

*Preliminary;  
comments  
welcome*



# Disentangling India's Investment Slowdown

(Thomas Richardson for)

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## Background

- Investment slowdown

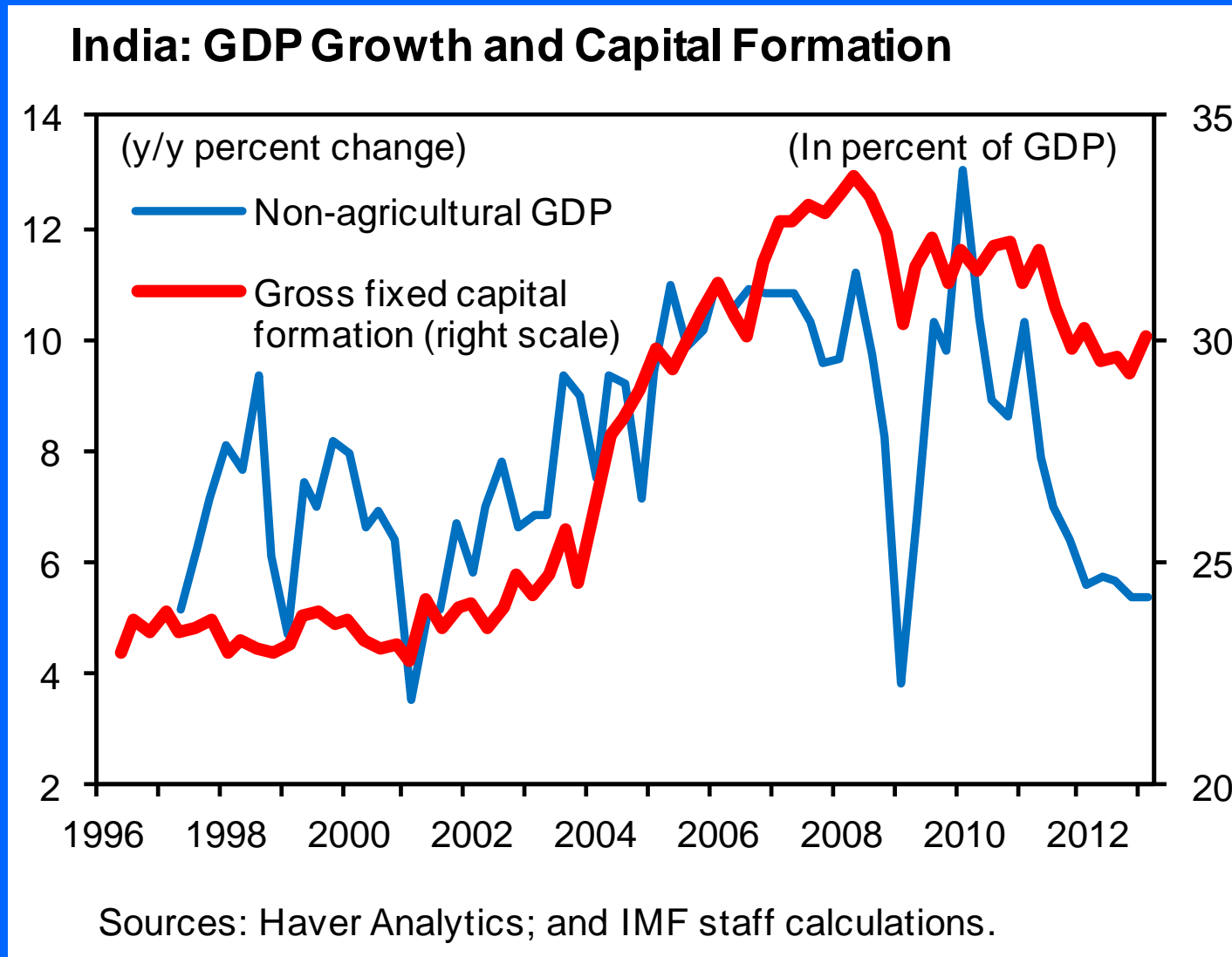
## Questions / Puzzles

- Do interest rates matter?
- Real or nominal rates?

