

CPIM

CENTER FOR PUBLIC INVESTMENT MANAGEMENT



A PROGRAM BROUGHT TO YOU BY:

JOSH MANDEL

TREASURER OF OHIO

General Session & Market Update

Presenters

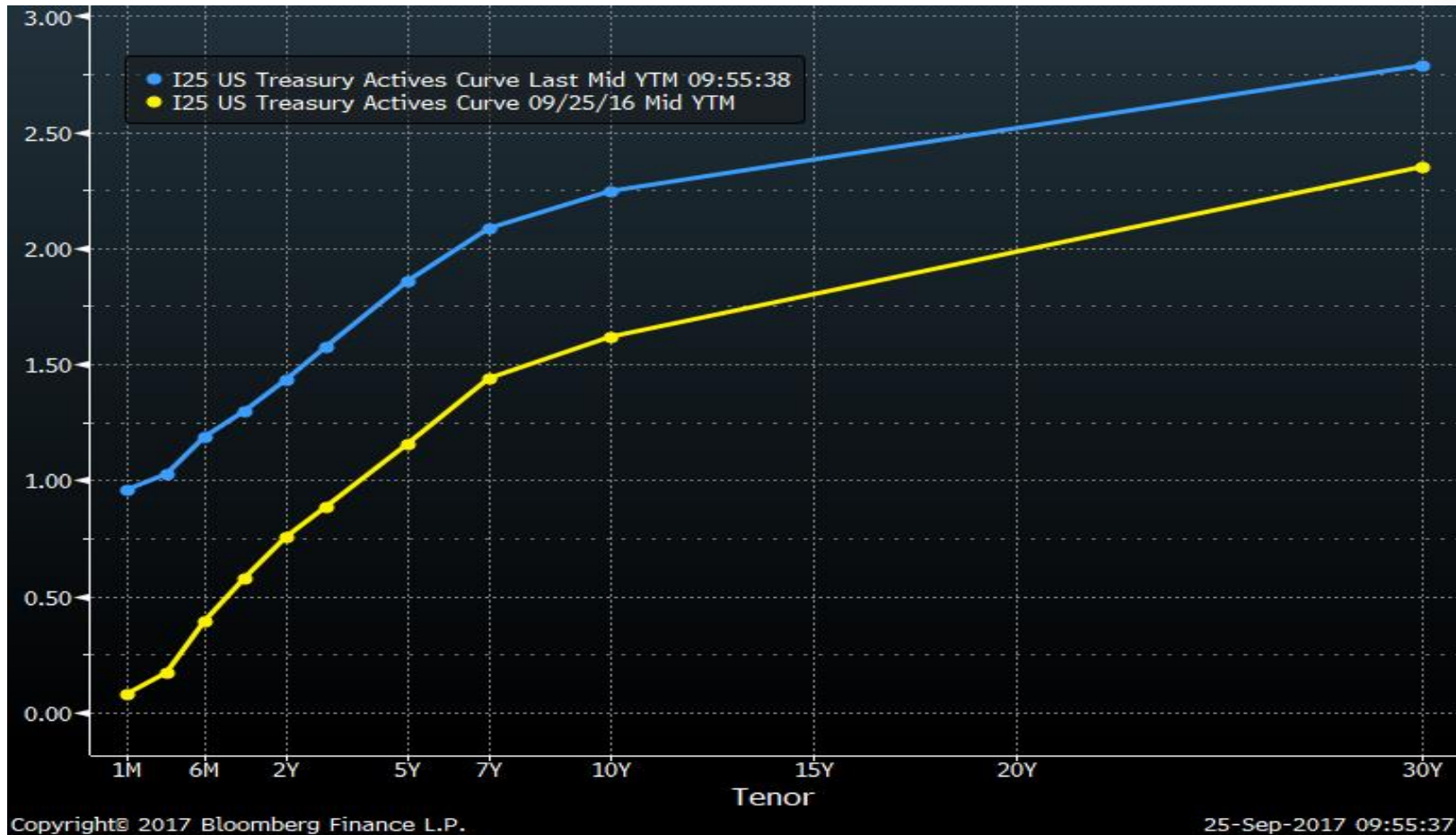
- Zach Amendolea, CFA, Investment Officer
- Office of Ohio Treasurer Josh Mandel
- zachary.amendolea@tos.ohio.gov

- Jason Headings, Director of Fixed Income
- Meeder Investment Management
- jheadings@meederinvestment.com

- Ted Sumnar, Managing Director
- Huntington Capital Markets
- Ted.sumnar@huntington.com

