Interest rate trends in a global context:
Expanding the evidence base for forecasting

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Significance

Why is it important to understand the determinants of long run interest rates?

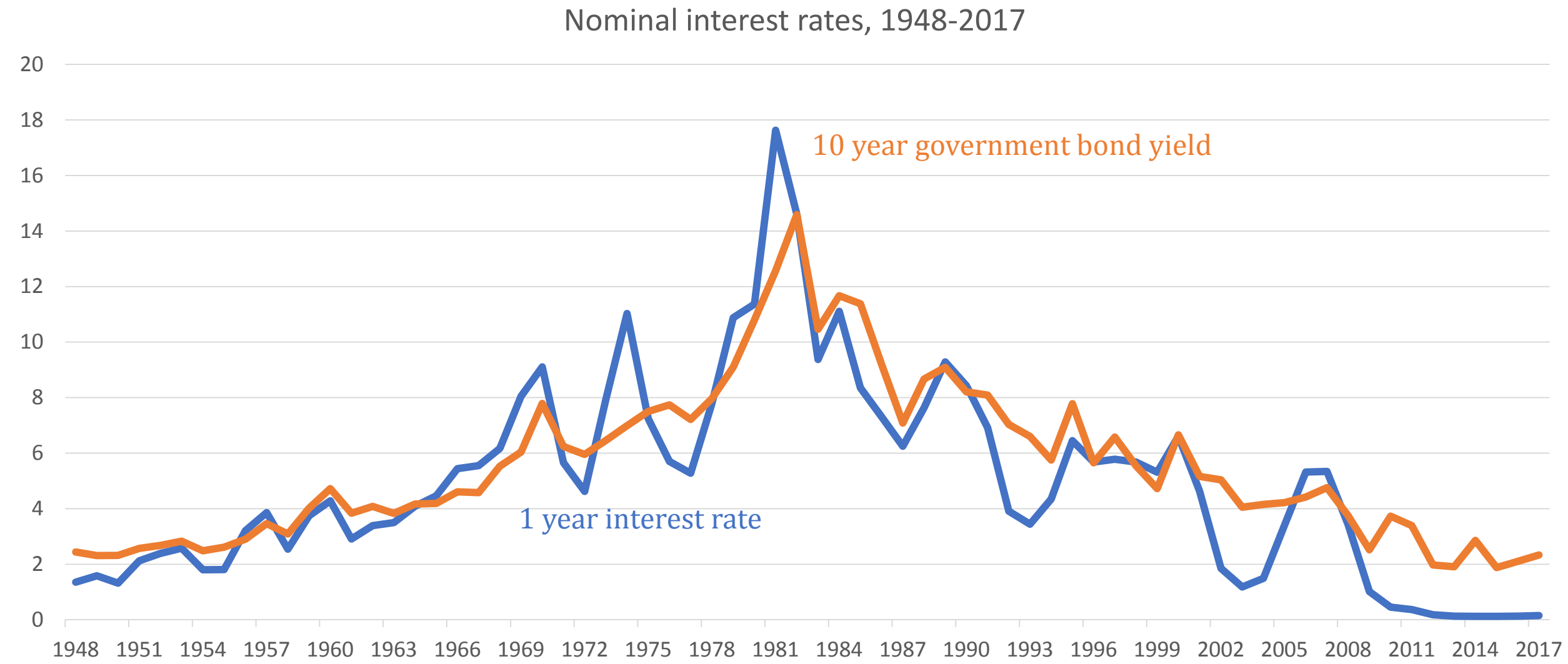
- Discount the benefits stream
- Assess scenarios for the fiscal status of the program
- Project income and outlays of the Trust Funds
- Improve projections of future earnings

Plan of the talk

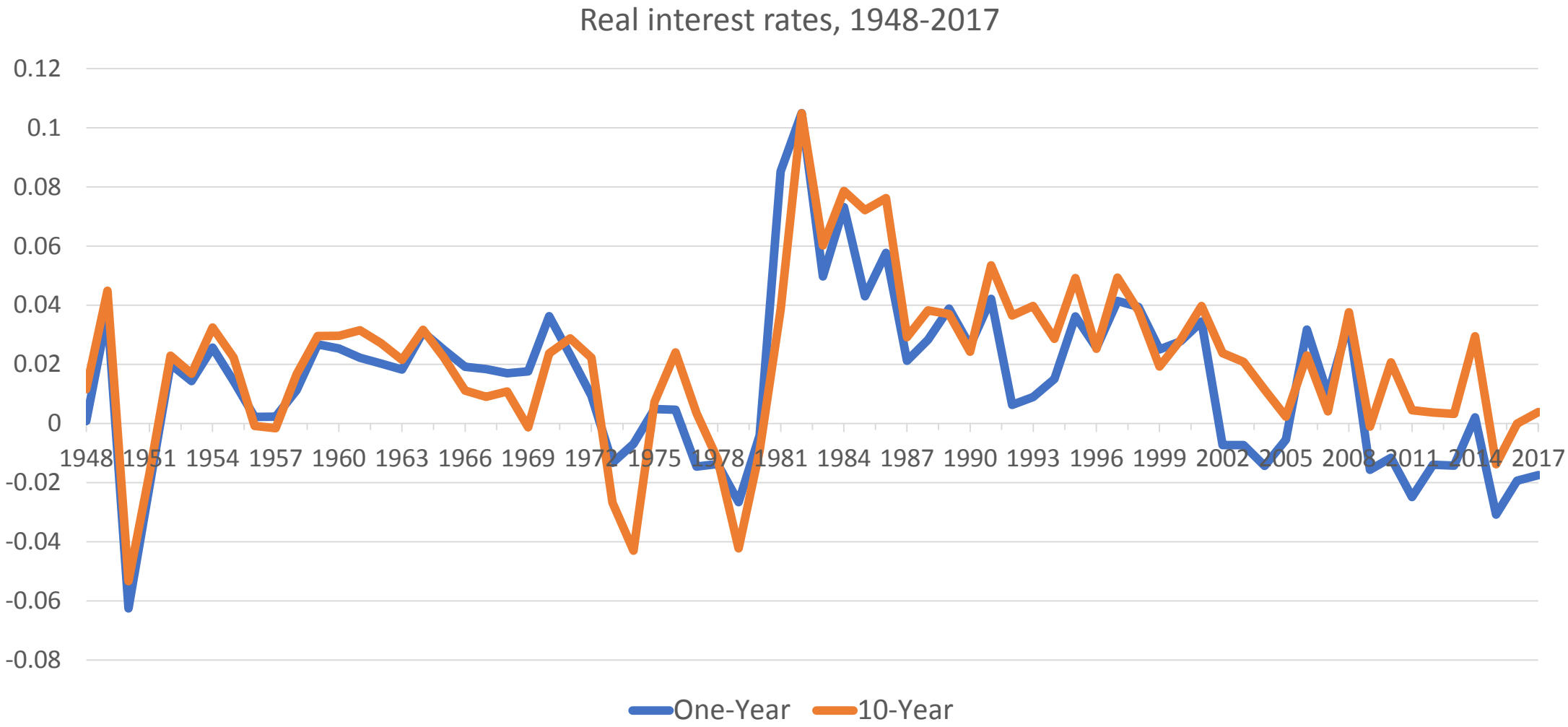
1. Facts about interest rates
2. Recent examples of US interest rate forecasts
3. Our project: data, research design and value added

