

WHEN WILL INTEREST RATES GO UP? AND HOW MUCH?

Fall 2014 SEAC Meeting

1:30 – 2:15

Speaker:

- Bob Crompton KPMG

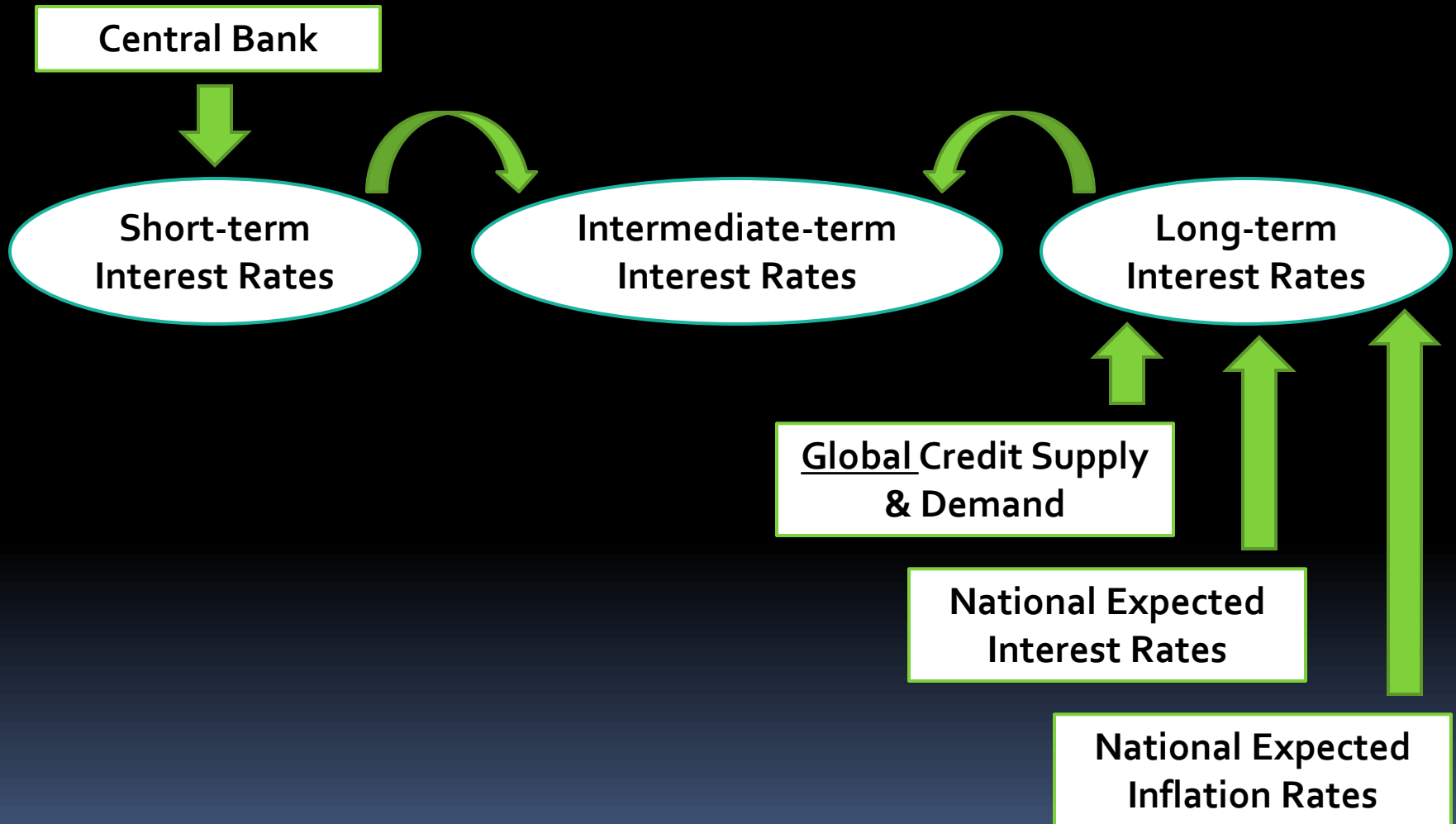
FSA, MAAA



Topics

- Determinants of Interest Rates
- Macroeconomic Environment
- Baseline Outlook
- Potential Perturbations
- Mean Reversion
- Lessons for Insurers

