ANNUAL INVESTMENT SEMINAR

Plantation, Florida

Tuesday, August 15, 2017

Offering eight hours of technical business CPE credits with presentations by:

Insight Investment

AndCo Consulting

Bank of New York Mellon Trust Company

Broward County Property Appraiser

Moody's Investors Service

Moore Stephens Lovelace, P.A.

University of Miami, School of Business Administration

Sponsored by: Insight Investment

Hosted by: South Florida Government Finance Officers Association

ANNUAL INVESTMENT SEMINAR

Agenda

Tuesday, August 15, 2017
Plantation, Florida

7:30 am to 8:00 am
Registration and Continental Breakfast

Please sign-in at the seminar registration desk located in the ballroom foyer of the Renaissance Plantation Hotel (lobby level).

8:00 am to 8:15 am
Opening Remarks

SFGFOA

Linda Logan-Short, CGFO, CPM, President

Insight Investment

Dave Witthohn, CFA, CIPM, Senior Portfolio Specialist

Welcome and overview of the day's presentations.

8:15 am to 9:05 am
The US Economy – What bowl of porridge will it be moving forward?

Insight Investment

Carl Mastroianni, CFA, Senior Product Specialist – Fixed Income and Currency

Like the fabled children's tale of Goldilocks and the Three Bears and the bowls of porridge, the US economy is demonstrating signs of being "too hot" (e.g., unemployment, housing), as well as possibly "too cold" (e.g., inflation, wages), but is the overall picture "just right" for pushing the US forward relative to global counterparts? Will the Trump trade continue to stall or reignite? Is the Federal Reserve going to supplement monetary policy tightening with fiscal stimulus? Will businesses increase investment or do we need the traditional salvation of the US consumer to generate growth? Locally, Florida has seemingly found its economy to be "just right" in several areas. Will this 'state' of consistency with a positive fiscal profile and US population growth continue to keep Florida among the US state leaders for economic success?

9:05 am to 9:55 am
Homestead Exemption Update

Office of the Broward County Property Appraiser

Marty Kiar, Broward County Property Appraiser

This session will address the potential increase in Florida's homestead exemption and impacts on both local homeowners and tax revenues. This year the Florida Legislature passed a measure which, if adopted by Florida voters, would create an additional homestead exemption for many Florida homeowners. Current Florida Law provides for a homestead exemption of up to $25,000 on the assessed valuation of a home and an additional exemption of up to $25,000 on the assessed valuation greater than $50,000. This new measure would provide for an additional exemption of up to $25,000 on the assessed valuation greater than $100,000; meaning the value between $100,000 and $125,000 of a home's assessed value would be exempted from all property taxes other than school district taxes. This additional exemption would be applied to all homesteaded property with an assessed value greater than $100,000 and could result in property tax savings of up to *$336 per year for qualified homesteaded property owners. The amendment will appear on Florida's November 2018 ballot and, if adopted, would become effective on January 1, 2019.

*Maximum savings estimate based upon the average 2016 millage rate and applied to a property with an assessed value of $125,000 or more.

9:55 am to 10:15 am
Morning Break

10:15 am to 11:05 am
Rating Agency Update

Moody's Investors Service
Tom Aaron, Vice President, Senior Analyst

This session will review pension risks for state and local government credit quality in the US, with a particular emphasis on Florida local governments.

11:05 am to 11:55 am
Arbitrage Rebate and Calculating Yield

The Bank of New York Mellon Trust Company, N.A.
Kristen Kalinowski, Vice President – Arbitrage Compliance Group

Understanding the arbitrage rules are a necessary component of the bond financing process. This session will cover the rules associated with rebate and yield restriction, how to calculate bond and investment yield, and other considerations for fixed rate and variable rate issuances.

11:55 am to 1:00 pm
Lunch (provided)

1:00 pm to 1:50 pm
The Nuts and Bolts of Public DC Plans: Terminology and Fiduciary Responsibility

AndCo Consulting
John Thinnes, CFA, CAIA, Consultant

Given the increased focus and scrutiny of 457 and 401a plans, this session is designed to cover everything you need to know about prudent fiduciary oversight of deferred compensation and defined contribution plans. The discussion will include governance structure, plan design, investment policy statements, vendor review and selection, employee education and on-going compliance monitoring.

1:50 pm to 2:40 pm
Investment Accounting, Reporting, Internal Controls and Auditing

Moore Stephens Lovelace CPAs & Advisors
William Blend, CPA, CFE, Shareholder and Joel Knopp, Senior Manager – Governmental Practice Group

This session will cover the accounting and reporting issues associated with the implementation of GASBs 72 & 79. We will also discuss the impact to your investment internal controls as well as the impact to auditing of investment by your auditors.

2:40 pm to 2:55 pm
Afternoon Break

2:55 pm to 3:45 pm
Active v. Passive Management of Pension Assets

University of Miami School of Business Administration
Indraneel Chakraborty, Ph.D., Assistant Professor of Finance

The presentation will cover the pros and cons of the two management styles. Discussion topics will include the evolution of the investment management landscape, fund performance evaluation strategies, limits of such strategies, historical choices made by large and smaller pension funds, and the speaker's opinion on the future of the asset management industry and its effects on pension assets management.

3:45 pm to 4:35 pm
Investing in the Current Interest Rate Environment

Insight Investment

David Witthohn, CFA, CIPM, Senior Portfolio Specialist

This session explores some strategies for investing in a rising rate environment and how to incorporate future rate expectations into your current and future investment strategy. Finally, we will look at the yield curve and how to use the shape of the yield curve to analyze market expectations of interest rates.

4:35 pm to 4:45 pm
Closing Remarks

Insight Investment

Dave Witthohn, Senior Portfolio Specialist

SFGFOA ANNUAL INVESTMENT SEMINAR

Speaker Biographies

Tuesday, August 15, 2017
Plantation, Florida

Tom Aaron
Vice President, Senior Analyst
Moody's Investors Service

Tom is the dedicated public pension specialist for Moody's Investors Service US Public Finance Group. He has held this role since 2013, in which he authors pension-related research and facilitates pension risk assessments across the group's ratings. Tom originally joined Moody's as a ratings analyst in 2011, where he covered local government credits. Prior to joining Moody's, he served as Deputy Chief of Staff to a member of the San Diego City Council. Tom holds a Master of Science degree in Applied Mathematics (Actuarial Science) from DePaul University in Chicago and a Master of Arts in Economics from San Diego State University.

William Blend, CPA, CFE
Shareholder
Moore Stephens Lovelace, P.A.

Bill Blend is a Shareholder at MSL and a member of the Firm's Governmental Practice Group. Bill is the Firm's Shareholder in charge of Quality Control and has over 25 years of public accounting, governmental, and not-for-profit experience. Bill has performed audits of various governmental entities including Counties, Municipalities, Utilities, Airports and Special Districts. Through his career he has participated in all phases of an audit including; planning, performing, supervising, reviewing and preparing financial statements. He is qualified to perform audits in accordance with Government Auditing Standards, Federal Single Audit Uniform Guidance, and Florida Single Audit requirements. Beyond his qualifications for performing services for his governmental clients, he has also audited and performed consulting work for Not-for-Profit, Construction, Trucking, Health Care, and other- Middle Market entities.

Bill regularly performs training for organizations such as the FICPA, FGFOA, and internal MSL continuing education courses. He has been recognized by the FICPA as Outstanding Discussion Leader four times. He has also spoken in other States such as Massachusetts, Georgia, and Iowa. Bill authored the AICP's yellow book update CPE session in 2015 and 2016. Bill is also a certified fraud examiner. He has investigated cases involving business fraud and has testified in court cases. Bill is also trained in the use of IDEA data mining software.

Bill holds a B.S. Degree in Accounting from Long Island University and is a Certified Fraud Examiner.

Indraneel Chakraborty, Ph.D.
Assistant Professor of Finance
University of Miami School of Business Administration

Indraneel Chakraborty received his M.S. from Massachusetts Institute of Technology in 2003 and his Ph.D. from the Wharton School, the University of Pennsylvania in 2010. He has worked at Citadel Investments LLC which is one of the largest hedge funds in their Credit Group from June 03—Feb 05, and Citigroup Global Markets Inc., NY in their Relative Value Group until July 2005 when he joined the Ph.D. program.

After his Ph.D., he joined Southern Methodist University in 2010, and the University of Miami in 2015. At the University of Miami, Indraneel teaches a class on Alternative Investments, and another on Financial Institutions to MBA and Masters of Science in Finance. He also teaches Corporate Theory to Ph.D. students.

In 2016, Indraneel's co-authored paper received the Douglas D. Evanoff Best Paper Award from The Chicago Financial Institutions Conference. In 2013, a co-authored paper received the Marshall Blume Award in Financial Research awarded by Jacobs Levy Equity Management Center for Quantitative Financial Research, The Wharton School. In 2010, he was awarded the Shmuel Kandel Award, awarded to an Outstanding Ph.D. Student in Financial Economics, at the Utah Winter Finance Conference. Chakraborty holds six patents worldwide on Bluetooth Wireless Technology. His research papers have been presented in multiple prestigious venues including conferences organized by the National Bureau of Economic Research, American Finance Association, Western Finance Association, American Economic Association, and many others.

Kristen Kalinowski
Vice President, Arbitrage Compliance Group
The Bank of New York Mellon Trust Company, N.A.

Kristen is a Vice President and Senior Specialist located near Charlotte, North Carolina and works with the Memphis, TN office. Kristen has over 23 years of arbitrage rebate compliance experience. She was a member of Ernst & Young's Arbitrage Rebate Compliance Group in Memphis for more than twelve years and Pinnacle Arbitrage Compliance for three years. Kristen currently serves as a quality advisor by performing a detailed technical review of rebate calculations prepared in the Memphis office to ensure compliance with the Regulations.

In addition to her experience in preparing and reviewing arbitrage rebate engagements, she also has experience with computing commingled fund allocations, preparing yield restriction analyses, determining transferred proceeds allocations, and preparing spending exception calculations. Kristen also has experience in the preparation and representation of issuers before the Internal Revenue Service relative to requests for the recovery of overpayments under arbitrage rebate provisions. The clients represented by Kristen include state and local governments, including states, cities, counties, water/sewer authorities and school districts; 501(c)(3)'s; and various types of healthcare facilities.

Kristen regularly attends the National Association of Bond Lawyers Seminars and has been a frequent presenter for Council of Development Finance Agencies seminars and courses. Kristen is an associate member of the National Association of Bond Lawyers as well as a member of the North Carolina Association of Certified Public Accountants and the American Institute of Certified Public Accountants. She graduated from the University of Mississippi with a Bachelor of Accounting and is a Certified Public Accountant.

Marty Kiar
Broward County Property Appraiser
Office of Marty Kiar, Broward County Property Appraiser

Marty is a lifelong Broward County resident and was born at Plantation General Hospital in 1977. Marty graduated from Western High School, which is located in the Town of Davie. Marty earned his Bachelor of Arts degree from Palm Beach Atlantic University where he was a member of the baseball team. Marty then attended law school at Nova Southeastern University. Marty was a member of the Nova Southeastern University Law Review, graduated Magna Cum Laude and earned his Juris Doctorate. After graduating from law school, Marty was appointed to and served his community on the Town of Davie School Advisory Board, the Town of Davie Airport Advisory Board and the Broward County Housing and Finance Authority. Marty also worked as the Assistant Town Attorney and Assistant Municipal Prosecutor for the Town of Davie.

In 2006, Marty was elected to serve in the Florida House of Representatives. He was re-elected to the Florida House of Representatives in 2008 and in 2010. In 2012, Marty was elected to the Broward County Commission representing District 1. Marty served two years as a Commissioner, one year as Vice Mayor and then Mayor. In 2016 Marty was elected to be the Broward County Property Appraiser and took office as the Broward County Property Appraiser on January 3, 2017.

Marty is married to his wife Kelly who is a proud University of Florida Gator. They have two daughters, Brianne and Camryn, a dog named Cooper and a cat named Rocky.

Joel Knopp, CPA
Senior Manager, Governmental Practice Group
Moore Stephens Lovelace, P.A.

Joel Knopp is a senior manager with MSL's Governmental Practice Group. Joel has over 18 years of experience in accounting and auditing and has provided services to numerous municipalities, counties, and special districts.

Joel has performed audits on over 40 governmental entities subject to Government Auditing Standards and Federal and State Single Audit requirements. Joel works directly with clients' management to develop strong relationships, resolve issues arising during audits, and ensures that engagements are performed in accordance with applicable professional standards and in a manner that is consistent with the clients' goals. Joel's previous experience includes work as an audit director for a CPA firm in Virginia, where he managed numerous audits of Virginia local governmental agencies and municipalities.

Joel has been a speaker at training sessions for FGFOA chapters, FSFOA, FICPA, Florida Audit Form, and at various MSL training events. These sessions have included training on auditing standards, Single Audit, and GASB pronouncements.

Joel holds a B.S. Degree in Accounting from Eastern University.

Carl Mastroianni, CFA®
Senior Product Specialist – Fixed Income and Currency
Insight Investment

Carl joined Insight in January 2013 following the acquisition of Pareto; he originally joined Pareto in 2005. Carl is a Senior Product Specialist covering fixed income and currency strategies for the North American region, as well as responsible for the Client Portfolio Management Team which serves as the primary interface between Insight and our currency management clients in the North America. Prior to Pareto, Carl joined JPMorgan in 1998 as a Compliance Officer in their investment management business. Here, he supported and analyzed daily business activities relevant to various regulatory requirements, including the Investment Acts of 1940 and the Employee Retirement Income Security Act (ERISA). Carl went on to become a Vice President and Client Service Officer/Portfolio Manager in JPMorgan's fiduciary manager-of-managers' business for institutional clients. Carl started his career in 1993 as a Compliance Examiner in the New York office of the Securities & Exchange Commission (SEC) where he reviewed and analyzed investment management registrants for compliance with federal securities laws. Carl holds a BS (Hons) in Accounting (minor in Finance) from CW Post at Long Island University. He also holds an MBA (with distinction) in Banking and Finance from Hofstra University, Long Island. Carl is a CFA charterholder and also a member of the New York Society of Security Analysts. He also maintains Series 7, 24 and 63 licensing with the Financial Industry Regulatory Authority (FINRA) through MBSC Securities Corporation and is an Associated Person (Series 3) with the National Futures Association.

John Thinnes, CFA®, CAIA®
Consultant
AndCo Consulting

John Thinnes is a Consultant at AndCo. His duties include coordinating consulting initiatives, optimizing investment portfolios, preparing investment manager due diligence reviews, selecting investment managers, developing investment policy guidelines, and preparing performance-monitoring reports.

Previously he was an Internal Consultant with AndCo responsible for investment research, performance analysis, plan administration, compliance monitoring, and operational and administrative support. John was also formerly a Research Analyst with AndCo where he performed due diligence on managers covering domestic equity, international equity and alternative investments. John has been featured as a speaker at conferences such as the Florida Division of Retirement Annual Police and Fire Trustee School, the South Florida Government Finance Officers Annual Conference and the Florida Public Pension Trustee Association (FPPTA) annual conference.

John holds a Bachelor of Science in Economics from Rollins College, and also a Master of Business Administration in Finance and Entrepreneurship from Rollins College Crummer Graduate School of Business. He is a CFA® charterholder as well as a Chartered Alternative Investment Analyst.

David Witthohn, CFA®, CIPM
Senior Portfolio Specialist
Insight Investment

David joined Insight's Fixed Income Group as a senior portfolio manager in January 2015, following BNY Mellon's acquisition of Cutwater Asset Management (Cutwater). He originally joined Cutwater in 1997 and has worked in the financial services industry since 1982. David's areas of expertise include portfolio management and statistical performance review. He has extensive years of experience in working with public entities on their investment portfolios and has additional experience in the areas of institutional mutual funds and bank portfolio management. He speaks frequently in the US on public funds asset management and is active in many public finance associations across the US. David holds a BA in Business Economics from the University of Pittsburgh and a Master's of Science (MSF) in Finance from the University of Colorado. He is a CFA charterholder and also has the Certification for Investment Performance Measurement (CIPM).

SFGFOA Annual Investment Seminar

Carl M. Mastroianni, CFA, Senior Product Specialist

August 15, 2017

Insight INVESTMENT

Agenda

- The US economy: Is it the ‘Goldilocks’ effect?
- Florida: a ‘state’ of consistency moving forward

The US economy: Is it the ‘Goldilocks’ effect?

Insight's 2017 global outlook

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United Kingdom:
GDP 1.3% CPI 2.9%

- Weak pound has boosted manufacturing, inflation
- Recent election has weakened the government
- Uncertain monetary policy

Euro Zone:
GDP 2.1% CPI 1.2%

- Nearing the end of emergency easing
- Variable growth with Spain and Germany leading, but Italy lagging
- Lending growth is rebounding

United States:
GDP 2.4% CPI 1.8%

- Monetary policy normalizing
- Fiscal policy potentially supportive through 2018
- Inflation persistently undershooting target

China:
GDP 6.4% CPI 1.5%

- Fiscal expansion supporting growth
- Capital flows are stable
- Too much debt

Japan:
GDP 0.9% CPI 0.8%

- Demographics are problematic
- Lack of inflation
- Easy monetary policy

Emerging markets:
(Russia, India & Brazil)
GDP 3.5% CPI 5.1%

- Helped by commodity stabilization
- Worst may be behind Russia and Brazil
- Constructive on Mexico and India

▲ = Improving
▶ = Stable
▼ = Deteriorating

Source: Bloomberg, as of June 30, 2017. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

Our view

Post-crisis leverage remains high	• Slower long-term potential growth • Lower neutral interest rates • May raise refinancing risks down the road
Easy monetary policy coming to an end	• Rates should rise in US • Reins passed to fiscal authorities from central banks, particularly in the US • 'Quantitative easing bid:' underpinning assets like mortgage-backed securities will fade
Populist sentiment raises risk of more atypical political leaders	• Could benefit inflation pricing from protectionist policies • Tactical opportunities may arise as political headlines cause undue volatility • Growth supportive policies should benefit corporate credit
Suppressed inflation driven by the 3 Ds	• Demographics: as baby boomers move into the stage of retirement, slowing labor force growth puts downward pressure on growth and inflation • Debt: minimal deleveraging post global financial crisis remain a headwind to nominal growth • Disruption: technological advances in automation have allocated resources more efficiently to certain sectors of the economy, but this may not result in productivity gains or increased GDP

As of June 30, 2017.

The Trump Trade:
'Delayed but not denied'

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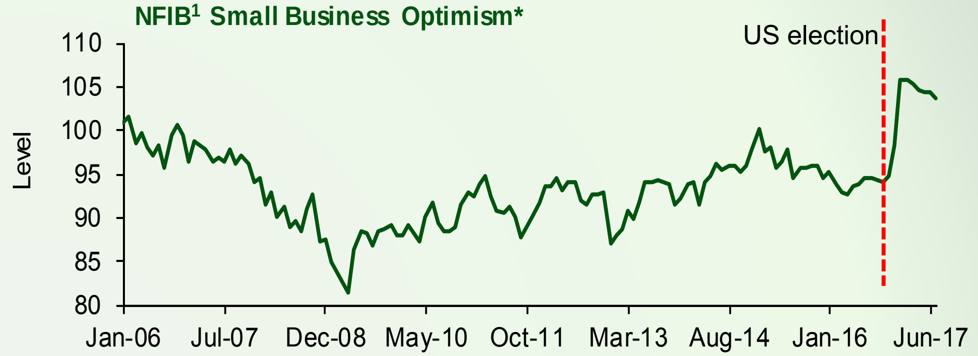
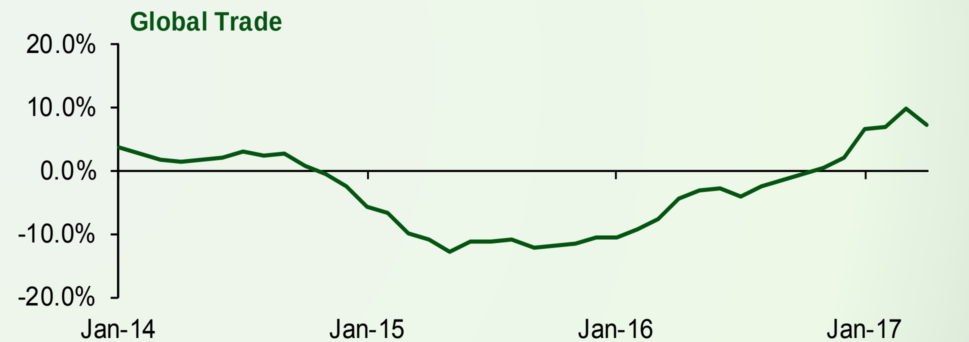
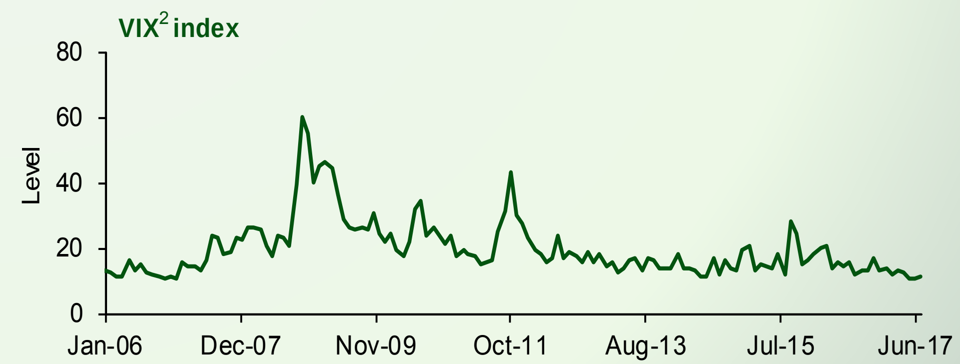
- Fiscal expansion still likely
  - We expect action on a tax cut either in late 2017 or 2018, which should include a temporary cut in marginal rates and the elimination of some deductions
  - Hope for a tax cut is driving much of the improved business sentiment
- Policy negatives unlikely to be widespread
  - Post election, there was fear of a massive shift in trade policy that would be deleterious to global growth, but in reality, it looks like changes will be more incremental and limited to certain sub-sectors
  - In fact, international trade activity has actually improved over the past six months
- Global risks do remain
  - While markets appear calm if not complacent with the VIX nearing record lows, geopolitical risks remain from North Korea to Qatar
  - However, European political risk has subsided, which has buoyed sentiment globally





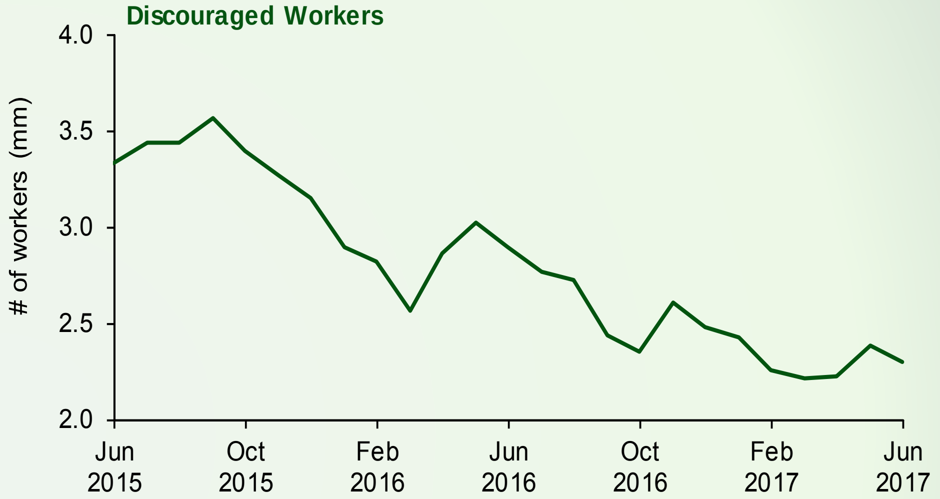


Source: Bloomberg, as of June 30, 2017. [1] National Federation of Independent Business. [2] Volatility Index.

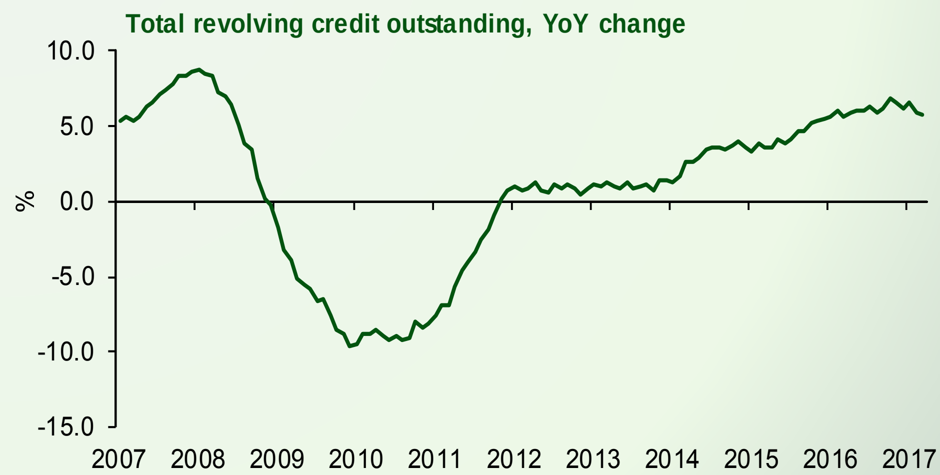
US labor market is showing signs of improvement

Insight INVESTMENT

- Muted wage growth
  - Wage growth has disappointed in 2017, as more discouraged workers re-enter the labor force
  - This hidden slack has left wage growth softer than one would expect given the current unemployment rate
  - Still as the slack diminishes, wages should gradually rise, supporting consumer spending



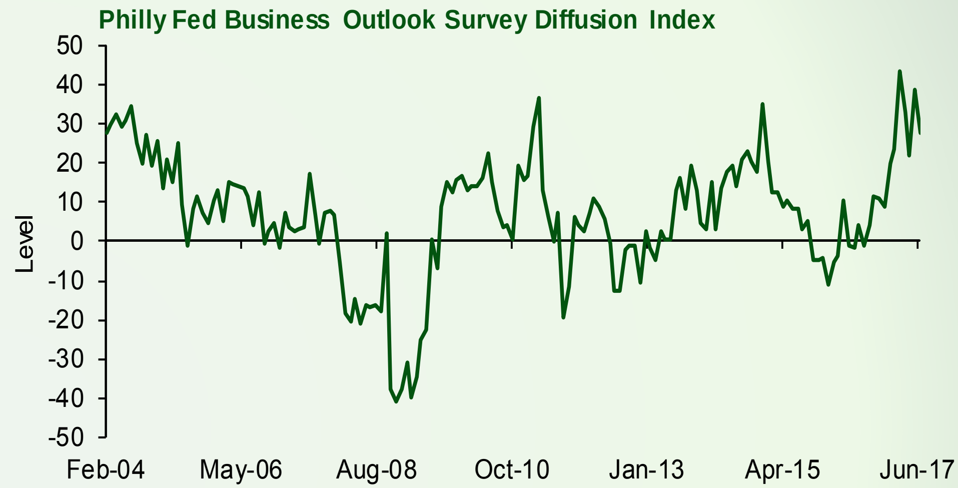
- Credit card spending continues
  - While rising consumer leverage may prove problematic over time, it should boost growth in the near term
  - Expectation of a tax cut may be pulling forward spending
  - While consumer spending is strong, its composition is changing drastically with a structural shift from brick and mortar to online retailers



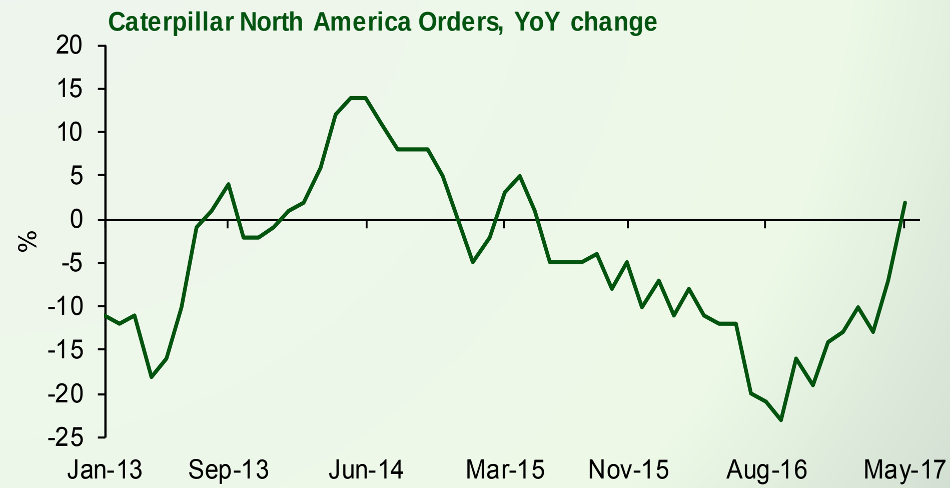
Source: Bloomberg, Insight as of June 30, 2017. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

US business investment is supporting growth in 2017

- Manufacturing turning a corner
  - After stagnating for several years, business investment should pick up towards 4.0% this year, led by the aerospace sector
  - With a relatively stable dollar and oil cap-ex outlook, manufacturing optimism remains quite high
  - This sector is among the most sensitive to the Washington DC policy outlook



- Optimism is translating into higher spending
  - Demand for heavy equipment has picked up noticeably over the past six months, reversing a two year slide
  - This equipment spending should portend more investment activity in the manufacturing and construction sectors in the coming quarters
  - While the investment picture is brightening, autos are likely to be a modest drag

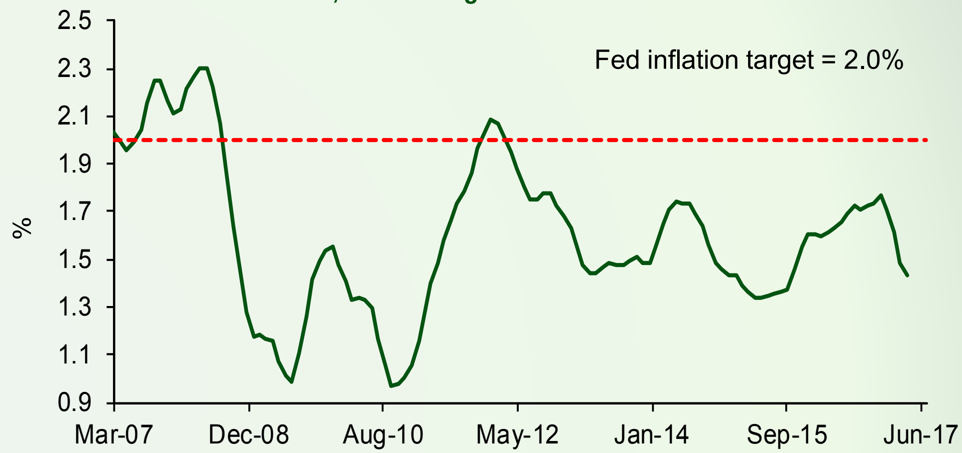


Source: Bloomberg, as of June 30, 2017. As of May 31, 2017.

