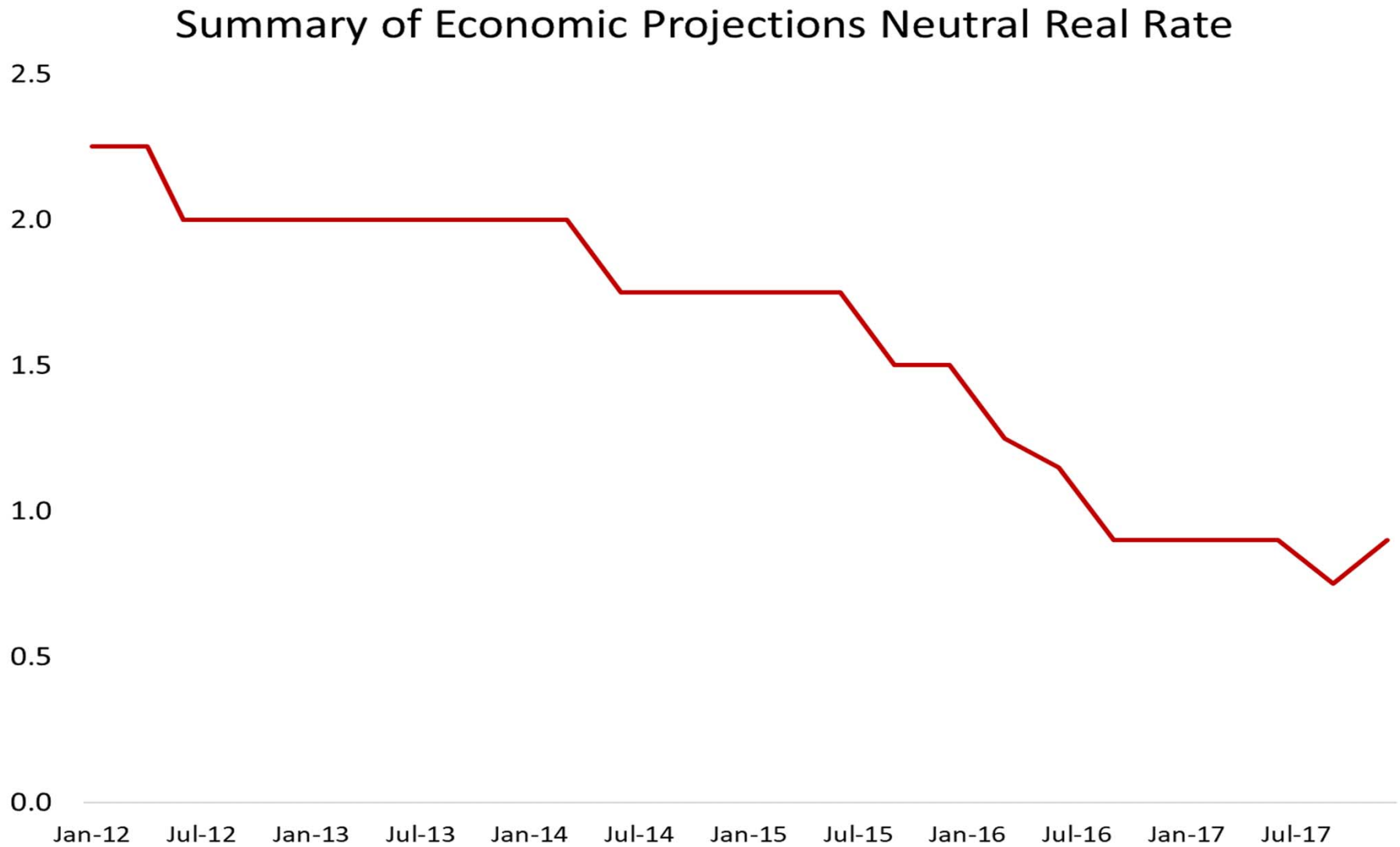


Fed Inflation Target

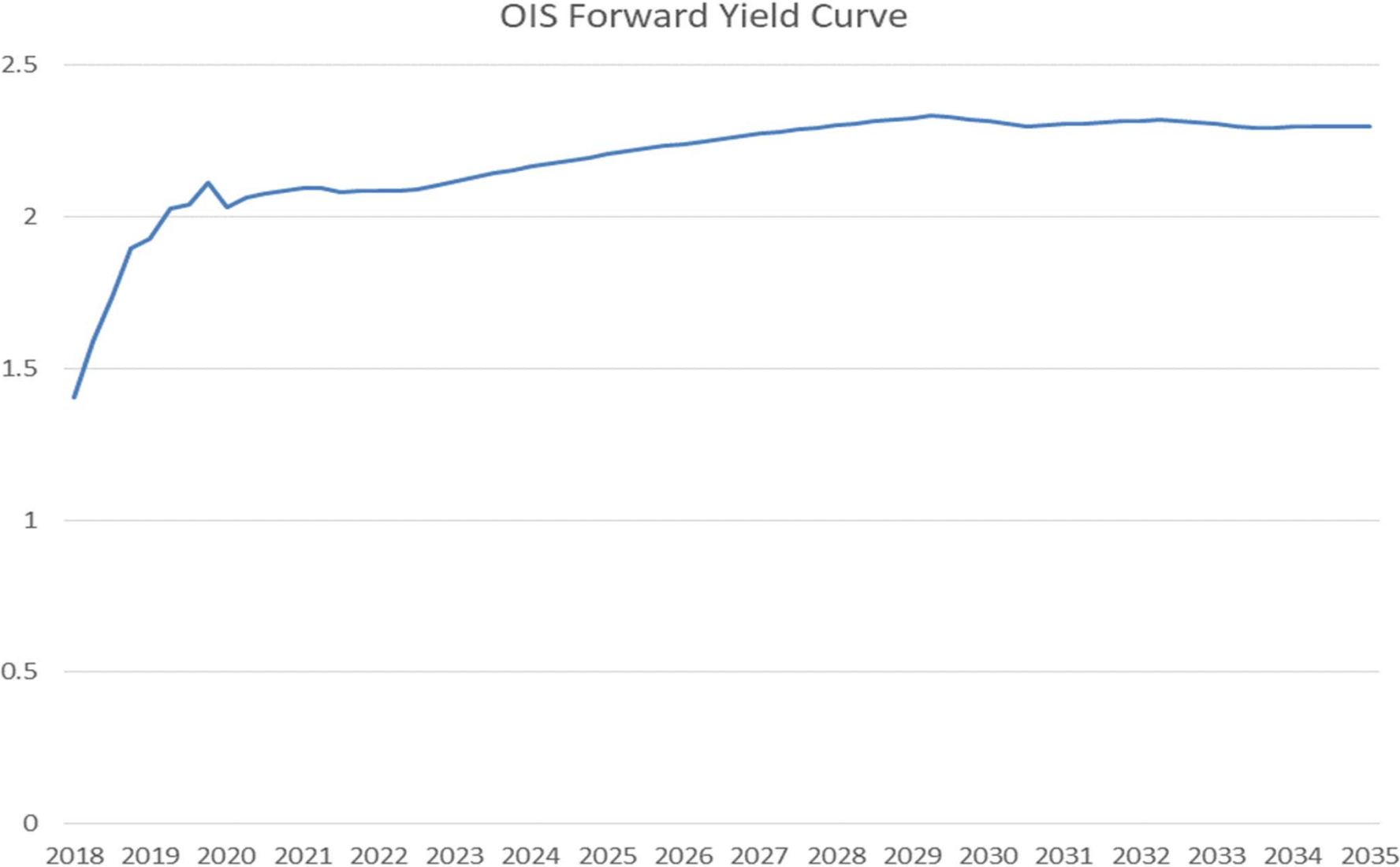
Lawrence H. Summers

January 8, 2018

Downtrend in Fed Neutral Rate Projections