Facts about interest rates

U.S. nominal interest rates have been on a downward trend since the early 1980s

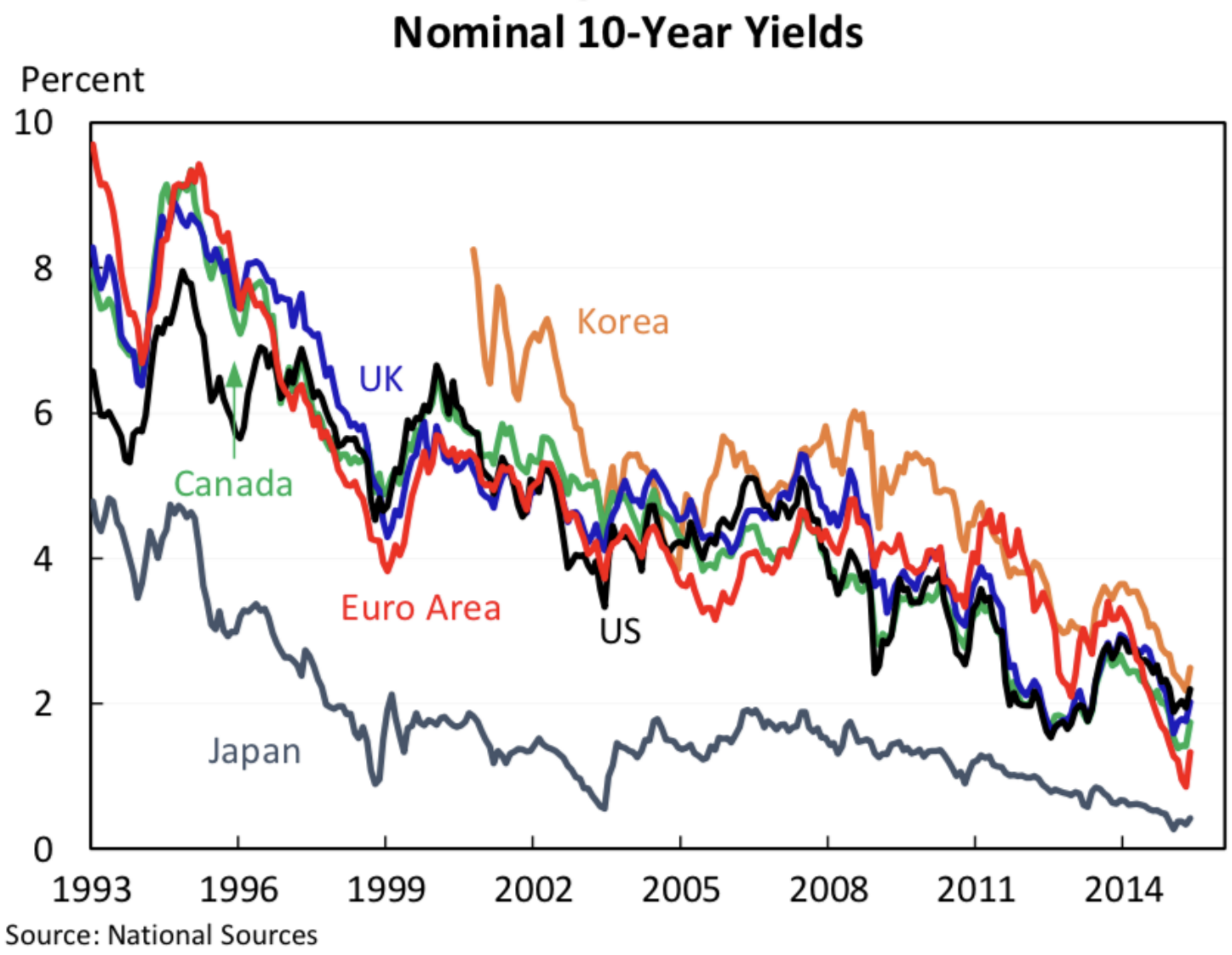


U.S. real interest rates have likewise been on a downward trend since the early 1980s



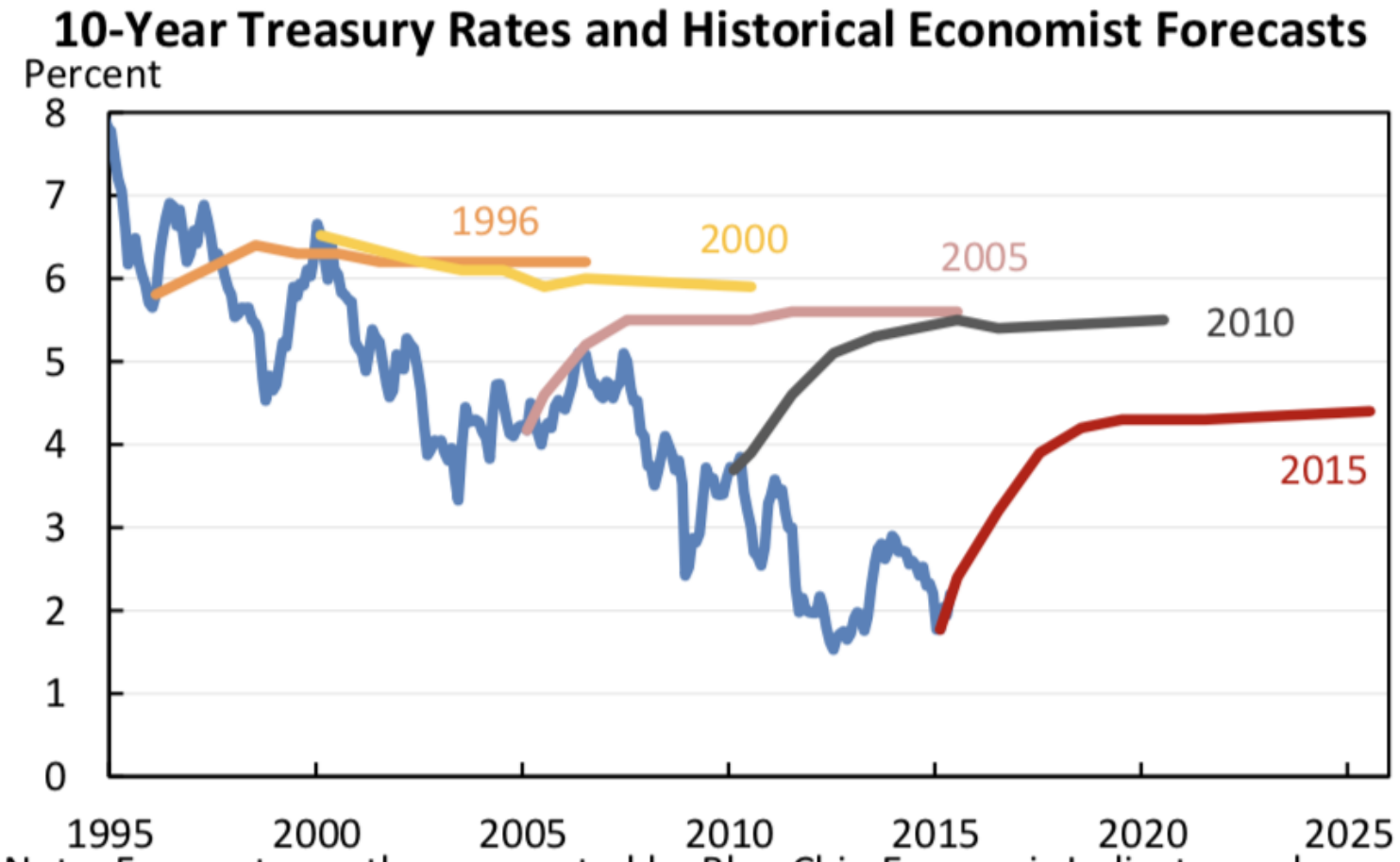
Source: Robert Shiller, *Market Volatility* 1989 and *Irrational Exuberance* 2015.