US inflation has flat-lined

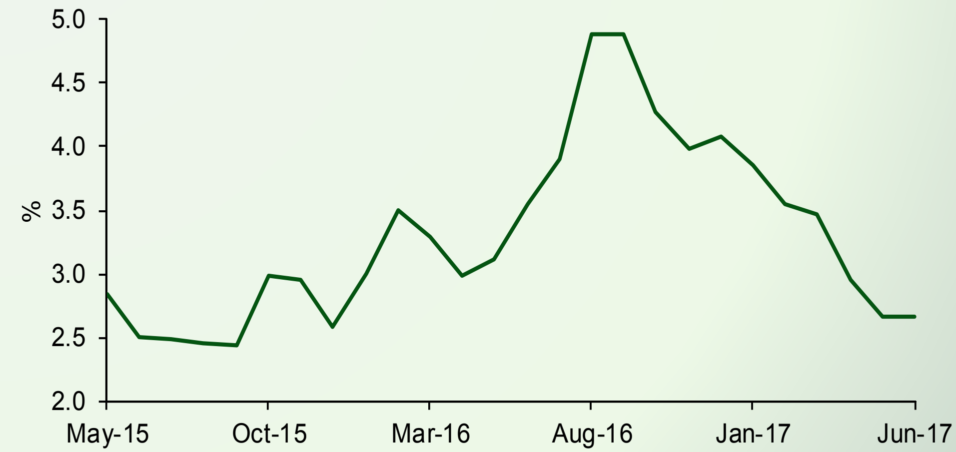
- Core inflation stuck below target
  - Facing headwinds from communications and healthcare, inflation has stopped its gradual push toward the Fed target of 2.0%
  - Wage growth has also undershot expectations, limiting its upward pressure on prices
  - However, we don't expect core inflation to continue to decelerate from here

3-month core PCE[1], YoY change



- Healthcare driving much of the weakness in inflation
  - Medical inflation has slowed dramatically over the past year, cutting core inflation by 20bps, though it is nearing a level of historical stabilization
  - Medical inflation has been slowed by several large drugs going off patent and an unfavorable base effect in health insurance, though these headwinds are not recurring and are largely behind us
  - A very tight nurse labor market should exert upward pressure on hospital pricing

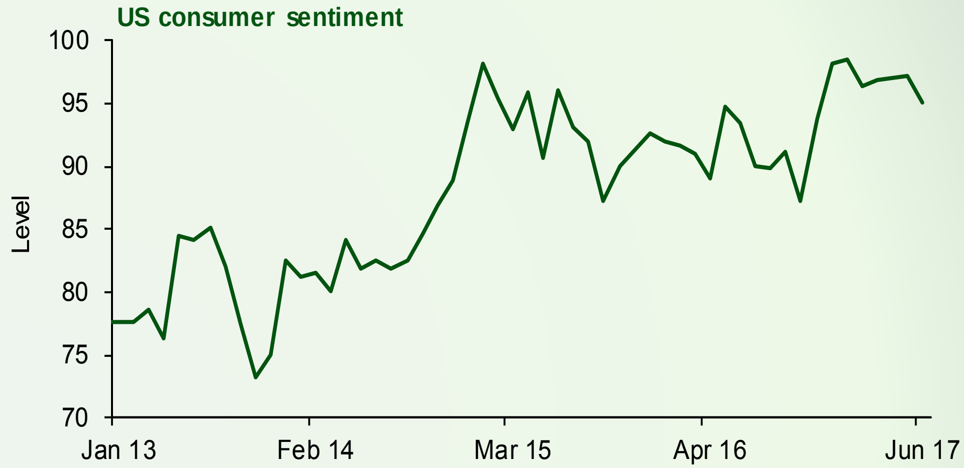
CPI[2] Medical inflation



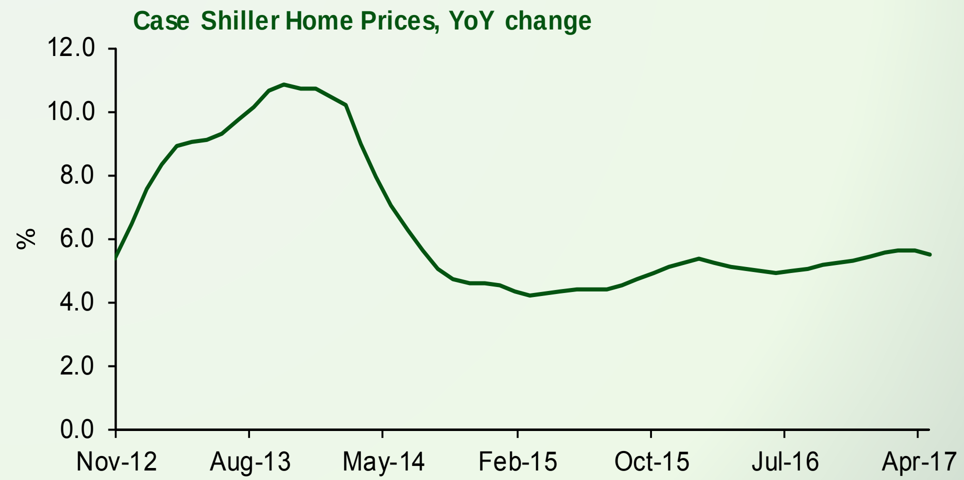
Source: Bloomberg, as of June 30, 2017. [1] Personal Consumption Expenditure Index. [2] Consumer Price Index.

Consumer spending continues to be supportive

- Consumer confidence remains elevated
  - While somewhat off its post-election high, consumer confidence remains near a cycle high, though a failure to cut taxes could dampen optimism
  - Nearing full employment, and with wages showing some signs of gradual acceleration, consumer spending should continue to grow around its recent trend of 2.5–3.0%



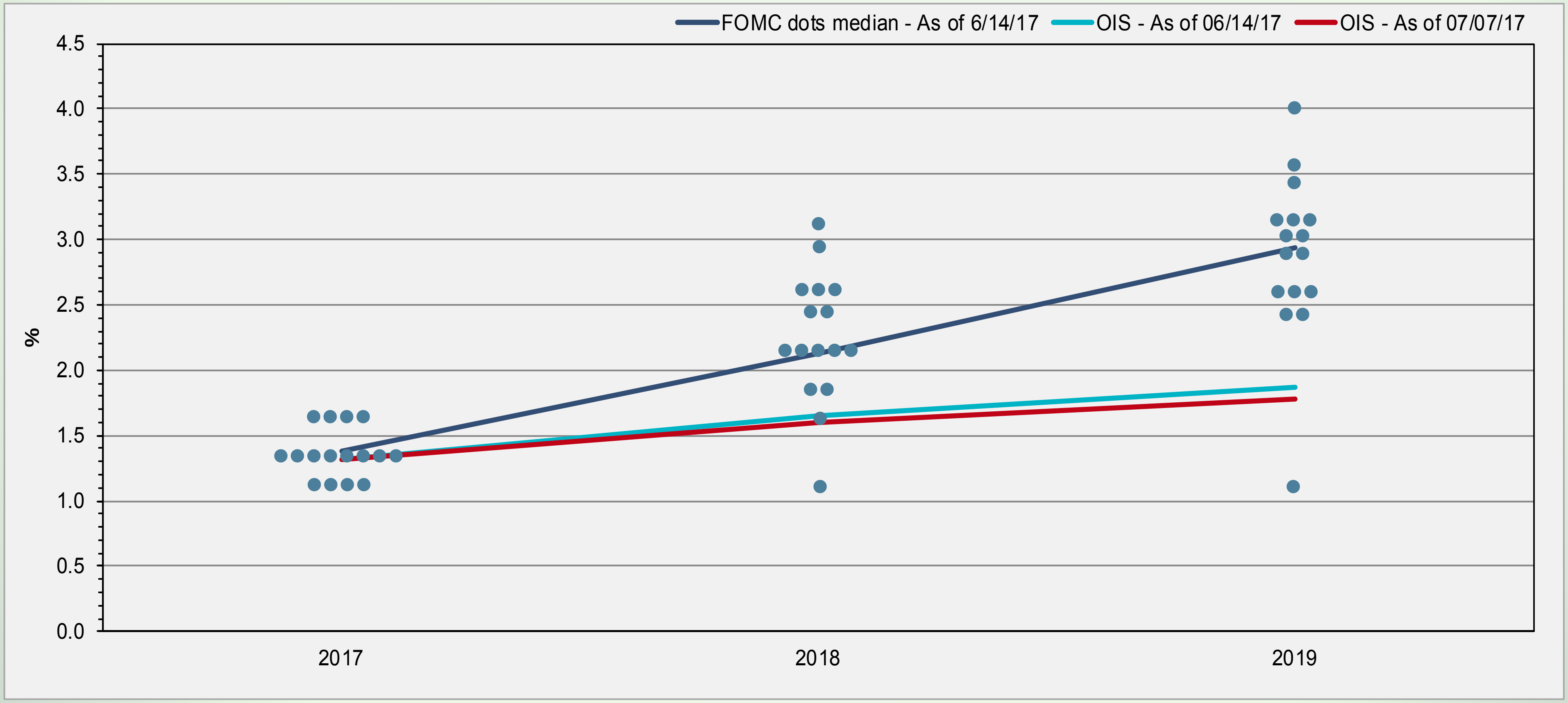
- Home prices are surprisingly buoyant
  - Prices have continued to rise about 5% for the past three years
  - Relatively high home and equity prices are boosting household wealth, which should support consumer spending
  - With relatively low rates boosting affordability and mortgage standards easing somewhat, home prices appear poised to continue their upward trend



Source: Bloomberg, as of June 30, 2017. As of April 30, 2017.

Fed forecast versus the futures market

- The market essentially believes the FOMC's (Federal Open Market Committee) 2017 forecast: pricing in nearly one more hike
- However, the market is skeptical of the Fed's path beyond this year, questioning its ability to continue raising rates
- With a self-sustaining recovery and loose financial conditions, we believe the market is underappreciating the capacity for future rate hikes, which is reflected in our US interest rate forecast



Source: Bloomberg, as of July 7, 2017. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

Insight's 2017 US outlook

Insight INVESTMENT

- Our economic outlook should support corporate fundamentals and permit moderate outperformance in spread markets
- We believe that 2.2–2.5% GDP* growth is the 'sweet spot for credit' as the economy seems strong enough to help companies grow into their capital structure
- We expect the Fed to hike one more time in 2017 with the 10-year Treasury ending the next 12 months in the 2.9%** range. And while rates may go higher, we are not forecasting an extreme sell-off due to structural headwinds and demand for duration from insurers, pension funds and international investors
- Market optimism may be susceptible to political headlines as the Trump administration seek to execute on a tax cut

Source: Bloomberg, as of June 30, 2017. * Gross domestic product. ** The forecast are based on a 12 month time horizon. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

Market forecasts

Insight INVESTMENT

Major economies: bond yields (%)

Country	Central Bank		2-year			5-year			10-year			30-year		
	Forecast	Current	Forecast	Current	Mkt fwd	Forecast	Current	Mkt fwd	Forecast	Current	Mkt fwd	Forecast	Current	Mkt fwd
UK	0.25	0.25	0.40	0.27	0.35	1.10	0.57	0.79	1.80	1.19	1.42	2.40	1.83	1.87
US	2.00	1.25	2.35	1.34	1.66	2.65	1.81	2.12	2.90	2.24	2.47	3.30	2.81	2.91
Germany[1]	-0.40	-0.40	-0.50	-0.66	-0.45	-0.10	-0.18	0.06	0.70	0.50	0.75	1.40	1.27	1.43
Japan[2]	-0.10	-0.10	-0.20	-0.13	-0.08	-0.10	-0.07	-0.03	0.10	0.06	0.17	1.10	0.85	0.91

Source: Insight, as of July 20, 2017. [1] ECB Deposit Rate [2] Bank of Japan Policy Rate
Note: The forecasts are based on a time horizon of 12 months.

Florida: a ‘state’ of consistency moving forward

Our view

2016 US state growth: Florida in the top ten for 2016

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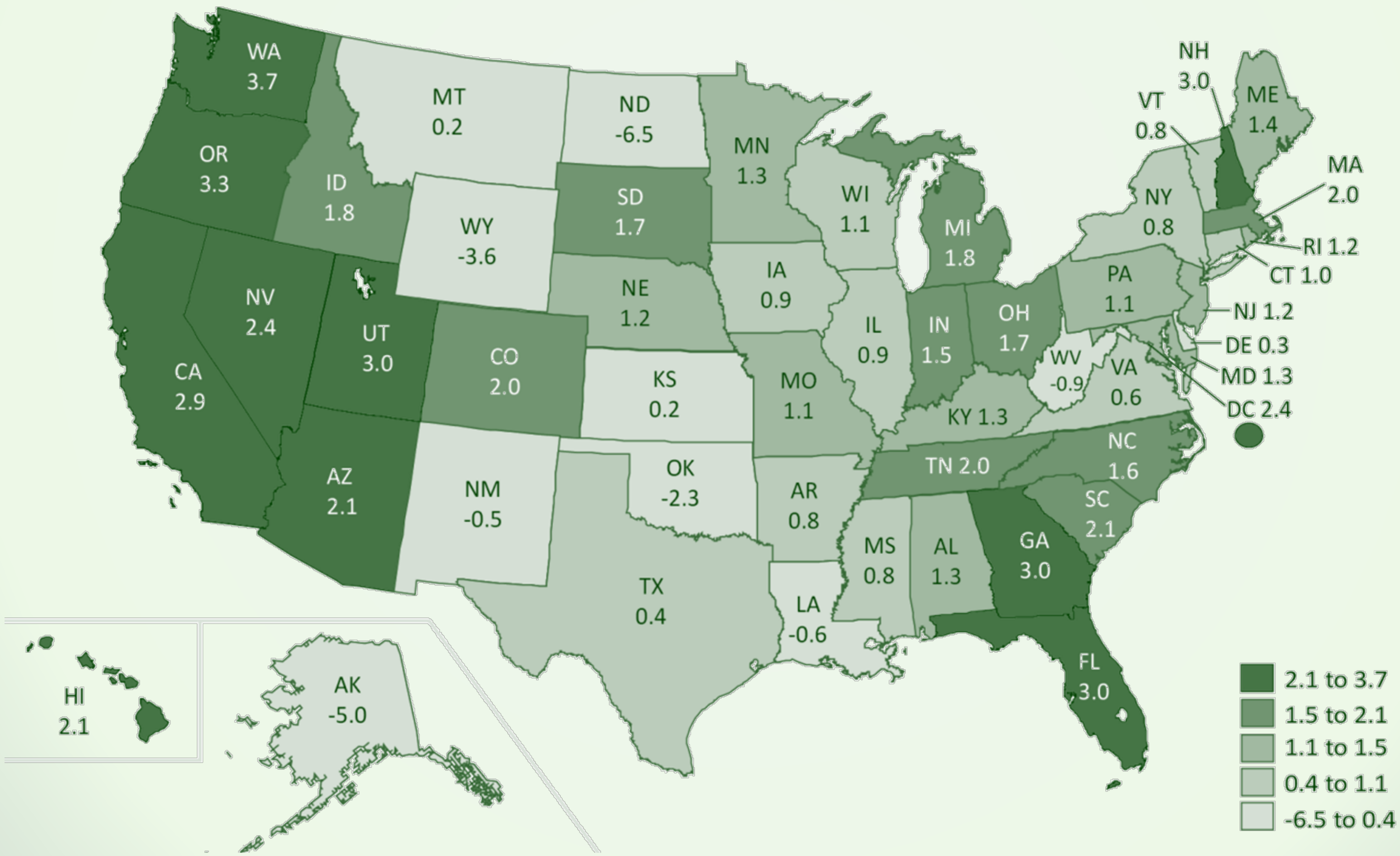
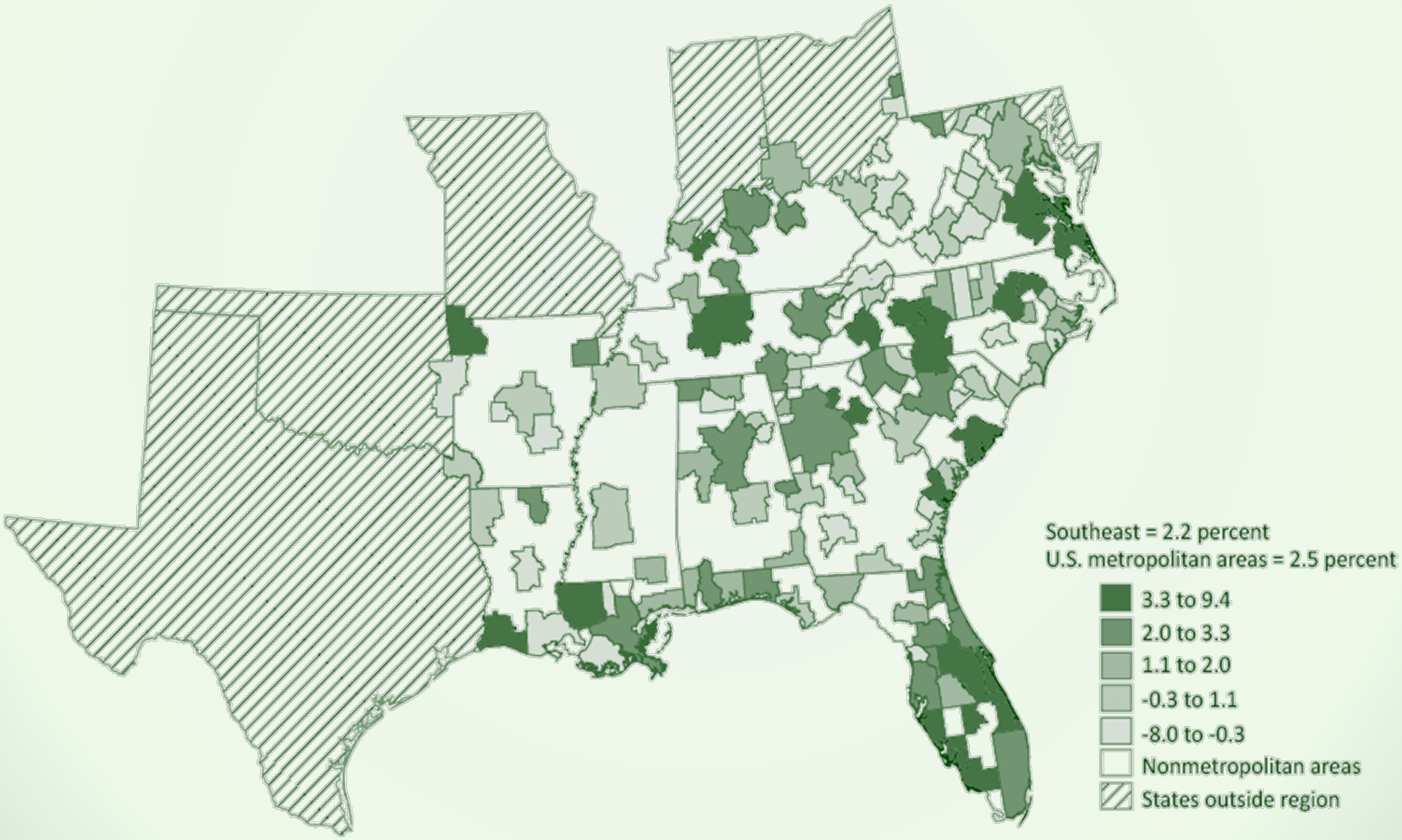
Percent change in Real GDP by state: 2015–2016



Source: US Bureau of Economic Analysis, as of December 2016.

2015 Florida intra-state GDP: coastlines in the top quintile

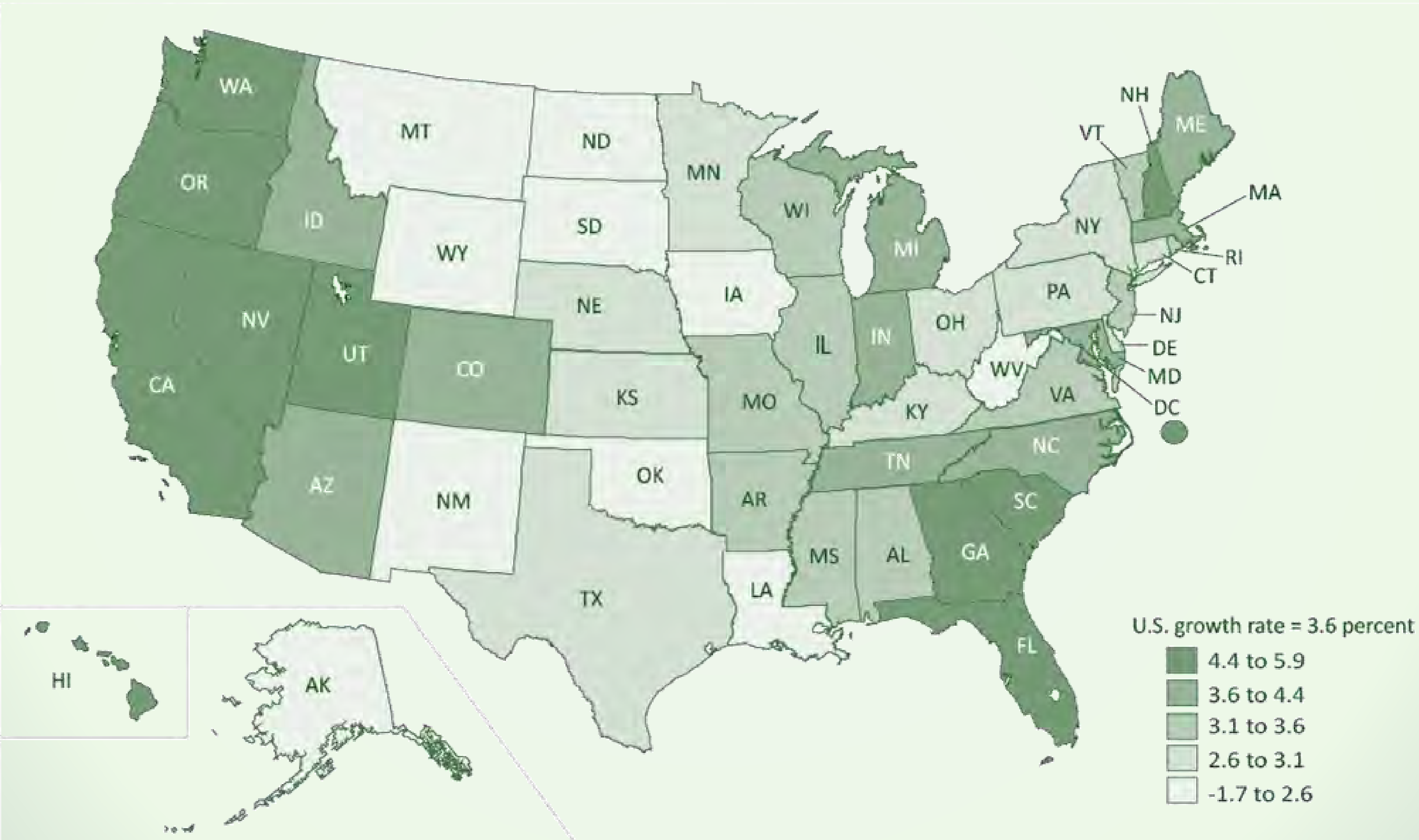
Percent change in real GDP by metropolitan area in the Southeast Region: 2015



Source: US Bureau of Economic Analysis, as of December 2015.

Our view
Personal income: Florida among the strongest states…

Percent growth rate in personal income by state: 2015–2016

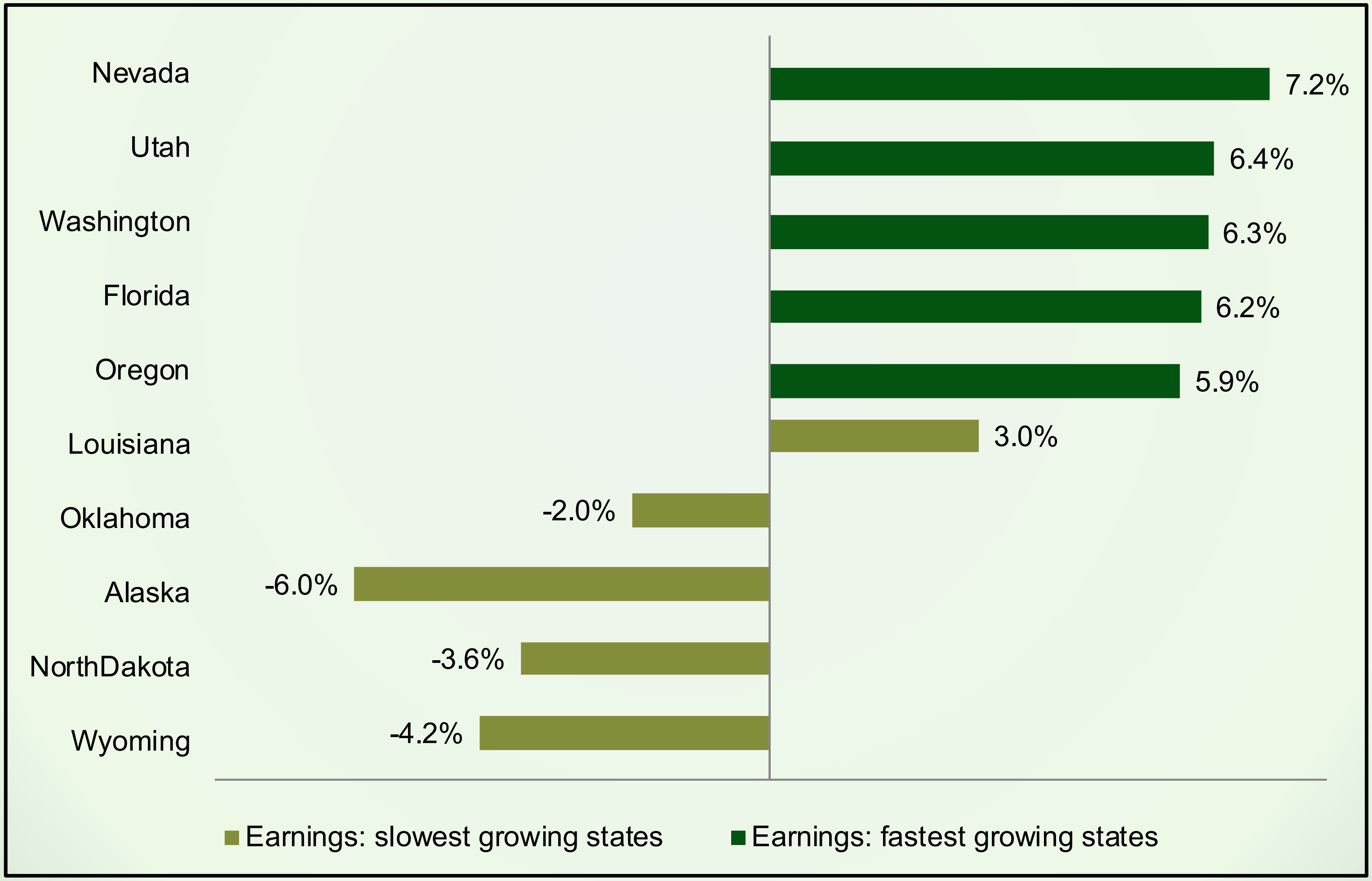


Source: US Bureau of Economic Analysis, as of December 2016.