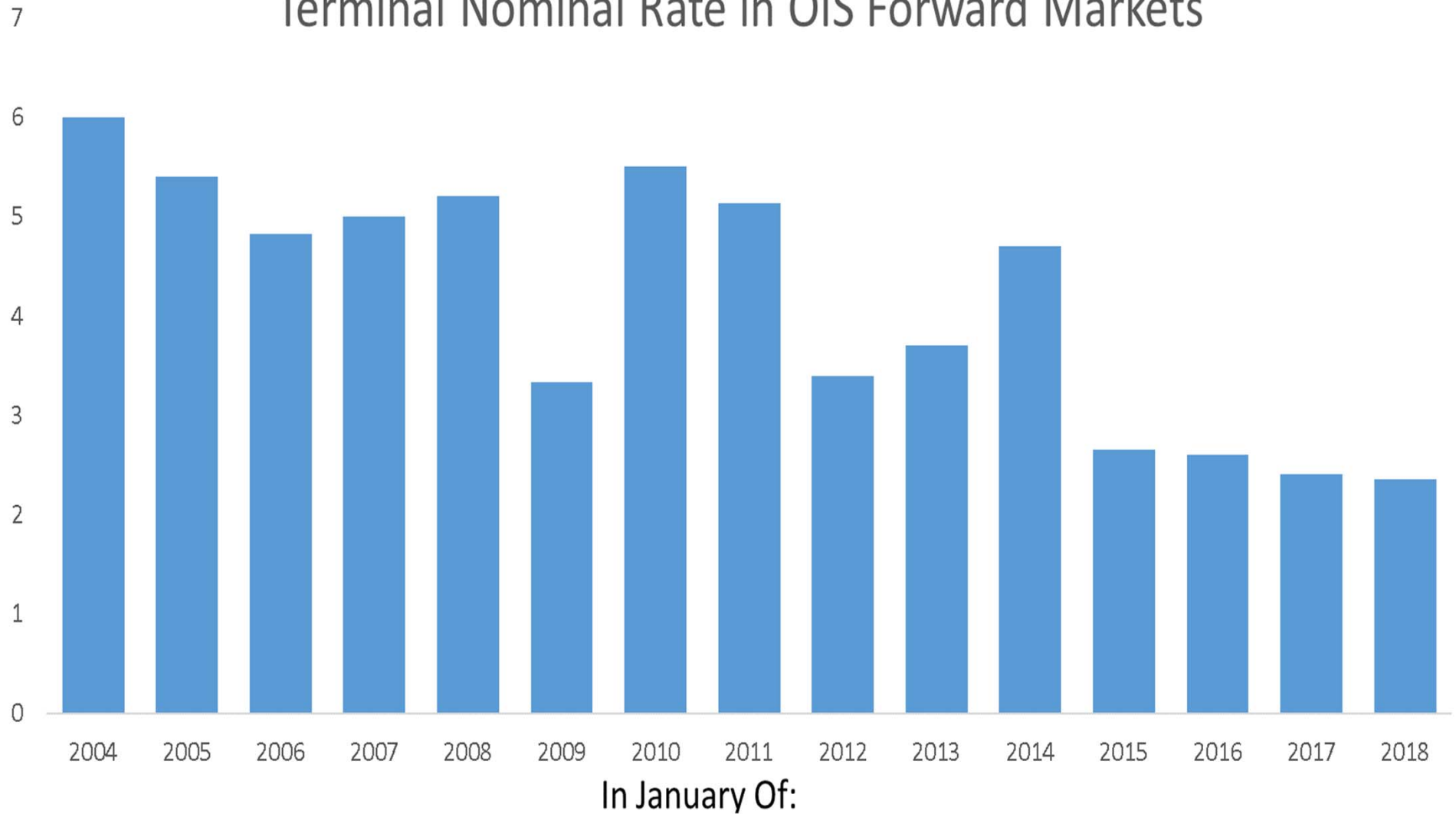
Markets Pricing In 2.3% Nominal Terminal Rate



Sources: Bloomberg

Much Lower Than Even In 2010

Terminal Nominal Rate in OIS Forward Markets



Large Rate Cuts Are Often Necessary

Recession Easings

Fed Funds Rate

	Start	Final	Easing
1957	3.5	0.7	2.8
1960	3.9	1.2	2.7
1970	5.6	3.5	2.1
1974	11.0	4.8	6.3
1981	20.0	9.5	10.5
1990	7.8	3.0	4.8
2000	6.5	1.0	5.5
2007	5.3	0.0	5.3
			5.1