Interest Rate Determination



Interest Rate Determination

High Interest Rates

- Economic Expansion
- Rising Population
- Limited Capital
- High Innovation Level
- High Inflation

Low Interest Rates

- Economic Contraction
- Falling Population
- Abundant Capital
- Low Innovation Level
- Low Inflation





Interest Rates

Global Context

- Short-term Rates are Closely Managed by Central Banks
- Abundance of global capital
 - Global GDP: \$63 Trillion
 - Global Capital Supply \approx \$600 Trillion
- Global over-supply of production capacity
 - Capacity Utilization
 - US: 79% (September 2014)
 - China: \approx 60%



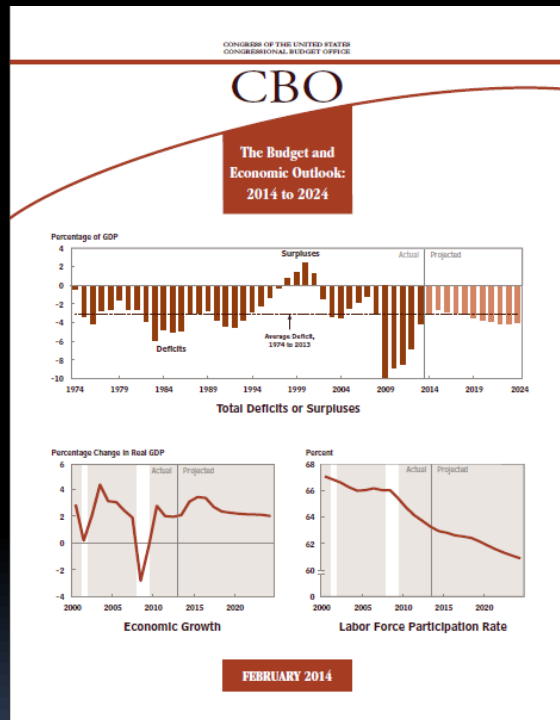
Interest Rates

Global Context (Continued...)

- Scarcity of Profitable Investments
 - A puzzling issue
 - Declining Productivity?
 - Demographics?
 - Temporary Lull Between Bouts of Innovation?
- Low Capital Intensity for Many New Businesses
- Unfavorable Demographics in Most Developed Nations