Our view

Personal income: driven by positive earnings

Percent growth rate in earnings by state: 2015–2016

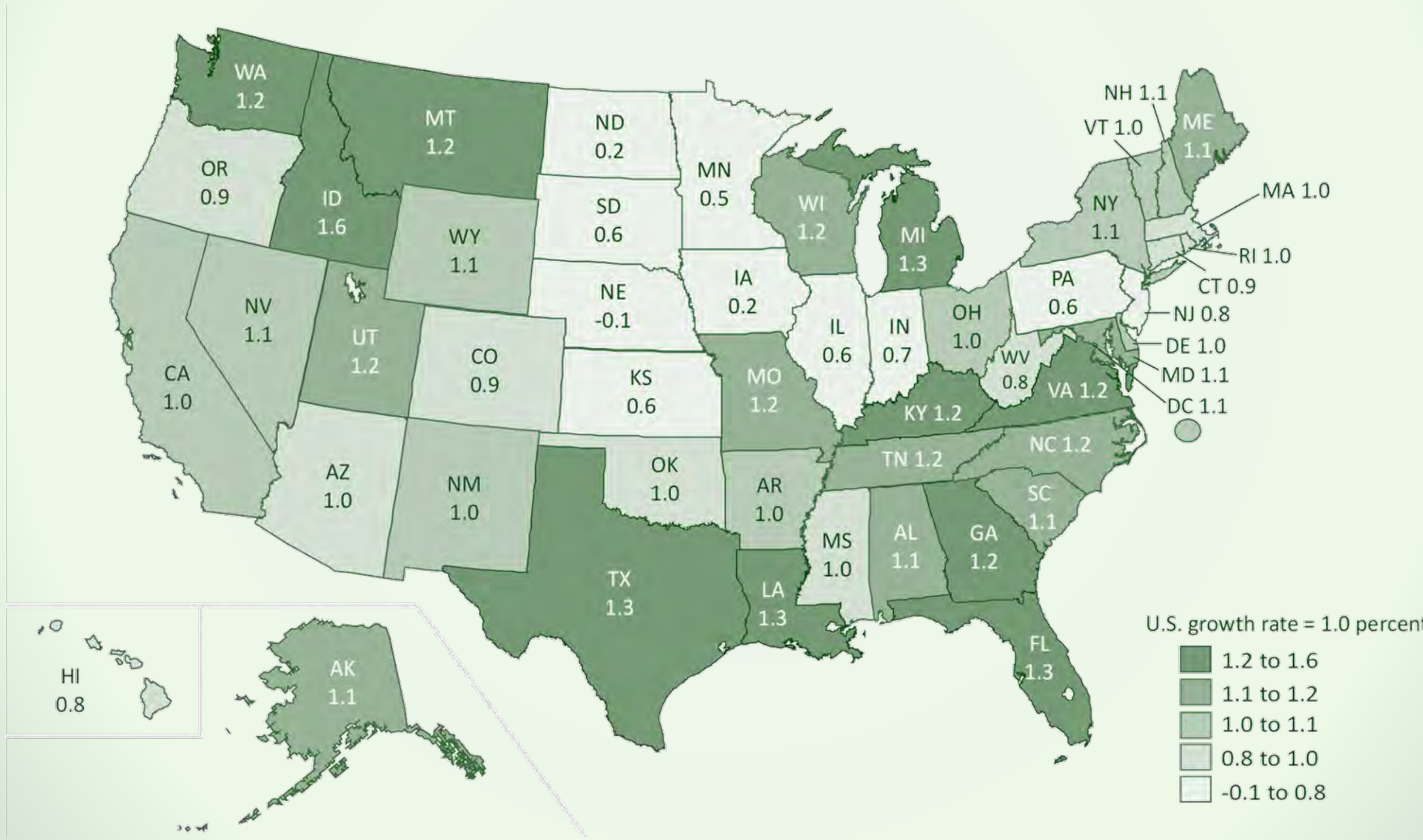


Source: US Bureau of Labor Statistics, as of December 2016.

Our view

Personal income: positive trend for Florida continues….

Percent growth rate in personal income by state: 2016:Q4–2017:Q1

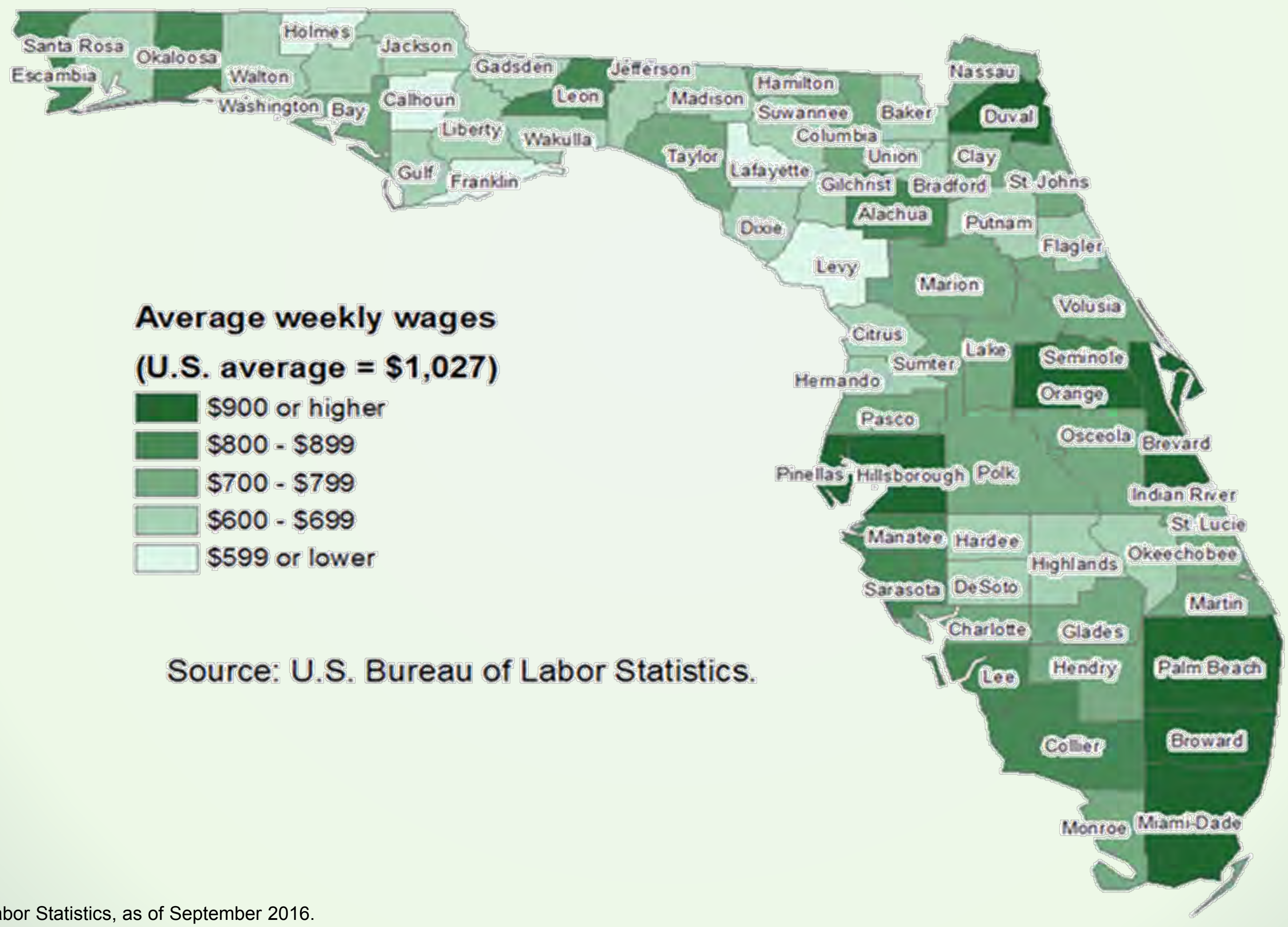


Source: US Bureau of Economic Analysis, as of June 2017.

Our view

Florida wages: near the US average and higher on the coast

Average weekly wages by county in Florida: third quarter 2016

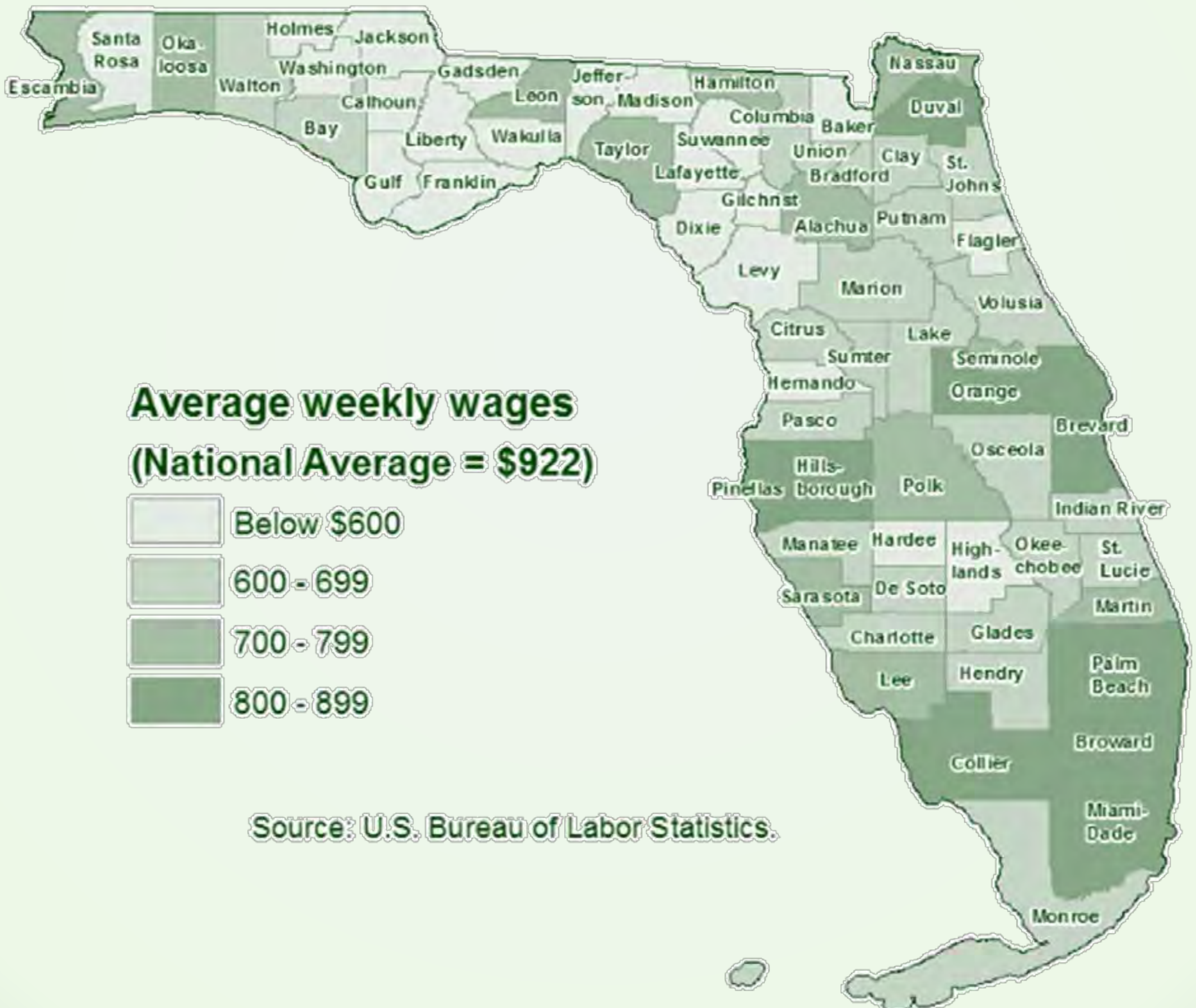


Source: US Bureau of Labor Statistics, as of September 2016.

Our view

Florida wages: a look back; the picture remains the same, but at higher levels

Average weekly wages by county in Florida: third quarter 2013



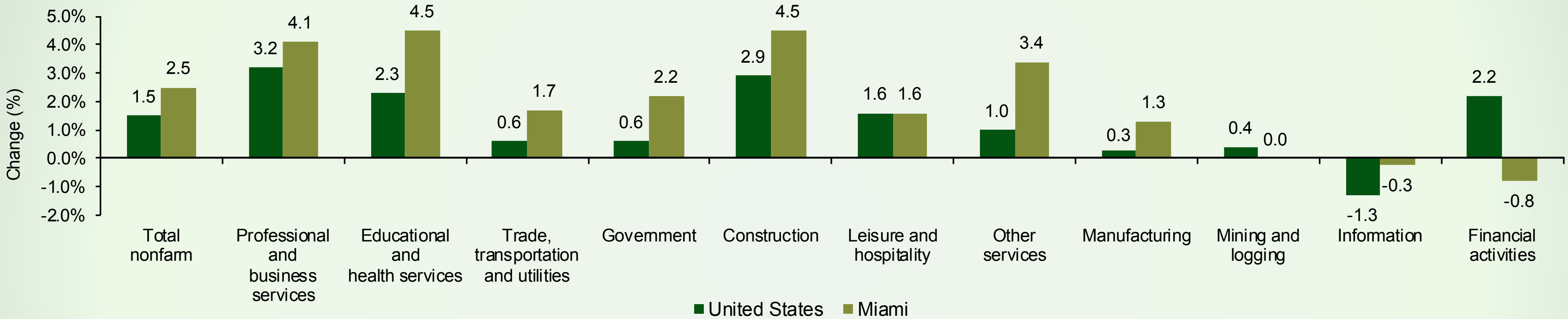
Source: US Bureau of Labor Statistics, as of April 2014.

Our view

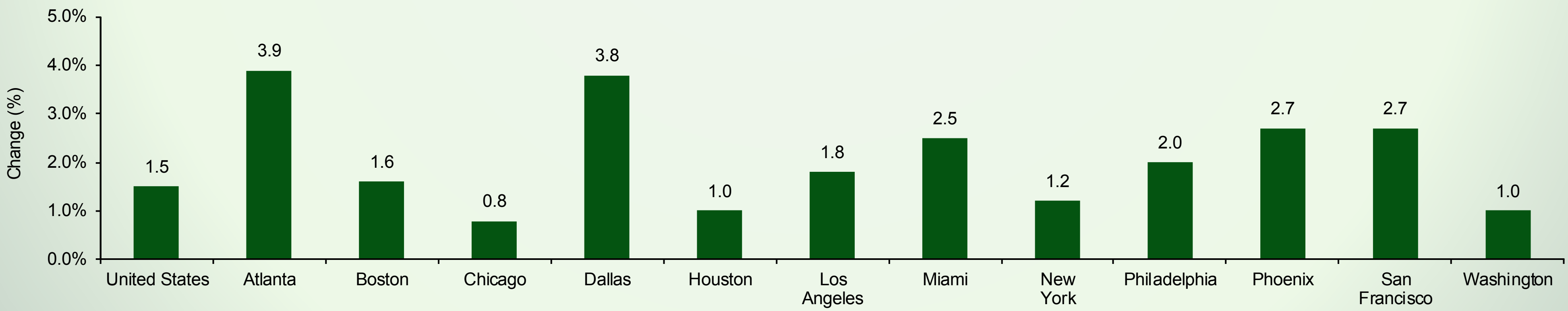
Sector and large city employment: construction, education, health services and Miami among the leaders

Insight INVESTMENT

Total nonfarm and selected industry super-sector employment over-the-year percent change in the Miami-Fort Lauderdale-West Palm Beach metropolitan area: March 2017



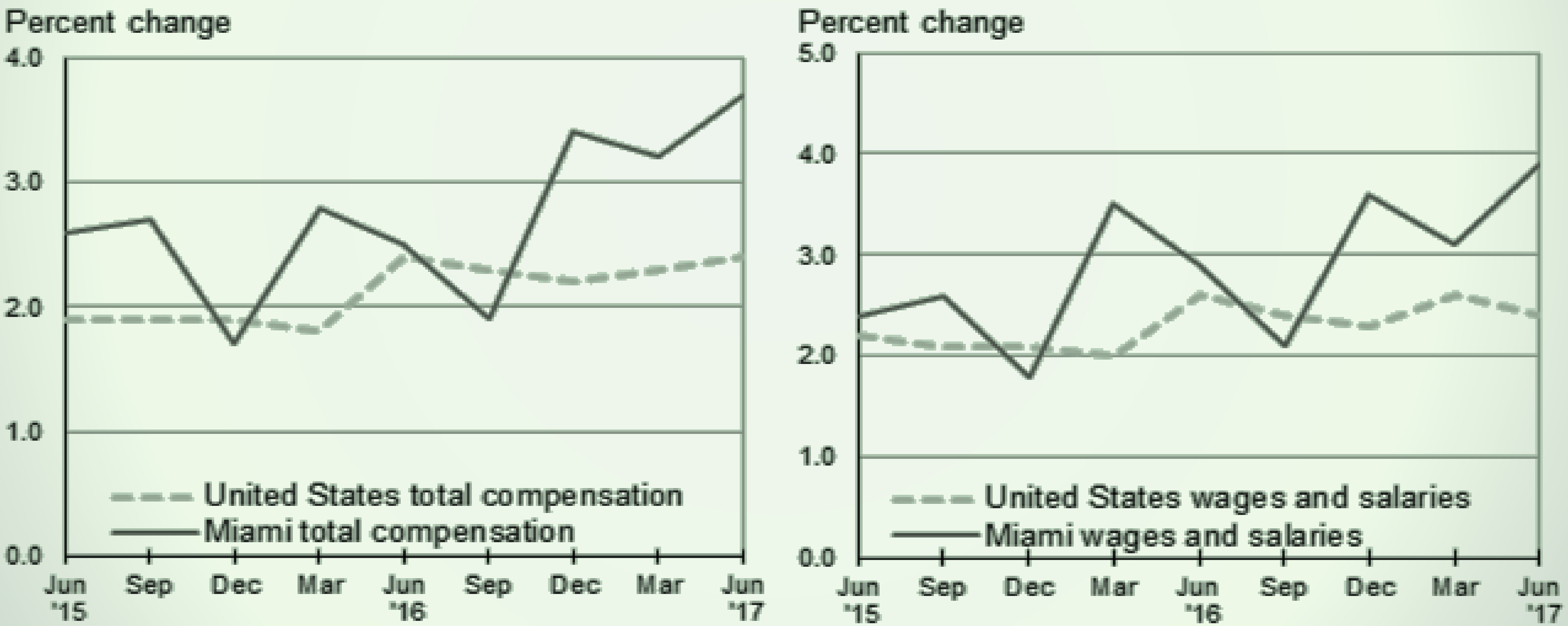
Total nonfarm employment over-the-year percent change in the US and 12 largest metropolitan areas: March 2017



Source: US Bureau of Labor Statistics, as of March 2017.

Our view
South Florida employment costs…continuing to move higher

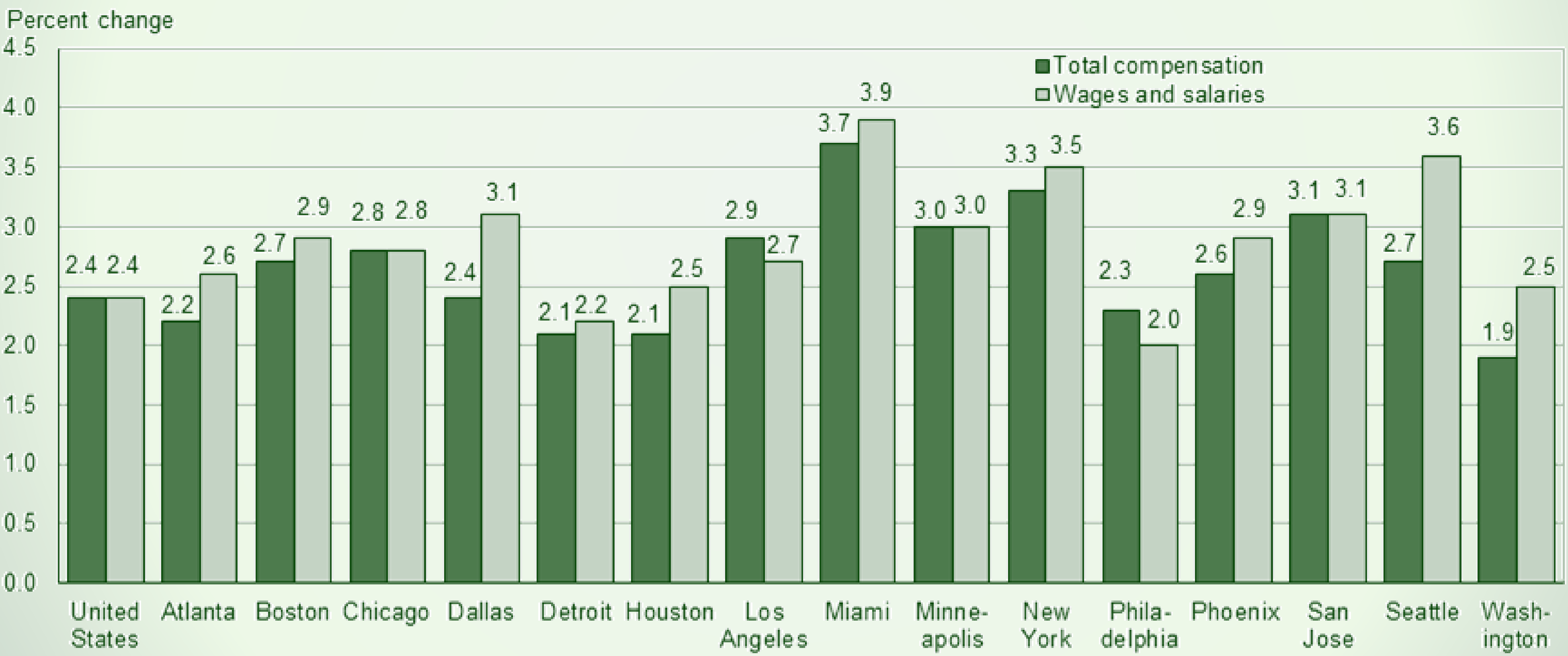
12-month percent changes in the Employment Cost Index, private industry workers, in the US and Miami area, not seasonally adjusted: June 2015–June 2017



Source: US Bureau of Labor Statistics, as of June 2017.

Our view
South Florida the US leader for wage growth

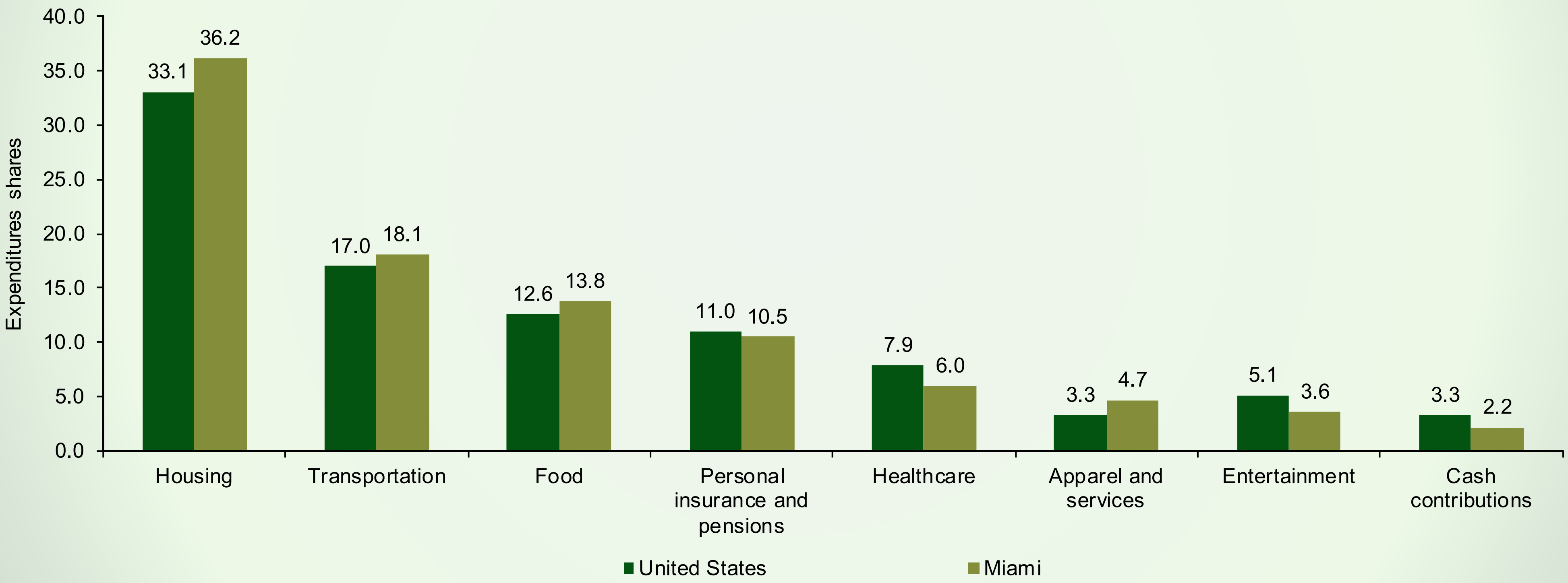
12-month percent changes in the Employment Cost Index and private industry workers in the US and Miami area, not seasonally adjusted: June 2015–June 2017



Source: US Bureau of Labor Statistics, as of March 2017.

Our view
Consumer spending: higher spend for shelter from the elements

Percent distribution of average annual expenditures for the eight major categories in the US and Miami metropolitan area: 2014–2015

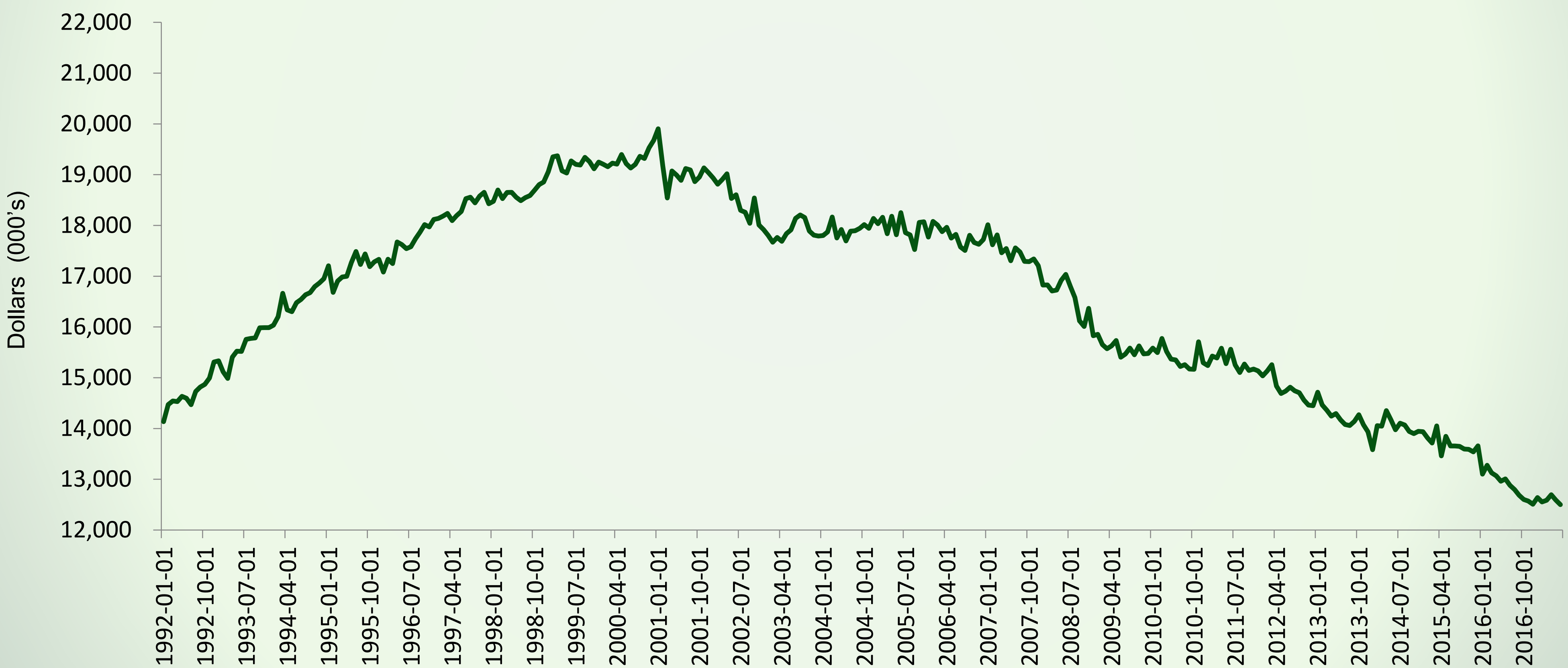


Source: US Bureau of Labor Statistics, as of December 2015.

Our view
Department store sales: a changing US consumer point of purchase?

Insight INVESTMENT

Monthly US Department Stores Sales: January 1992 – June 2017

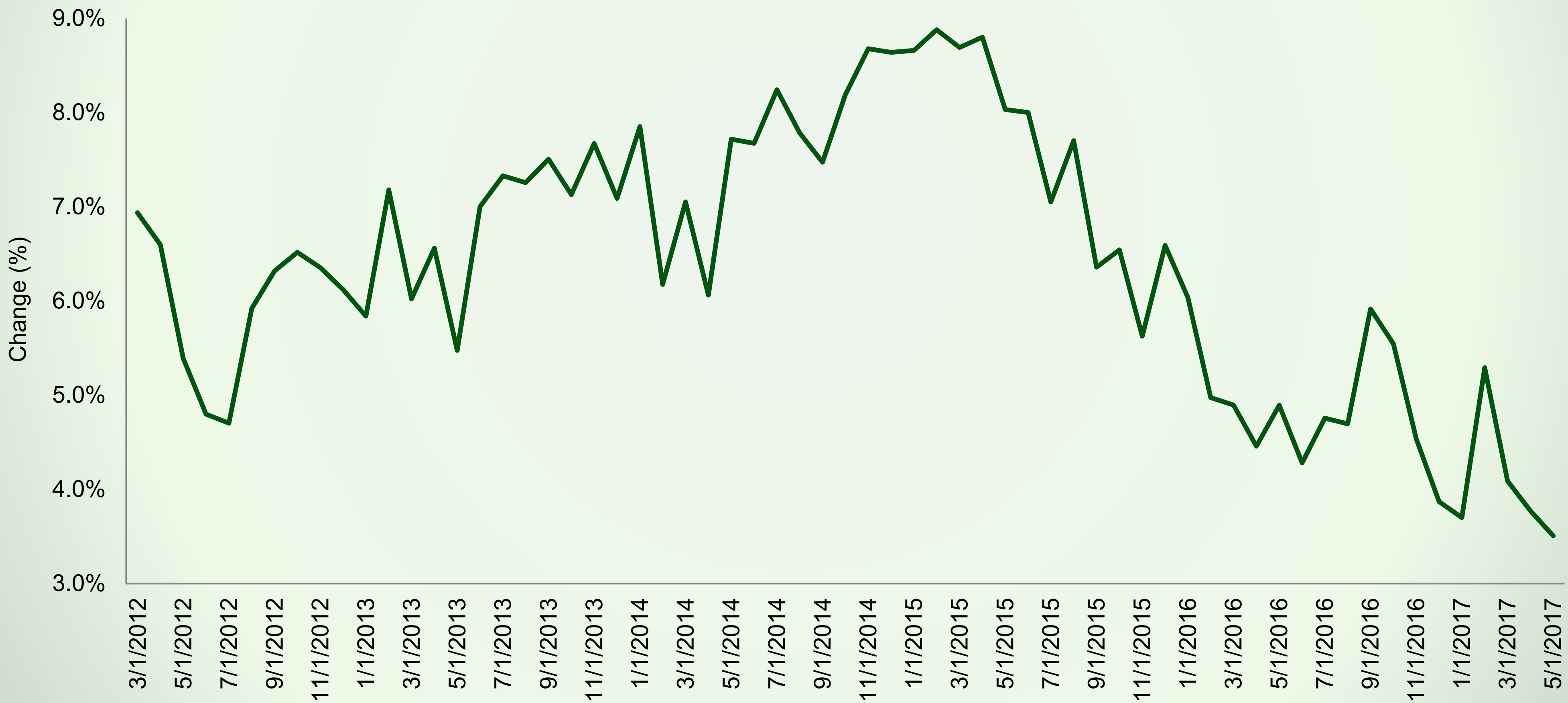


Source: US Census Bureau, as of June 2017. Sales data are adjusted for seasonal, holiday, and trading-day differences, but not for price changes, and exclude lease depts.