Interest Rate Environment

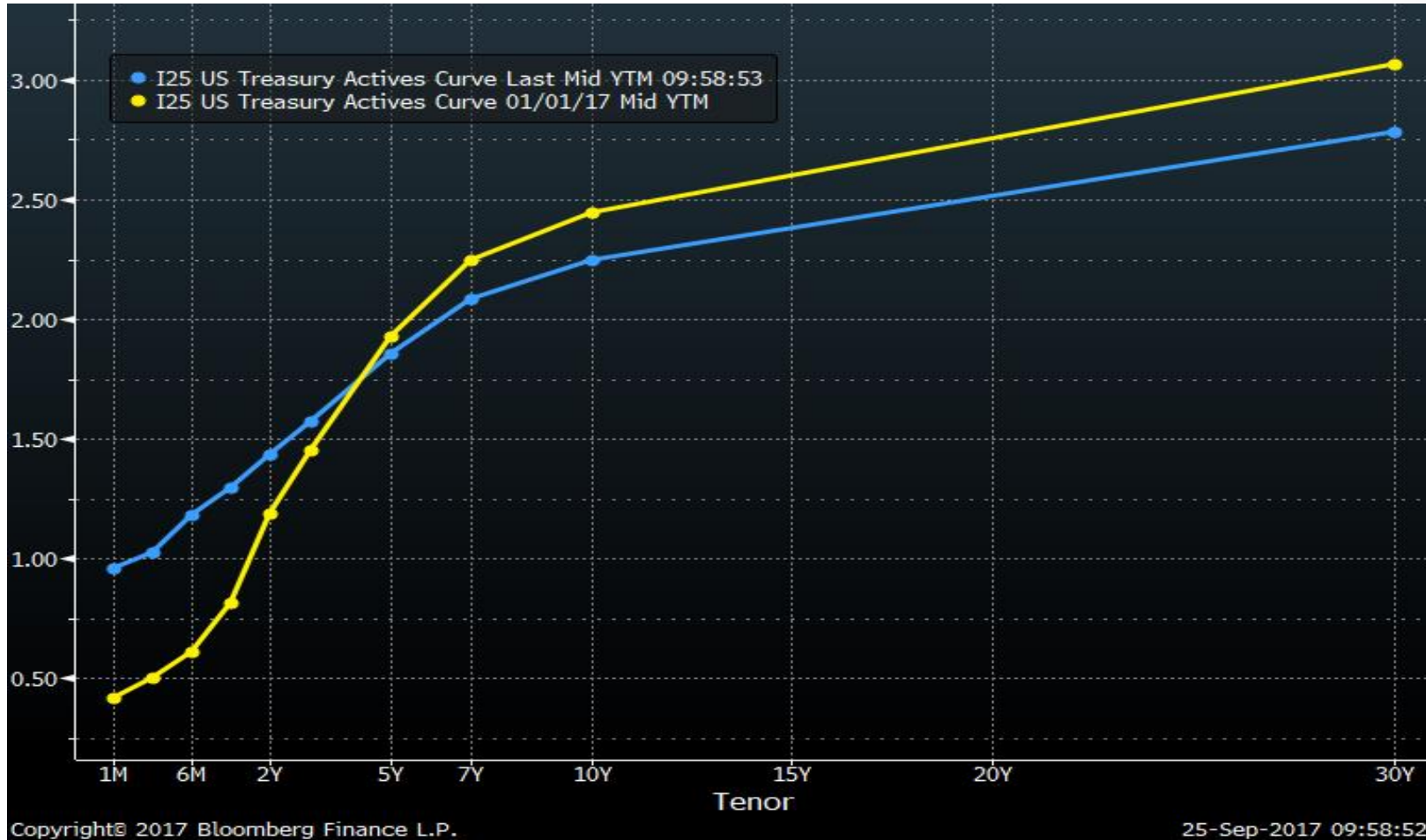
Over the last year, the Yield Curve has shifted upward