Nominal interest rates are declining worldwide



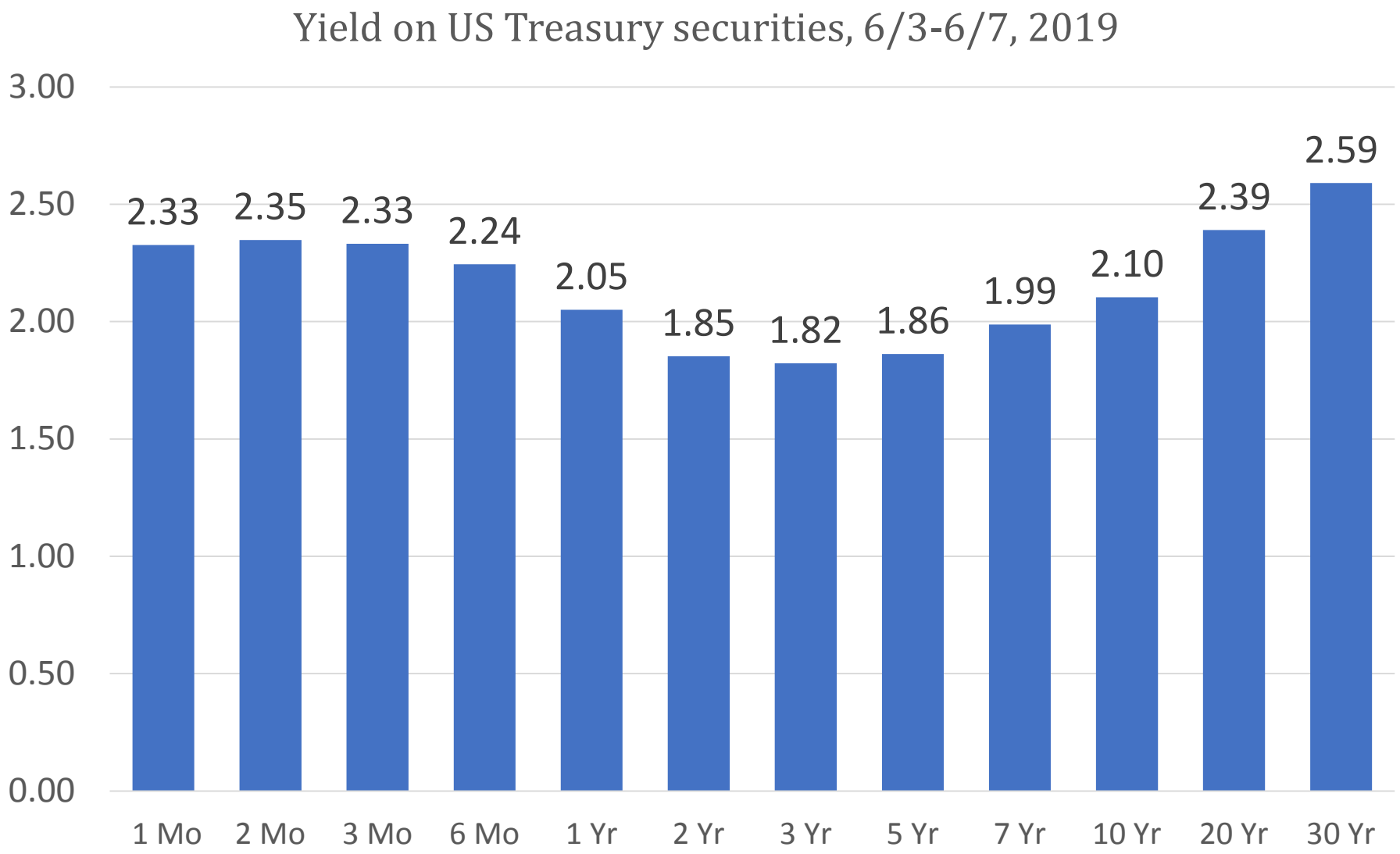
Recent examples of US interest rate forecasts