Our view
Sales tax revenue: local impact of a changing retail landscape?

Insight INVESTMENT

Year-over-year percent change in Sales Tax Revenue: June 2011 – May 2017



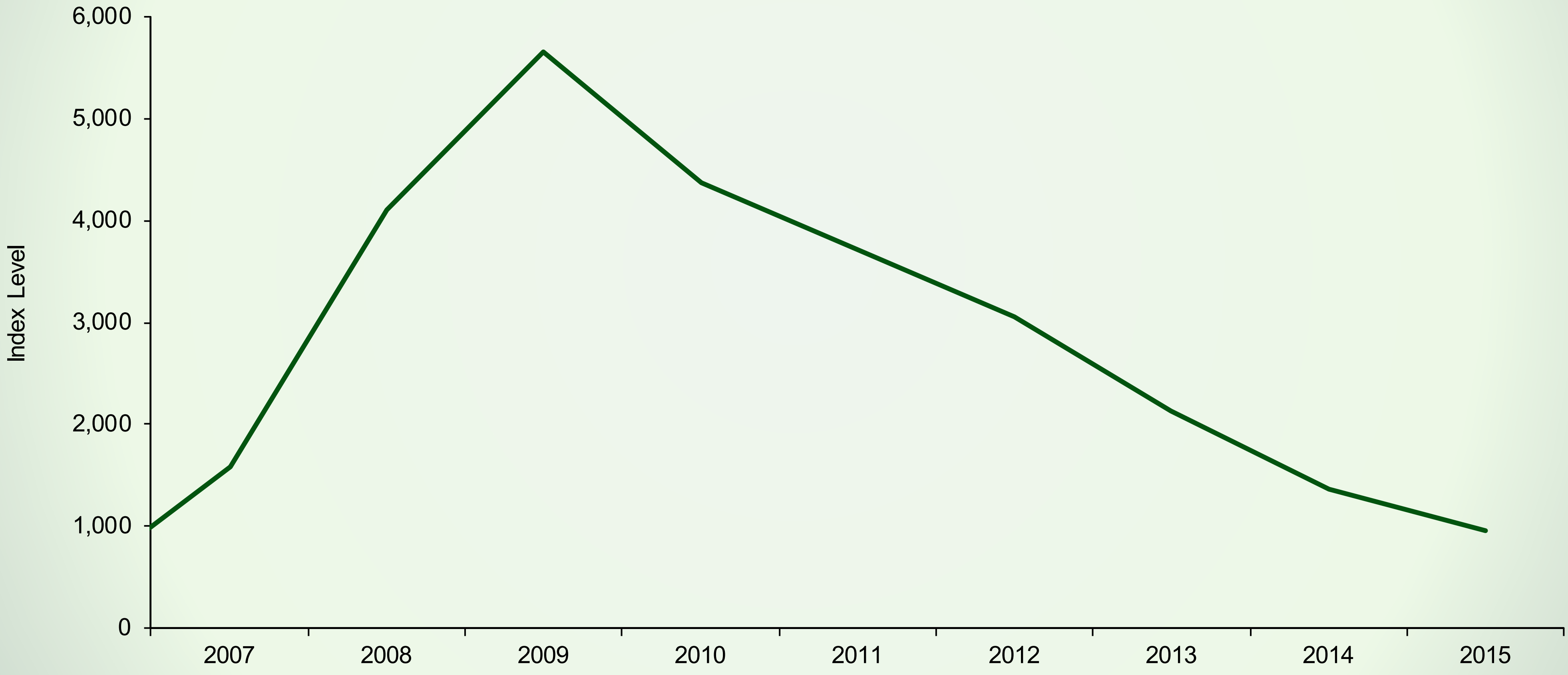
Source: Florida Department of Revenue, as of May 2017.

Our view

Florida house prices on a positive upward trajectory

Source: Bloomberg, as of March 2017.

Our view
Florida non-performing loans: back to pre-financial crisis levels



Source: Bloomberg, as of December 2015.

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MARTY KIAR
BROWARD
COUNTY
PROPERTY APPRAISER

Morning Break

9:55 am – 10:15 am

MOODY'S
INVESTORS SERVICE

Pension Risks Moving From Balance Sheets to Budgets

Tom Aaron, Vice President – Senior Analyst

AUGUST, 2017

Agenda / Summary

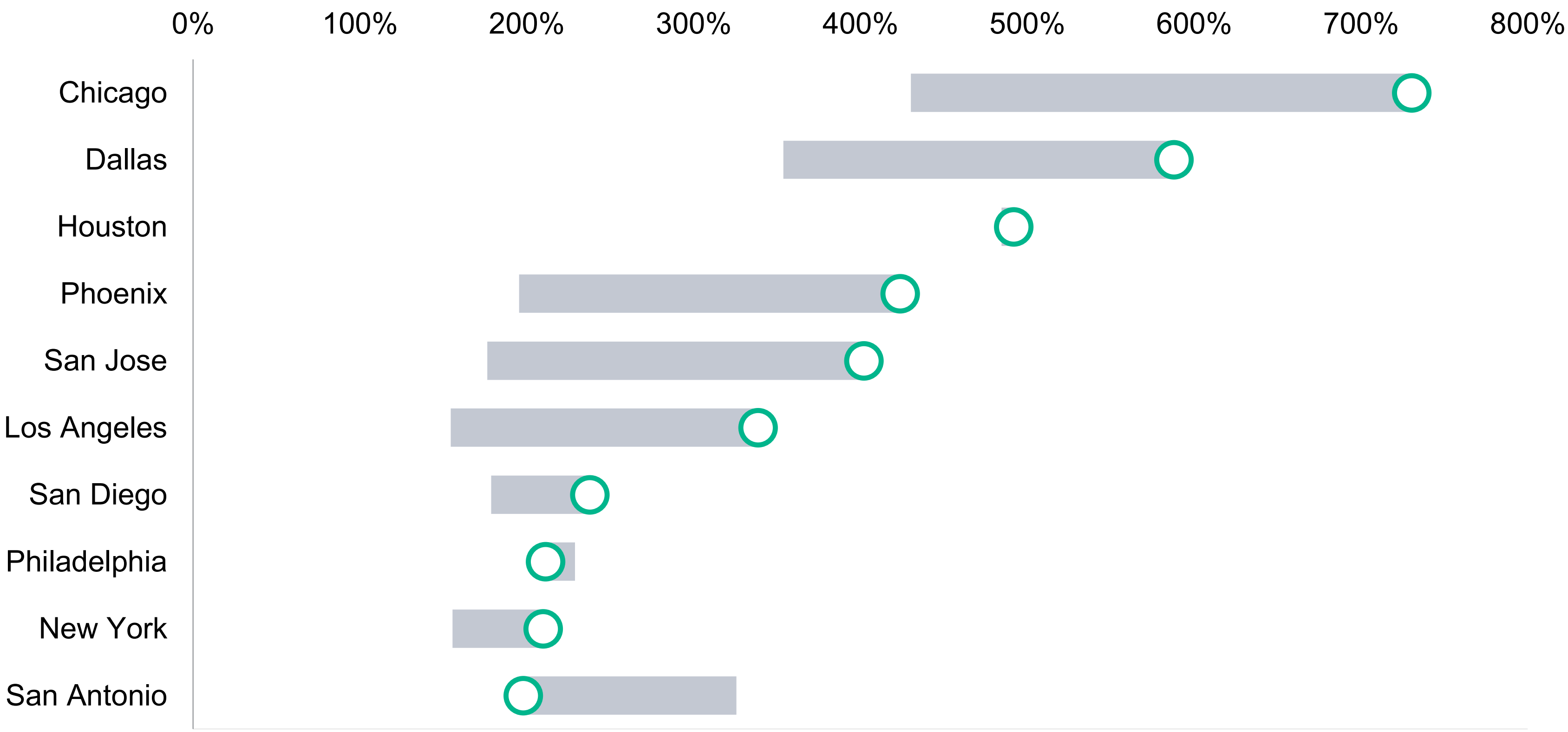
- Balance sheet unfunded liabilities at new highs
  - Unlikely to improve in coming years, even in favorable investment return scenario
- Return expectations declining, budgetary costs accelerating
  - Even though contributions are still slow to react to higher liabilities
- Pension asset performance never more important for government credit quality
  - Investment losses would materially compound rising cost pressure
- Reforms, funding strategies, legal landscape continue to develop at fast pace
  - Unaffordable pension obligations mean bonded debt is also likely unaffordable

1

Balance sheet unfunded liabilities at new highs

“High” balance sheet leverage has been redefined

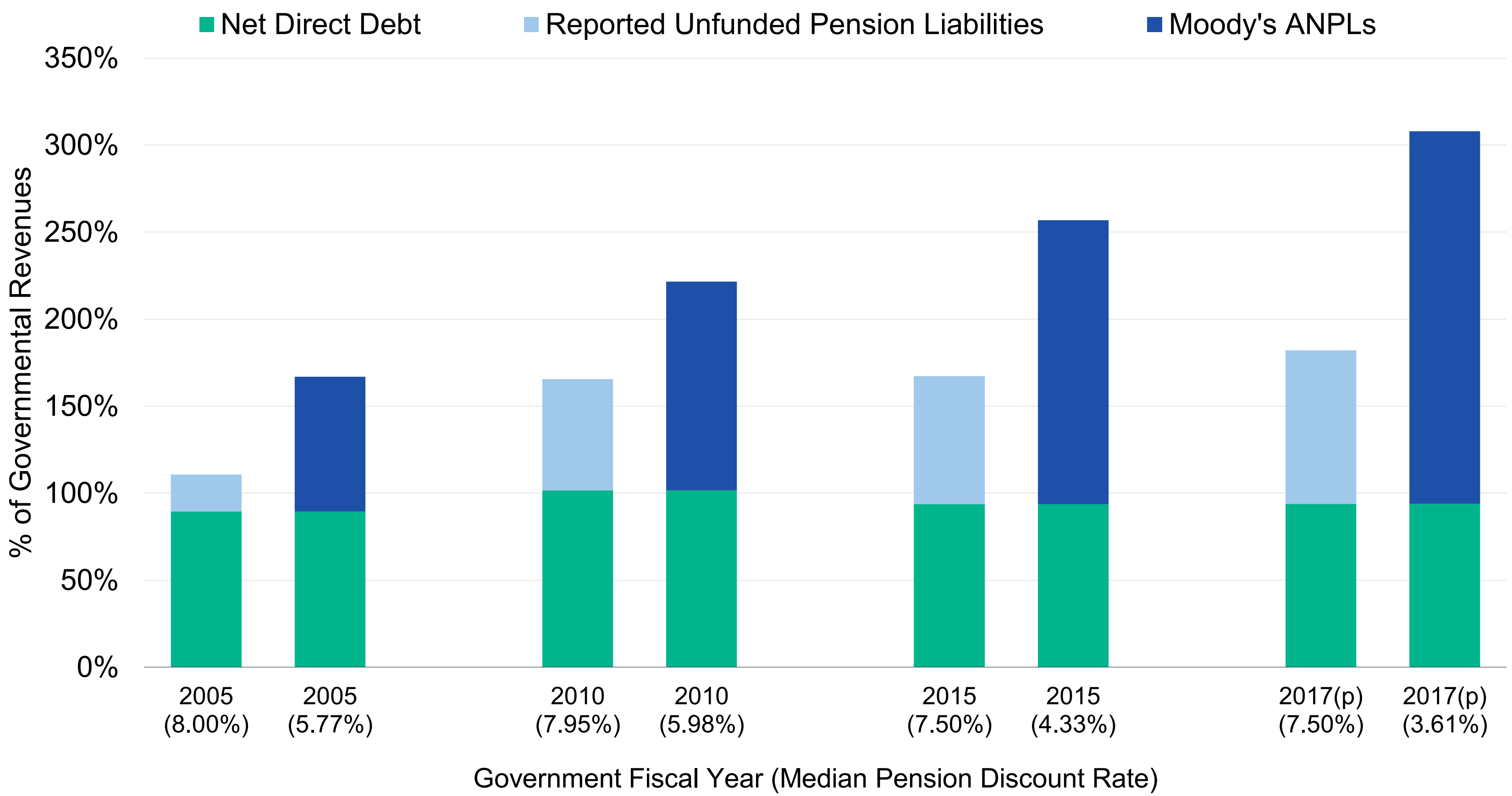
- Debt + ANPL as % of total governmental revenues, 10 most populous US cities
  - 2015 (green circles) vs. 2005 (end of grey bar)



Source: Moody’s Investors Service

Pensions increasingly dominant in liability profiles

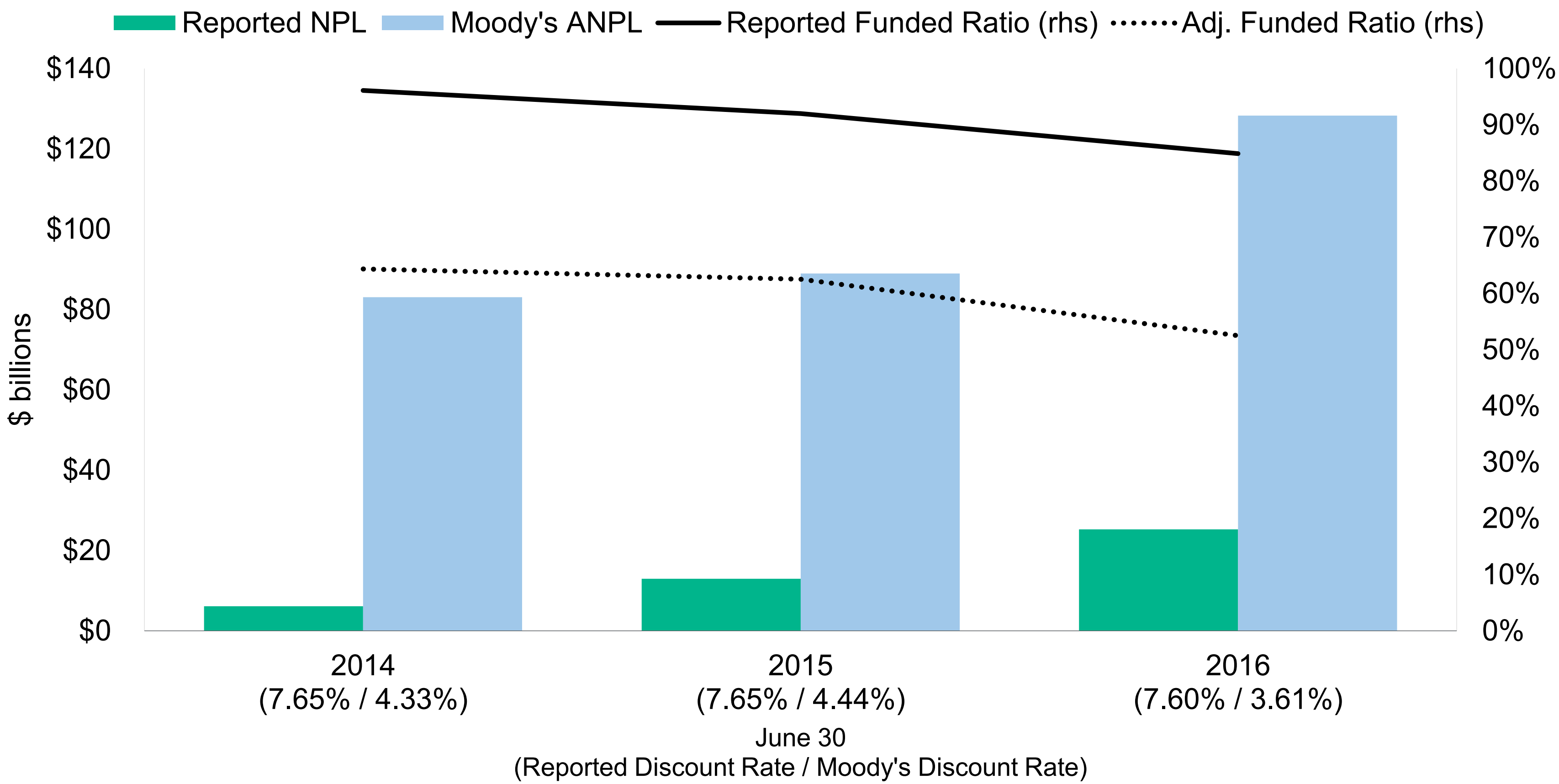
» Debt and pension burdens of the 50 largest local governments



Sources: Moody's Investors Service, based on government and pension plan CAFRs and actuarial valuations

Florida Retirement System's unfunded liabilities growing

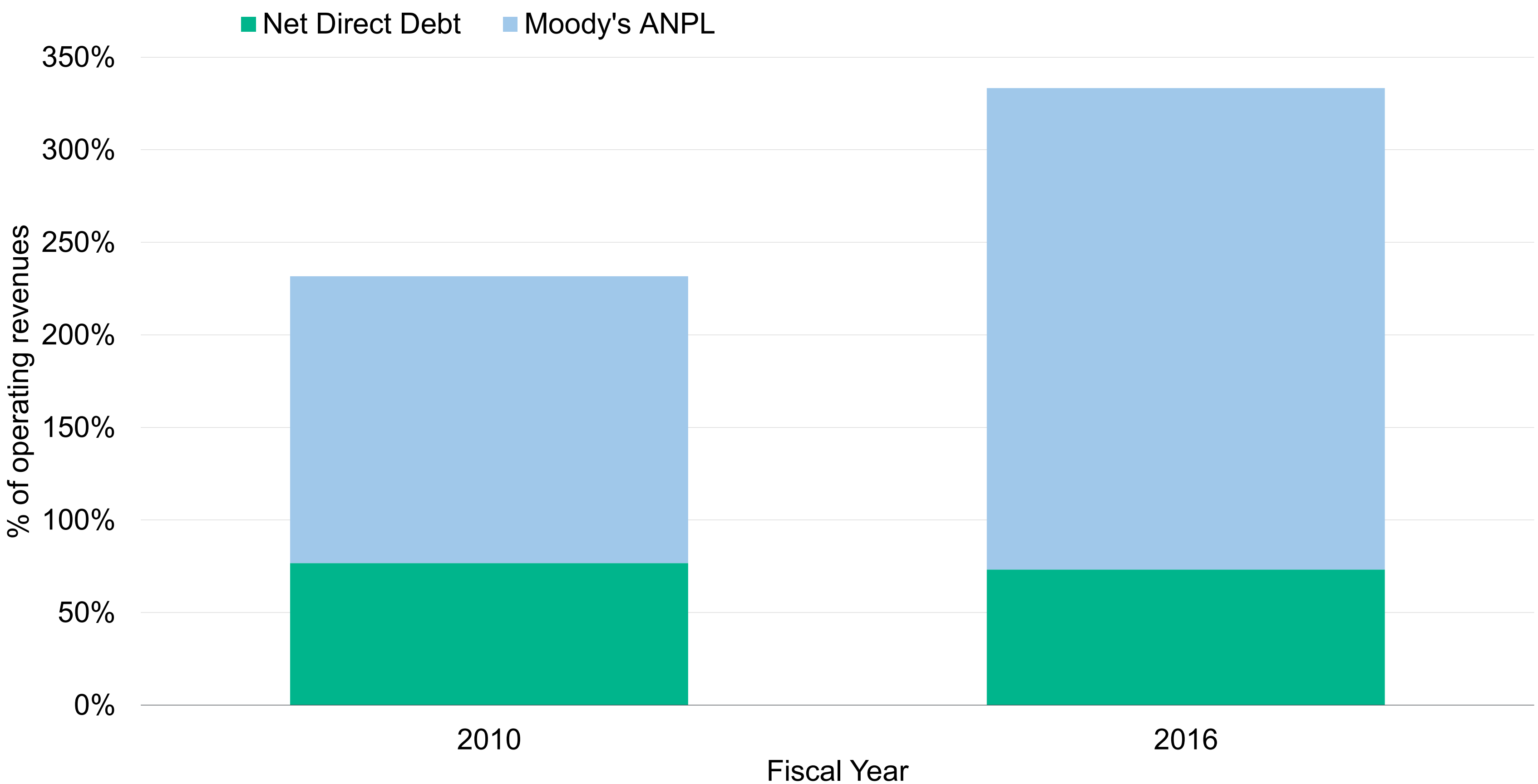
Discount rate drop, weak returns drove ANPL spike in 2016



Sources: Moody's Investors Service, based on FRS CAFRs

Pensions comprise bulk of Florida local governments' balance sheet leverage

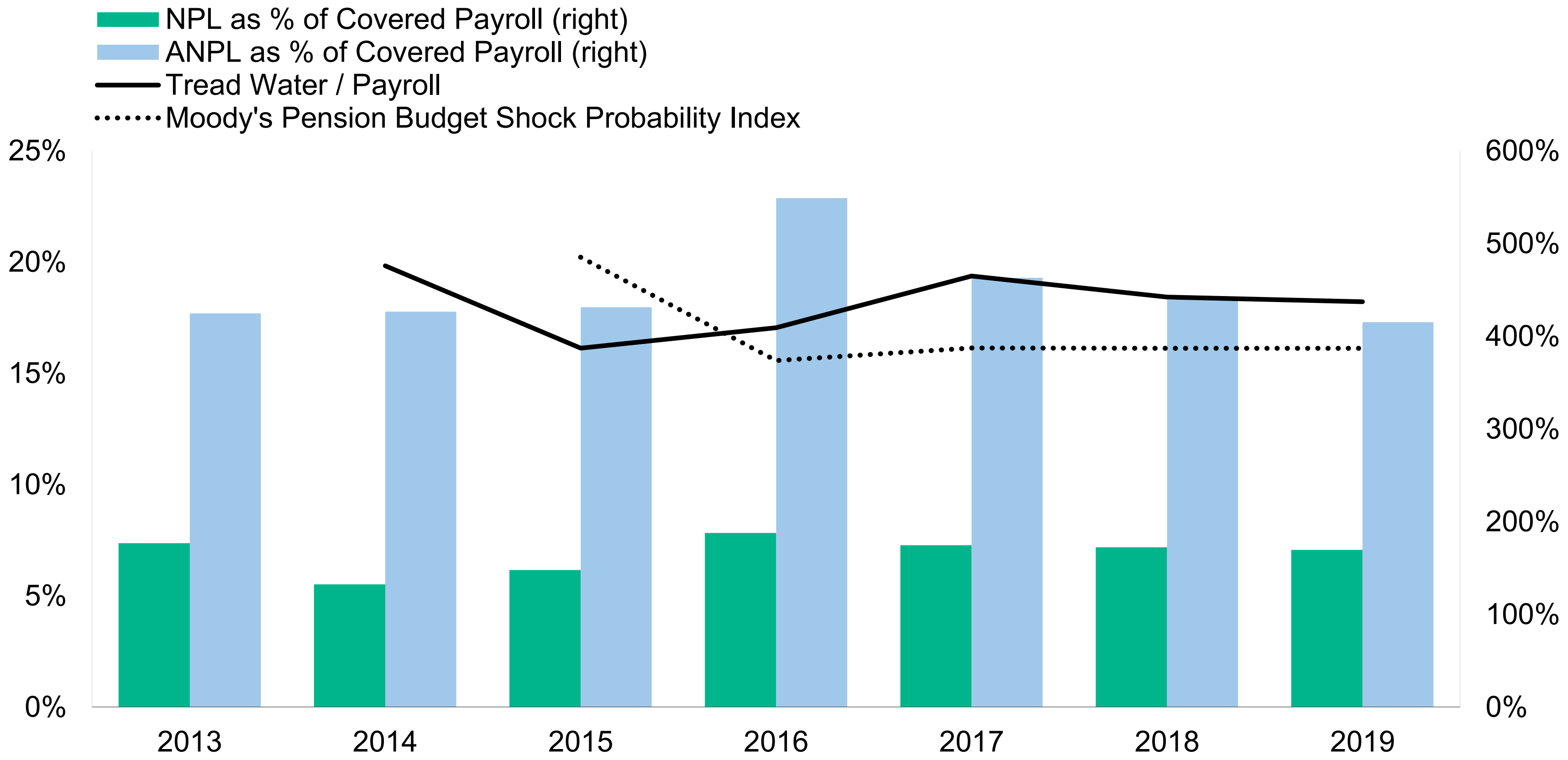
Median debt and pension leverage, rated FL cities (66)



Sources: Moody's Investors Service

Looking out to 2019, a favorable return scenario shows pension-related credit risk flat line, not improvement

- Assumed returns applied to 56 plan sample for 2017 / 2018 / 2019 = 11% / 7% / 7%



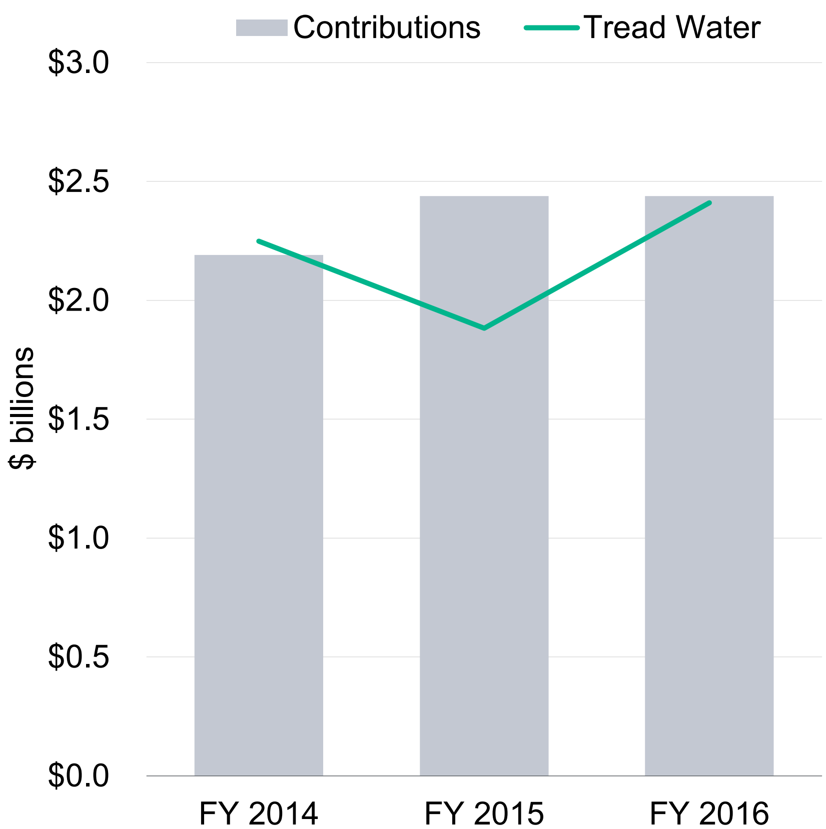
Sources: Moody's Investors Service 56 plan sample, based on government and pension plan CAFRs and actuarial valuations

2

Return expectations declining, budgetary cost burdens accelerating

Fiscal 2016 contributions to FRS, in aggregate, nearly reached "tread water"