Source: Bloomberg as of 09/25/17

Interest Rate Environment

YTD the Yield Curve has Flattened

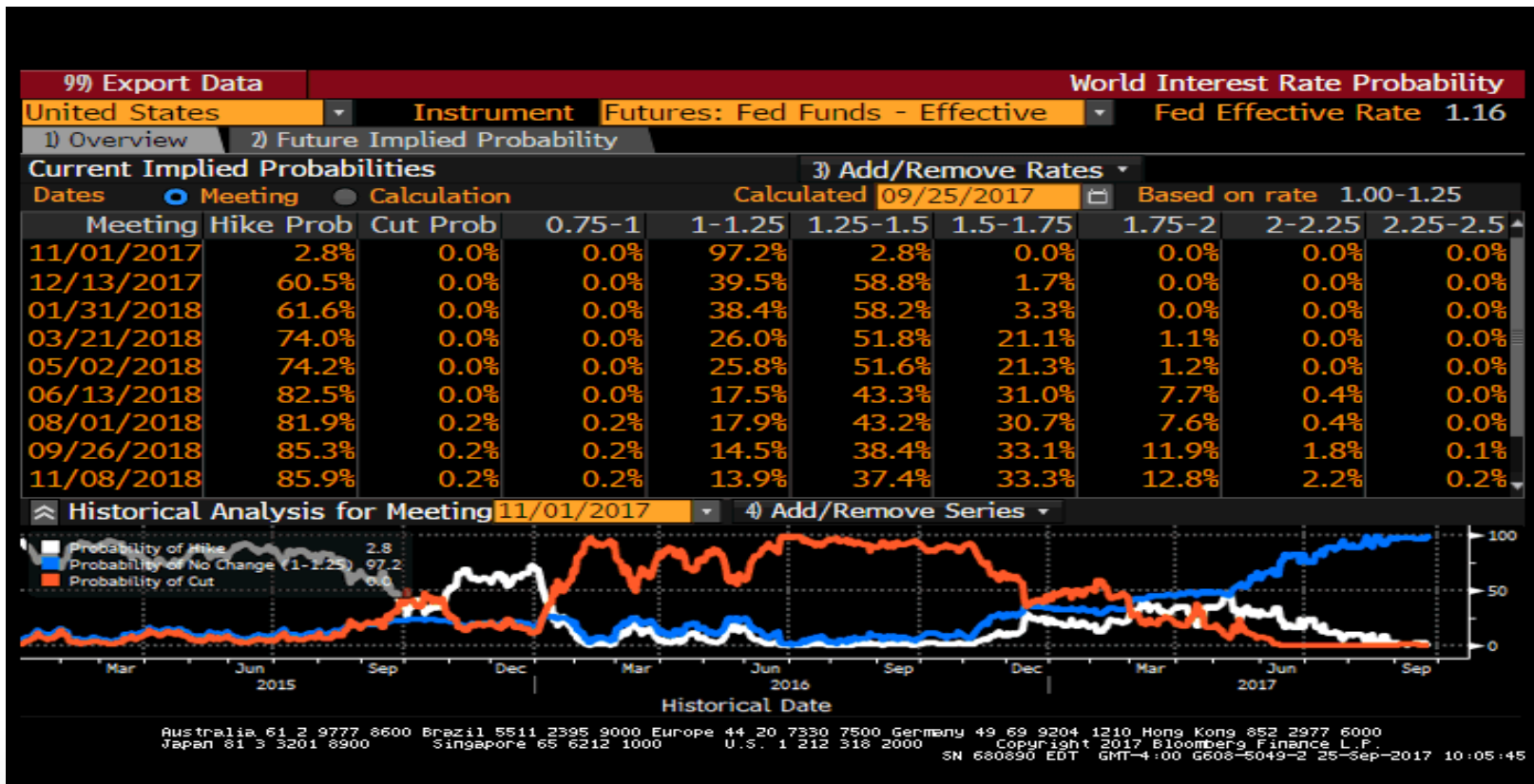


Source: Bloomberg as of 09/25/17

Fed Funds

Implied Probability of Rate Hike

- The Fed Funds implied probability of a rate increase in December is 60%
- Fed vs. market expectations on rates are not aligned for 2018 & 2019



Source: Bloomberg

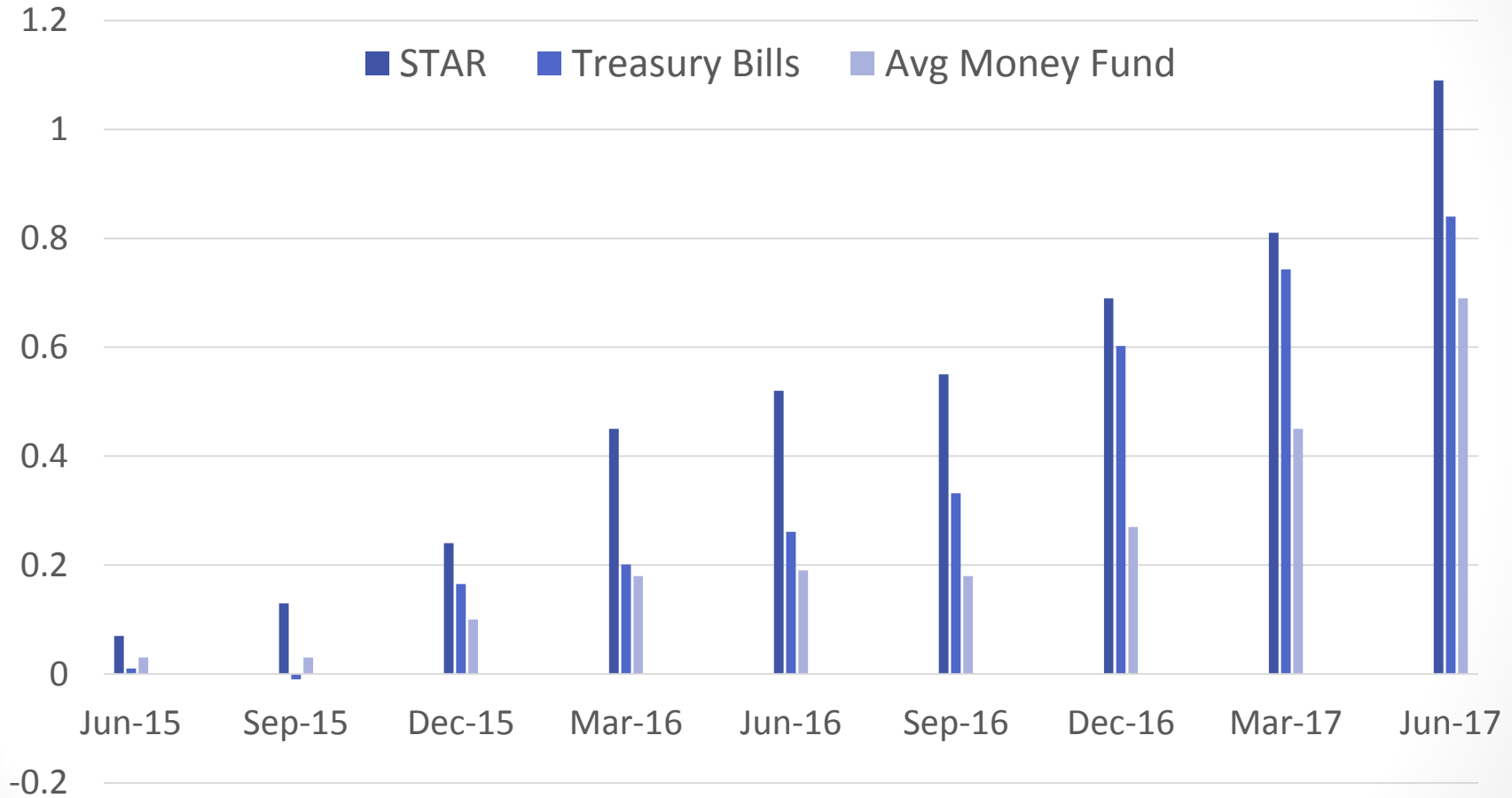
As of 09/25/2017

What does this mean for STAR?