Forecasting interest rates is difficult

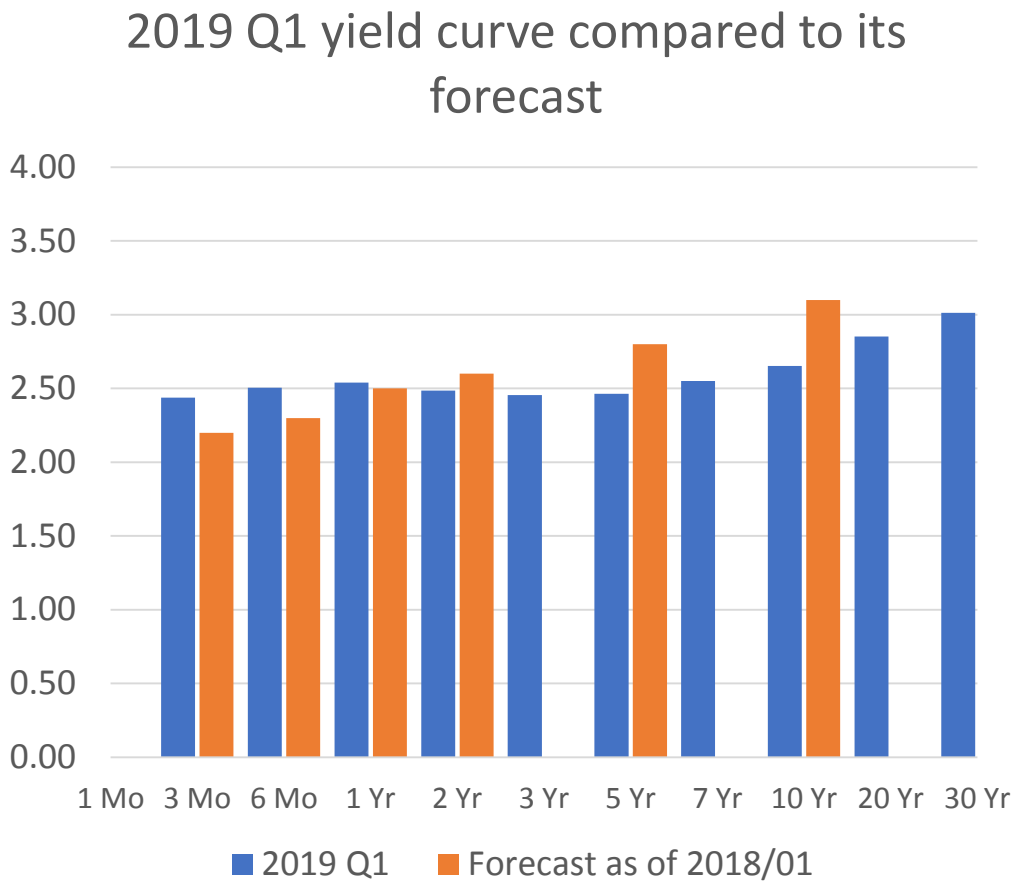


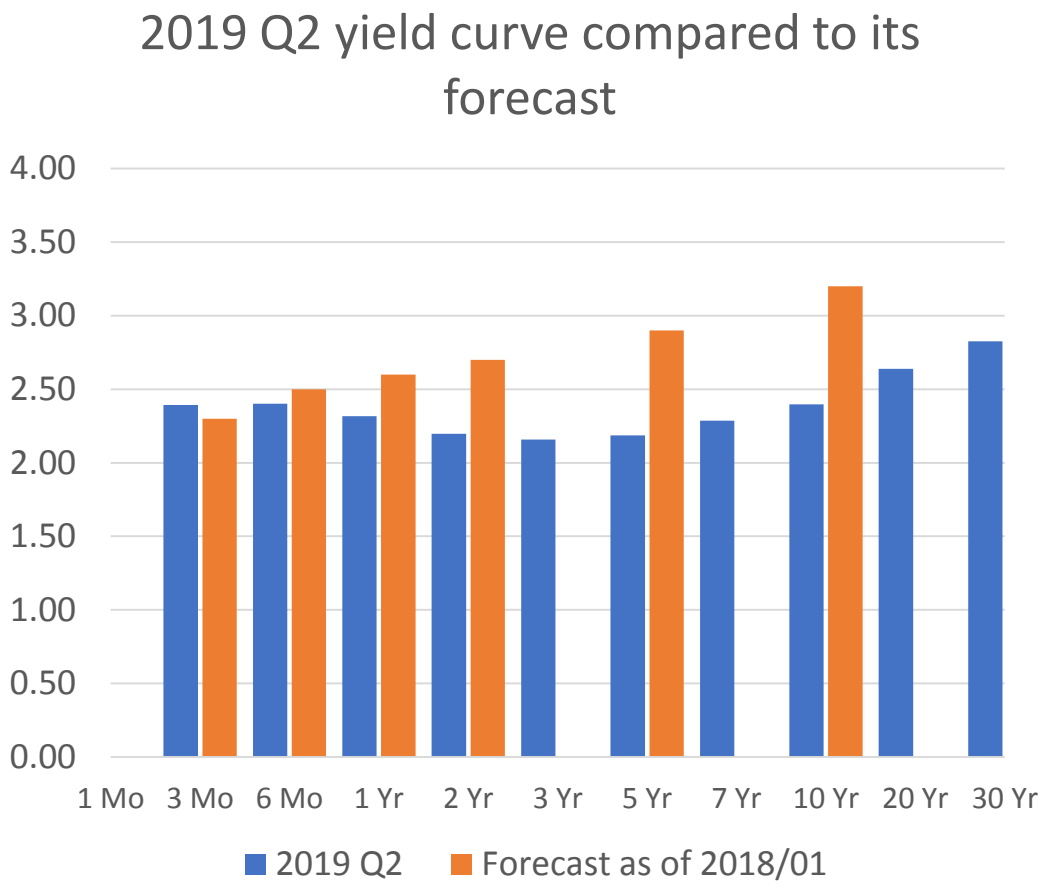
Note: Forecasts are those reported by Blue Chip Economic Indicators released in March of the given calendar year, the median of over 50 private-sector economists. Source: Blue Chip Economic Indicators, Aspen Publishers.