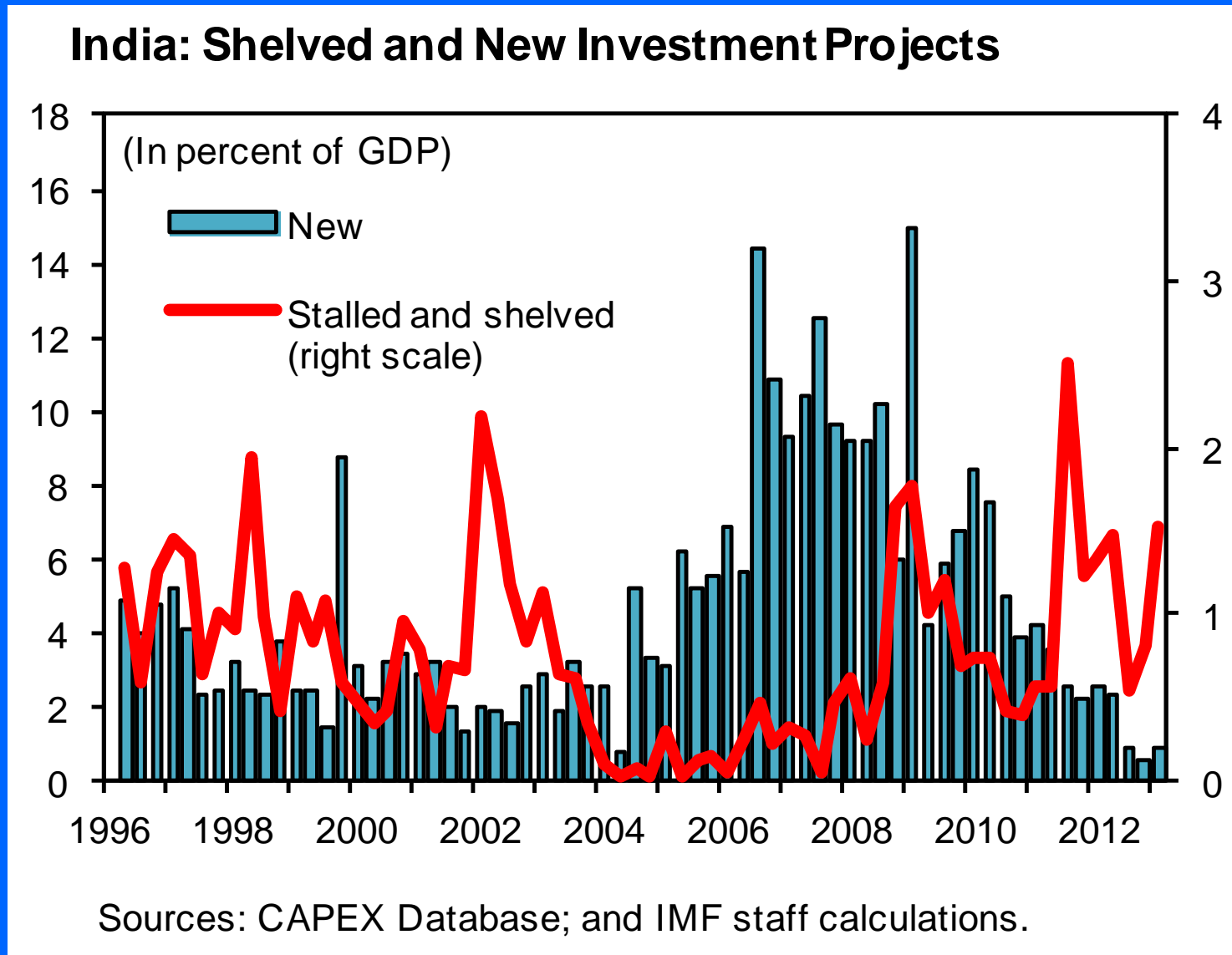
## Innovation

- Business confidence
- Economic policy uncertainty

# Falling infrastructure and corporate investment led the slowdown in 2010-12

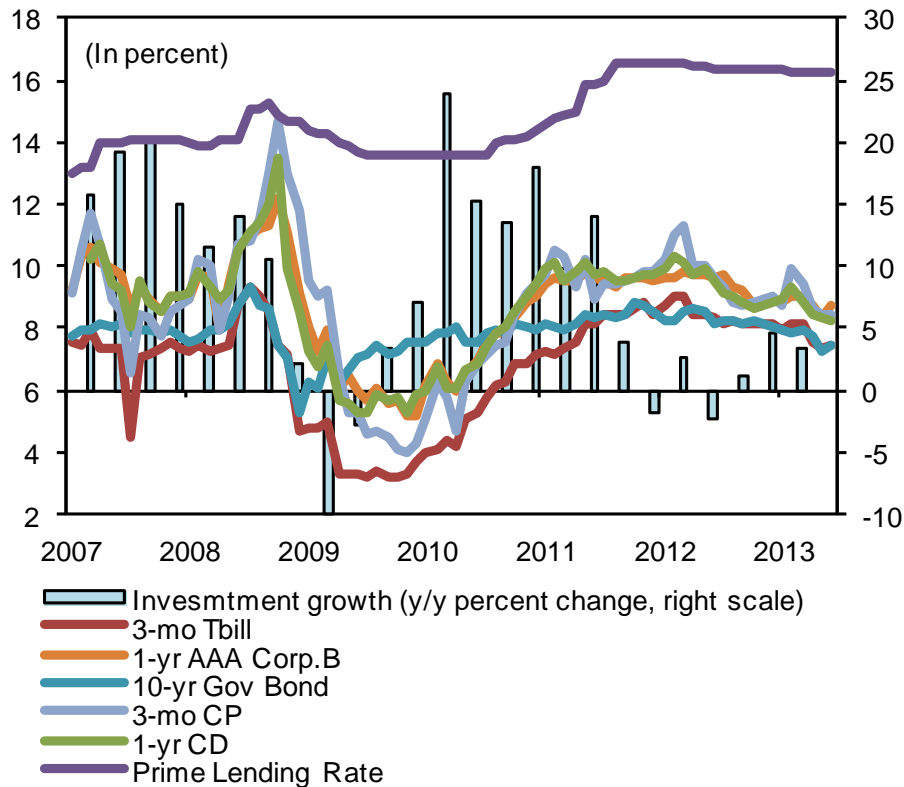


# Pipeline of investment projects drying up



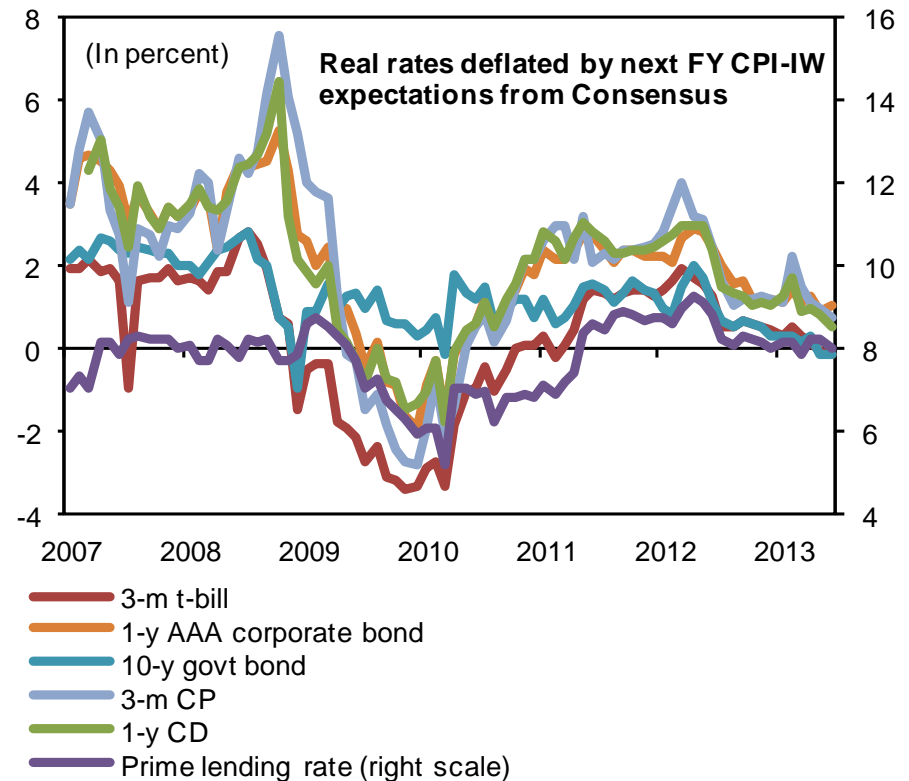