- Expect yields in STAR Ohio to increase
 - Economists predicting multiple rate hikes in 2018
- Fed tightening may not harm growth
 - Long term rates still extremely low
- New administration & fiscal policy
 - Fiscal policy and the FED

Yield Comparison

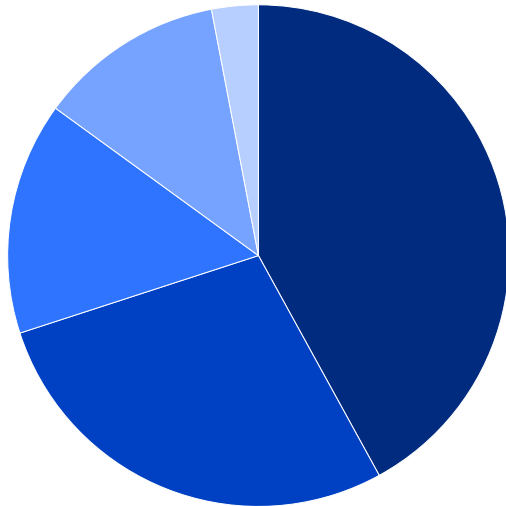
STAR Ohio vs. Treasury vs. Avg Money Fund



Over \$9 billion in Deposits

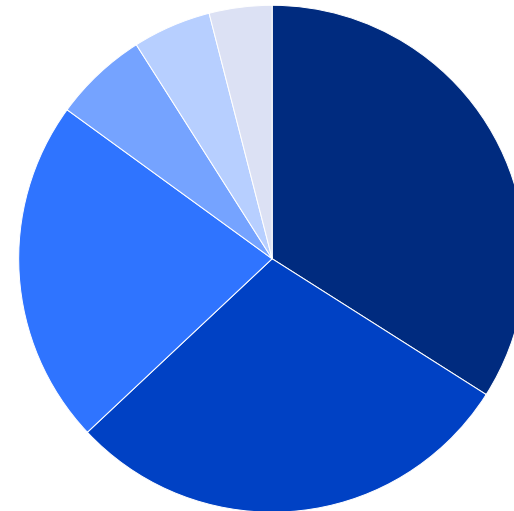
Composition

6/30/2016



- Cash - 42%
- Commercial Paper - 28%
- Gov't Bond - 15%
- Corporate Bond - 12%
- Repo - 3%

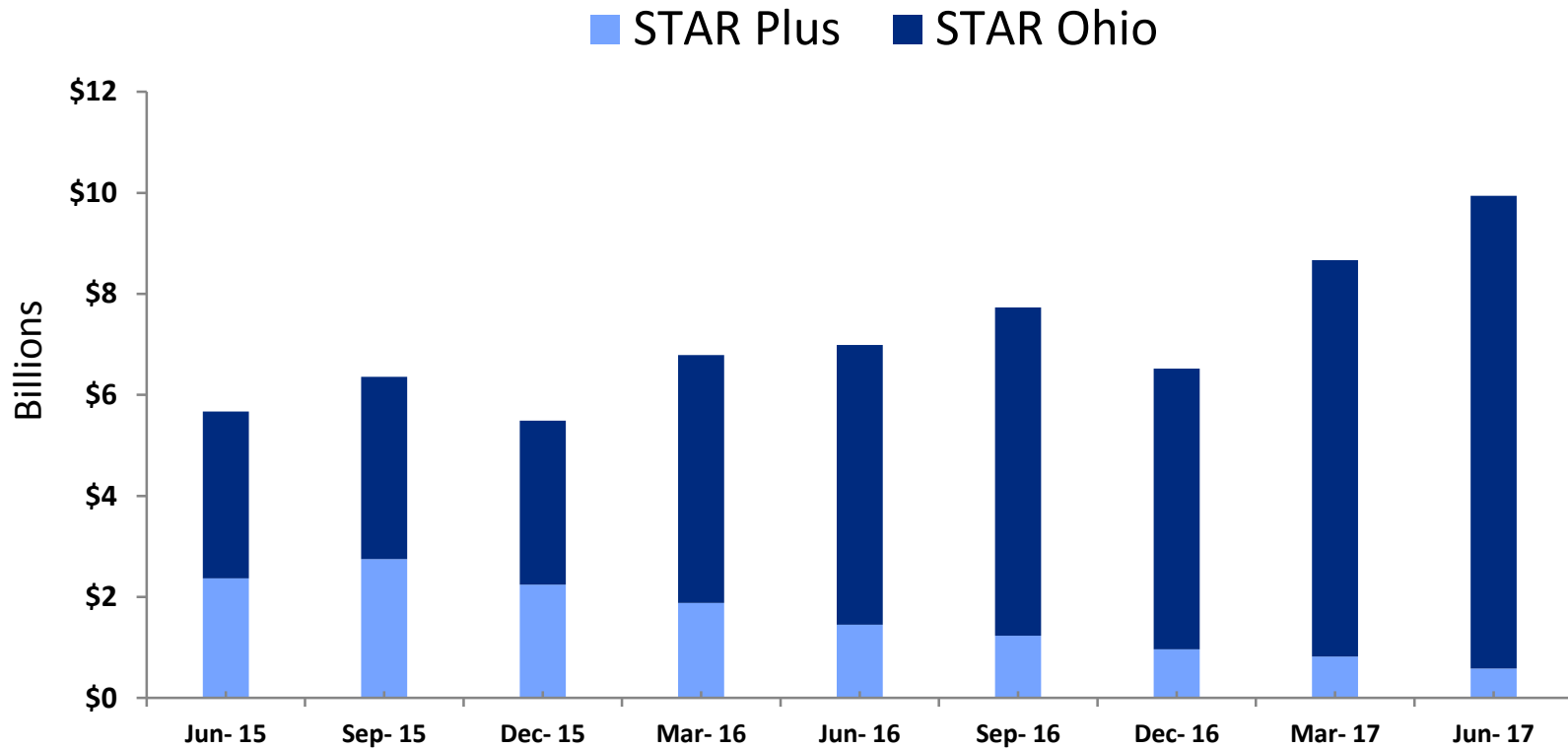
6/30/2017



- Commercial Paper - 34%
- Cash - 29%
- Gov't Bond - 22%
- Repo - 6%
- Corporate Bond - 5%
- Bank Deposit - 4%