Florida Retirement System



Source: Moody's Investors Service, based on Florida Retirement System CAFRs

Moody's "tread water" indicator

» Gauges relative strength/weakness of government pension contributions

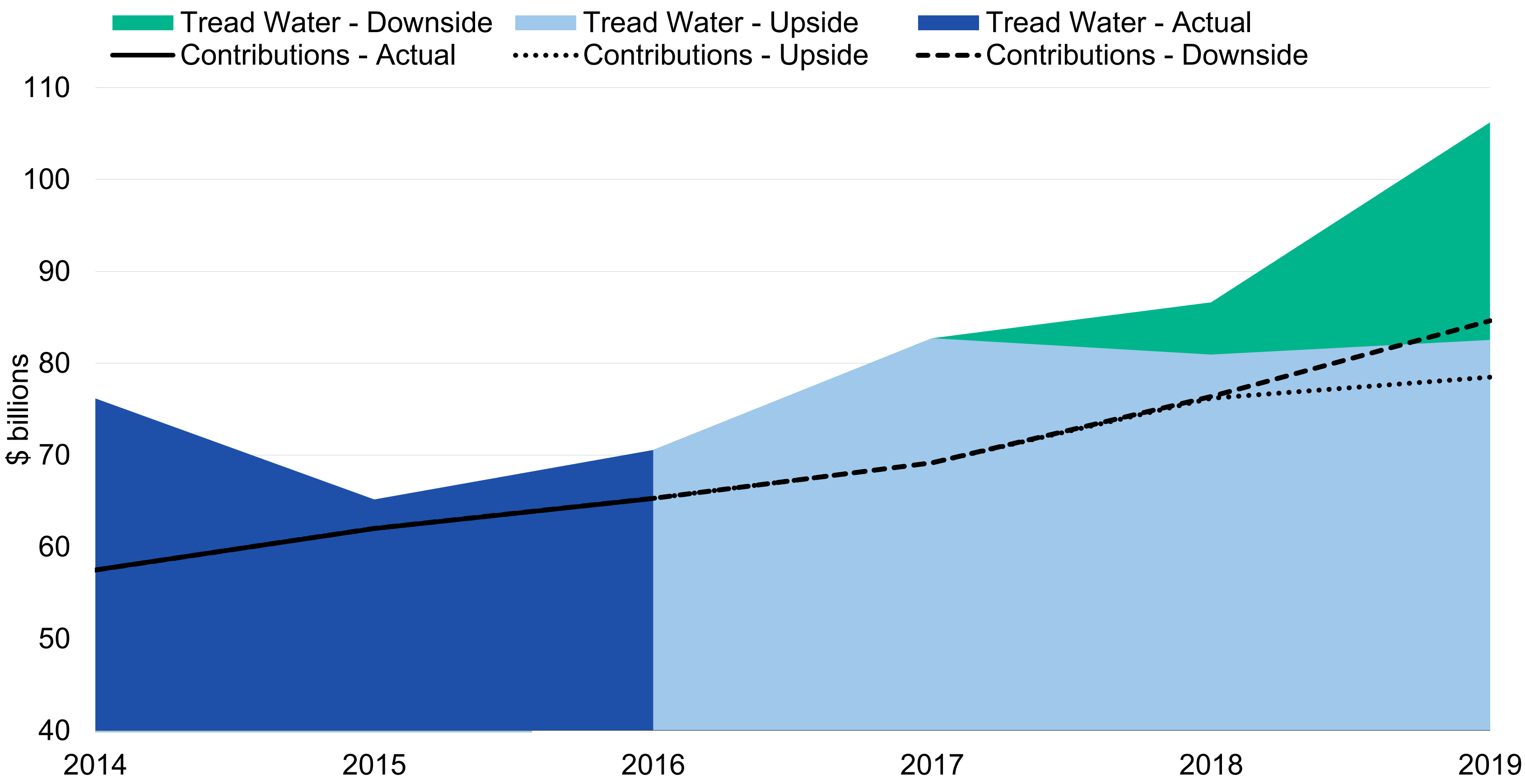
» Employer portion of service cost, plus implied interest on net pension liability

» Under reported assumptions, tests whether any actual amortization built into contributions

» If assumptions hold and contributions exactly "tread water": net liabilities remain unchanged (in nominal dollars)

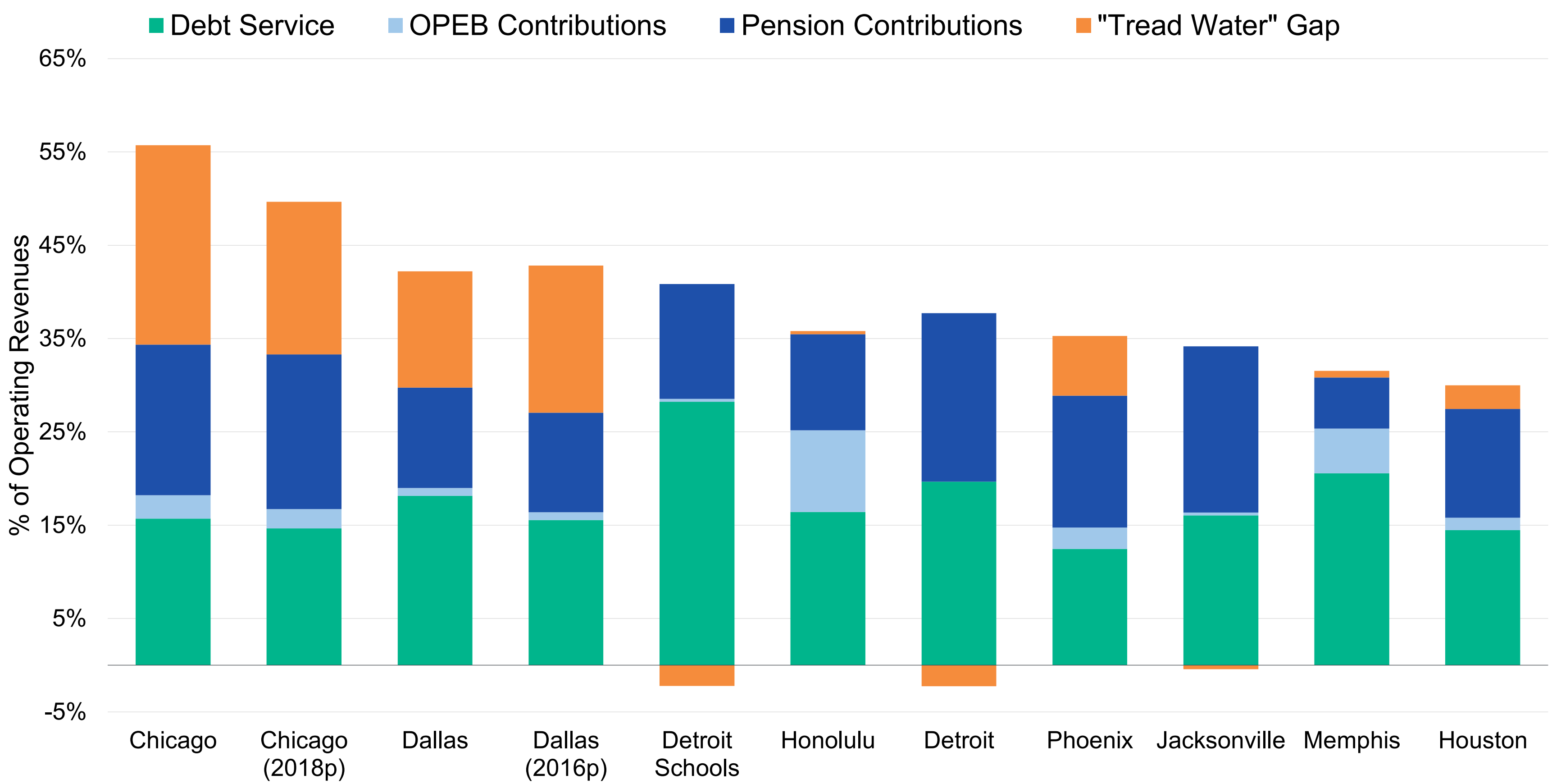
Costs to “tread water” would accelerate in downside investment return scenario

» Government contribution paradigm is very slow to react to market losses



Sources: Moody’s Investors Service 56 plan sample, based on government and pension plan CAFRs and actuarial valuations

Fixed costs exceed 30% of operating revenues for the most heavily burdened large local governments

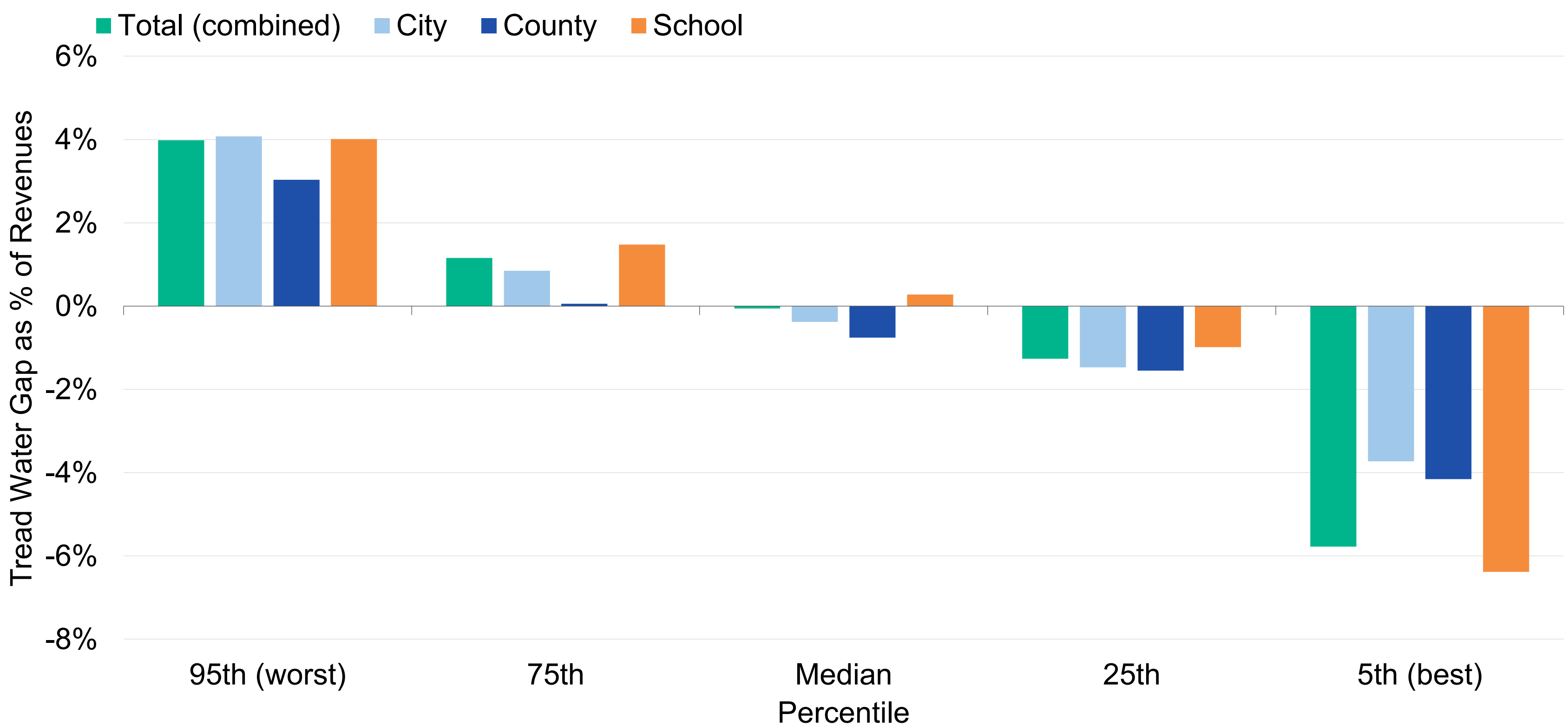


Notes: Detroit Public Schools reflects fiscal 2015 reporting, prior to separation of district into a distinct debt servicing entity and the Detroit Public Schools Community District, which provides the educational services and has no debt. City of Detroit fiscal 2015 reporting does not yet reflect liability reductions attributable to the city's bankruptcy. Contributions include sources outside the city's budget, associated with its plan of adjustment. Dallas reflects plan measurements for 2015, rather than the 2014 plan year reported in the city's 2015 CAFR.

Source: Government and plan CAFRs; Moody's Investors Service

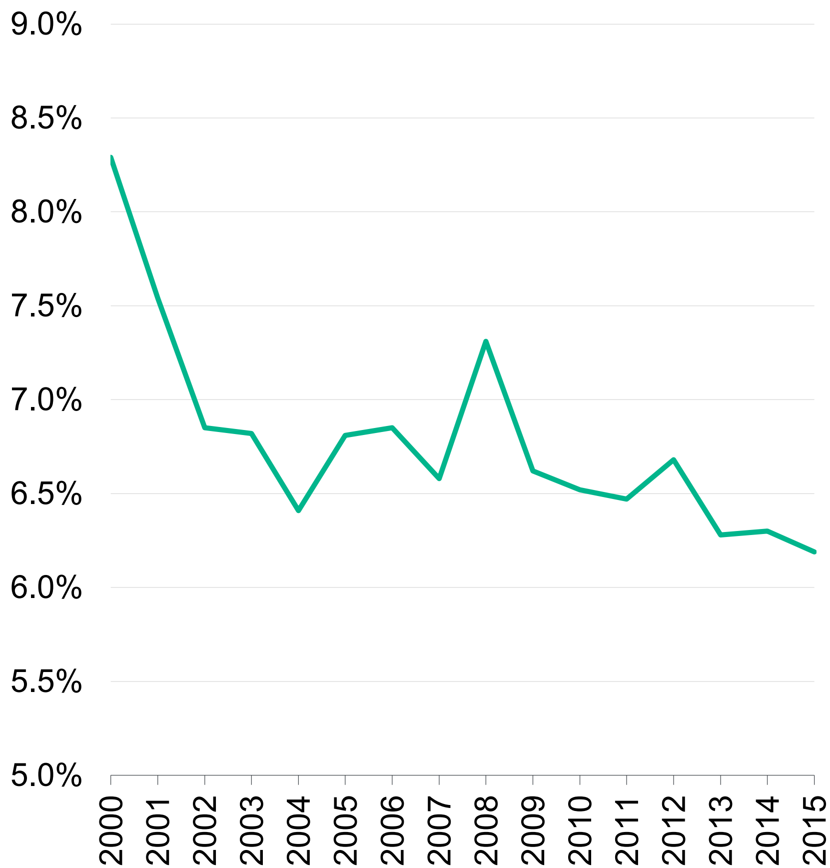
Roughly half of governments are not “treading water”

- Gap of 4% of revenues in 95th percentile may sound small, but is based on FY 2015 reported discount rates, service costs, and unfunded liabilities - i.e. not adjusted by Moody’s



n = 6,053 (2,210 cities, 708 counties, 3,135 school districts). Data reflects fiscal 2015 government reporting

Lower investment return expectations driving many US public plans to lower discount rate assumptions

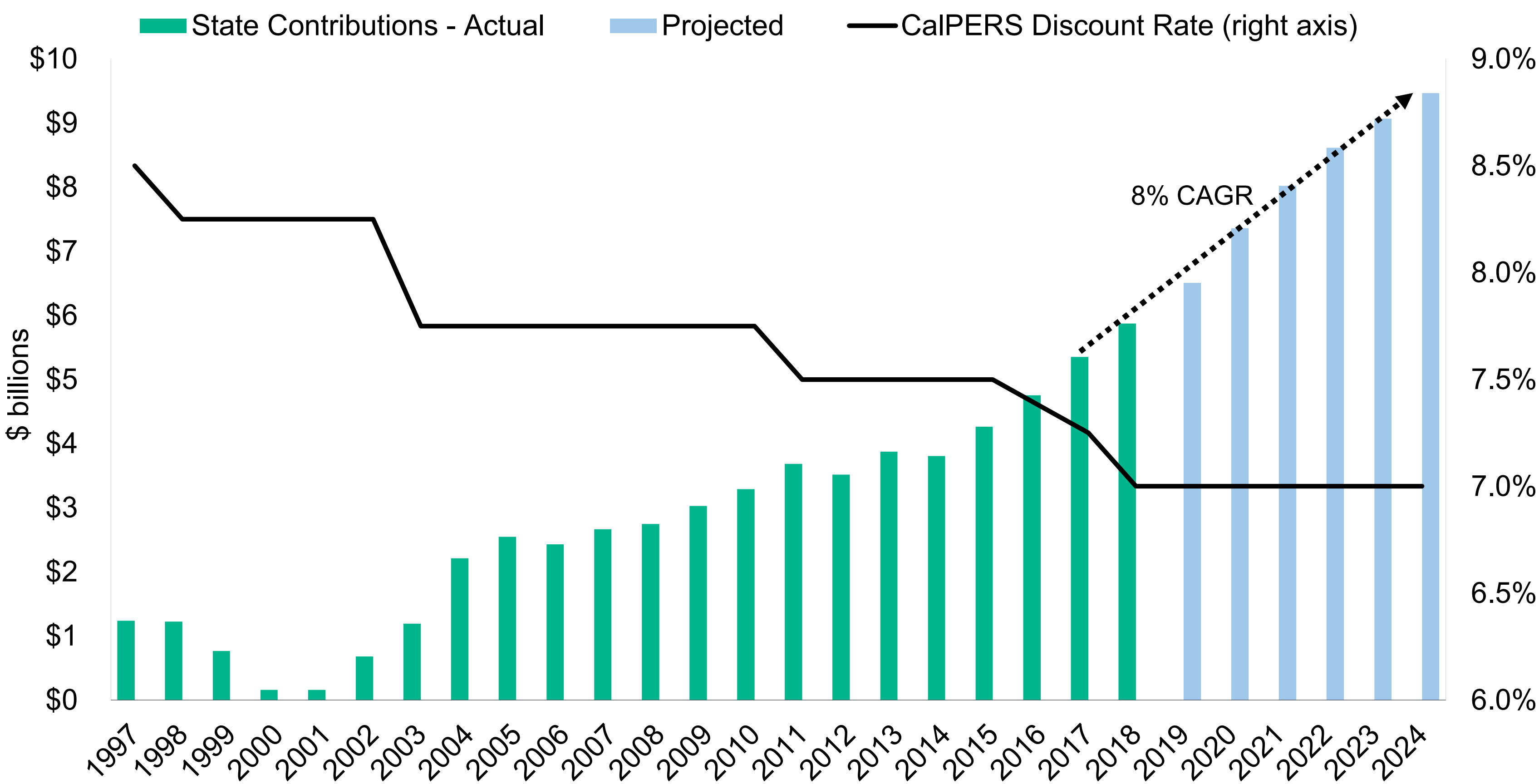


- US public pension funding regime links liability discounting with future return expectations
- Many capital markets observers have lowered return expectations
  - Median expected return for same hypothetical portfolio has declined since 2000 (left)
  - 50% equities, 30% fixed income, 20% other
- Lower discount rates produce higher liabilities, normal costs and amortization payments

Source: Milliman 2016 Public Pension Funding Study

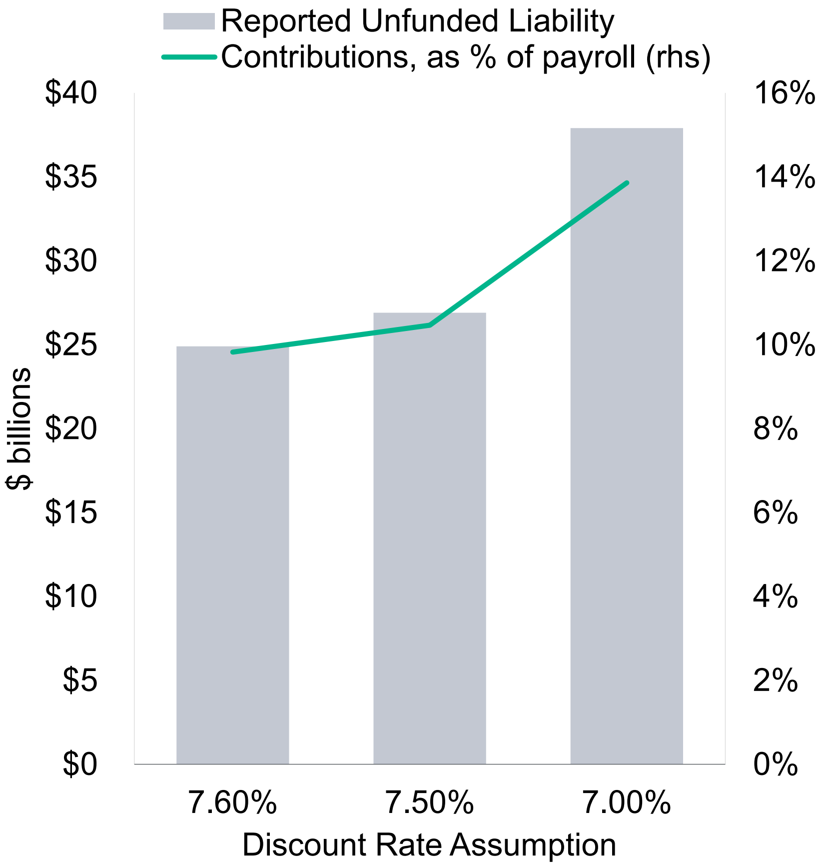
Falling discount rates accelerating pension cost growth under government funding model

» State of California's CalPERS pension contribution CAGR of 8% from fiscal 2017 to 2024, assuming CalPERS hits its new 7% return target each year



Source: CalPERS actuarial valuations

FRS return assumption constrains contributions for now, but likely only defers eventual cost hikes

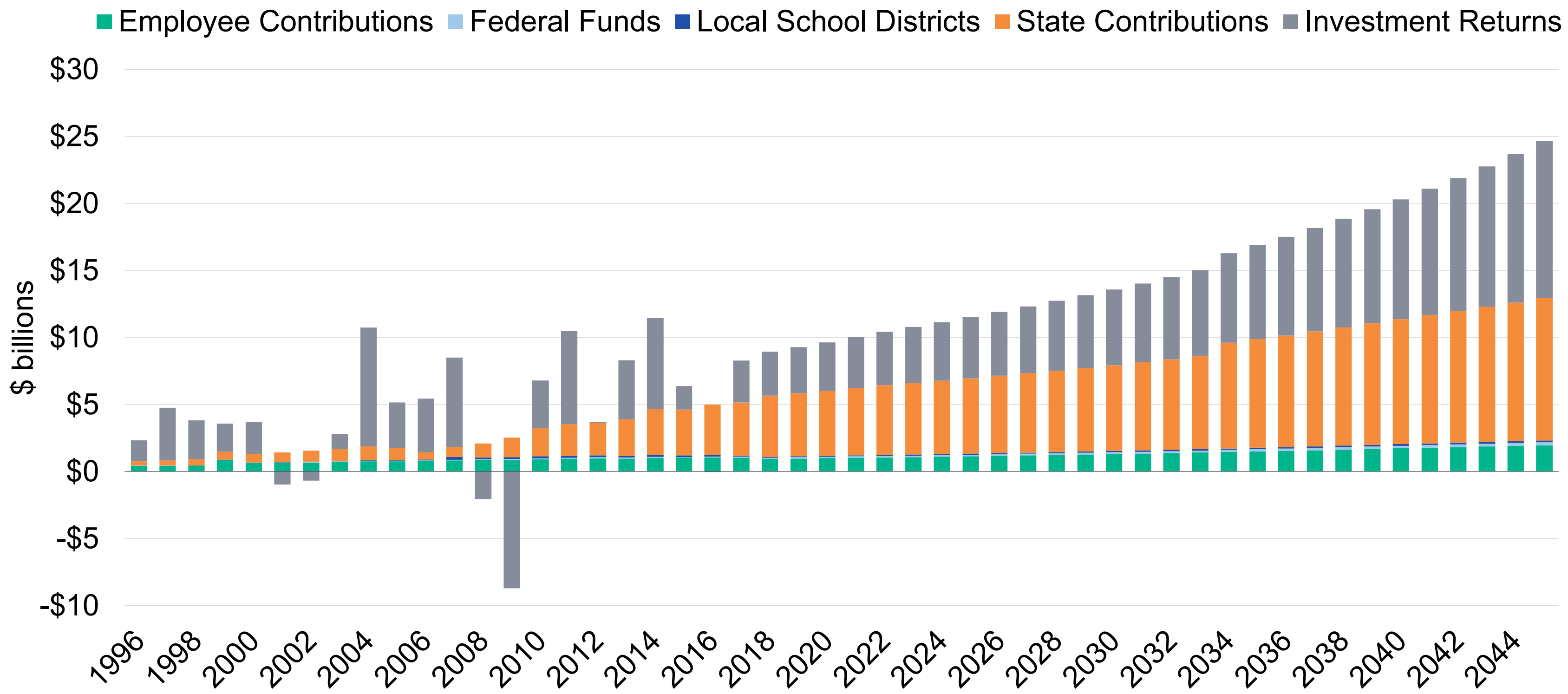


Source: Florida Retirement System

- Largest US public pension system (CalPERS) reduced return assumption to 7.0% from 7.5%
  - FRS (2016): 7.60% from 7.65%
- FRS actuaries recommended reduction in assumption to 7.00%
  - 50th percentile of projected long-term returns: 6.6%
  - Assign ~35% chance that current assumption will be met or exceeded
- Contribution requirements and reported liabilities constrained for now, but future pattern of rising costs is likely

Slightly less aggressive return assumptions still rely heavily on capital markets to fund pension promises

- Illinois' teacher pension fund requires an estimated $431 billion of cumulative inflows to achieve 90% reported funded ratio by 2045
- Under static 7.0% return assumption, Illinois assumes it will contribute $202 billion (47%), and that investment returns will provide $183 billion (42%)



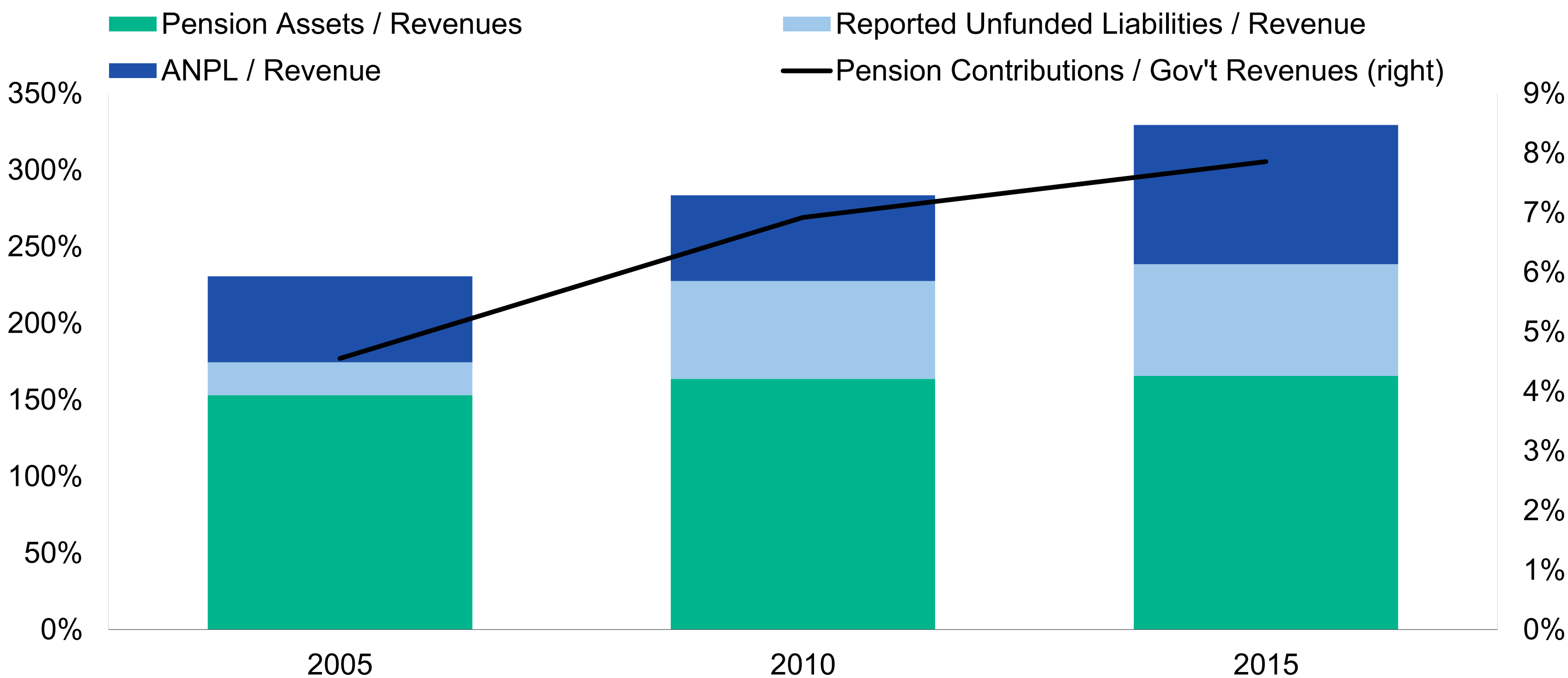
Source: Illinois Teachers Retirement System 2016 actuarial valuation, 2017 and later represent projected values

3

Pension asset performance never more important for government credit quality

Downside asset risk unchanged, but less resiliency to absorb adverse shocks

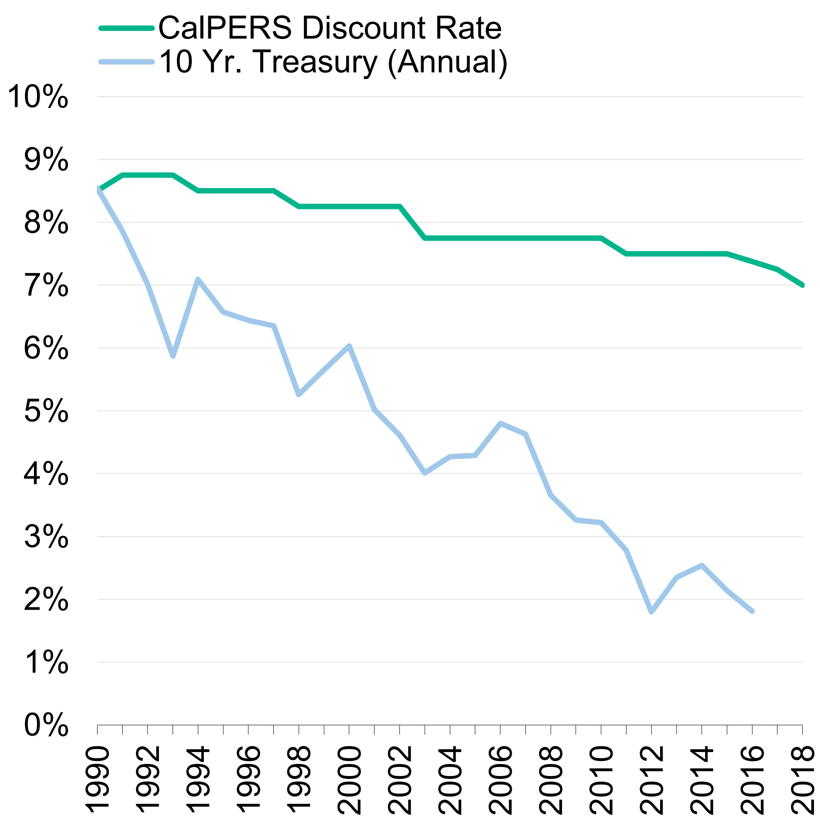
» Scale of potential pension asset downside for the 50 largest local governments remains unchanged despite rise in unfunded balance sheet burdens and already rising costs