The object of forecasting: the zero-coupon yield curve



Recent Blue chip forecasts





Our project

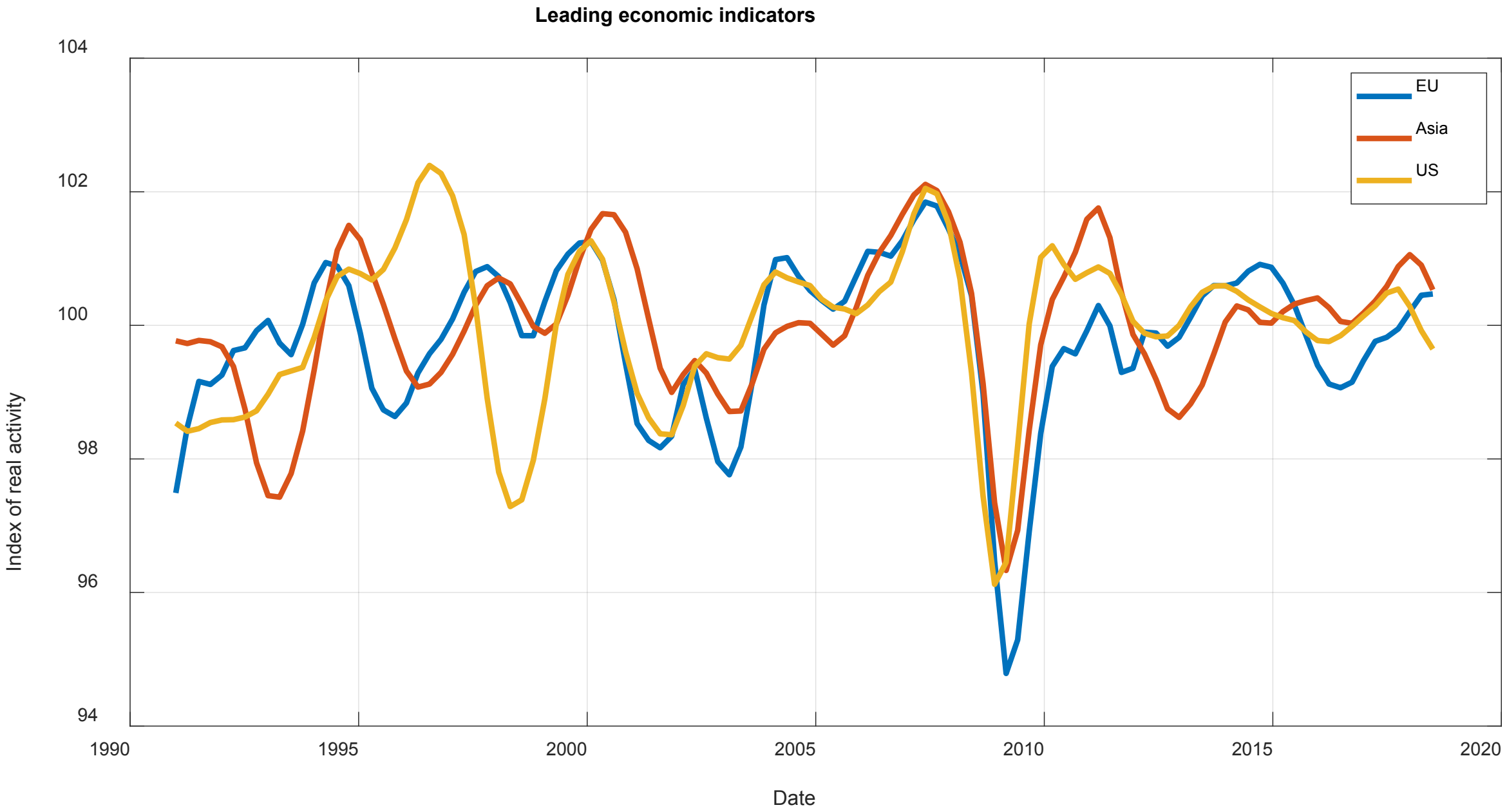
Research question: Can leading indicators of global economic activity improve the US interest rate forecasts?

Examples of leading indicators constructed by OECD:

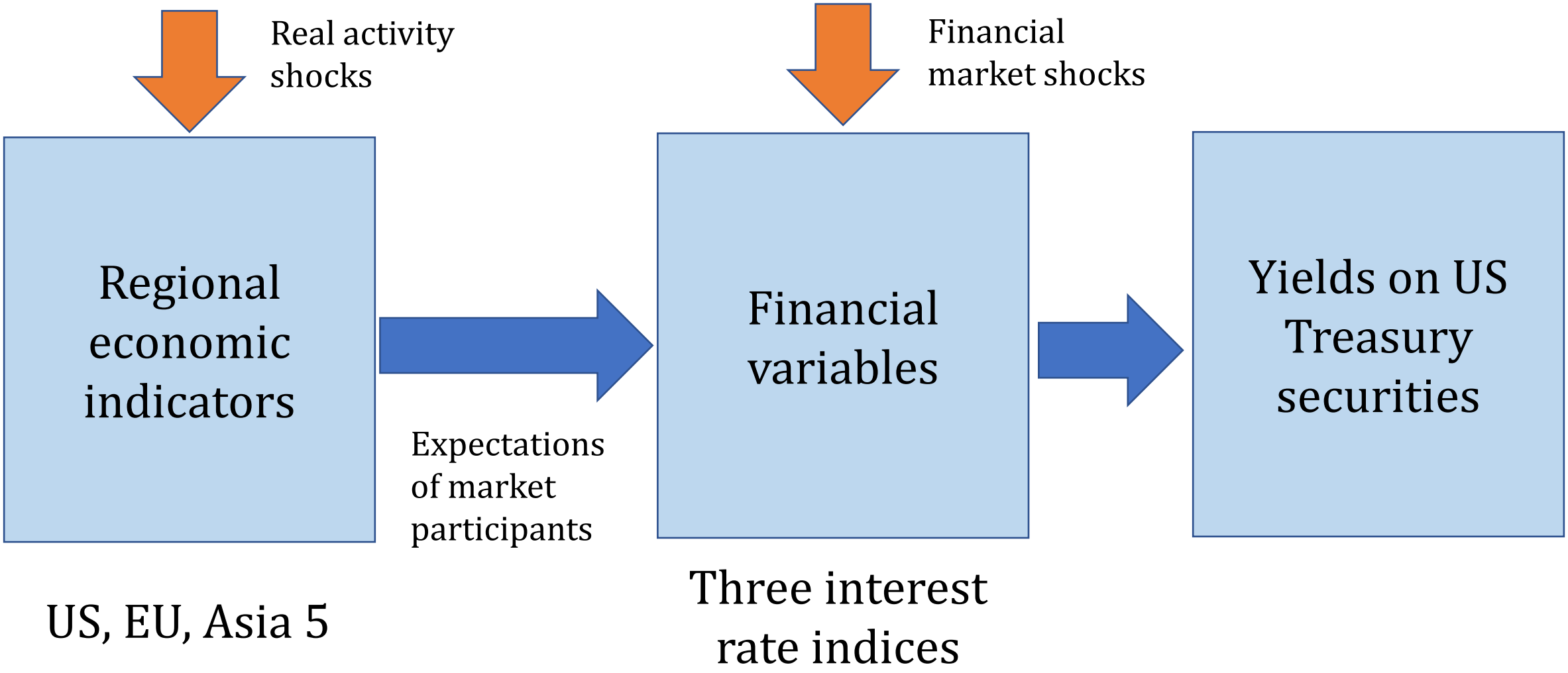
- Economic activity in the US
- Economic activity in the EU
- Economic activity in the major five Asian economies: China, India, Indonesia, Japan and Korea)