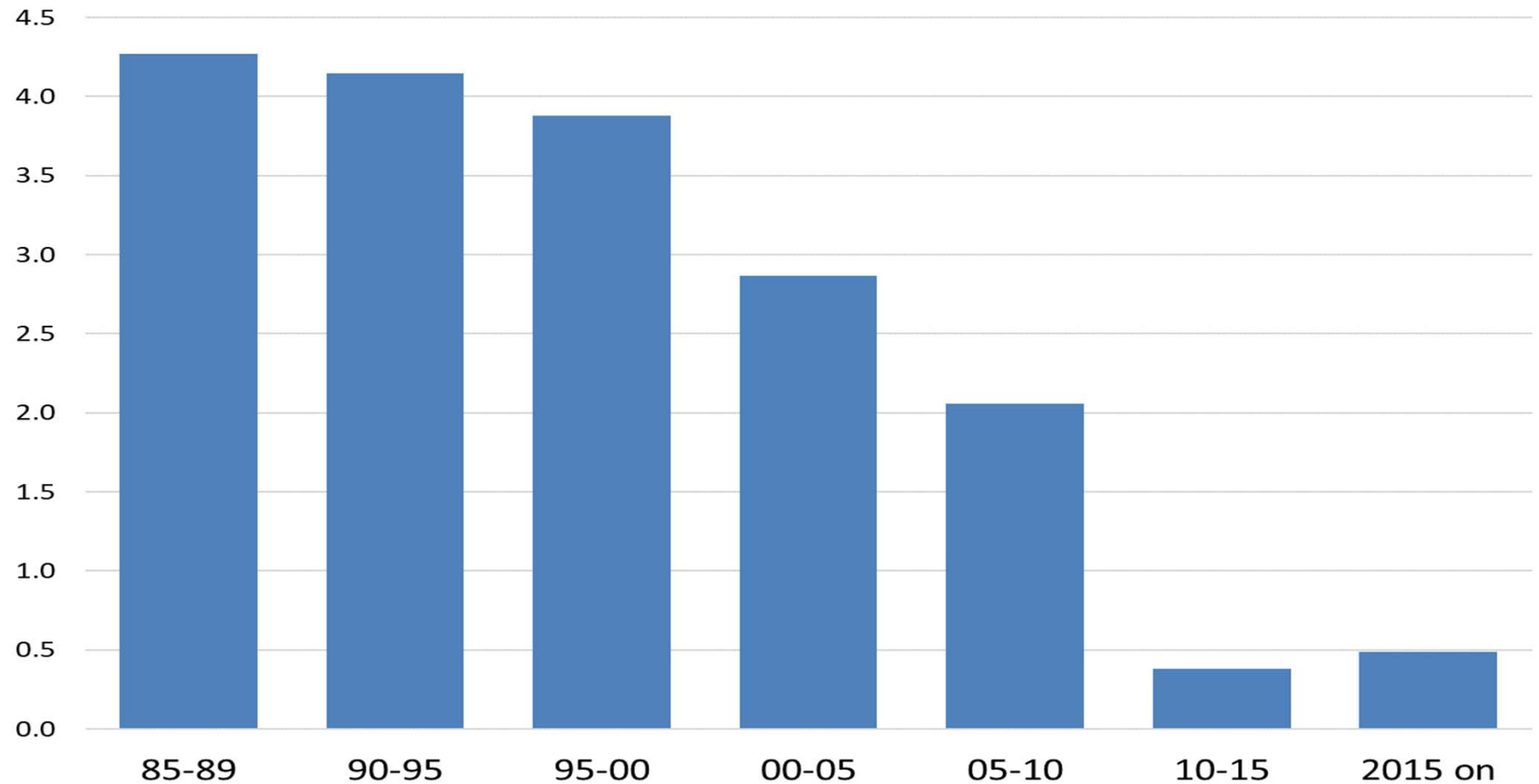
Large Rate Cuts Are Often Necessary

Real Funds Rate Easings

	Start	Final	Easing
May-60	1.9	-0.1	2.0
Aug-66	3.1	0.7	2.3
Nov-70	4.5	-0.9	5.4
Nov-74	6.4	-1.6	8.0
May-81	8.7	-0.1	8.8
Sep-84	7.6	3.4	4.2
Nov-90	5.5	0.1	5.4
Dec-00	4.8	-0.4	5.2
Aug-07	3.3	-1.1	4.4
			5.1