Interest Rates – Base Case

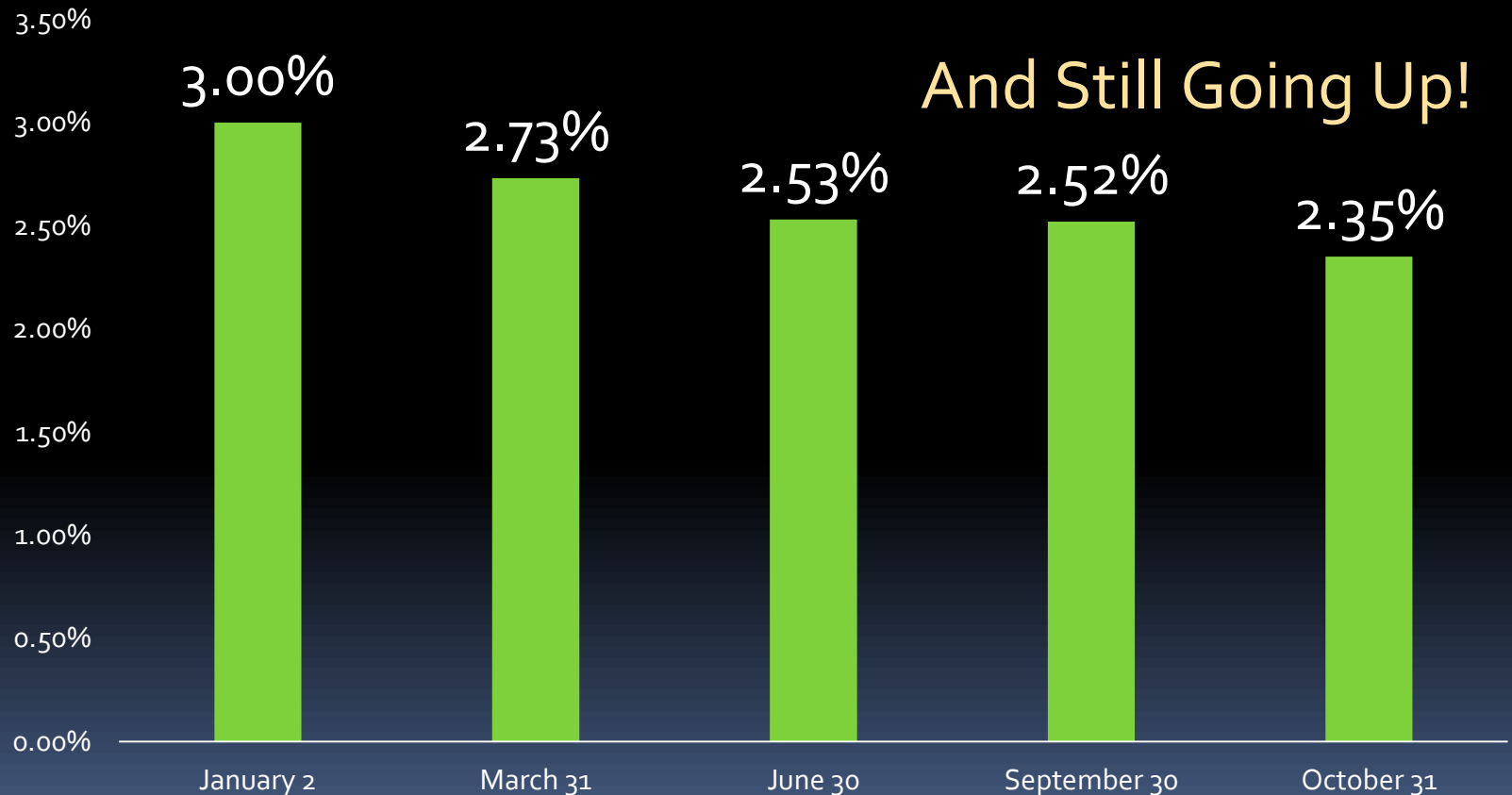
Based on Latest
CBO Report



Year	3-month Treasury	10-year Treasury
2014	0.2%	3.1%
2015	0.4%	3.7%
2016	1.8%	4.3%
2017	3.3%	4.8%
Average 2018-2024	3.7%	5.0%

Interest Rates – Progress in 2014

10-Year Treasury Yields





Interest Rates

What Scenarios Might Cause Interest Rates to Be Higher Than Baseline?

- Scenario 1: Significant & Pervasive Innovative Break-Through
 - Affects both consumption & production
 - Pervasive enough to have significant macroeconomic impact
 - Soaks up a significant amount of capital

Interest Rates

What Scenarios Might Cause Interest Rates to Be Higher Than Baseline?

- Scenario 2: Inflation Significantly Above Baseline (see table)

Year	CPI Change	Real GDP Change
2014	1.7%	2.7%
2015	2.0%	3.3%
2016	2.1%	3.4%
2017	2.2%	3.0%
Average 2018-2024	2.4%	2.2%

- Run-up of money supply from various phases of QE, offset by drop in velocity of money
- Velocity of money suddenly increases
- Implies general economic pick-up in excess of baseline



Interest Rates

What Scenarios Might Cause Interest Rates to Be Lower Than Baseline?

- Scenario 1: Chronic & Severe Asset Bubbles
 - Asset bubbles disrupt economic activity, lowering both capital demand and inflation
 - Recent bubbles have not caused increases in general inflation
 - Recent examples 2000/01 & 2008



Interest Rates

What Scenarios Might Cause Interest Rates to Be Lower Than Baseline?