# India: Nominal vs Real Interest Rates

India: Nominal Interest Rates



Sources: Bloomberg; CEIC; and IMF staff calculations.

India: Real Interest Rates



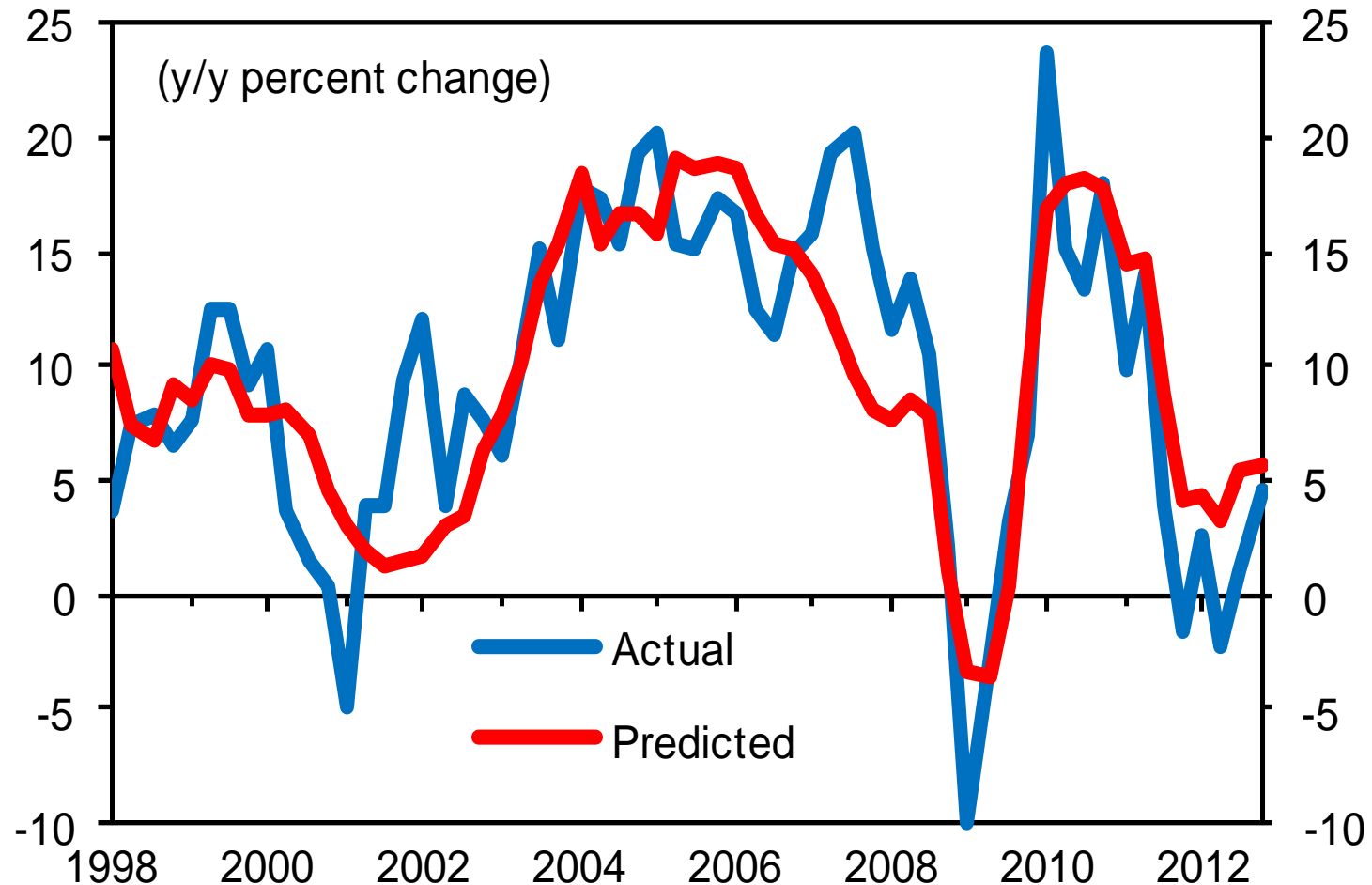
Sources: Bloomberg; CEIC; Consensus; and IMF staff calculations.