Program Assets

Star Ohio vs Star Plus



Data as of 6/30/2017

STAR Ohio vs. STAR Plus

STAR Ohio

- Yield is based on portfolio of underlying securities
- Yield of securities is largely based on economic factors and expectations for interest rates, as well as credit risk
- As securities mature, the rate at which they can be reinvested depends on economic conditions at that time
- Current securities include: US Treasuries, US Government Agencies, Commercial Paper, Corporate Bonds, Repurchase Agreements, and Money Market Funds

STAR Plus

- Yield is based on underlying bucket of bank deposit account
- Yield of bank deposit accounts is based upon each bank's current desire for deposits
- As banks demand for deposits increase, the bank will increase the rate it pays in order to attract deposits
- As banks demand for deposits decreases, the bank will decrease the rate it pays in order to push deposits out of the bank
- Economic outlook has less effect on bank rates

Federal Reserve Outlook

Near Term Policy Outlook

- Fed expected to raise rates in 18 months
- One more rate hike likely in 2017

Longer Term Policy Outlook

- Janet Yellen and Board of Governors service TBD
- Further rate increases with expanding economy
- Balance sheet unwind

Driving Forces Behind Fed Policy

U.S. economy is betting on the consumer

- The labor market is nearing full employment (unemployment < 5.00%)
- Personal earnings and consumption growth holding up
- GDP growing at a moderate pace (2.00% target being achieved)

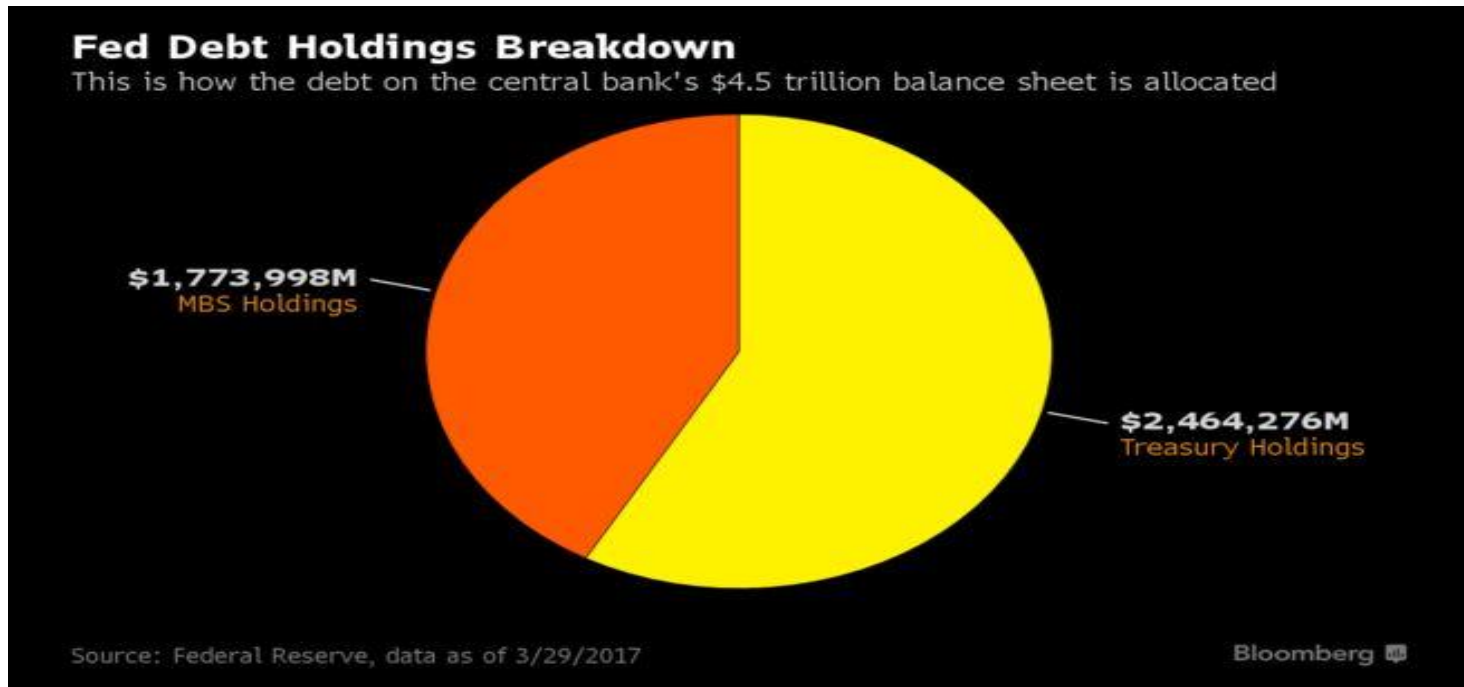
Global economy has the attention of the Fed

- Weakness in China and other emerging markets creating headwinds
- Global volatility remains elevated
- ECB and BOJ continue to maintain accommodative monetary policy

Fed guidance has shifted

- Decision to raise rates will remain data dependent
- Focus on global economy as well as domestic economic targets
- Guidance suggests multiple rate hikes in 2018