- Scenario 2: Regional Armed Conflict (formerly known as war)
 - War would likely cause recession, due to uncertainty and foreign disruption
 - Flight of capital to US as a safe haven



Interest Rates

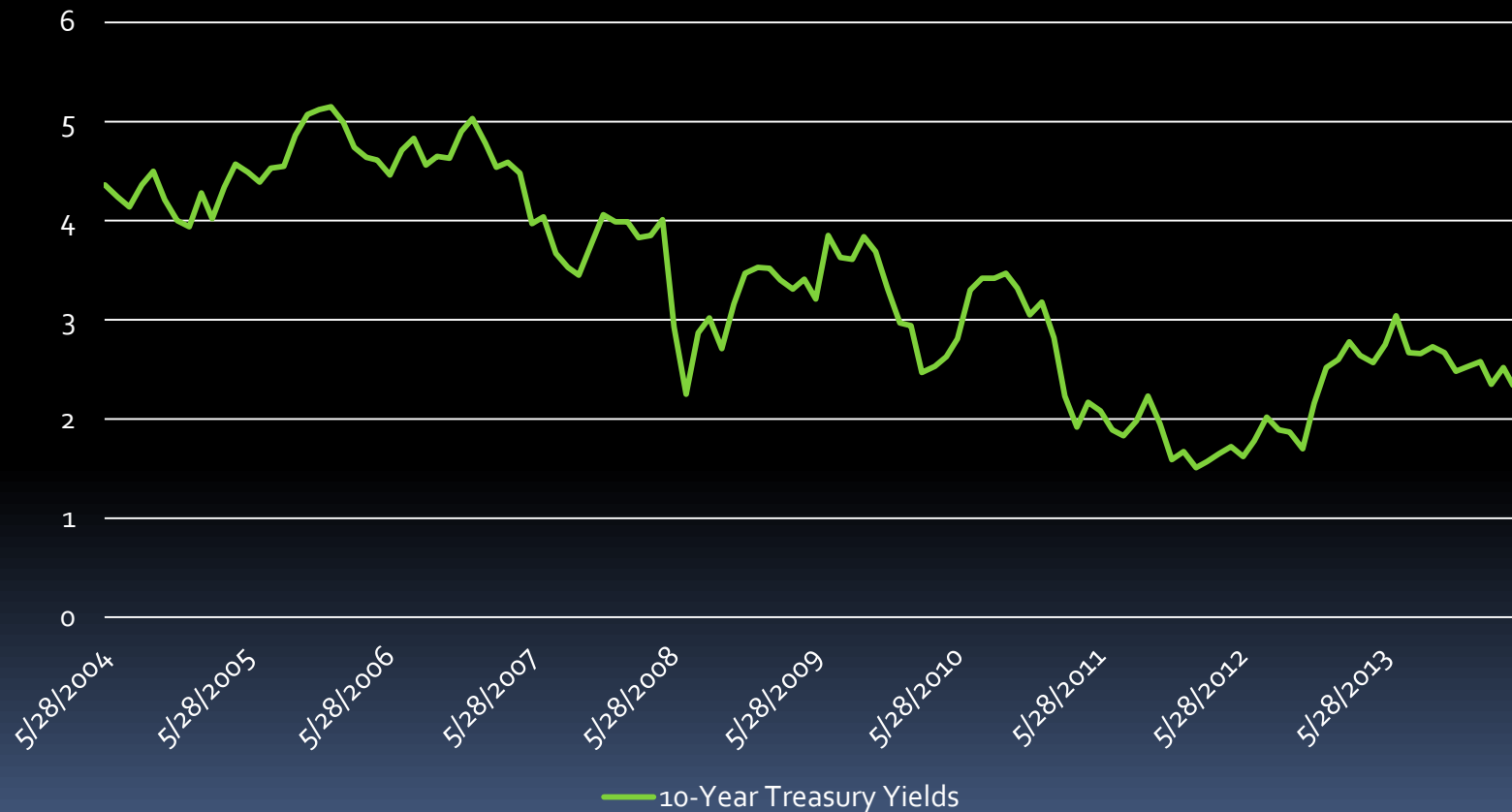
Handicapping the Odds:

Crompton's OPINION Only!!!