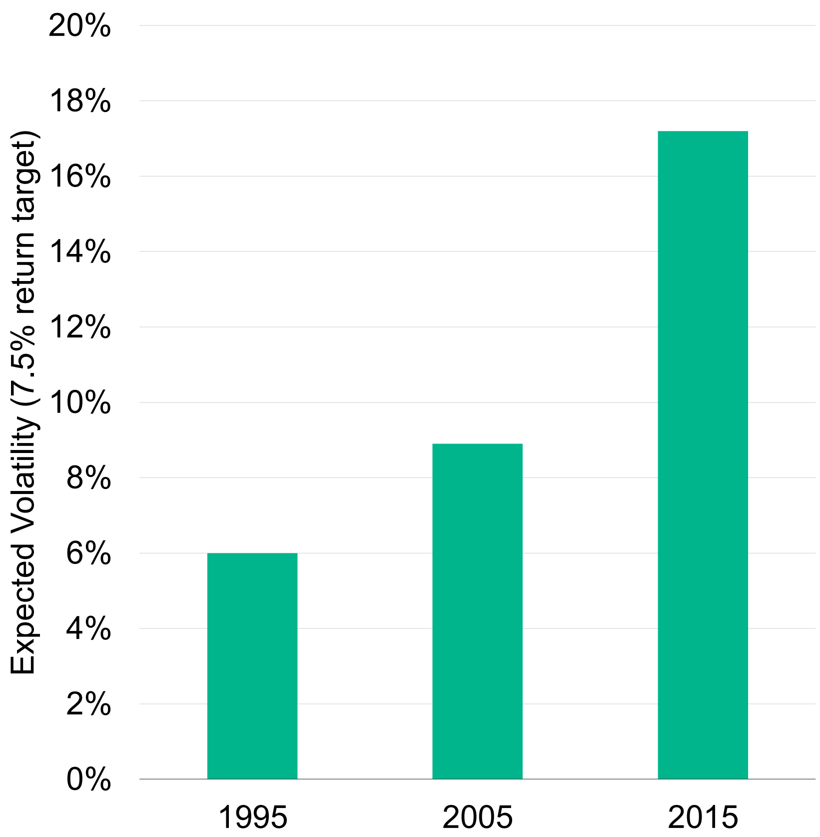


Source: Moody's Investors Service

Declines in reported US public pension discount rates are overdue

- » Even at new, lower levels, reported discount rates remain well above market interest rates
- » Callan: volatility risk required to maintain 7.5% return expectations roughly tripled from 1995 to 2015

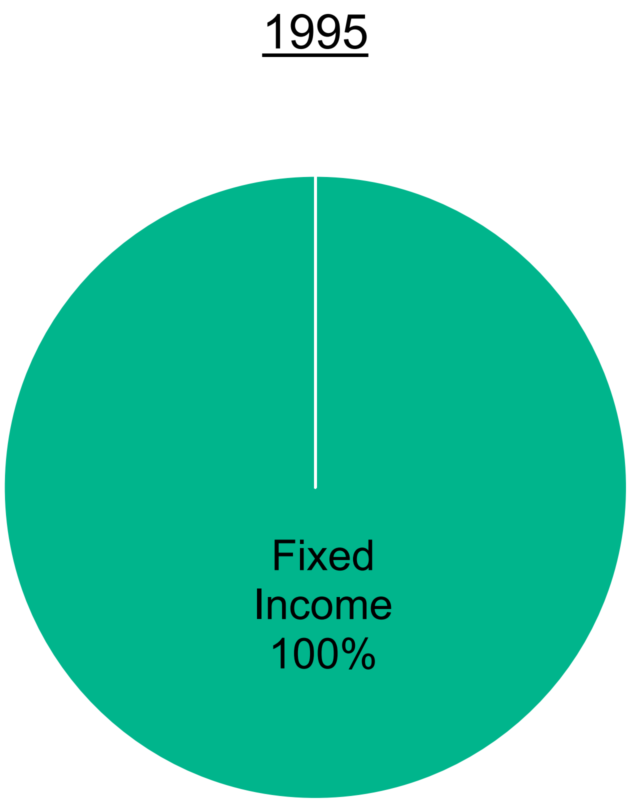


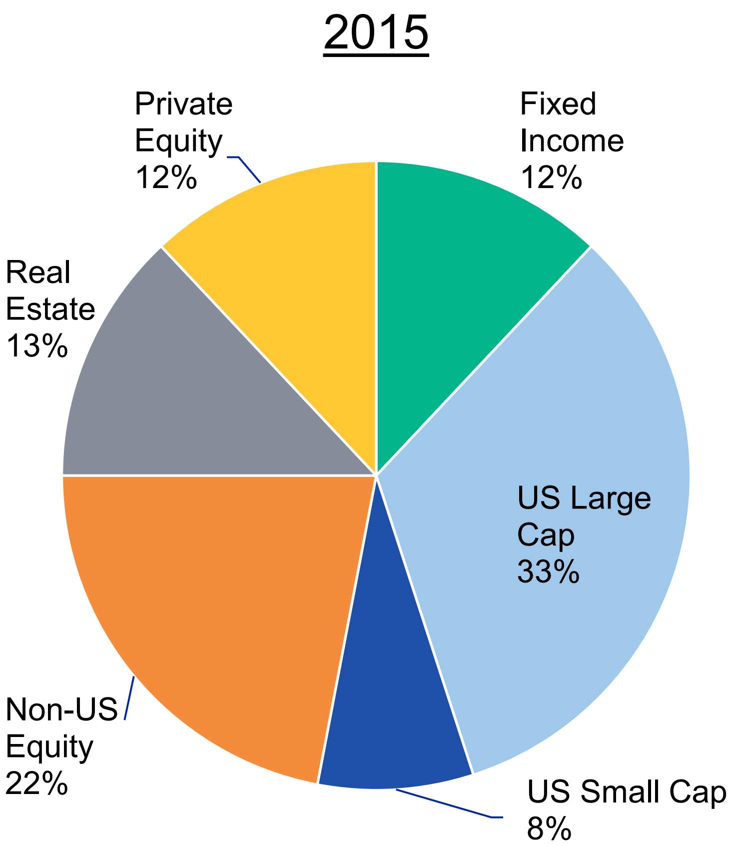


Source: Moody's Investors Service, excludes State of Alabama due to data availability

Low interest rates and reach for yield have forced public pension portfolio allocations away from fixed income

» Sample portfolio mix to produce expected return of 7.5%

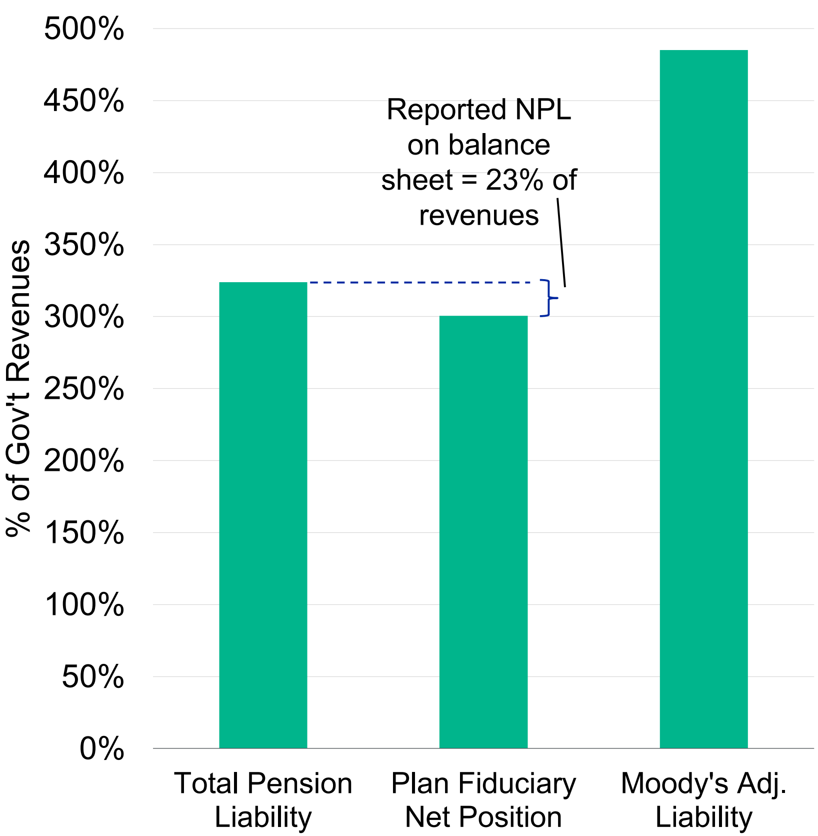


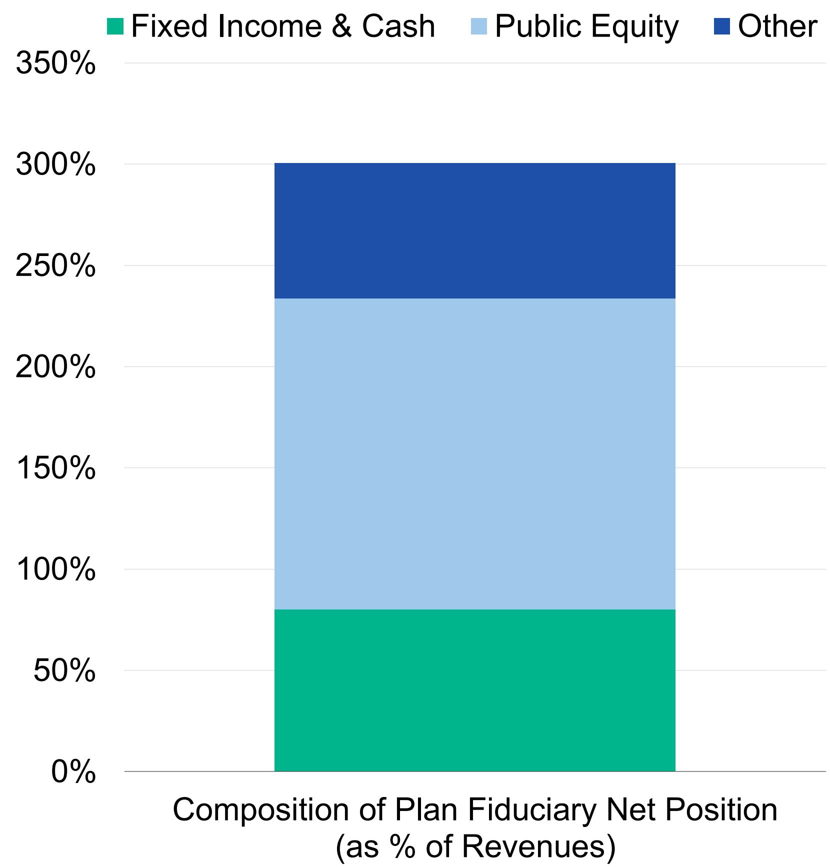


Source: Callan capital markets assumptions

Reported net pension liability on balance sheets reflects only a portion of total exposure to pension risks

- For a sample city in South Florida, reported net pension liability amounts to 23% of revenues
- Pension assets (i.e. funded liabilities) amount to 300% of revenues
  - Mainly comprised of volatile assets, very different from defeased bonds



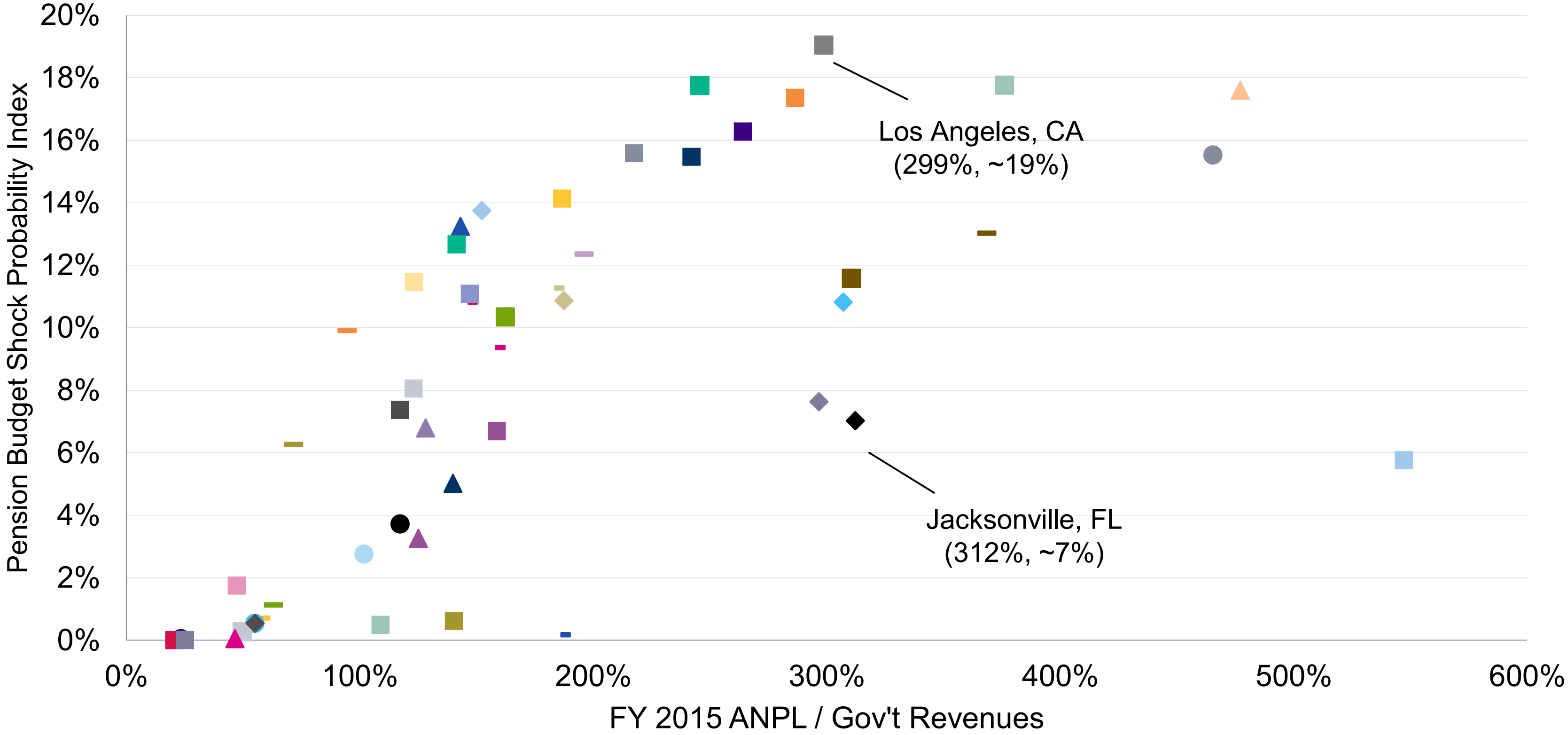


Source: Moody's Investors Service

Governments with similar unfunded burdens may have different risk of material pension investment loss

» Moody's "pension budget shock probability index" measures one year probability of pension asset loss amounting to 25%, or more, of government revenues

» Considers relative size of pension assets, and risk-taking, using assumed return as proxy



Source: Callan capital markets assumptions

4

Reforms, funding strategies, legal landscape continue to develop at fast pace

Florida governments have flexibility to alter benefits prospectively

Key Florida Supreme Court ruling in *Scott v. Williams*

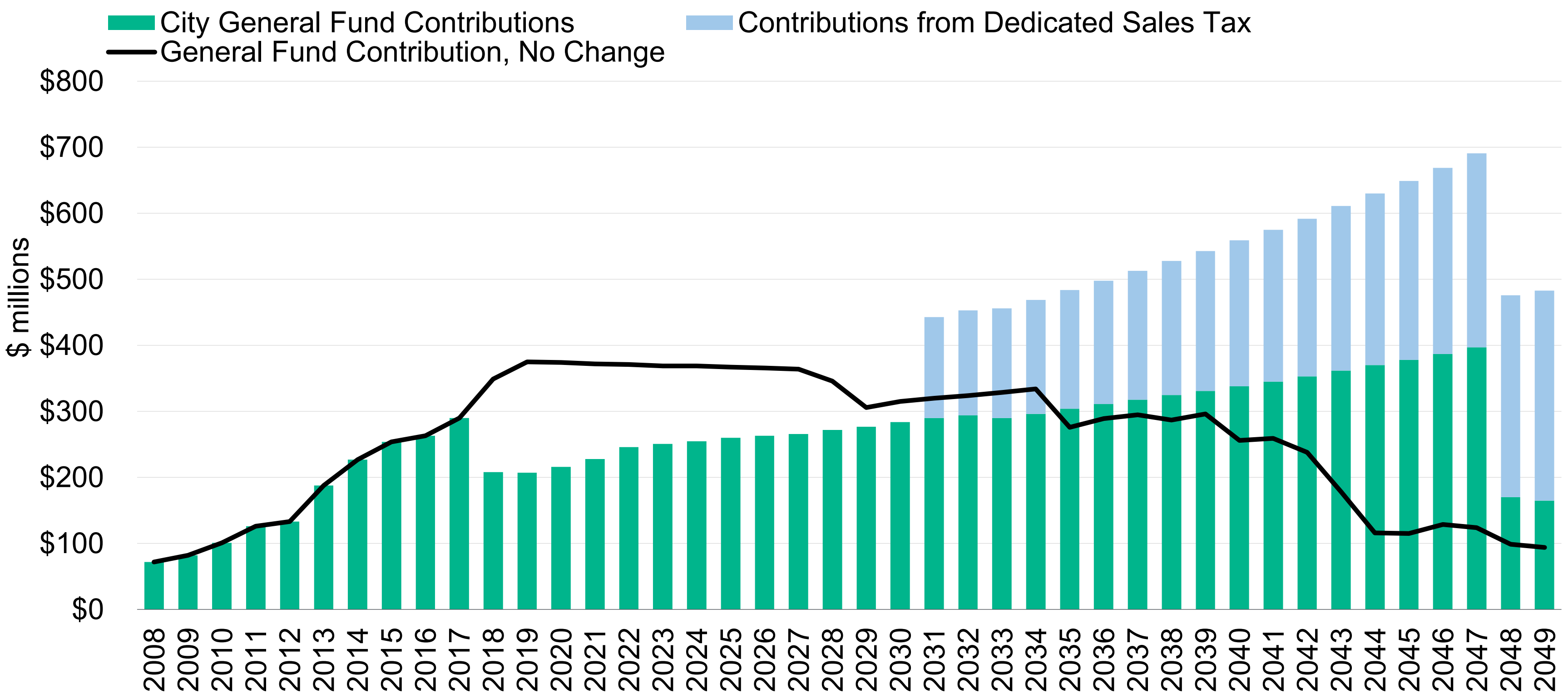
Most pension reform litigation nationwide considers two key legal questions

» Can reforms be altered for current employees prospectively?
  – Including employee contribution increases

» Are cost-of-living adjustments legally distinct from core benefits?
  – COLA changes/suspensions in some states can be applied to current retirees

Dedicating future revenue streams to bolster "assets" an emerging strategy

- Jacksonville, FL obtained voter approval for sales tax extension dedicated to pension
- Paying less now, more later: savings used to fund employee raises via lower contributions
- Strategy carries risks that dedication of revenue may contribute to future budget "crowd out"



Source: City of Jacksonville

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BNY MELLON | Invested

South Florida GFOA Annual Investment Seminar

Arbitrage Rebate and Calculating Yield

Kristen Kalinowski

Kristen.Kalinowski@bnymellon.com
(901) 654-5850

August 2017

Goal of IRS Arbitrage Rules

Arbitrage Rules are designed to eliminate any arbitrage incentive to:

- Issue more bonds than needed,
- Issue bonds earlier than needed, and
- Leave bonds outstanding longer than needed

In order to accomplish the governmental purpose of the bond issue.

Definitions

Arbitrage	Arbitrage Rebate	Rebate Amount
The ability to obtain low-yielding tax-exempt bond proceeds and invest the funds in higher yielding taxable securities, resulting in a profit.	The dollar profit earned from arbitrage which must be paid back (rebated) to the federal government.	Defined as the excess of the future value of receipts from non-purpose investment over the future value of all payments on non-purpose investments.

BNY MELLON

Required Calculation Dates

Installment Calculation Dates (Every 5 years)

- Installments must be paid at least every 5th bond year.
- Bond year is each one-year period ending on the date selected by the Issuer.
- If no date is selected by the Issuer, bond year ends on each anniversary date of the issue.
- Installment payable within 60 days.
- Installment of at least 90% of cumulative rebate is due.

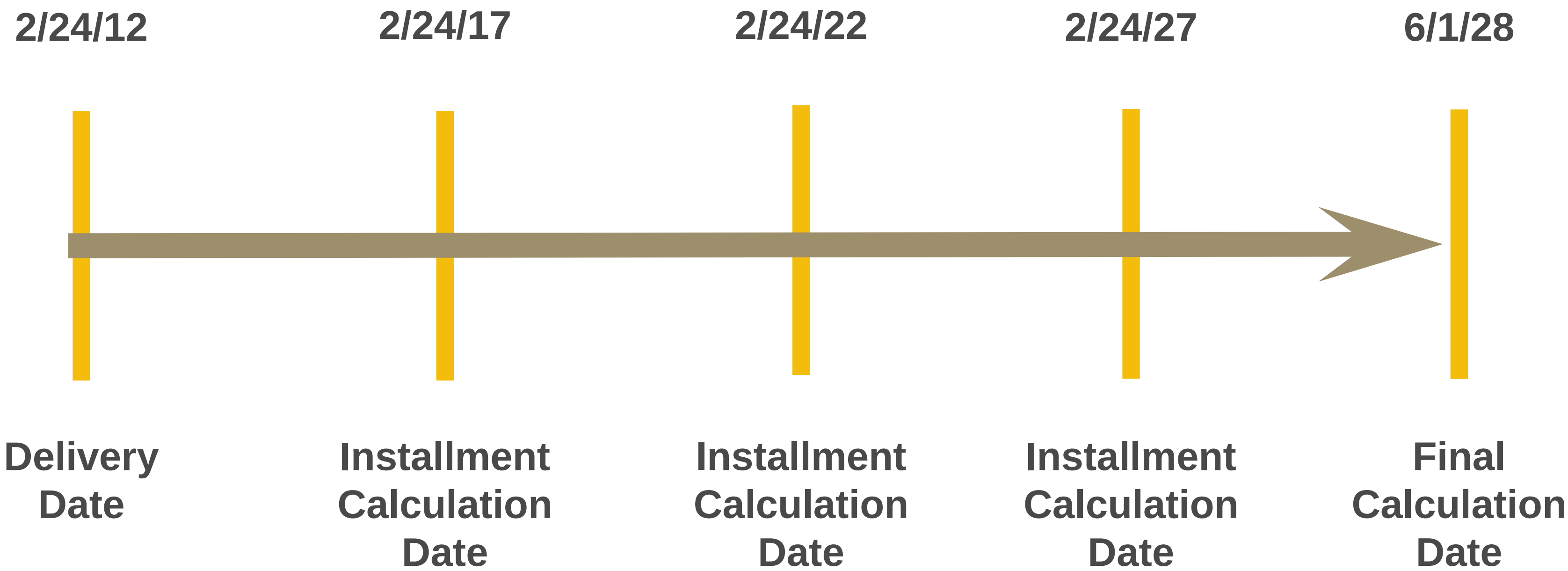
Final Calculation Date

- Date all bonds of an issue have been retired and last bondholder is paid in full.
- Cash defeasance or refunding may accelerate final computation date.
- Final payment due within 60 days.
- 100% of remaining arbitrage rebate amount is due.

Computation Date Definition

- A computation date may not be longer than five years after the date the bonds are delivered.
- Fixed Yield Bonds: An issuer may treat any date as a computation date.
- Variable Yield Bonds: An issuer,
  - May treat that last day of any Bond Year on or before the first required payment date as a computation date; and
  - After the first required payment date, must consistently treat the end of each Bond Year or the end of the each fifth Bond Year as a computation date and may not change that treatment.

Required Arbitrage Reporting Dates



Bond Yield

Yield on an Issue

Yield on an issue is the discount rate, that when used to compute the present value of principal, interest and qualified guarantee fees, produces an amount equal to the issue price of the bonds.

Issue price is the price at which the bonds were sold to the public, not the price the bonds were sold to the underwriter.

The 2016 Regulations revised the definition of Issue Price. This change in definition impacts the prices and documentation to be completed at closing. Bond counsels are now incorporating the changes into the documents prepared at an issuance's closing.

Yield on an Issue

There are two types of bond yields

Fixed Rate Issues	Variable Rate Issues
Yield is computed over the life of the issue.	Yield is computed separately for each 5 year computation period.

Sample Fixed Rate and Variable Rate Bond Yields

Fixed Rate Bond Yield

TOTAL DEBT SERVICE REQUIREMENTS AND YIELD ON THE BONDS

Payment Date	Interest Rate	Principal	Interest	Total Debt Payment	Adjustment	Adjusted Debt Payment	Present Value 03/29/2001 4.286613%
11/15/2001	4.000%	2,240,000.00	1,875,192.04	4,115,192.04	-	4,115,192.04	4,007,066.50
05/15/2002			1,284,076.25	1,284,076.25	-	1,284,076.25	1,224,101.25
11/15/2002	4.250%	3,335,000.00	1,284,076.25	4,619,076.25	-	4,619,076.25	4,310,937.71
05/15/2003			1,213,207.50	1,213,207.50	-	1,213,207.50	1,108,515.55
11/15/2003	4.250%	3,495,000.00	1,213,207.50	4,708,207.50	-	4,708,207.50	4,211,651.08
05/15/2004			1,138,938.75	1,138,938.75	-	1,138,938.75	997,441.07
11/15/2004	4.250%	3,655,000.00	1,138,938.75	4,793,938.75	-	4,793,938.75	4,110,261.42
05/15/2005			1,061,270.00	1,061,270.00	-	1,061,270.00	890,826.11
11/15/2005	4.250%	3,825,000.00	1,061,270.00	4,886,270.00	-	4,886,270.00	4,015,453.48
05/15/2006			979,988.75	979,988.75	-	979,988.75	788,439.39
11/15/2006	4.250%	4,000,000.00	979,988.75	4,979,988.75	-	4,979,988.75	3,922,524.57
05/15/2007			894,988.75	894,988.75	-	894,988.75	690,152.36
11/15/2007	4.250%	4,185,000.00	894,988.75	5,079,988.75	-	5,079,988.75	3,835,131.29
05/15/2008			806,057.50	806,057.50	-	806,057.50	595,763.09
11/15/2008	4.500%	4,380,000.00	806,057.50	5,186,057.50	-	5,186,057.50	3,752,623.43
05/15/2009			707,507.50	707,507.50	-	707,507.50	501,208.92
11/15/2009	4.500%	4,590,000.00	707,507.50	5,297,507.50	-	5,297,507.50	3,674,086.80
05/15/2010			604,232.50	604,232.50	-	604,232.50	410,272.12
11/15/2010	4.500%	4,820,000.00	604,232.50	5,424,232.50	-	5,424,232.50	3,605,755.73
05/15/2011			495,782.50	495,782.50	-	495,782.50	322,655.66
11/15/2011	4.500%	5,055,000.00	495,782.50	5,550,782.50	-	5,550,782.50	3,536,652.51
05/15/2012			382,045.00	382,045.00	-	382,045.00	238,310.29
11/15/2012	4.500%	5,305,000.00	382,045.00	5,687,045.00	-	5,687,045.00	3,473,001.88
05/15/2013			262,682.50	262,682.50	-	262,682.50	157,050.59
11/15/2013	4.500%	5,570,000.00	262,682.50	5,832,682.50	-	5,832,682.50	3,414,026.31
05/15/2014			137,357.50	137,357.50	-	137,357.50	78,712.01
11/15/2014	4.700%	5,845,000.00	137,357.50	5,982,357.50	-	5,982,357.50	3,356,224.97
		$60,300,000.00	$21,811,462.04	$82,111,462.04	$0.00	$82,111,462.04	$61,228,846.08

The present value of the future payments equals to:

Principal Amount of the Bonds	$60,300,000.00
Accrued Interest	206,714.08
Original Issue Premium	722,132.00
Issue Price	$61,228,846.08

Variable Rate Bond Yield

TOTAL DEBT SERVICE REQUIREMENTS AND YIELD ON THE BONDS

Payment Date	Principal	Interest	Level Qualified Guarantee Payments	Non-Level Qualified Payment Amounts	Total Debt Payment	Present Value 07/10/2008 1.188342%
07/10/2008			22,433.31		22,433.31	22,433.31
08/01/2008		8,409.84			8,409.84	8,404.03
09/02/2008		12,371.31			12,371.31	12,350.16
10/01/2008		23,702.46			23,702.46	23,639.36
11/03/2008		25,517.21			25,517.21	25,422.49
12/01/2008		6,152.46			6,152.46	6,123.98
01/02/2009		6,408.33			6,408.33	6,372.16
02/02/2009		3,295.48			3,295.48	3,273.64
03/02/2009		2,973.70			2,973.70	2,951.08
04/01/2009		3,350.96			3,350.96	3,322.30
05/01/2009		2,838.33			2,838.33	2,811.28
06/01/2009		2,543.18			2,543.18	2,516.45
07/01/2009	$160,000.00	1,779.78			161,779.78	159,921.64
08/03/2009		1,675.01			1,675.01	1,654.03
09/01/2009		1,990.44			1,990.44	1,963.70
10/01/2009		1,838.16			1,838.16	1,811.67
11/03/2009		1,755.50			1,755.50	1,728.38
11/23/2009	$7,940,000.00	1,109.42			7,941,109.42	7,813,300.35
11/23/2009						0.00
	8,100,000.00	107,711.57	22,433.31	0.00	8,230,144.88	8,100,000.00

The present value of the future payments equals to Principal Amount of the Bonds 8,100,000.00

Bond Yield Considerations – Swap Terminations

Termination of a Qualified Hedge	Actual Termination	Deemed Termination	Special Rule for Refundings
• Actual Termination • Deemed Termination	• Includes any actual termination of all or a portion of the hedge by the issuer. • Any termination payment or receipt (actual or deemed) is treated as an adjustment to the debt service on the hedged bond • Payment/receipt is allocated to the remaining periods originally covered by the hedge	• Occurs if a hedge ceases to meet the requirements of a qualified hedge as a result of a material modification to the hedge or if the issuer redeems all or a portion of the hedged bonds. • If the modified hedge remains a qualified hedge, no termination payment/receipt is taken into account for Bond Yield purposes.	• When hedged bonds are redeemed with a refunding issue and an actual termination of a qualified hedge occurs, the termination payment or receipt is treated as an adjustment to the refunding debt service • Payment is allocated to the remaining periods originally covered by the hedge

Bond Yield Considerations
– Swaps & the 2016 Regulations

Historically, when changes were made to the Swap, the any and all deemed termination payments were taken into account for computing the Bond Yield. The actual or deemed termination also impacted Refundings and allocated the actual or deemed termination payment to the Refunding Bonds.