Fed Balance Sheet Unwinding



	Months 1-3	Months 4-6	Months 7-9	Months 10-12	Terminal Cap
U.S. Treasuries	6	12	18	24	30
Agency Debt and MBS	4	8	12	16	20

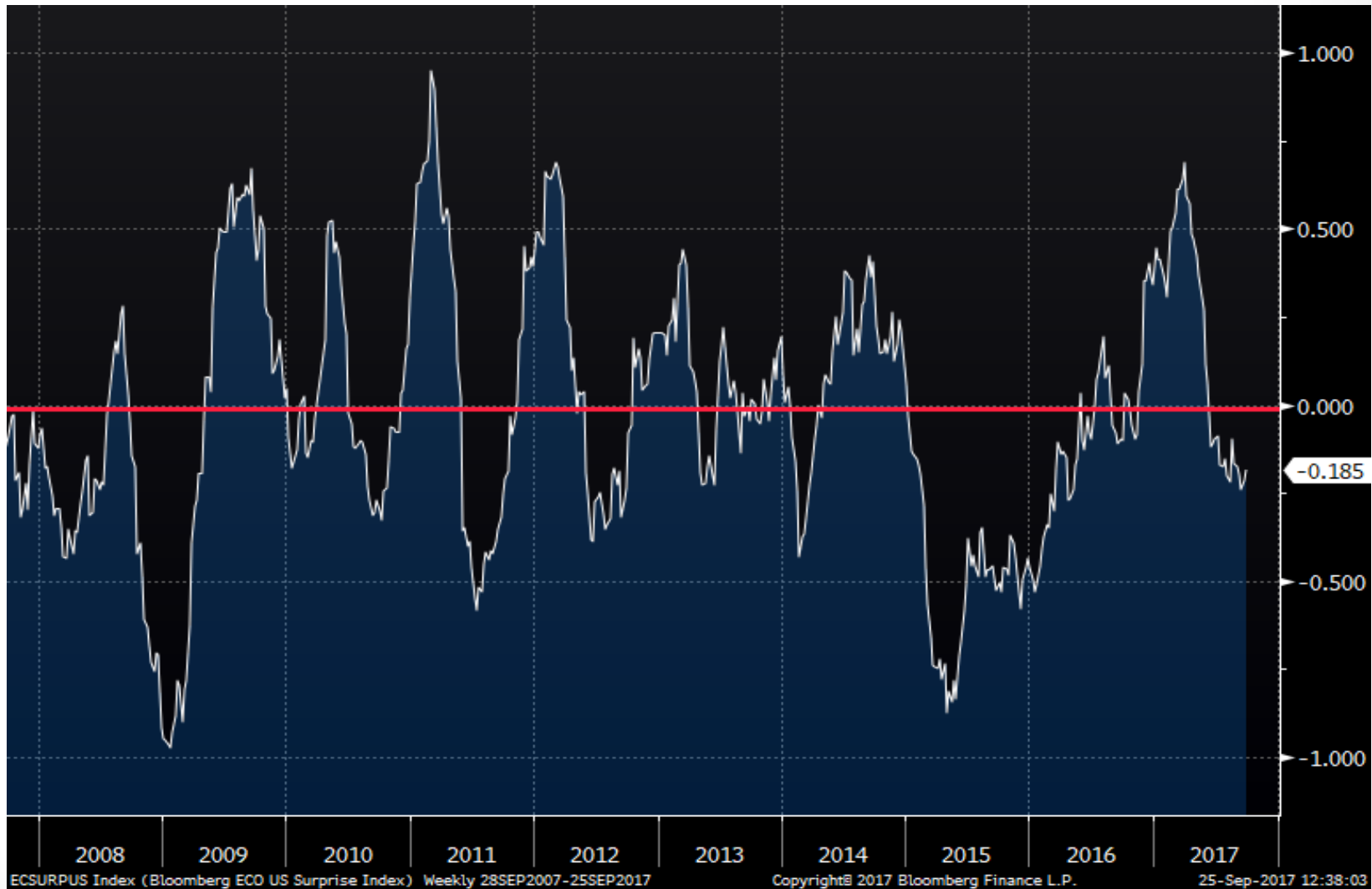
Source: Federal Open Market Committee.

U.S. Economic Factors

- Employment
 - August unemployment rate at 4.4%
 - Slight increase from previous month
 - Participation rate remains low, 63%
- Inflation
 - Inflation projected to increase
 - Trump policy effects moving forward
- Other
 - Student loan debt increasing
 - Subprime automobile loans increasing

“Soft” vs. “Hard” data

Spread between “soft” consumer-sentiment and “hard” economic data



Bloomberg as of 9/25/2017

Negative Interest Rate Policy

Current Global Rates

- 5 central banks are still executing a negative interest rate policy
- NIRP has thus far failed to stimulate economies as expected
- Larger central banks seem to be losing confidence in NIRP and may need to lean more heavily on expansionary monetary policy.