Steady Fall in Real Rates

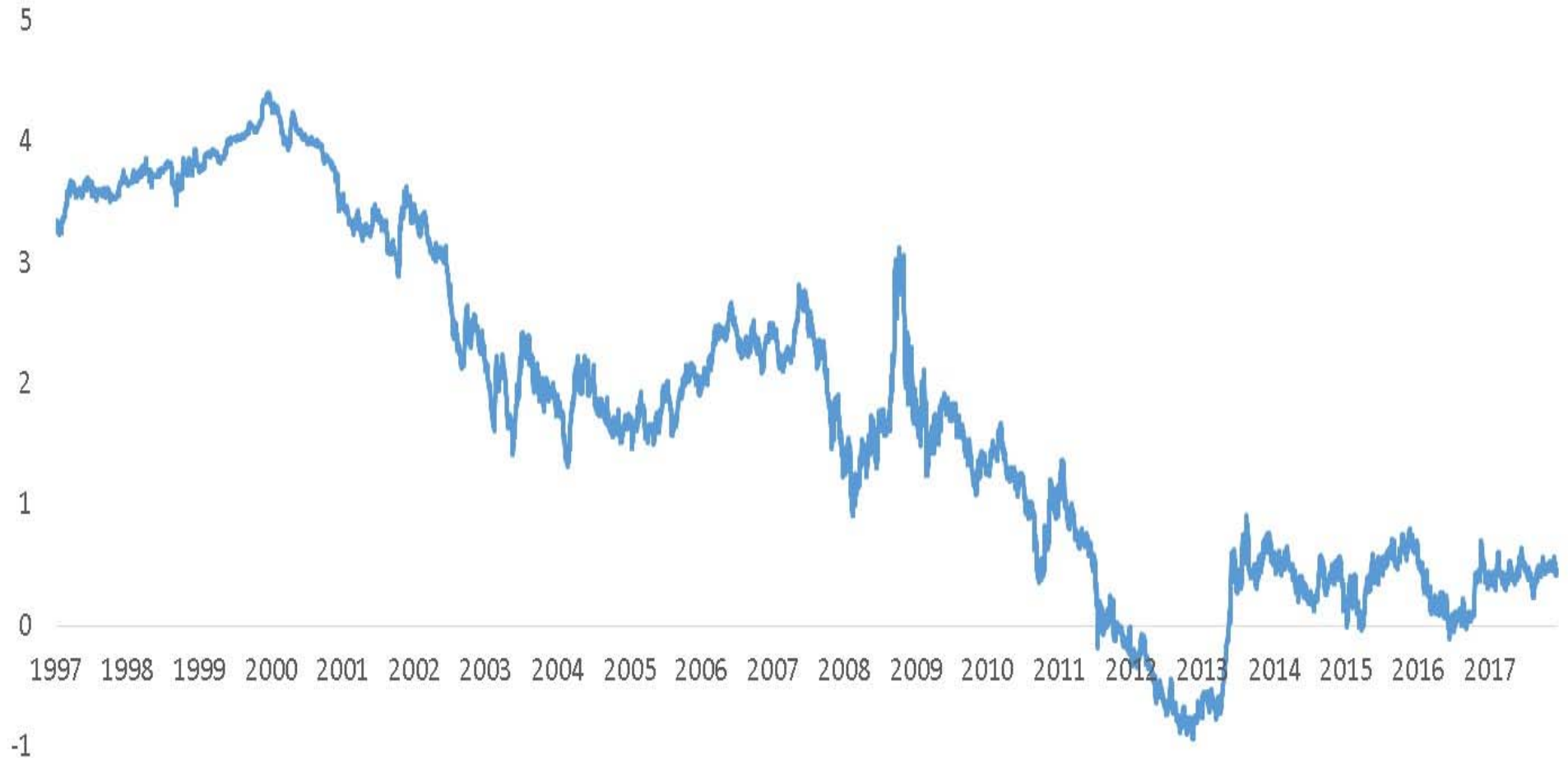
Real 10 Year Rates By Five Year Period



Sources: Federal Reserve, Refet S. Gürkaynak, Brian Sack, and Jonathan H. Wright "The TIPS Yield Curve and Inflation Compensation",
Mervyn King "Measuring the "World" Real Interest Rate