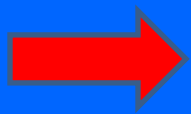
# Investment is better explained by real than by nominal interest rates

Regression Analysis of Investments: Role of Interest Rates				
Dependent Variable: Change in real gross fixed capital formation (quarter-over-quarter percent change, seasonally adjusted)				
	(1)	(2)	(3)	(4)
Real interest rate % per annum	-0.911 *** (0.277)			-0.932 *** (0.322)
Nominal interest rate % per annum		-0.445 *** (0.155)	-0.871 *** (0.303)	
Inflation expectations %, next fiscal year			1.013 * (0.541)	0.091 (0.265)
Sample: 1996Q2-2012Q4				
Number of observations	64	64	64	64
R <sup>2</sup> , d.f. adjusted	0.257	0.200	0.245	0.245
Source: IMF staff estimates.				
Note: Interest rate corresponds to the average prime lending rate. Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.				
Note: Robust standard errors in parenthesis.				
Note: ***, **, * indicates 1, 5, 10 percent statistical significance, respectively.				
Note: Controlling for overall business confidence, investment goods cost inflation, global financial and macroeconomic conditions.				

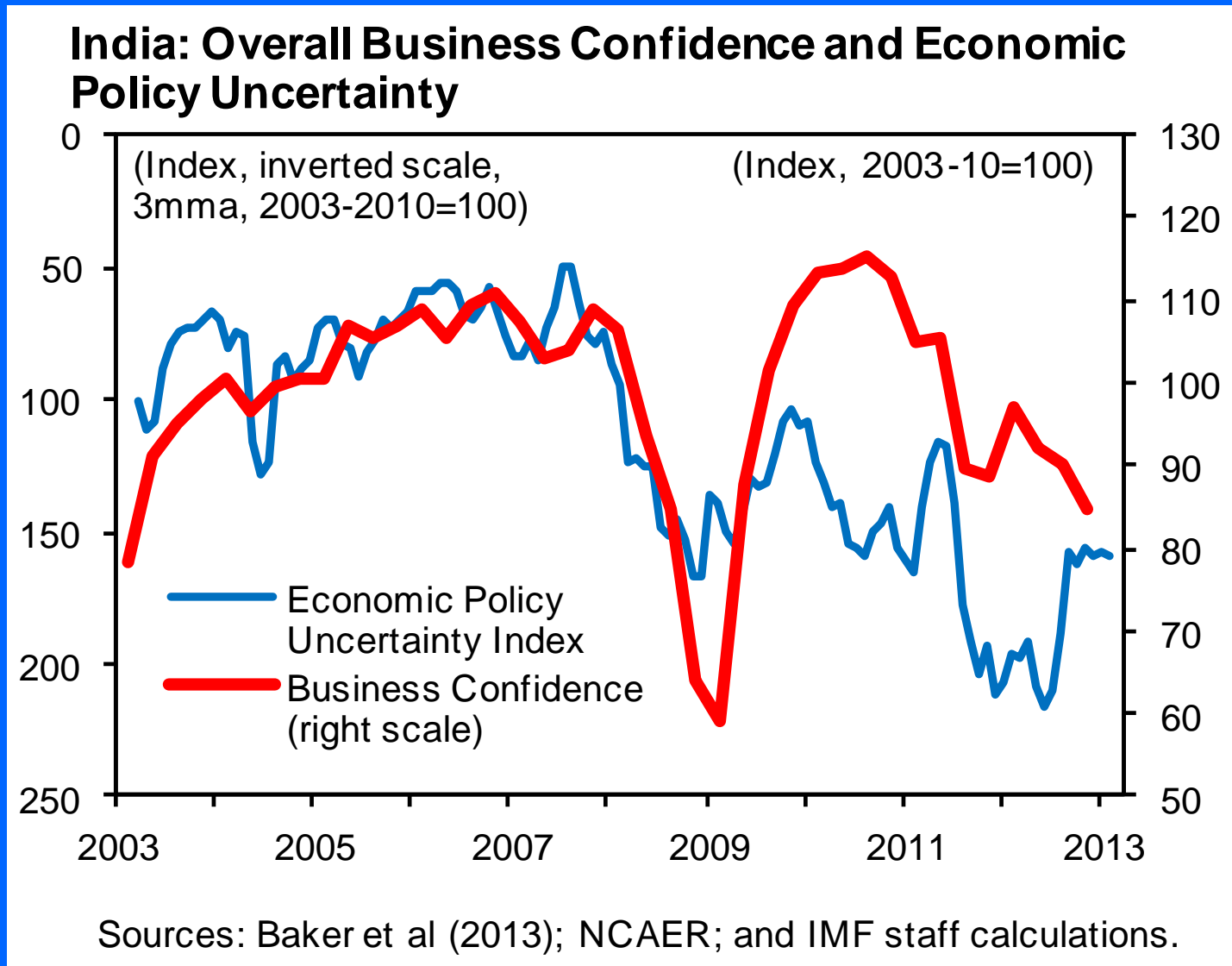
# Model explains about half the investment slowdown