Country	2 year	5 year	10 year
US	1.299	1.863	2.343
Canada	0.687	1.017	1.585
UK	0.118	0.521	1.126
France	-0.436	-0.059	0.879
Germany	-0.688	-0.314	0.417
Sweden	-0.682	-0.097	0.562
Switzerland	-0.938	-0.596	-0.103
Japan	-0.182	-0.126	0.028
Australia	1.638	2.089	2.582

Source: Bloomberg

As of 5/15/2017

Investing in Rising Rate Environment

Be Opportunistic

- Interest rate volatility will create moments of opportunity
- Keep cash on hand, but be willing to put it to work

Be Disciplined

- Following a laddered or barbell strategy will keep portfolio balanced
- Investing regularly will be smartest in the long run

Be Flexible

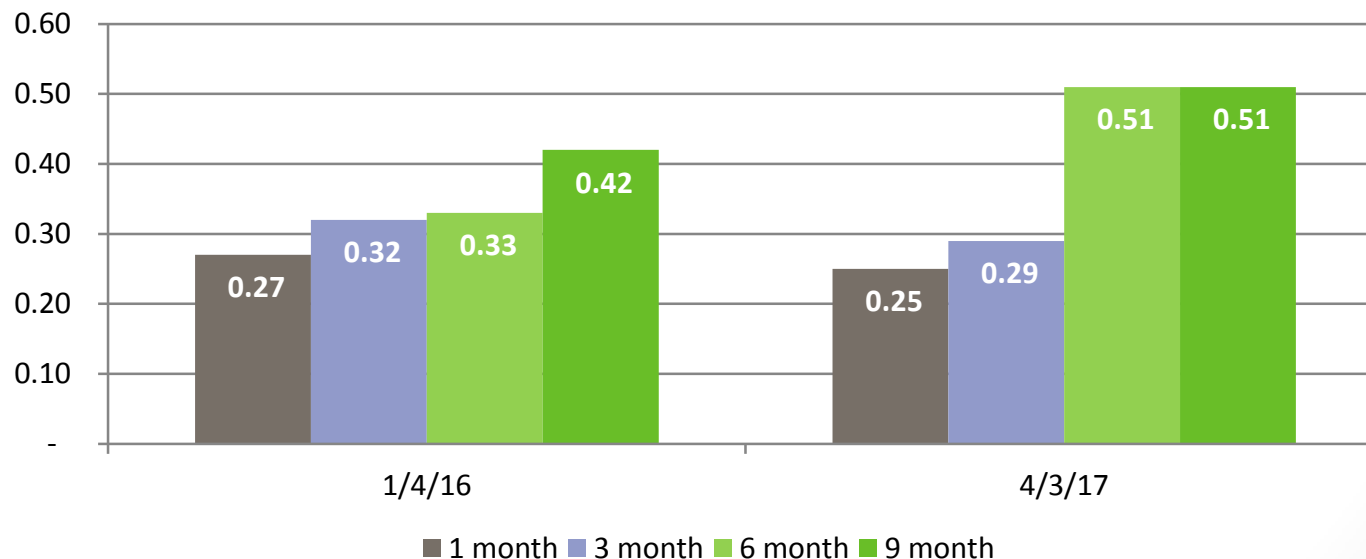
- Keep your paradigm adaptable to a changing environment
- New products and programs will come into favor while others will fade

Commercial Paper

Spreads Have Widened

- Money market reform resulted in changes to prime funds
- As a result, over \$900B in assets moved to government funds
- Commercial paper is a large component of prime funds
- Decreased demand resulted in increased commercial paper yields