The 2016 Regulations provide that as long as the swap remains a qualified hedge (and is, therefore, not actually terminated), the modification of the agreement will not result in a deemed termination and no deemed termination payment will be taken into account for purposes of the Bond Yield. This same rule applies for Refundings of swapped bond issues.

Bond Yield Considerations
– Swaps & the 2016 Regulations

The 2016 Final Regulations include guidance on the calculation of the Fair Market Value of the Swap. For an actual termination of a qualified hedge, the amount of the termination payments (made or received)

(1) may not exceed the fair market value of the qualified hedge if paid by the issuer

and

(2) may not be less than the fair market value of the qualified hedge if received by the issuer.

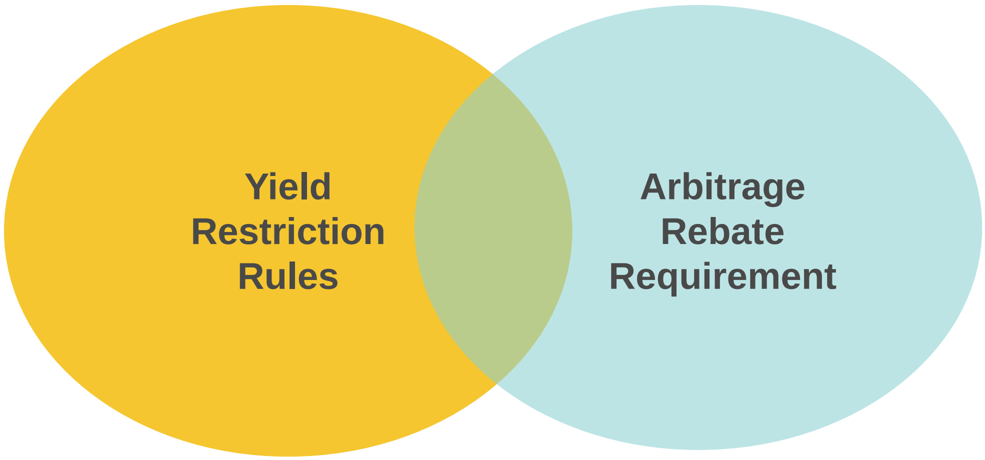
Additionally, guidance is given on the requirements relative to the identification of the hedge, which is required for the hedge to be treated as a qualified hedge.

If entering into, modifying, or terminating a qualified hedge be sure to involve bond counsel who will be able to provide proper guidance on the treatment and impact on the Bond Yield for purposes of the arbitrage rebate and yield reduction calculations.

Two Separate Rules

Yield Restriction – IRC Section 148(a): Governs when you may legally earn arbitrage from investing bond proceeds.

Arbitrage Rebate - IRC Section 148(f): Mandates when you must rebate arbitrage earned to the federal government.



Prior to 1986, only yield restriction applied. After 1986, both rules apply to a bond issue.

Proceeds Subject to Rebate and Yield Restriction

Sales Proceeds	Received from the sale of the bonds
Investment Proceeds	Interest earnings on proceeds of an issue
Transferred Proceeds	Unexpended proceeds of a refunded issue
Replacement Proceeds	Non-proceeds treated as proceeds (i.e. debt service)

General Yield Restriction Rule

In general, “gross proceeds” of an issue may never be invested at a yield that is <u>materially higher</u> than the yield on the bonds.

Materially higher yields are defined based on the types of proceeds being restricted. The most used Materially Higher Yields are:

Investment Type	Materially Higher Yield
General rule for non-purpose investments	Bond Yield + 1/8th of 1% or Bond Yield + 0.125%
Advance refunding escrows and replacement proceeds	Bond Yield + 1/1000th of 1% or Bond Yield + 0.001%

Certain exceptions to this rule are available during “temporary periods” (next slide).

Temporary Periods

Temporary periods are time periods in which investing proceeds at a materially higher yield will not cause the bonds to become "arbitrage" bonds.

Temporary periods are also defined based on the types of proceeds being restricted. The most used Temporary periods are:

Investment Type	Temporary Period
Capital Projects	3-years beginning on the issue date (can be extended to 5 years with certification that longer period is needed to complete the project).
Replacement Proceeds, in general, and Advance Refunding Escrows	30 days beginning on the date that the amounts are first treated as replacement proceeds (typically, the Temporary Period is waived for Advance Refunding Escrow Funds).
Bond Fide Debt Service Funds	13 months
Investment Proceeds (earnings)	12 months

Temporary Periods, cont.

Yield restriction is determined over time, not by individual investment.

Additionally, the Regulations allow for a Minor Portion that is not subject to the Yield Restriction Rules. If the balance, which would otherwise be subject to yield restriction, is an amount not exceeding the lesser of 5 percent of the sale proceeds of the issue or $100,000, then no yield restriction implications exist.

When determining compliance with yield restriction, all yield restricted funds (same “class”) are blended together.

- Lowest available materially higher yield is used for two types of restricted money.
  - Example: Construction Fund (after 3 years) and Escrow Fund, use 1/1000th of 1% limit.

After the Temporary Period

Yield restrict remaining proceeds; or

Yield reduction payment may be permitted under Regulations

Yield Reduction Payments:

- Yield Reduction Payments (YRPs) are payments made to the IRS on *certain* yield restricted funds.
- YRPs and Advance Refunding Escrows:
  - 2016 Final Regulations allow for YRPs to be made in instances where SLG Sales have been suspended by the Treasury at the time that the securities should have been purchased. This is the only available for purchases after October 17, 2016.
  - Variable Rate with a qualified hedge covering all of the variable rate bonds and covers the time period that the advance refunding escrow fund is outstanding.
- Paid at same time and manner as a rebate payment.

YRP Sample

		Arbitrage Earned
Years 1-3	(Unrestricted)	<90,000>
Years 4 & 5	(Restricted)	70,000
Arbitrage Rebate Payment		-0-
Yield Reduction Payment		70,000

Rebate Credits

1992 Regulations	1993 Regulations	2016 Regulations
$3,000 every 5 years	$1,000 annually in each year gross proceeds are present plus $1,000 on final computation date	Permit an annual cost of living increase to a base of $1,400 annual credit.

Rebate Credits – Reduce Payment Due

Calculation Year	Credit Amount
1993 - 2006	$ 1,000.00
2007	$ 1,400.00
2008	$ 1,430.00
2009	$ 1,490.00
2010	$ 1,500.00
2011	$ 1,520.00
2012	$ 1,550.00
2013	$ 1,590.00
2014	$ 1,620.00
2015	$ 1,650.00
2016	$ 1,650.00
2017	$ 1,670.00

Exceptions to Rebate Requirement

Exceptions to the Rebate Requirements

Small Issuer Exception	Debt Service Fund Exclusion	Spending Exceptions
• $5 million or less in total Tax-Exempt debt sold in a calendar year • Up to $15 million for construction of public school facilities • Only available for Governmental Issuers with general taxing powers	• Balance Test – less than 1/12th of debt services as a low balance • Earnings Test – less than $100,000 per bond year	• 6 – Month Exception • 18 – Month Exception • 24 – Month Exception

6 Month Spending Exception

Period	Cumulative Expenditures
6 months	100%

Exception allows for an additional 6 months if the issuer is a 501(c)3) or Governmental issuer and the excess proceeds amount outstanding at 6 months is less than 5% of the proceeds of the Bonds.
ALL proceeds must be spent within 12 months.

18 Month Spending Exception

Period	Cumulative Expenditures
6 months	15%
12 months	60%
18 months	100%

Exception fails if any semi-annual period is missed.

Regulations allow a failure to satisfy the final spending threshold to be disregarded if the issuer exercises due diligence to complete the project and the amount of the failure does not exceed the lesser of 3% of the issue price of the issue or $250,000.

24 Month Spending Exception

Period	Cumulative Expenditures
6 months	10%
12 months	45%
18 months	75%
24 months	100%

Exception fails if any semi-annual period is missed.

Regulations allow a failure to satisfy the final spending threshold to be disregarded if the issuer exercises due diligence to complete the project and the amount of the failure does not exceed the lesser of 3% of the issue price of the issue or $250,000.

Refundings

Impact of a Refunding

Refunding of debt should be analyzed!

May accelerate final maturity of the issue

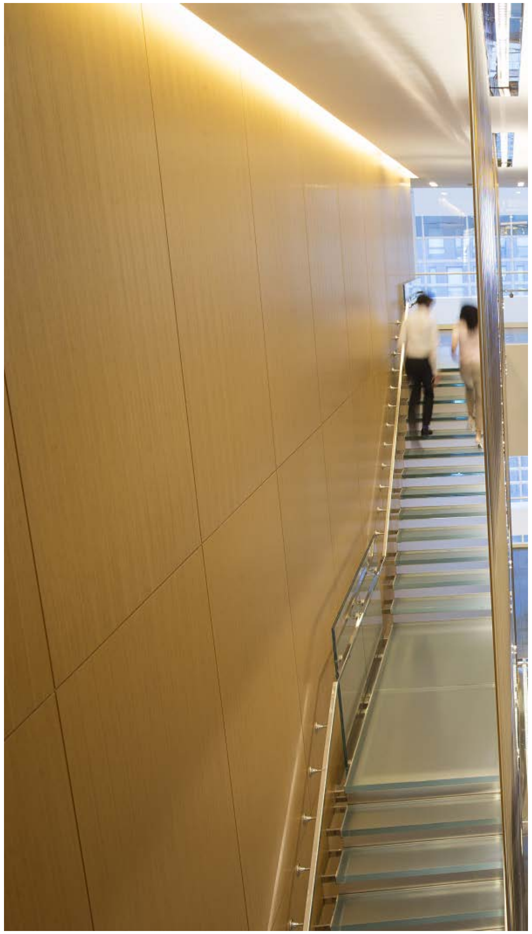
Unspent proceeds “transfer” from the old issue or issues to the Refunding issue

Loss of any remaining temporary period on the refunded bonds (which leads to early application of yield restriction requirement)

Escrow Yield may not exceed bond yield by more than 1/1000th of 1%

Even if structured to be less than the bond yield, an analysis of the actual activity should be done to ensure that all activity matched what was structured. If 0% rollovers are made late or missed, the yield restriction rules may not have been met and, in order to correct the problem for any late/missed rollovers before July 2017, the issuer must approach the IRS through the Voluntary Closing Agreement (VCAP) process.

Transferred Proceeds



Two types of Refundings:

Current – Transfers within 90 days

Advanced – usually transfers over time and is outstanding for more than 90 days.

Transferred Proceeds:.

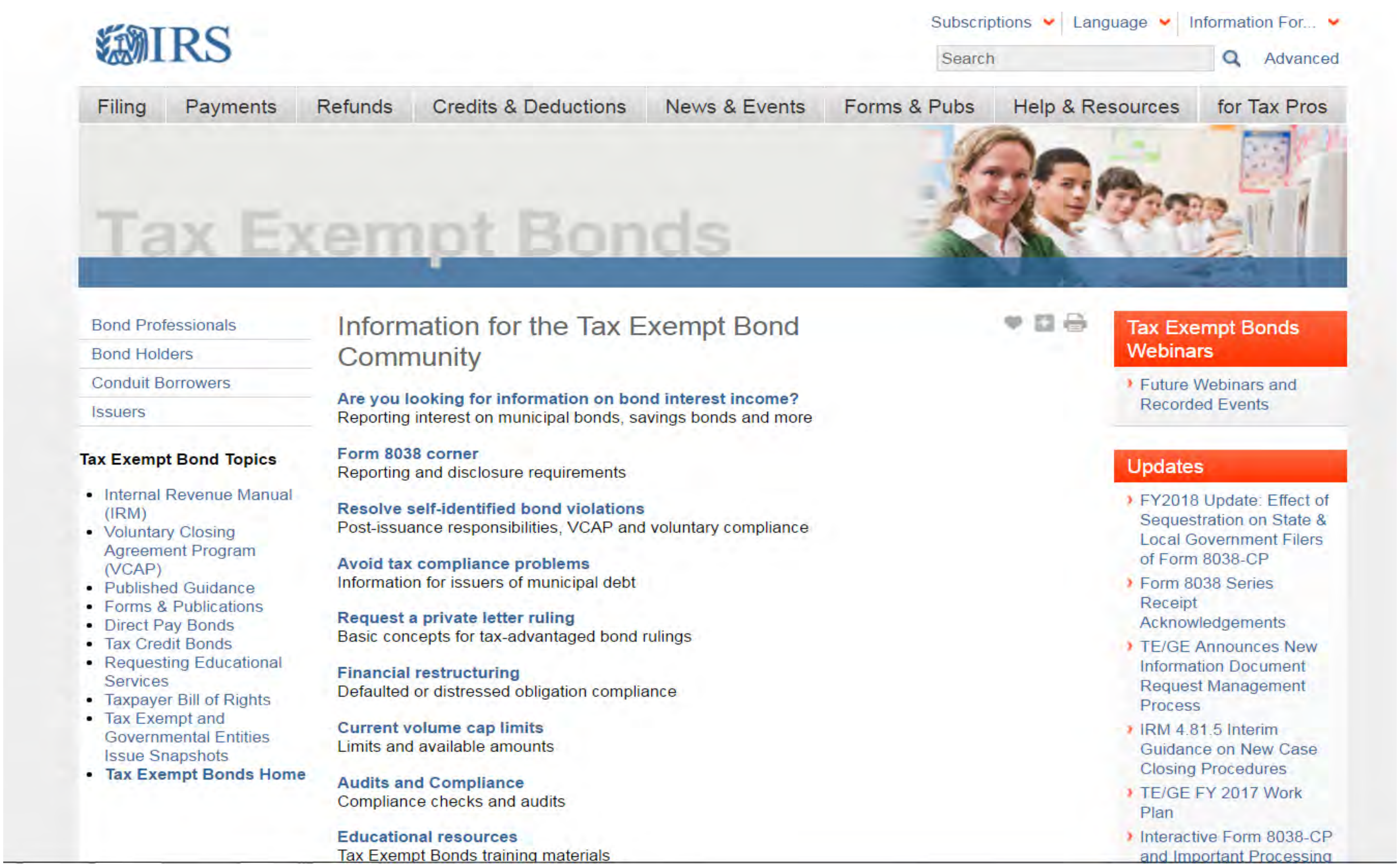
As proceeds of the refunding issue pay principal on the prior (refunded) bonds, remaining proceeds of the refunded bonds became "transferred proceeds" of the refunding issue and cease to be proceeds of the prior bonds.

This transfer can occur over time, not always at once.

Transferred Proceeds % equal to:

Principal or refunded bonds being discharged, divided by total outstanding principal of refunded bonds immediately before discharge.

www.irs.gov/tax-exempt-bonds



Questions?

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Lunch

11:55 am – 1:00 pm

The Nuts and Bolts of Public Defined Contribution Plans

Presented by:

John Thinnes, CFA, CAIA

Consultant

Putting clients first.

Today's Topics

- **Under Pressure**
  Retirement Industry Trends
- **What's Love Got To Do With It**
  Fiduciary Responsibilities
- **Who Are You?**
  Plan Partners
- **Bridge Over Troubled Water**
  Governance Best Practices
- **The Times They Are A-Changin'**
  Plan Design & Investments
- **Suspicious Minds**
  Fees & Expenses
- **What's Going On?**
  Benchmarking Fees & Conducting RFPs

Survey question #1

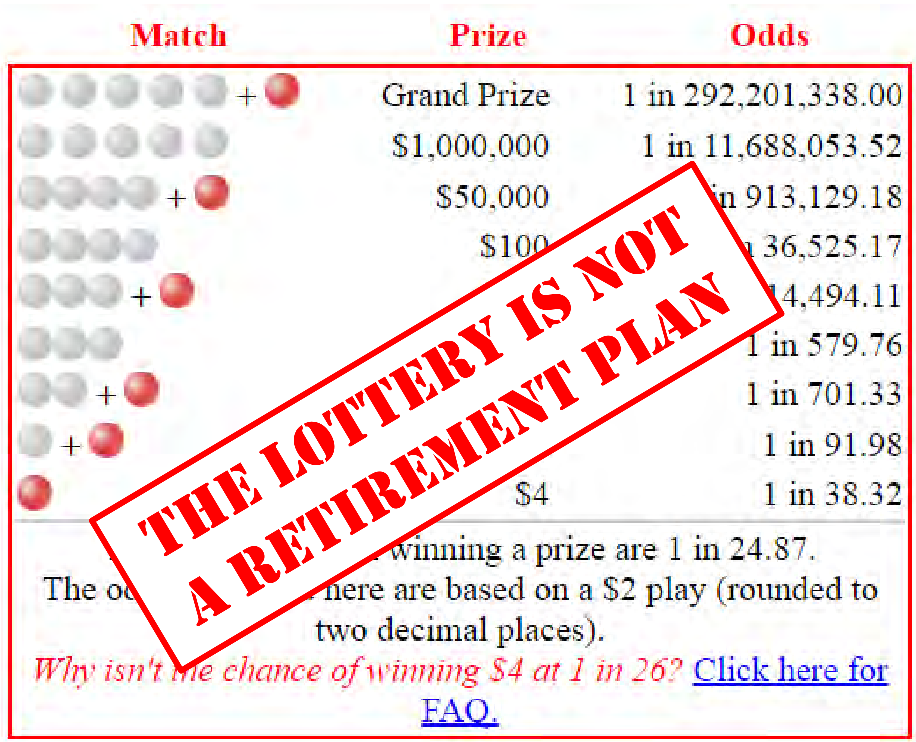
According to the National Institute on Retirement Savings Crisis Study, ___% of U.S. working-age households have saved exactly ***nothing*** in retirement accounts.

A. 5%
B. 25%
C. 45%
D. 65%

Survey question #2

According to www.Powerball.com the odds of winning the grand prize are 1 in _____:

A. 3,000,000
B. 30,000,000
C. 300,000,000
D. 3,000,000,000



Other statistics

- 1 in 4: Victim of identity theft
- 1 in 100: Audited by the IRS
- 1 in 12,000: Finding a pearl in an oyster
- 1 in 9 million: Struck by lightning twice
- 1 in 11.5 million: Attacked by shark
- 1 in 112 million: Death by vending machine

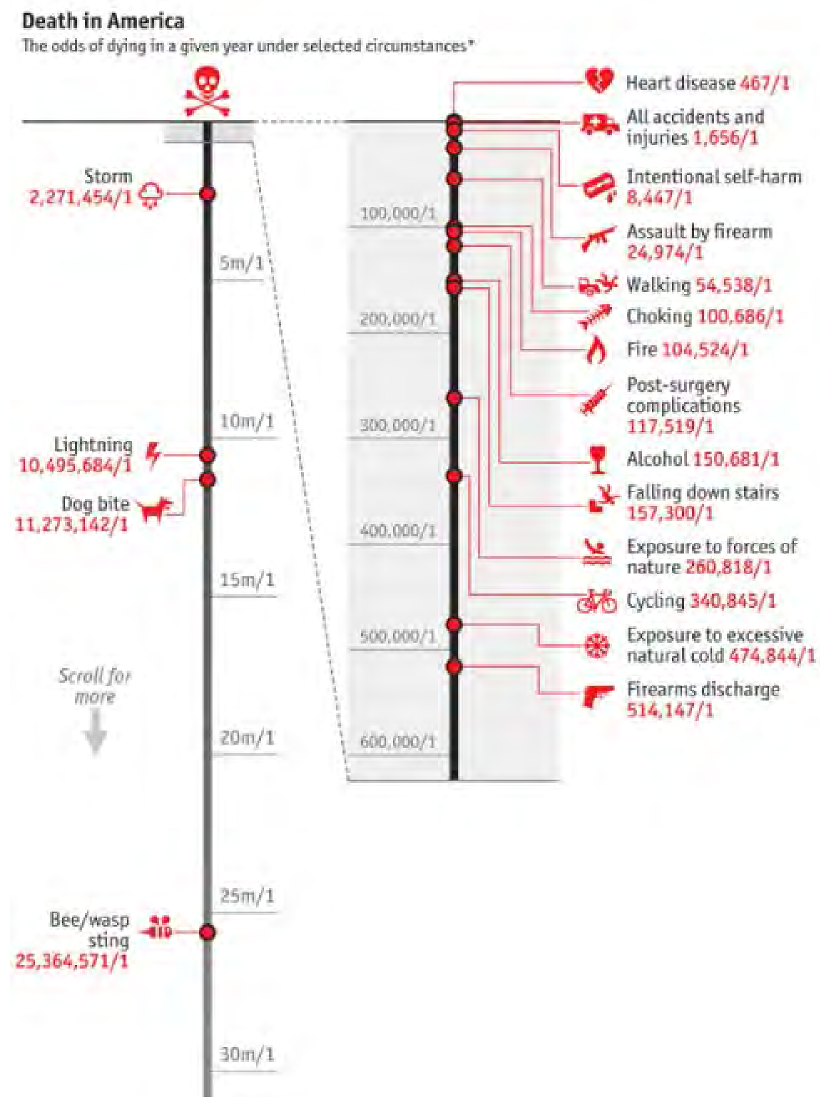


Chart provided by http://www.economist.com/blogs/graphicdetail/2013/02/daily-chart-7

UNDER PRESSURE

Industry Trends

- Continued pension reform and other political pressures
- Increased plan governance by formal plan committees
- Fee disclosure rules
- Public scrutiny and lawsuits
- Advances in recordkeeping technology
- Participant education and comprehensive retirement planning solutions
- Vendor consolidation

Plan Types

401(k)	403(b)	457(b)	401(a)
• Corporations	• Colleges • Hospitals	• Government • Deferred Compensation • Employee money	• Government • Defined Contribution • Supplemental Pension • Employer money

Shift in Risks

	Defined Benefit	Defined Contribution
Plan Investment Selection	**Employer**	**EMPLOYER**
Diversification / Asset Allocation	**Employer**	Employee
Determines Plan Expenses	**Employer**	**EMPLOYER**
Pay Plan Expenses	**Employer**	Employee
Funding (Plan Contributions)	**Employer**	Employee
Retirement Income	**Employer**	Employee

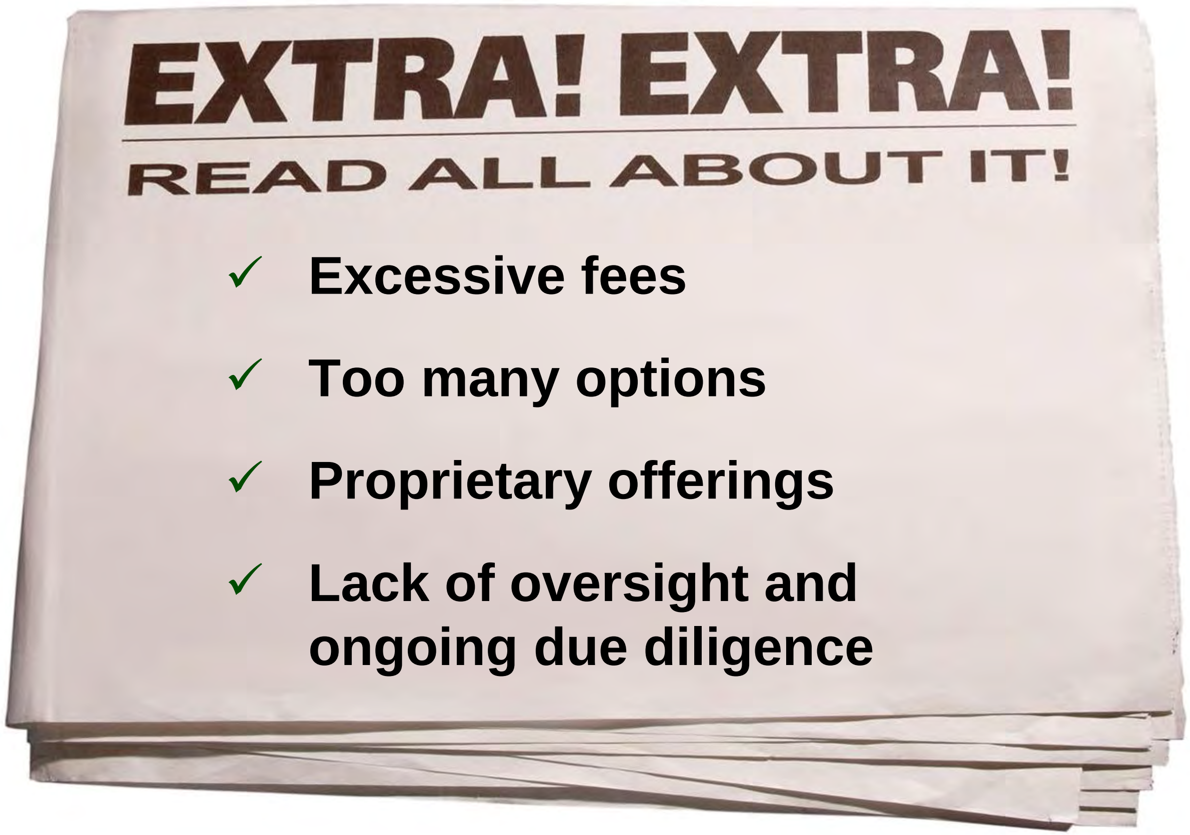
WHAT’S LOVE GOT TO DO WITH IT

From The Headlines

…d Breach

Sued Over Stable Value Fund Fees

Participants …
of Fiduciar…



- ✓ **Excessive fees**
- ✓ **Too many options**
- ✓ **Proprietary offerings**
- ✓ **Lack of oversight and ongoing due diligence**

…ds New Targets

…airs: New Cases

Lawsuit Challenges TDF Selection, Excessive Fees

Plans Still in th…
Challenge Plan Fees

Accountability

- Integrity of procedures & processes
- Held to the standard of a prudent person
- Adoption of policies & procedures
- Continuous monitoring

As administrator of the City's 457 Plan "Plan", the City has fiduciary obligations for the oversight of the Plan. Fiduciary obligations are not centered upon the success of the Plan, but on the integrity of the procedures and processes that are developed and implemented for the Plan. Fiduciary status confers an expectation that the fiduciary is knowledgeable of its obligations and that it acts in the interests of the Plan participants.

The obligations for an administrator for a 457 Plan are described in the Government Code Chapter 609. The obligations include:

- Develop and implement criteria and procedures for evaluating a vendor's qualifications and its investment products to determine whether they are acceptable.
- Create and implement requirements for vendors and their employees for disclosure, reporting, standards of conduct, solicitation, advertising, relationships with current employees, and any other matters the City deems relevant to preserve the integrity of the Plan.

Once developed, these processes should be calendared for periodic review to ensure ongoing compliance. Expertise should be obtained to assist the City in performing these duties.

Although not specifically called for in the Code, as a fiduciary the City will be held to a standard of a prudent person in the performance of its Plan duties. This includes adopting policies related to investment practices, specifically an investment policy statement; a decision making system for selecting a plan investment manager; requiring periodic reporting of Plan performance in order to have effective oversight of the investment performance that is based upon the standards set forth in the Investment Policy Statement; and, remediation methods for the management of funds whose performances represent exceptions or deviations to the stated objectives of the investment Plan.

In sum, this is not a process that runs itself; it requires a commitment to the adoption of policies and procedures that at least meet the above and effective monitoring throughout the life of the Plan. Persons who assume any of these duties on behalf of the City must be well versed in and committed to these obligations.

Fiduciary Guidelines

- **ERISA – Employee Retirement Income Security Act of 1974**
  - regulates employer-sponsored retirement plans
  - imposes specific duties on plan fiduciaries

- **DOL – Department of Labor**
  - Enforces ERISA and ensures employers are making decisions in the best interest of plan participants

- **Florida Statute 112.656 *Fiduciary duties; certain officials included as fiduciaries.***
  - A fiduciary shall discharge his or her duties with respect to a plan **solely in the interest of the participants and beneficiaries for the exclusive purpose of providing benefits to participants** and their beneficiaries and defraying reasonable expenses of administering the plan.