**Figure x1. India: Fixed Investments Growth: Predicted vs. Actual**



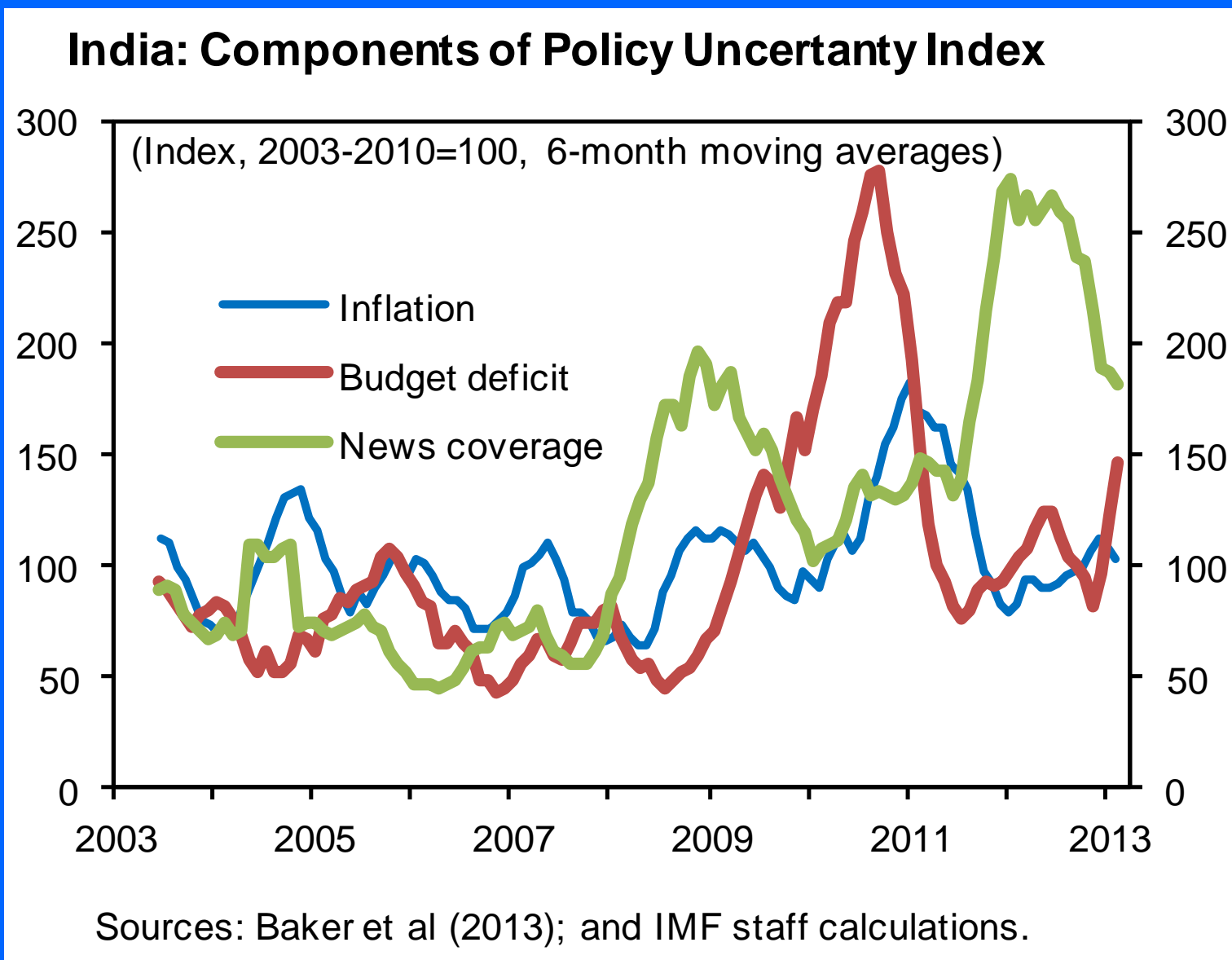


# Consider economic policy uncertainty

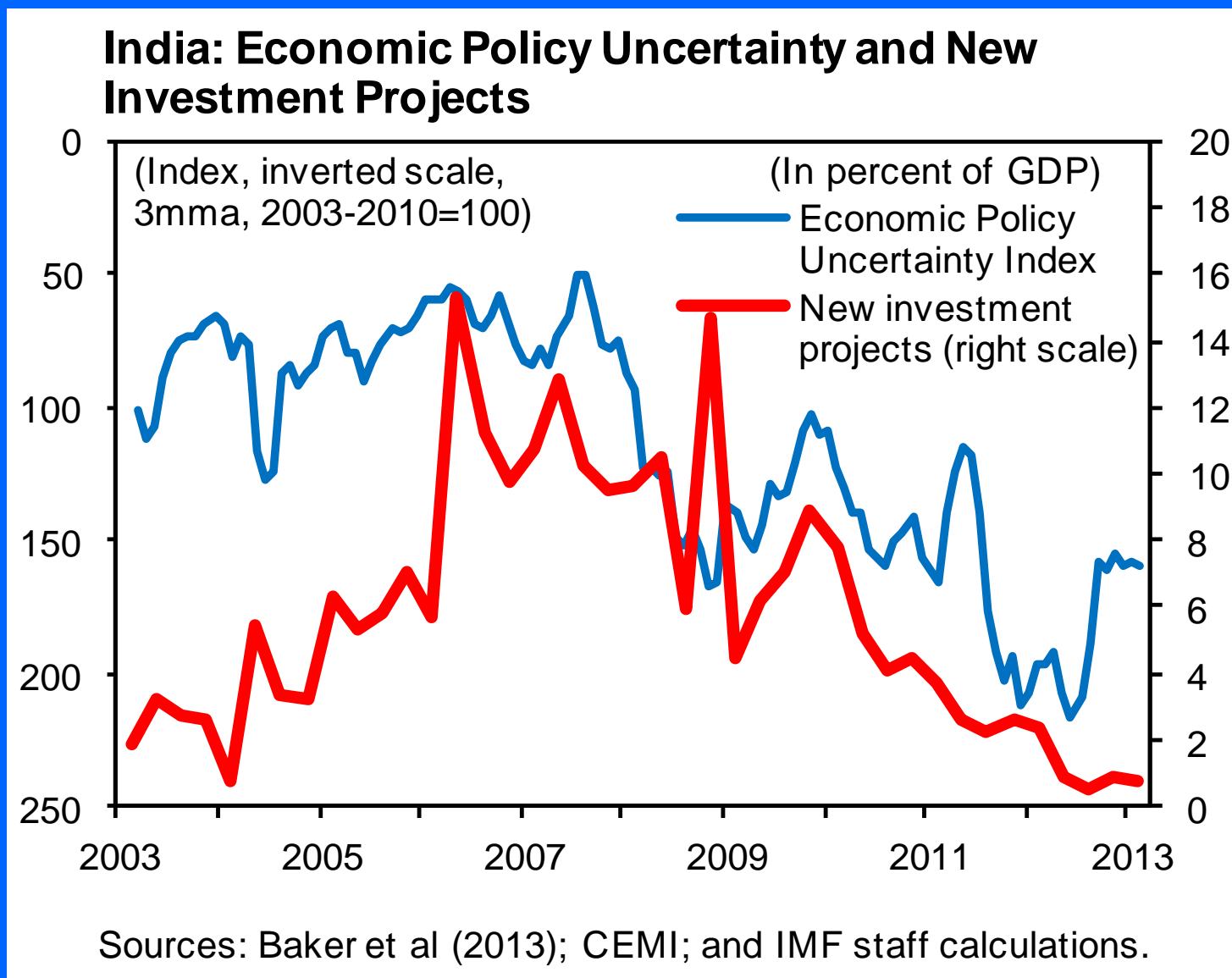




# What is in the policy uncertainty index?



# Policy uncertainty and new investment



New  
investment  
projects are  
sensitive to  
economic  
policy  
uncertainty  
(EPU)