Commercial Paper (A1/P1) vs. Agency Discount Notes

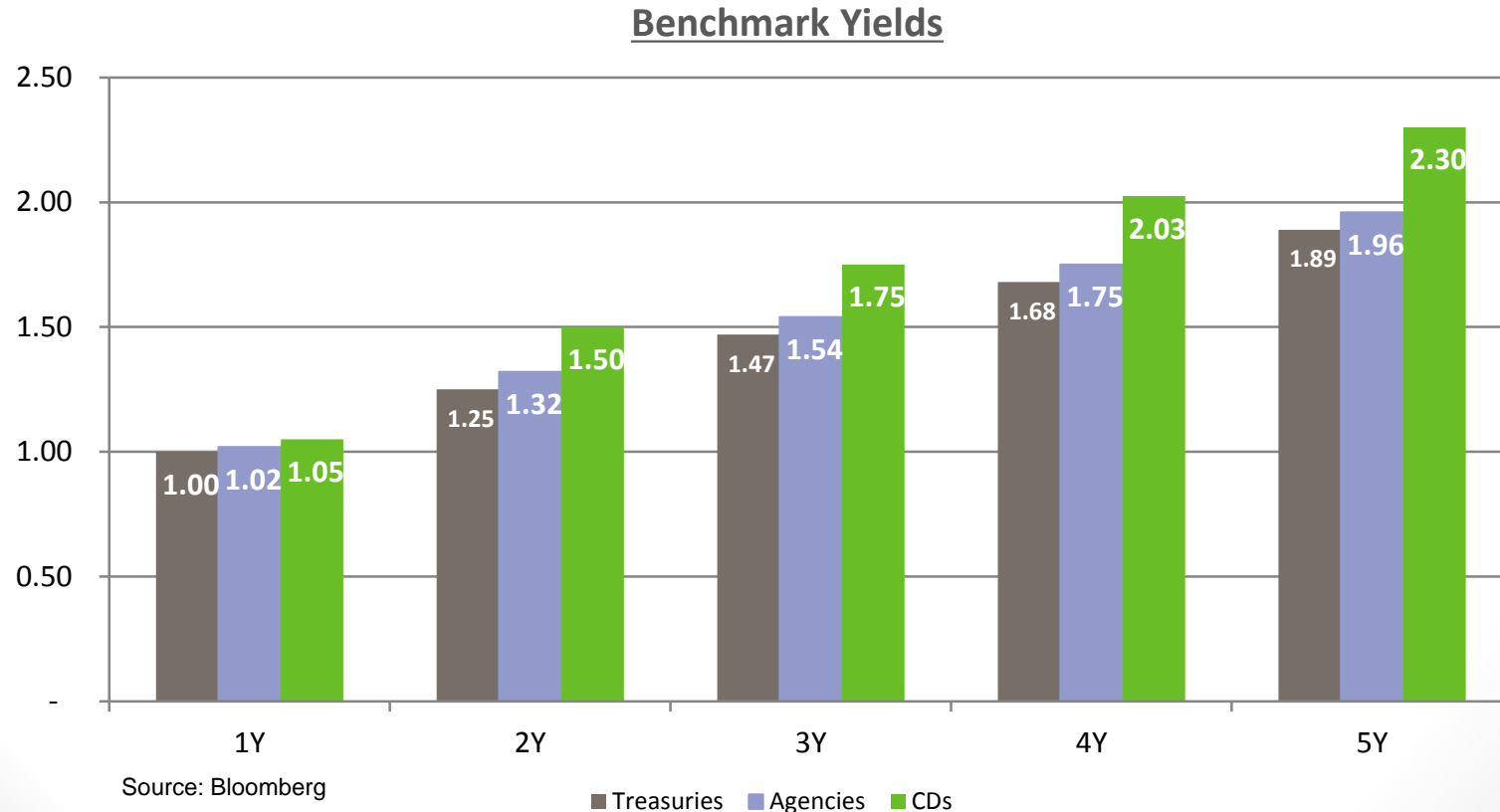


Source: Bloomberg
As of 04/03/2017

Certificates of Deposit

CD Yields are Highest Amongst Other Bullet Options

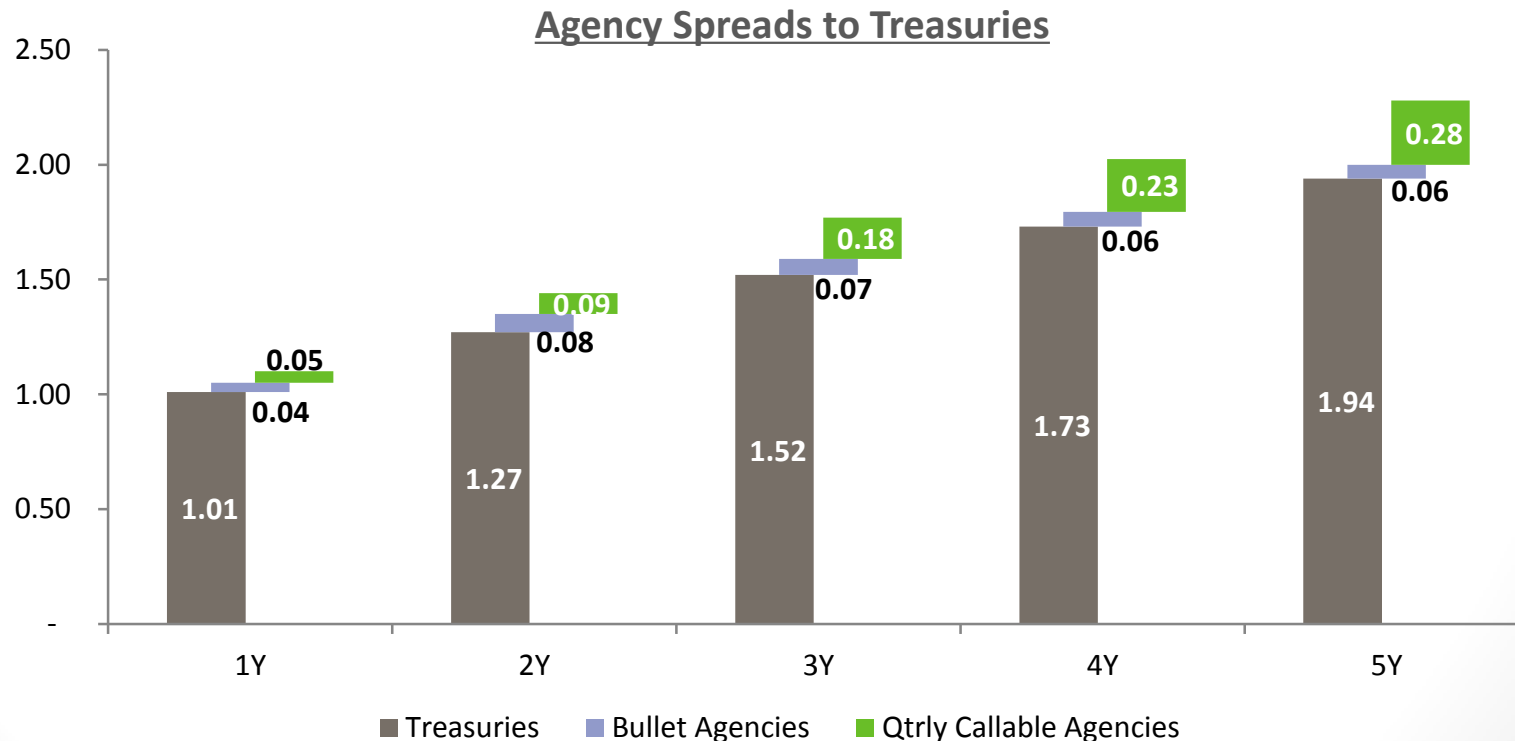
- As agency spreads have narrowed, CD spreads have maintained
- Negotiable CD rates are 15-30 bps higher than 2–5 year agency bullets



Callable Agency Bonds

Provides Yield Enhancement Over Bullets

- Callables can achieve incremental yield compared to noncallable agencies
- Required liquidity is an important factor when deciding to add callable agency bonds to a portfolio.



Source: Bloomberg
As of 04/03/2017