Data

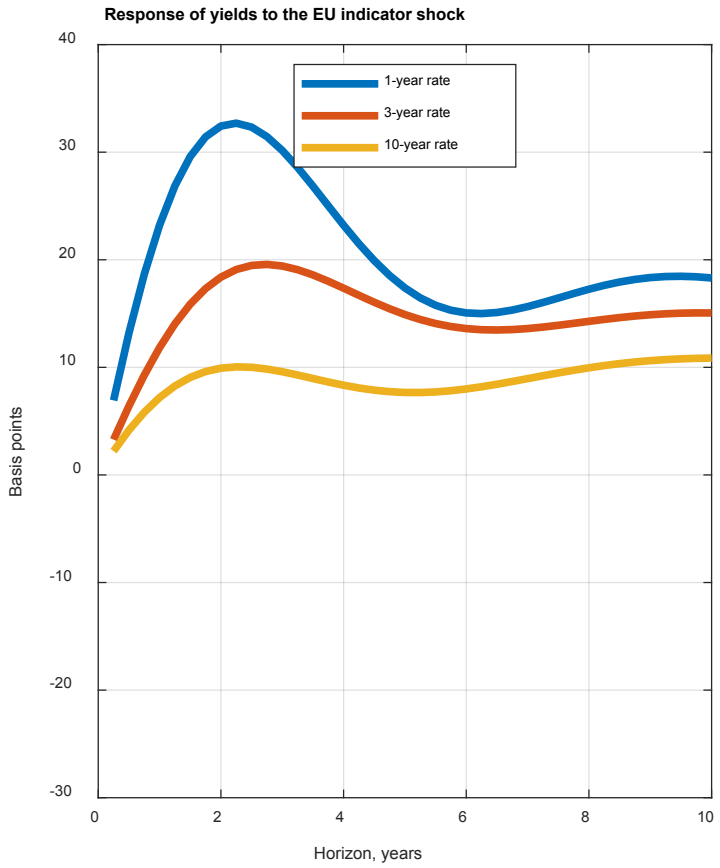
- Sample: quarterly data 1991:Q1-- 2018:Q2
- US yield curves, 3-months to 10 years maturity
- US, EU and Asia 5 leading economic indicators: these are measures of output gap

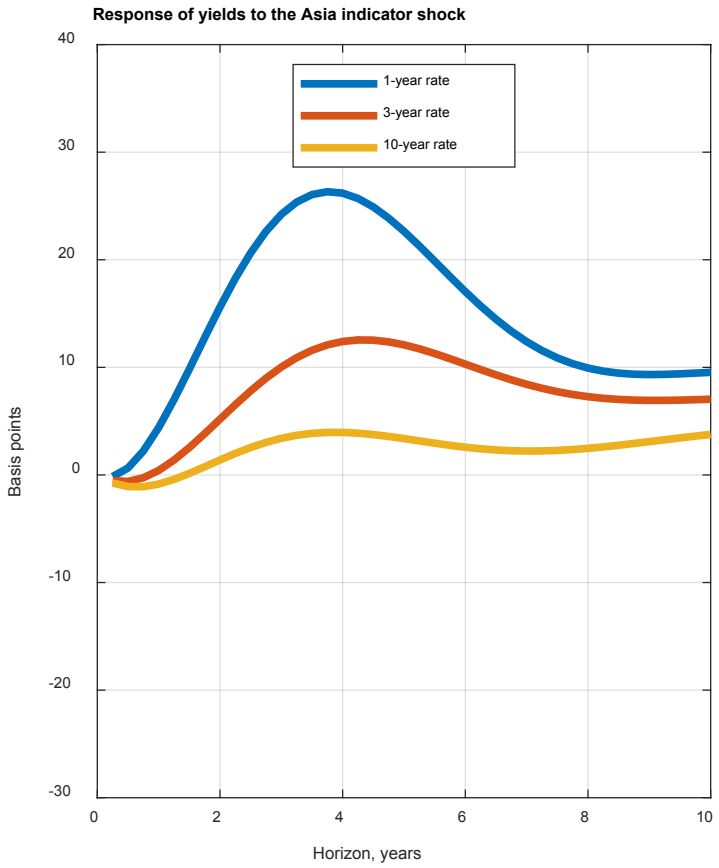

Leading economic indicators
104
102
100
98
96
94
Index of real activity
1990
1995
2000
2005
2010
2015
2020
Date
EU
Asia
US