Event	Likelihood
Rates about the same as Baseline	40%
Rates lower than Baseline	50%
Rates higher than Baseline	10%

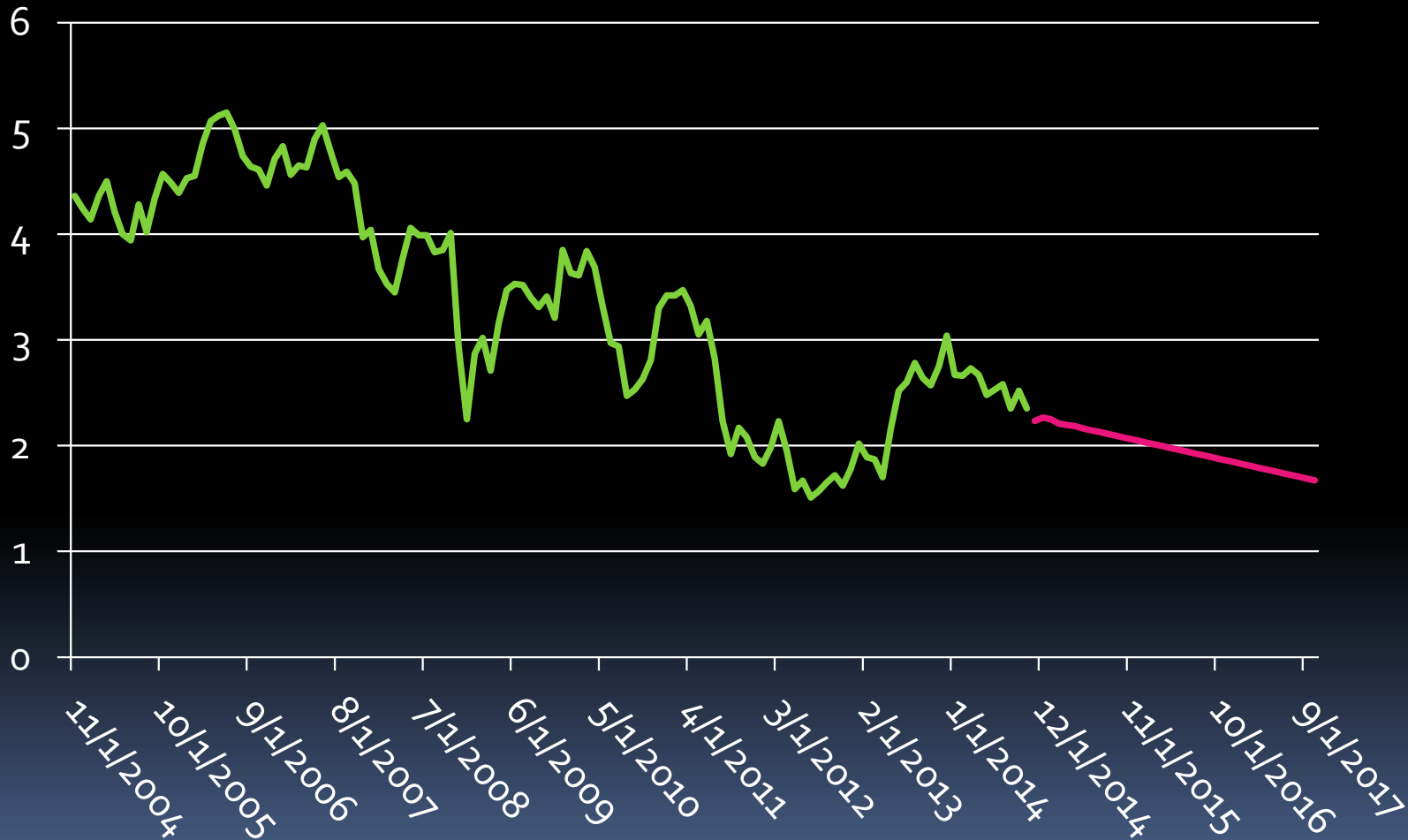
Mean Reversion

10-Year Treasury Yields – Prior 120 Months



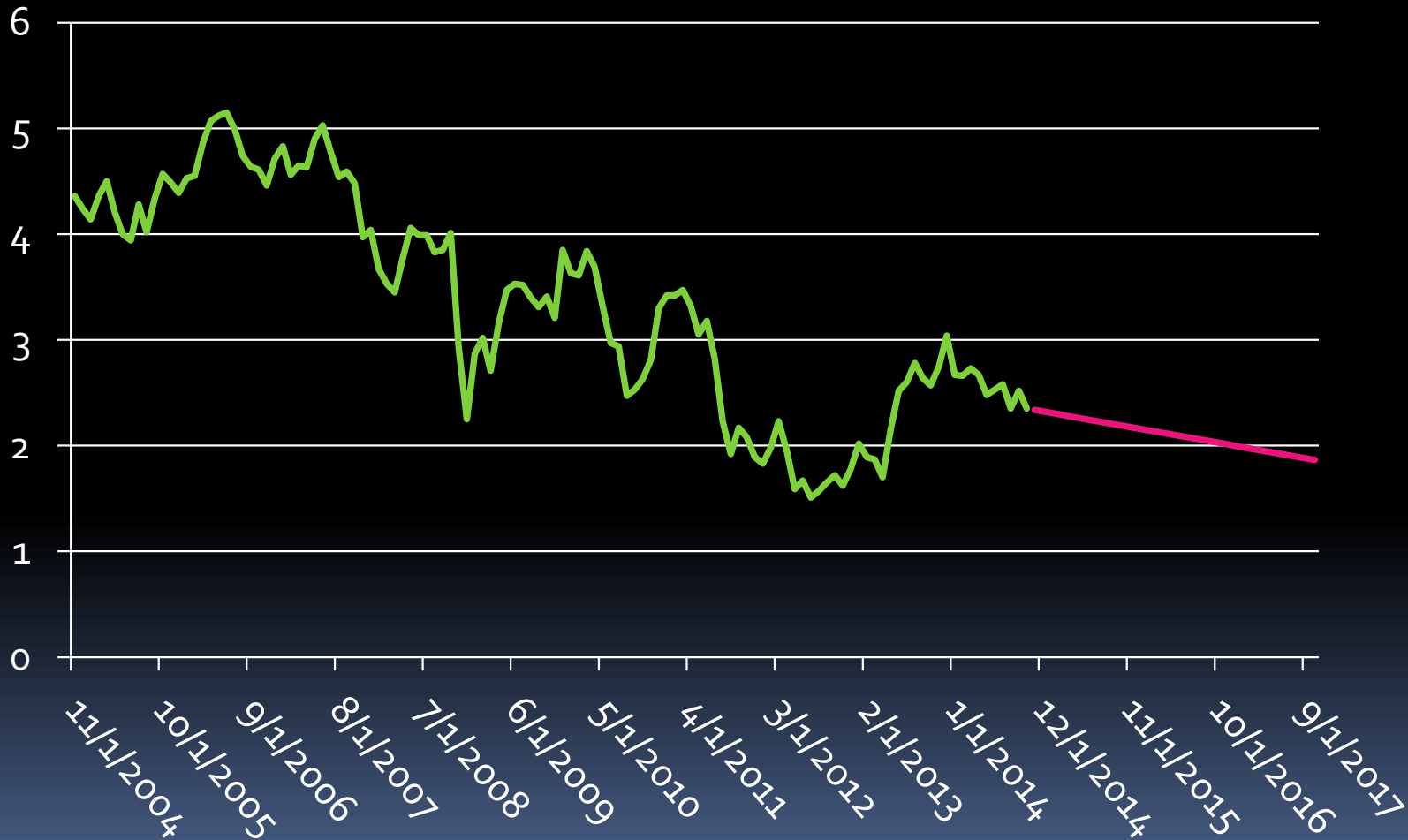
Mean Reversion

Fitted AR(1) Model – No Mean Reversion With This Model



Mean Reversion

Fitted GARCH(1,1) Model – No Mean Reversion With This Model





Mean Reversion

- We Model Interest Rates Stochastically
- But Interest Rates Aren't Stochastic – At Least Not For Trends & Major Movements
- Stochastic Models Capture Our Uncertainty Regarding Causal Factors
- Don't Blindly Revert
- Mean Reversion Should Reflect Views Regarding Causal Factors



Lessons for Insurers

- Financial Intermediation Won't Have Much Value
- Ideas, Insights & Innovation Will Be More Important Than Ever
 - Talent Recruitment & Management
- Critical To Understand Emerging Customer Needs
- Re-examine Hurdle Rates
- Management of Balance Sheet
- Ongoing Likelihood of Asset Bubbles