-- but note odd  
sign on real  
interest rate

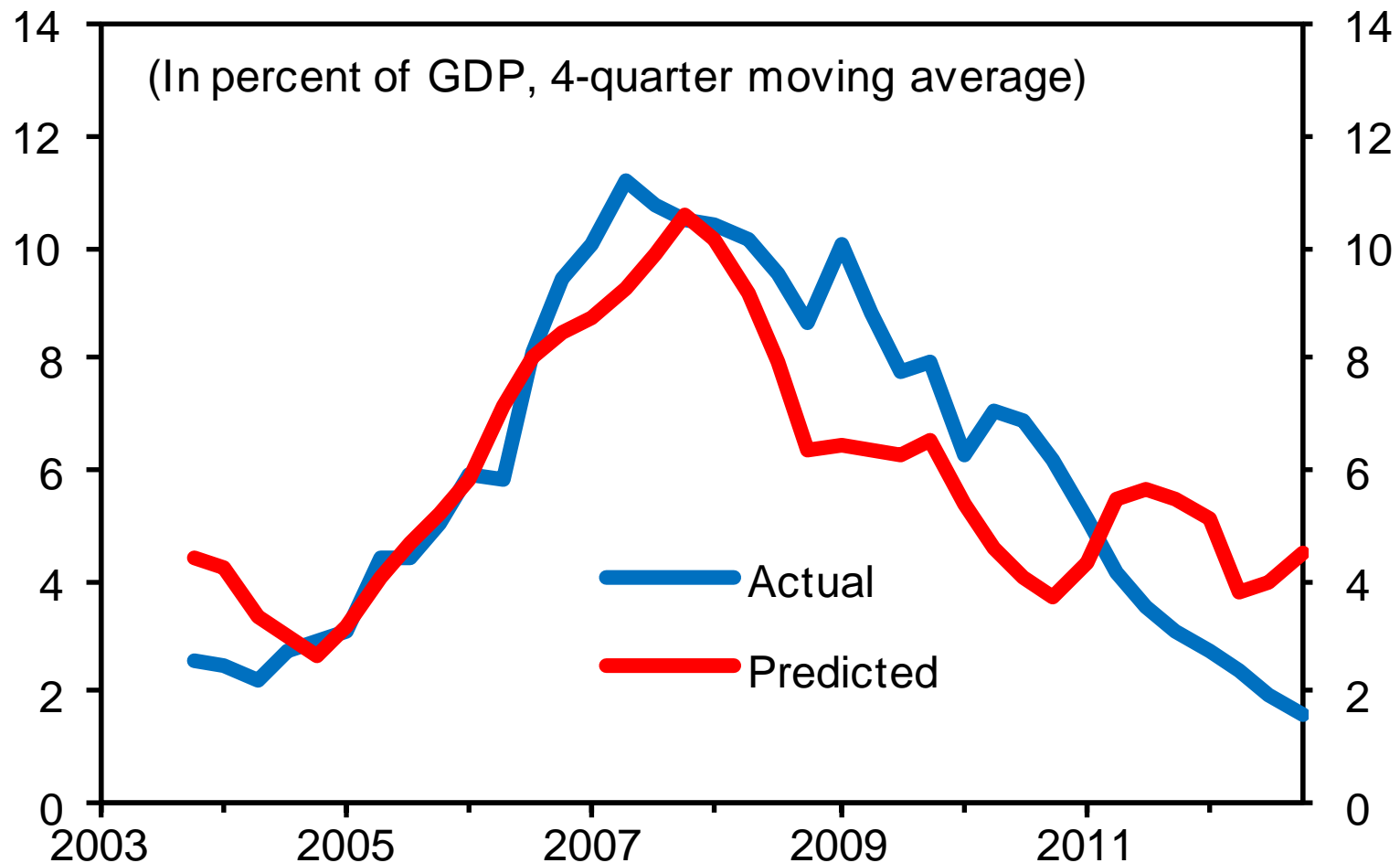
New Investment: Role of Policy Uncertainty		
Dependent Variable: New investment projects (Projects costs as percent of GDP)		
	(1)	(2)
Real interest rate <i>% per annum</i>	1.816 *** (0.365)	0.802 (0.560)
Business confidence <i>NCAER index</i>	0.000 (0.057)	0.041 (0.065)
Economic Policy Uncertainty <i>EPU Index</i>	-0.063 *** (0.014)	
Sample: 2003Q1-2012Q4		
Number of observations	40	40
R <sup>2</sup> , d.f. adjusted	0.389	0.043
Source: IMF staff estimates.		
Note: Interest rate corresponds to the average prime lending rate.		
Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.		
Note: Robust standard errors in parenthesis.		
Note: ***, **, * indicates 1, 5, 10 percent statistical significance.		
Note: Controlling for global financial and macroeconomic conditions.		

Shelved  
projects are  
also  
sensitive to  
EPU &  
business  
confidence

Shelved Investment: Role of Policy Uncertainty		
Dependent Variable: Shelved investment projects (Projects costs as percent of GDP)		
	(1)	(2)
Real interest rate <i>% per annum</i>	0.071 (0.049)	0.160 *** (0.051)
Business confidence <i>NCAER index</i>	-0.012 *** (0.003)	-0.016 *** (0.003)
Economic Policy Uncertainty <i>EPU Index</i>	0.005 *** (0.001)	
Sample: 2003Q1-2012Q4		
Number of observations	40	40
R <sup>2</sup> , d.f. adjusted	0.626	0.515
Source: IMF staff estimates.		
Note: Interest rate corresponds to the average prime lending rate.		
Real interest rate is based on inflation expectations for the next fiscal year from Consensus Economics surveys.		
Note: Robust standard errors in parenthesis.		
Note: ***, **, * indicates 1, 5, 10 percent statistical significance.		
Note: Controlling for global financial and macroeconomic conditions.		