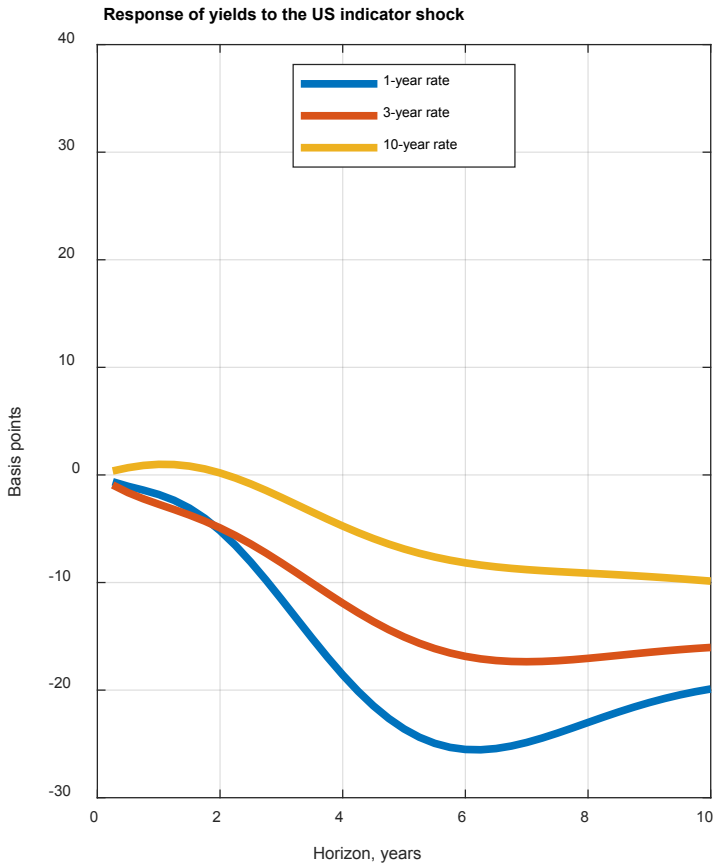
Conceptual framework



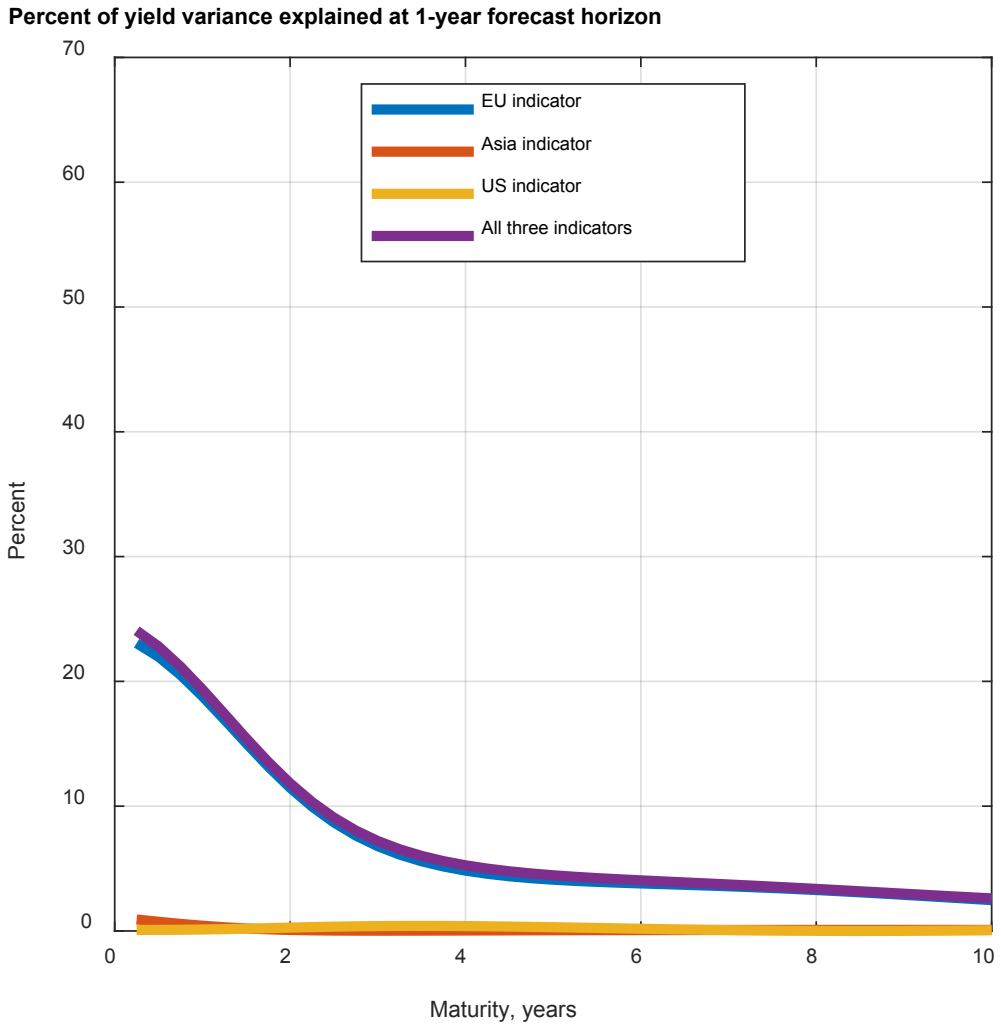
Results: response of yields to economic indicators