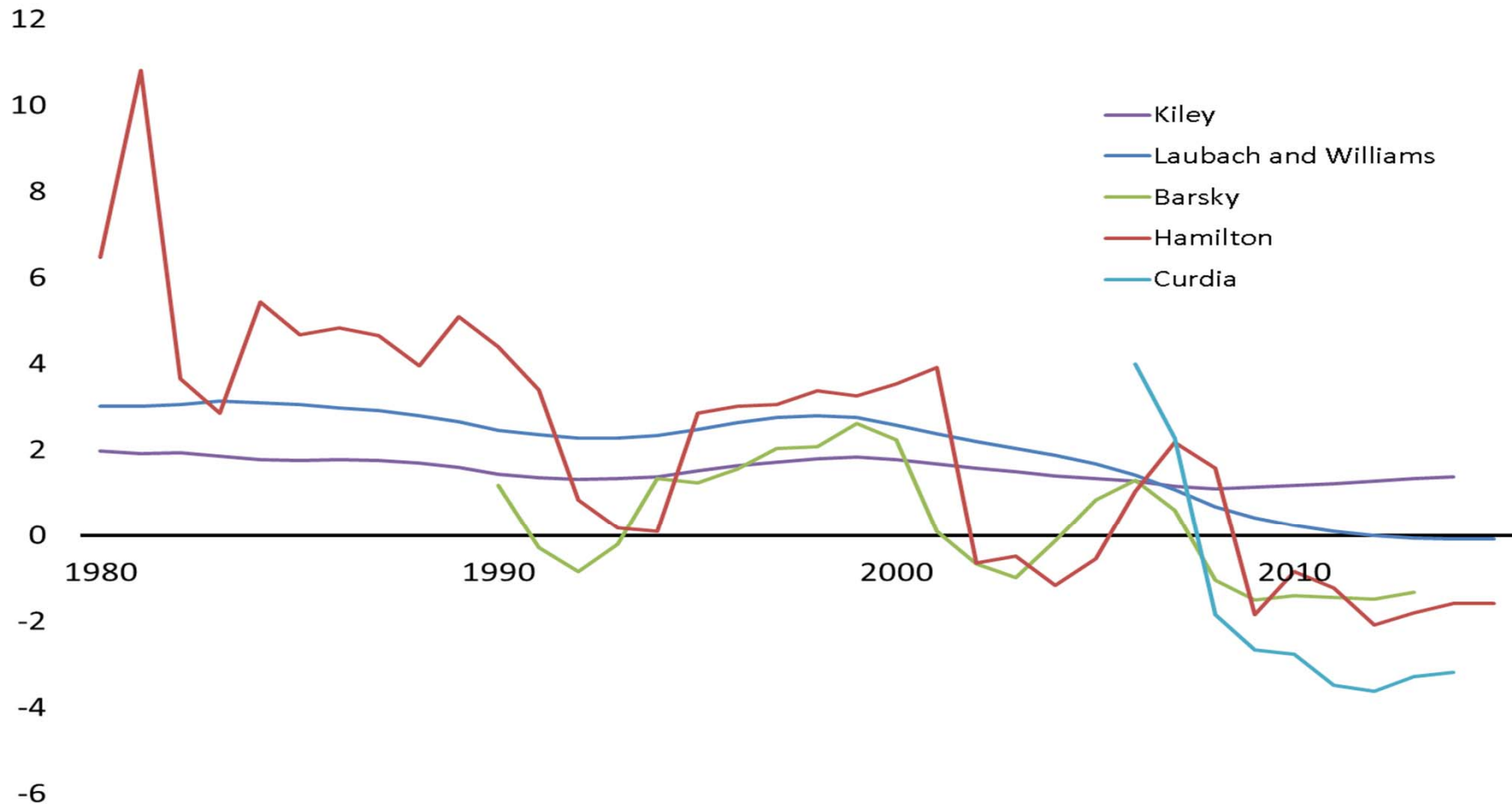
Seen Across Yield Curve

Ten Year Tips Real Interest Rate



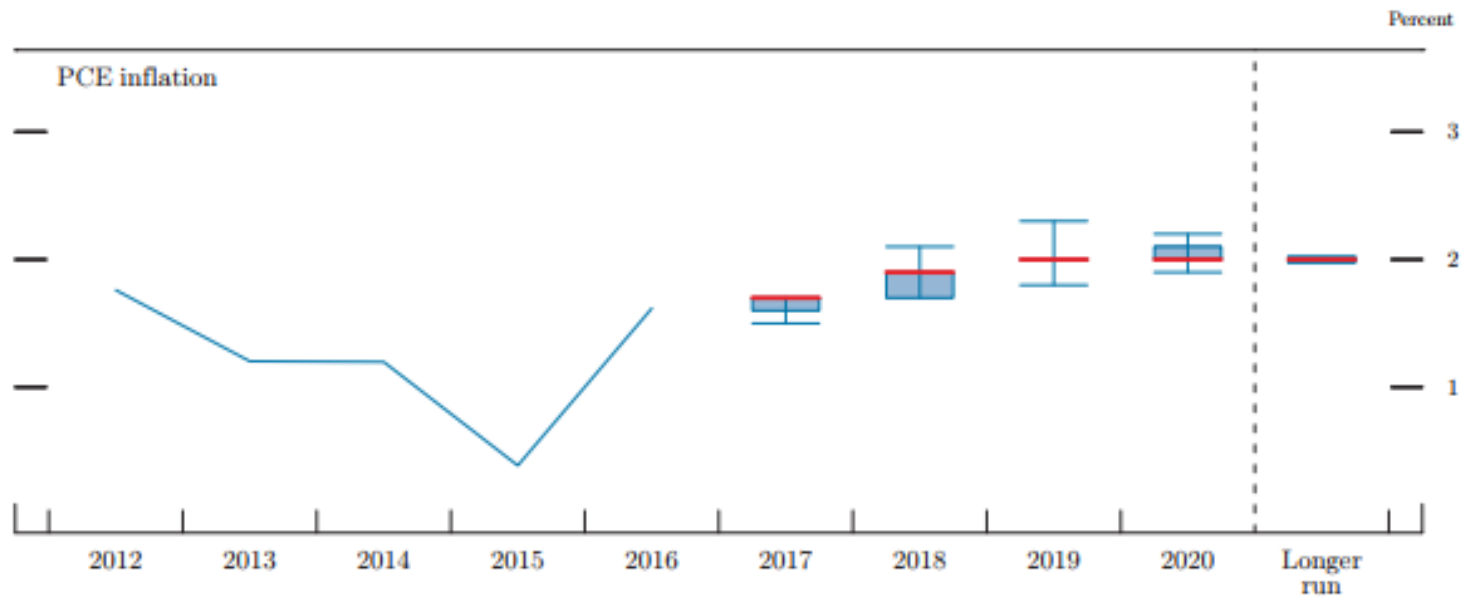
Decline In Real Equilibrium Rate

Real Equilibrium Rate Estimates



Sources: Michael Kiley "What Can the Data Tell Us About The Equilibrium Real Interest Rate", Laubach & Williams "Measuring The Natural Rate Of Interest Redux", Hamilton et. al. "The Equilibrium Real Funds Rate", Vasco Curdia "Why So Slow? A Gradual Return For Interest Rates", Barsky et. al. "The Natural Rate & It's Usefulness for Monetary Policy Making"

Federal Reserve Inflation Expectations



Sources: Federal Reserve December 2017 Summary of Economic Projections