# Drop in new investment projects largely unexplained

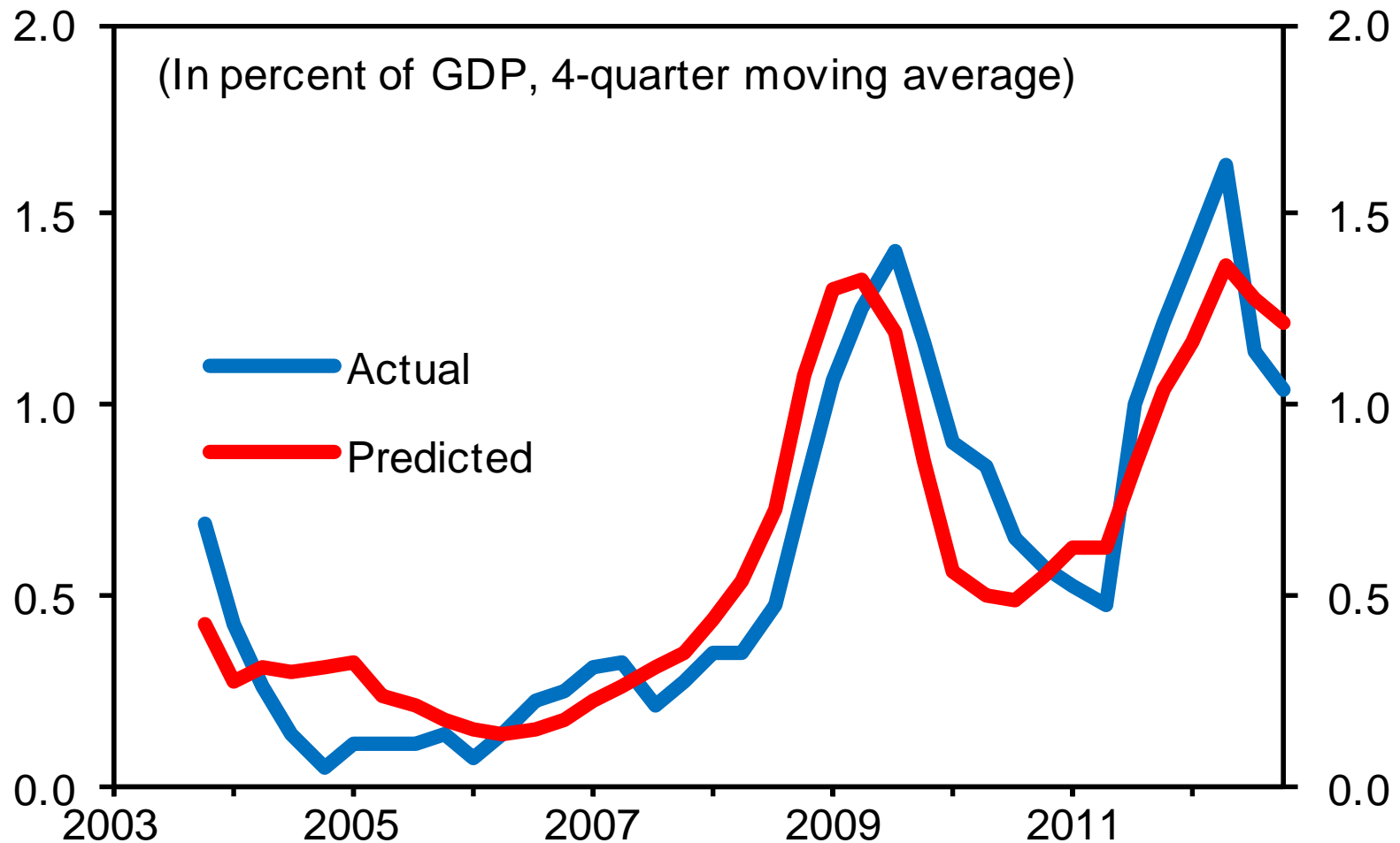
## New Investment Projects: Fitted vs. Actual



Source: CAPEX database; and IMF staff estimates.

# Model does a bit better for shelved projects

## Shelved Investment Projects: Fitted vs. Actual



Source: CAPEX database; and IMF staff estimates.

# Conclusions

## Role of interest rates

- Interest rates matter for investment
- Real interest rates matter more than nominal ones
- Much of investment slowdown remains unexplained

## Business confidence & policy uncertainty

- New measure of economic policy uncertainty (EPU)
- EPU matters for investment, new & shelved projects
- Does not explain everything



## Investment bottlenecks

- Structural reforms needed to unlock investment:
  - Land, environment, power, transport



**Thank you**

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