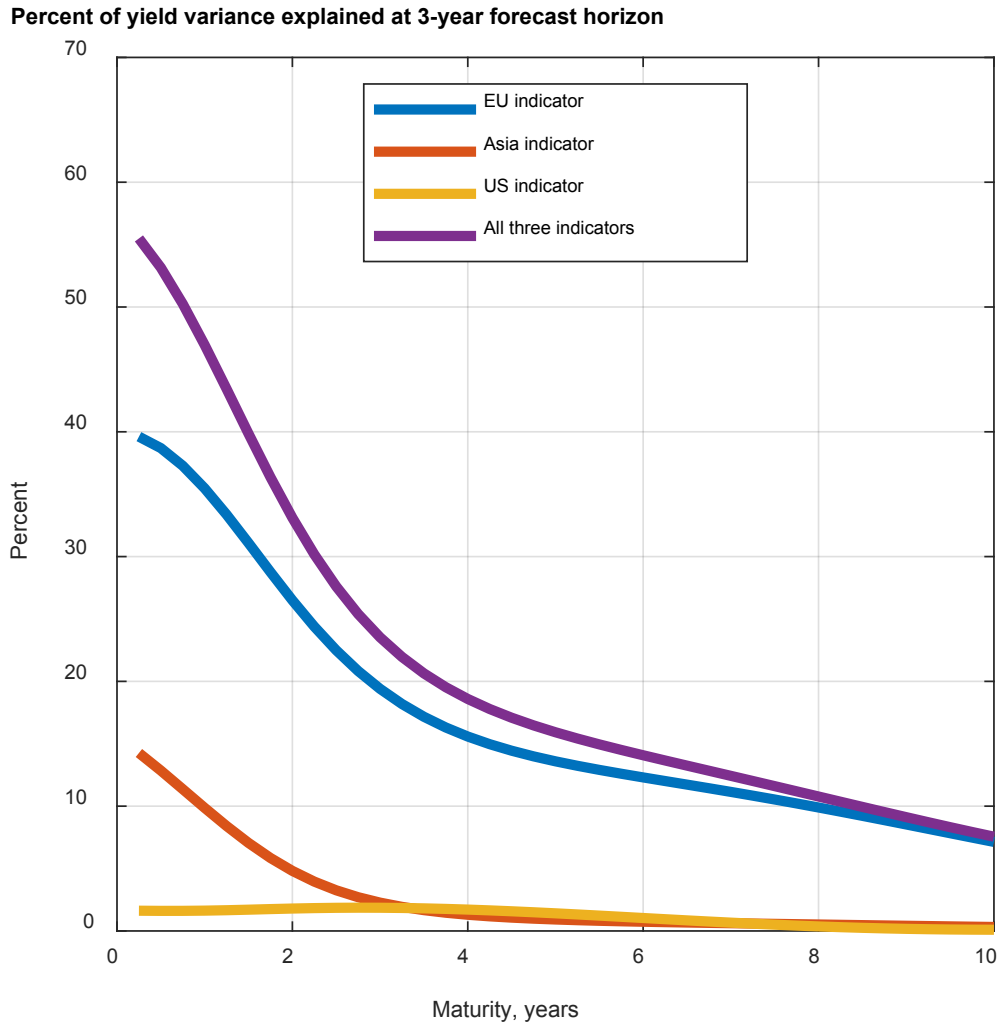






Results: variance in yields attributable to changes in economic indicators





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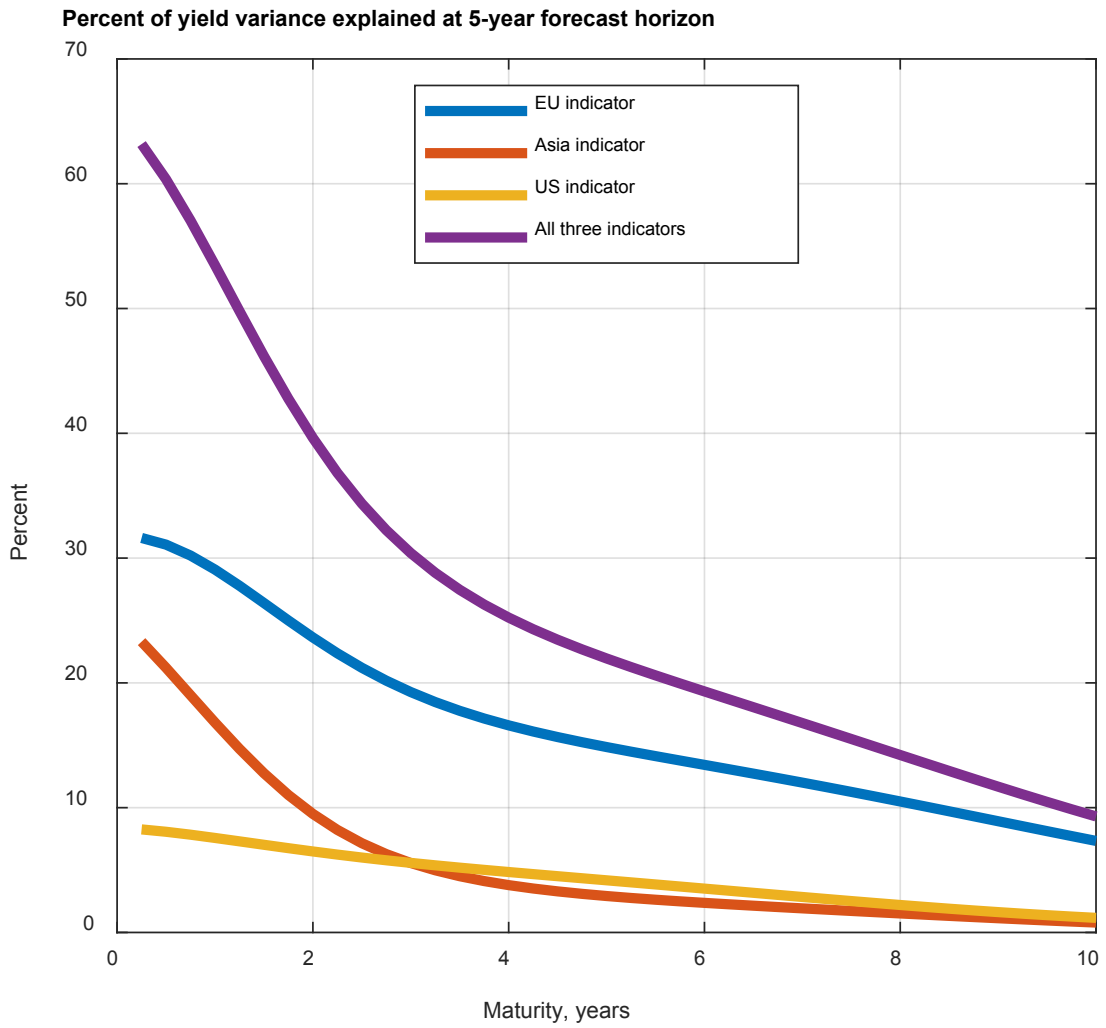

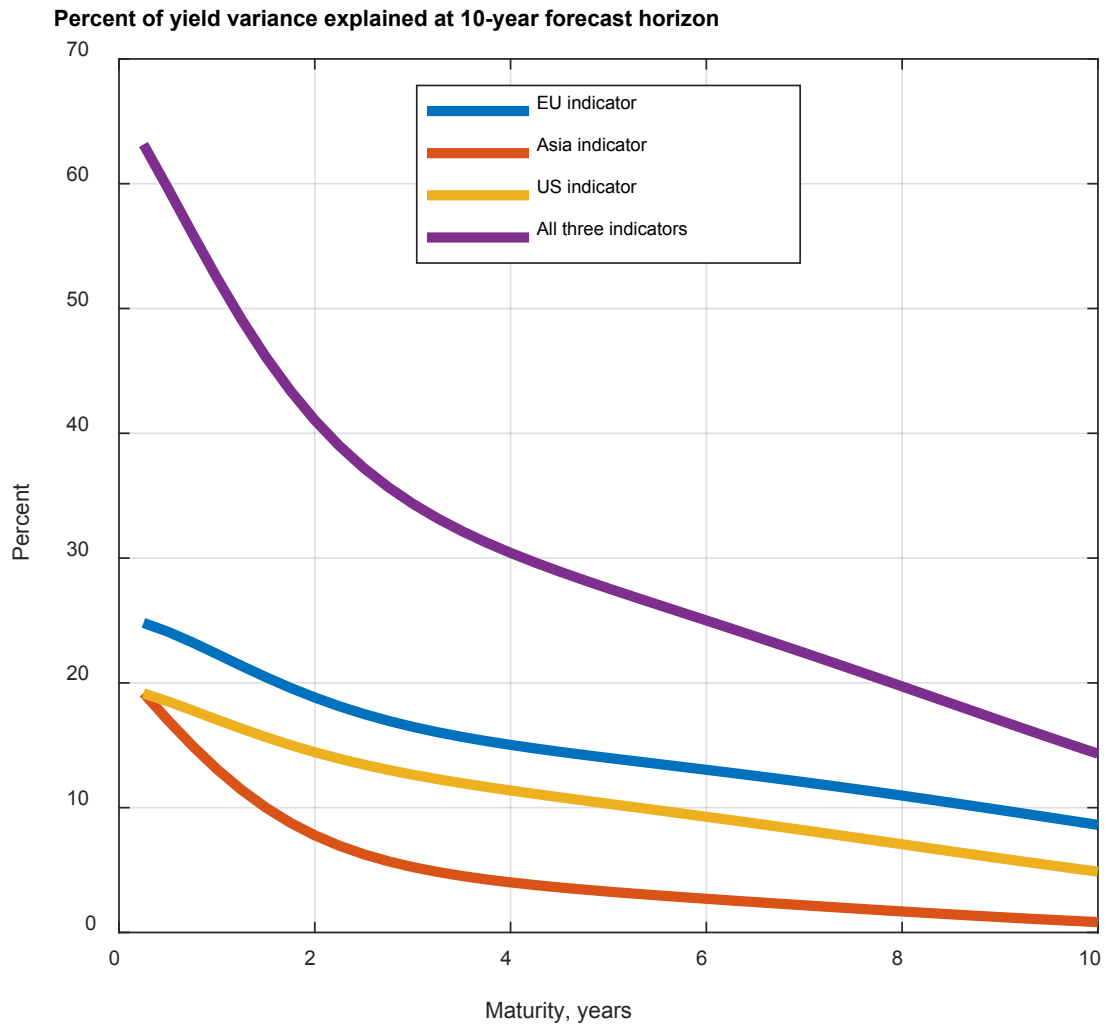

Summary

- US yields respond positively to foreign economic indicators and negatively to the US economic indicator
- Shocks to economic indicators have maximum impact on US yields after 2-6 years
- Short rates are more affected by shocks to economic indicators while long rates are more affected by financial shocks
- Over a 5-10 year forecast horizon, shocks to economic indicators explain more than 60 percent of variance in short rates but less than 15 percent of the variance in long rates