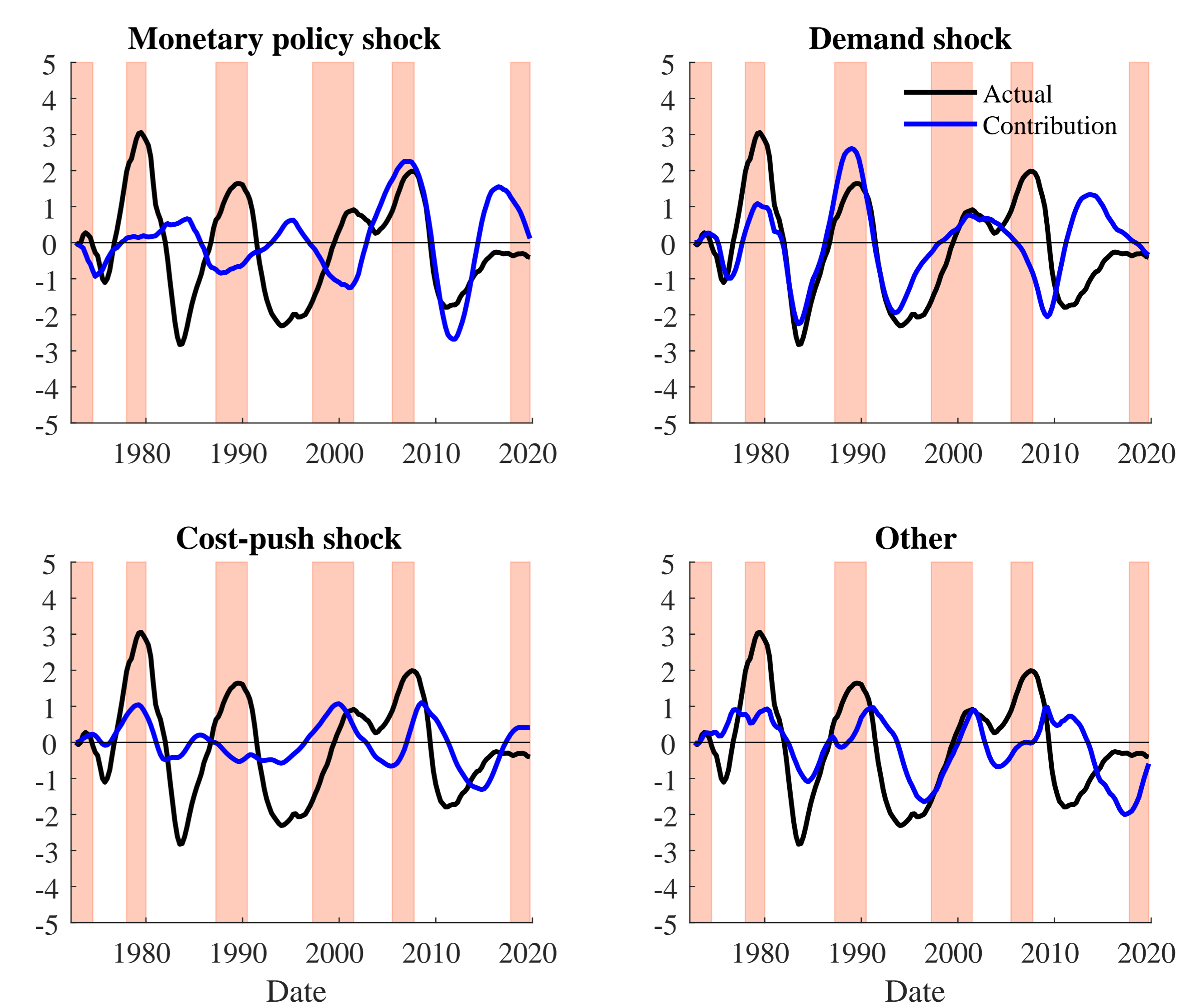
Numbers in bold font pass the Diebold-Mariano test at 5%.

## Structural Analysis

- SVAR with narrative sign restrictions (Antolín-Díaz and Rubio-Ramírez, 2018)
- Traditional sign restrictions:

	Monetary Policy	Demand	Cost-Push
Federal Funds Rate	+	?	?
Log GDP Deflator	-	+	+
Log Commodity Price Index	-	+	+
Log GDP	-	+	-
NFCI Nonfinancial Leverage	?	?	?

## HVD for Nonfinancial Leverage



## Conclusions

- We test the well-known narrative that "seeds of crises are sown in good times".
- Economic growth is followed by a build-up of a variety of financial imbalances.
- In particular, economic growth robustly predicts nonfinancial leverage.
- Business cycle shocks are significant and sizeable drivers of nonfinancial leverage.
- Running the economy too "hot" can indeed be a harbinger of financial imbalances, consistent with Yellen (2017)'s conjecture. This finding supports the countercyclical nature of the capital buffers.

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