Am I a Fiduciary?

Do you…

- ✓ Have any discretionary authority or responsibility in the administration of the plan?
- ✓ Exercise any authority and/or control over the management or disposition of plan assets?
- ✓ Render investment advice to the plan and/or its participants for a fee or other compensation, whether direct or indirect?

Or do you…

- × perform certain ministerial administrative functions within a framework of the plan's policies, practices and procedures?

The key to determining the fiduciary status is based on function and not simply on title.

Survey question #3

All of the following individuals are considered fiduciaries except:

A. Plan Sponsor
B. Plan Trustees
C. Recordkeeper
D. Investment Consultant

WHO ARE YOU?

Plan Partners

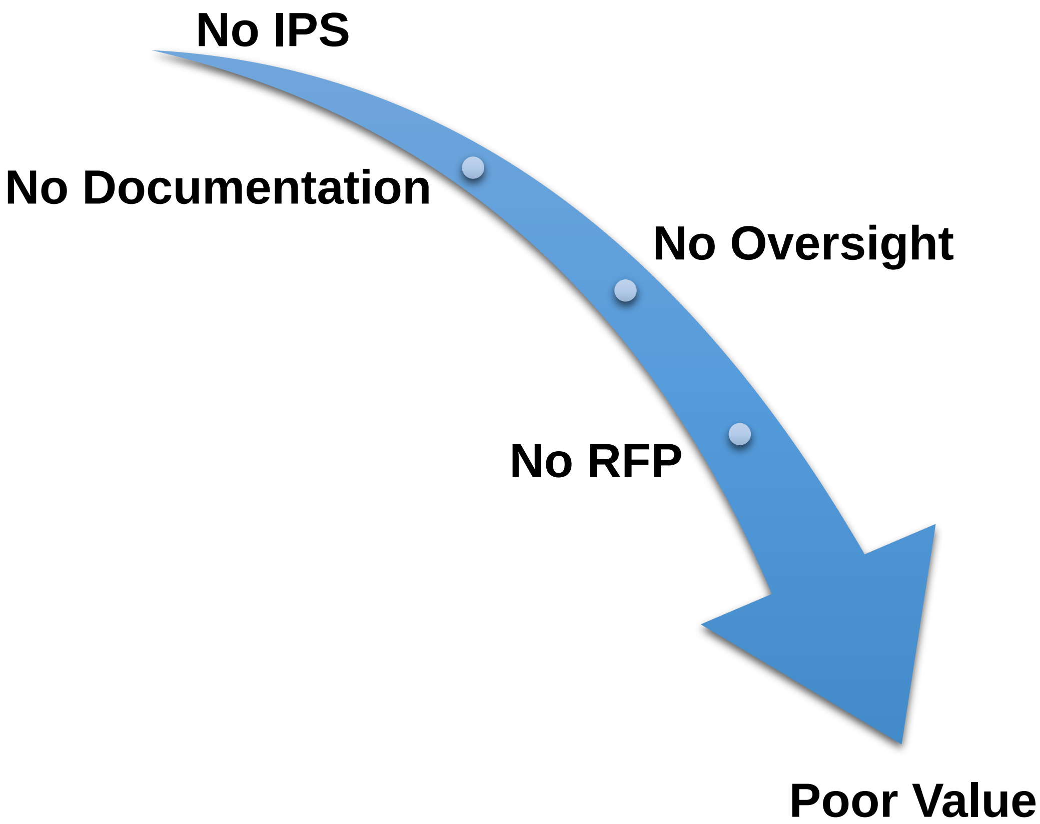
- **Recordkeeper**
  - Provides recordkeeping, plan administration and participant education
  - **Best Practice:** Consolidate to single provider & require them to be open architecture with investments and transparent with fees

- **Investment Manager**
  - Manages an investment portfolio in accordance with specific objectives
  - **Best Practice:** simplified, open architecture investment lineup of 10-20 investments and a pre-diversified option (ie. Target date funds)

- **Consultant**
  - Assist in investment monitoring and fiduciary support
  - **Best Practice:** Committee should consider engaging a consultant if they feel they lack the knowledge or expertise to make sound fiduciary decisions

BRIDGE OVER TROUBLED WATER

Traditional Problem Areas



Duties of a Fiduciary

Duty of Loyalty

Duty to Act Prudently

Select & Monitor Investments

Pay Reasonable Expenses

Fiduciary Responsibilities

Fees

- Ensure fee transparency
- Understand who is receiving fees
- Benchmark fees & services
- Monitor services that are provided
- Understand indirect revenue generated by the plan

Investments

- Construct and follow an Investment Policy Statement
- Create a simple, sensible menu
- Monitor lineup regularly
- Provide tools for participants and measure employee engagement

Fiduciary Best Practices

- ✓ Create a plan committee
- ✓ Hold regular committee meetings that include a review of:
  - Investments
  - Recordkeeper(s)
  - Other professionals
- ✓ Document these meetings and any relevant discussions or decisions
- ✓ Implement and regularly review an Investment Policy Statement
- ✓ Hire an investment professional to help, when appropriate
- ✓ Conduct regular RFPs to benchmark fees & services

THE TIMES THEY ARE A-CHANGIN’

Survey question #4

56% of Americans worry about running out of money in retirement, but only ___% have tried to figure out their retirement savings needs according to the FINRA: Financial Capability in the US 2016 Study.

A. 9%
B. 19%
C. 29%
D. 39%

Simple Rule of Thumb

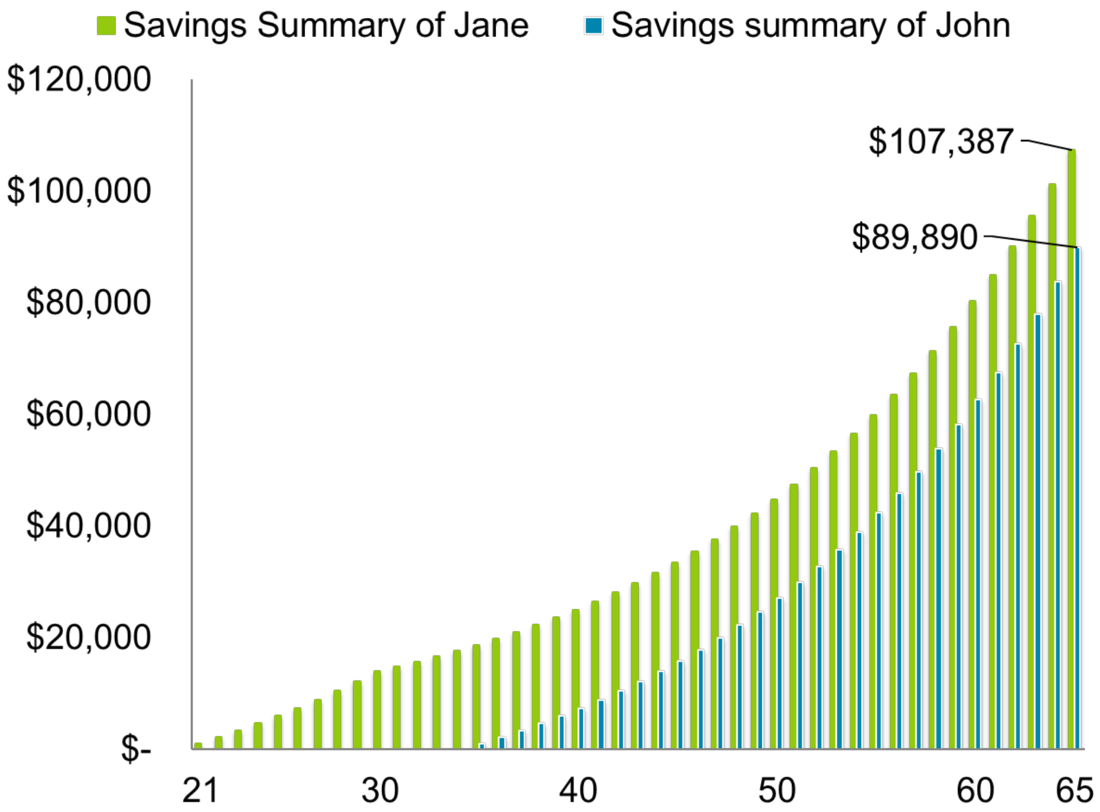
- Age 30: 1x salary
- Age 35: 2x salary
- Age 40: 3x salary
- Age 45: 4x salary
- Age 50: 5x salary
- Age 55: 7x salary
- Age 60: 8x salary
- Age 67: 10x salary

Survey question #5

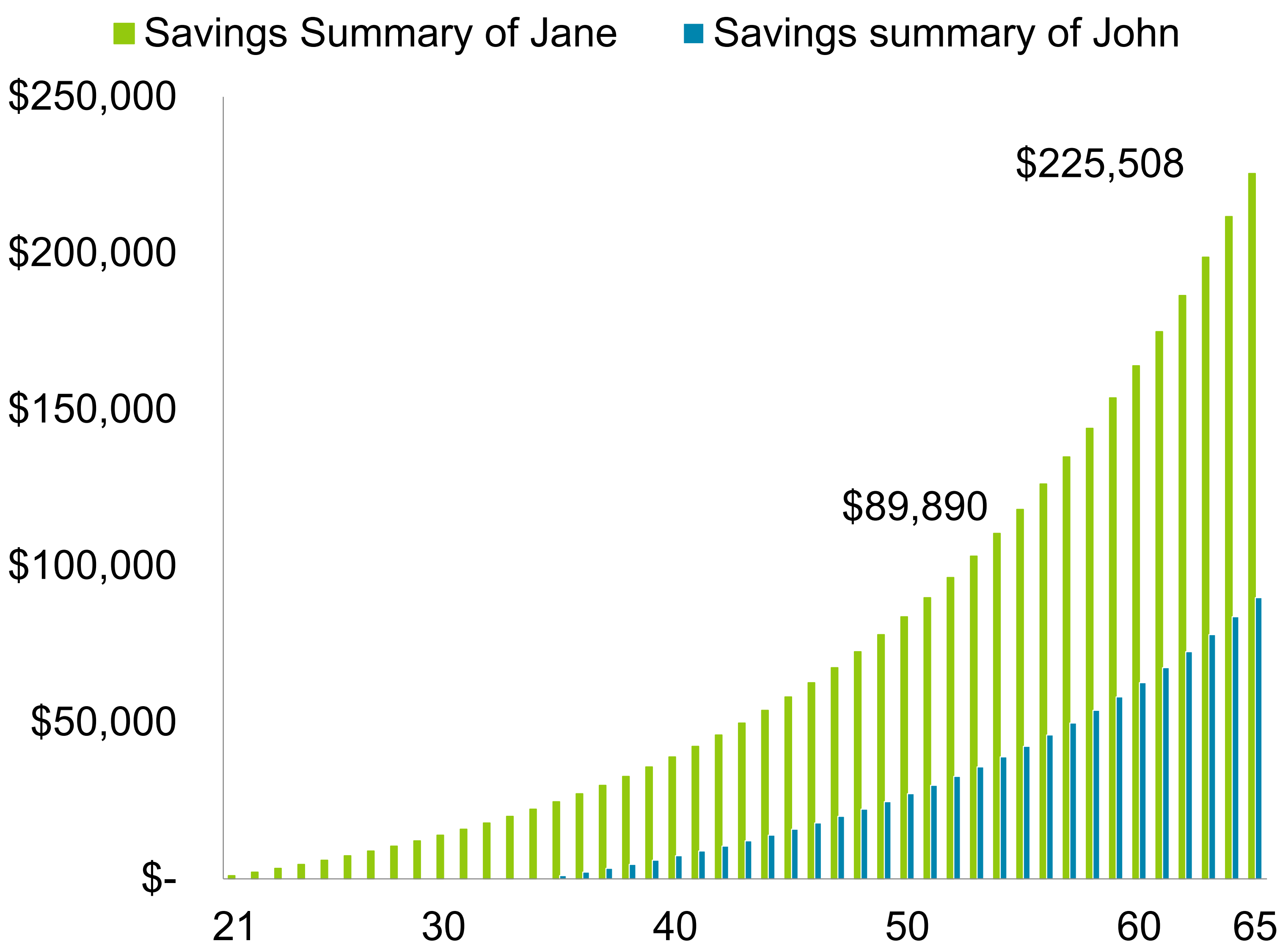
Scenario 1: Jane contributes $1,000 annually from ages 21-31 and then stops.

Scenario 2: John contributes $1,000 annually from ages 35-65 and then stops.

At age 65, who has more saved?



Impact of Early Savings



The Choice Paradox

The Cheesecake Factory

457 Plan Averages

According to the PLANSPONSOR Defined Contribution Survey:

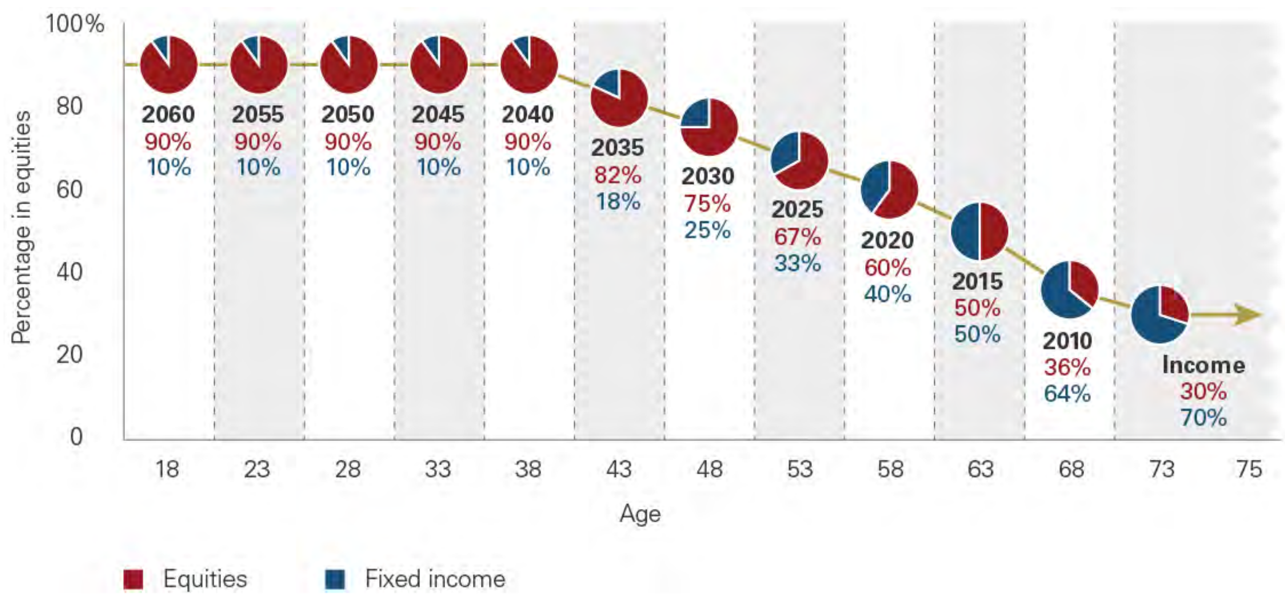
- **23** # of investments offered
- **6** # of index funds offered
- **4** # of funds held by participants

ERISA 404(c) Compliance

1. Broad range of investments (at least 3)
2. Participant control and ability to diversify to minimize the risk of large losses
3. Sufficient and appropriate investment information is regularly provided

Do It For Me

- 70%+ of participants want someone else to make the investment decision
- **Solution:** Pre-diversified funds
  - Target Date Funds
  - Balanced Funds
  - Target Risk Funds
  - Managed Accounts



Help Me Do It

- 20% of participants have a moderate comfort level making investment decisions
- **Solution:** Core lineup of 10-20 funds including active & passive options

Very Basic	Basic	Moderate	Complex
Cash	Cash	Cash	Cash
US Aggregate Bond	US Aggregate Bond	US Short Bond	US Short Bond
US Aggregate Equities	US Large Cap Equity	US Intermediate Bond	US Intermediate Bond
	US Mid Cap Equity	US Long Bond	US Long Bond
	US Small Cap Equity	US Large Cap Growth	US TIPS
	International Equity	US Large Cap Value	US High Yield
		US Mid Cap Growth	International Bond
		US Mid Cap Value	Emerging Mkts Bond
		US Small Cap Growth	US Large Cap Growth
		US Small Cap Value	US Large Cap Value
		International Equity	US Small Cap Growth
		Commodity	US Small Cap Value
		US REITs	International Growth
			International Value
			International Small Cap
			Emerging Markets
			Commodity
			US REITs
			Intl REITs

US Fixed
International Fixed
US Equity
International Equity
Alternative

Source: Morningstar

Do It Myself

- Less than 10% of participants consider themselves savvy investors
- **Solution:** Self directed brokerage

The Self Directed Brokerage Option allows participants to contribute retirement plan savings into a greatly expanded range of investment choices including, stocks, bonds, and mutual funds. Transaction fees vary and there is often an account set-up fee and an annual account fee.

SUSPICIOUS MINDS


HORRIFYING


MORE HORRIFYING

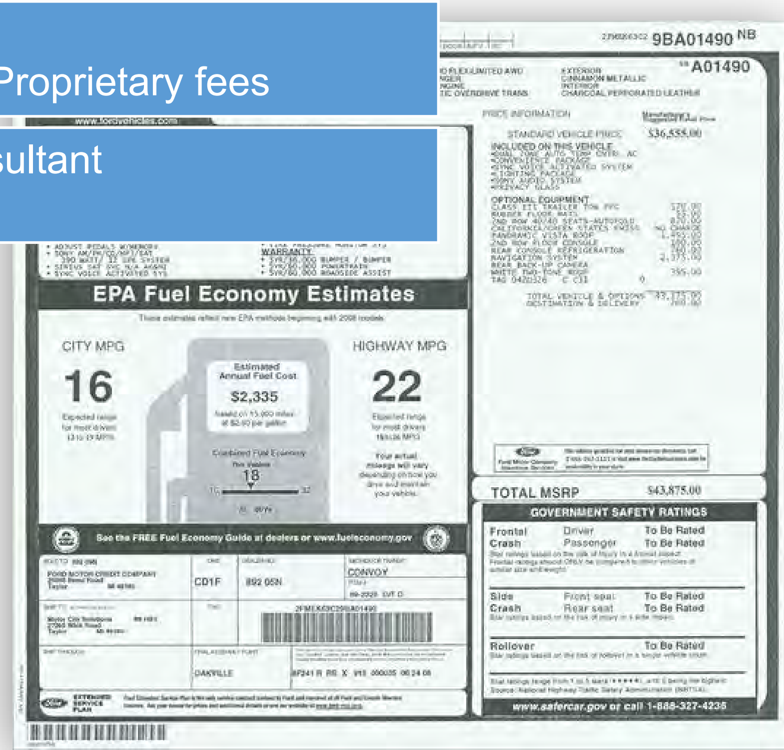
Comparing Fees Traditionally

Types of Fees

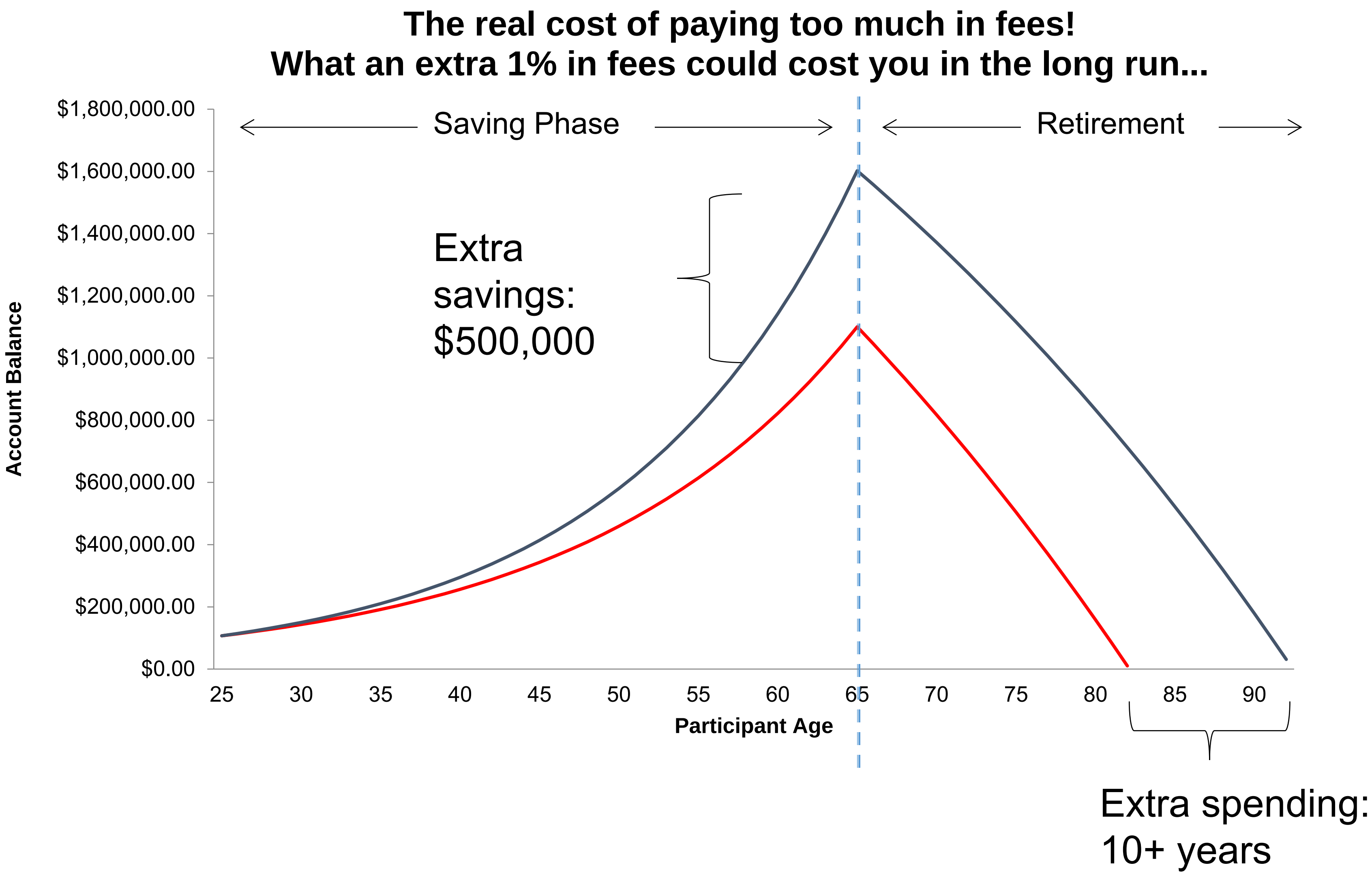
Plan Administration
- Recordkeeping
- Participant education

Investments
- Explicit - Fund expenses
- "Hidden" - 12b-1, subTA, Proprietary fees

Other
- Investment Advisor / Consultant
- Attorney



Extra Fees = Working Longer



WHAT’S GOING ON?

Florida County

Current

- Total Plan Assets:
  - $30M
- Total Plan Providers:
  - Vendor A
  - Vendor B
  - Vendor C
- Total Investment Options:
  - Vendor A (37 + TDF + Risk)
  - Vendor B (36 + TDF + Risk)
  - Vendor C (16 + TDF)

Purposes of Consolidation

- Leverage economies of scale to reduce recordkeeping fees
- Utilize best practices for fee transparency and equalization
- Simplify investment lineup using open architecture approach and lowest net expense share classes
- Offer unified, comprehensive education and communication program across the County
- Streamlining plan administration for Staff

Recordkeeping Fee Summary

Current

- Plan Assets:
  - $30M
- Est. Recordkeeping Fees ($):
  - $230,000
- Est. Recordkeeping Fees (%):
  - 0.76%

Constitutional	Vendor A	Vendor B	Vendor C
Group A	$14.2M	$8.3M	$2.8M
Group B	$0.4M	$1.1M	$0.5M
Group C	$0.3M	$1.4M	-
Group D	$0.6M	-	-
Group E	-	$0.2M	-
Total Assets	**$15.5M**	**$11.0M**	**$3.3M**

Simplified Fund Lineup

S&P 500 Index Example

Funds	Participant Balance	Fund Expense		R/K Fee (%)		R/K Fee (per head)	Inv Advisory		Total Annual Fees ($)	Total Annual Fees (%)
S&P 500 Index #1	$ 10,000	0.17%	$ 17	0.95%	$ 95				$ 112	1.12%
S&P 500 Index #2	$ 10,000	0.20%	$ 20	0.95%	$ 95				$ 115	1.15%
S&P 500 Index #3	$ 10,000	0.06%	$ 6	0.34%	$ 34		0.10%	$ 10	$ 50	0.50%
S&P 500 Index #4	$ 10,000	0.04%	$ 4	0.40%	$ 40	$ 16			$ 60	0.60%
S&P 500 Index	$ 10,000	0.04%	$ 4						$ 4	0.04%
Recordkeeping Fee	$ 10,000			0.12%	$ 12				$ 12	0.12%
								Total	**$ 16**	**0.16%**
S&P 500 Index	$ 10,000	0.04%	$ 4						$ 4	0.04%
Recordkeeping Fee	$ 10,000			0.25%	$ 25				$ 25	0.25%
								Total	**$ 29**	**0.29%**

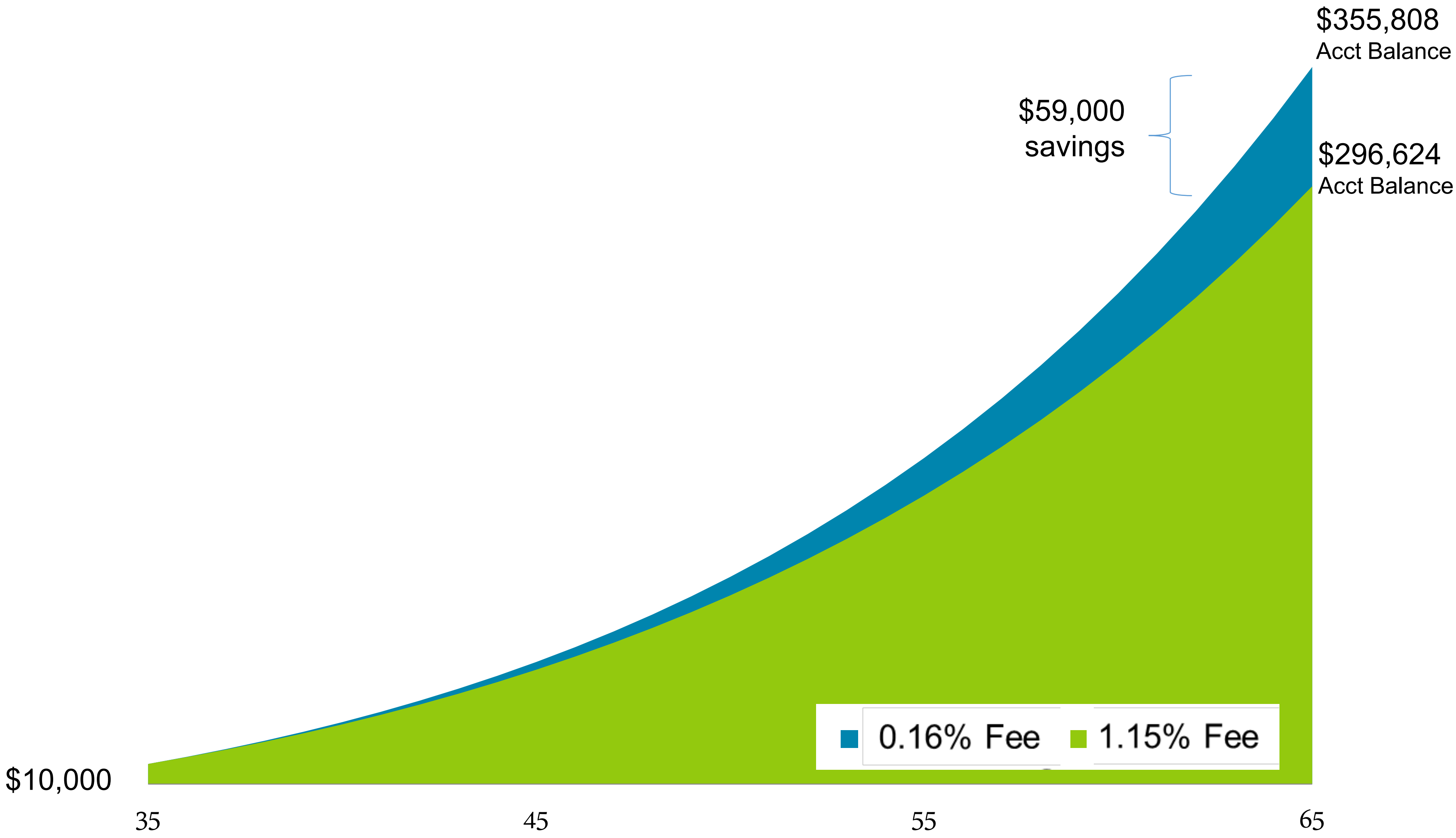
Anticipated Savings

Consolidated

- Plan Assets:
  - $30M
- Single Plan Provider:
  - Vendor A
- Investment Options:
  - 10-20 core investments
  - Target Date funds (TDFs)
- Recordkeeping Fees ($):
  - $36,000 - $75,000
- Recordkeeping Fees (%):
  - 0.12% - 0.25%
- Annual Fee Savings:
  - $150,000 - $200,000

Constitutional	Single Provider
Group A	$25.3M
Group B	$1.94M
Group C	$1.7M
Group D	$0.6M
Group E	$0.2M
Total Assets	**$29.7M**

Impact of Fee Savings Over 30 Years



Calculation based on $10k starting balance, $40k annual salary, 7% contribution rate, 6% rate of return, & 2.5% annual salary increase

Things to Consider When Evaluating Plans

- When were the plan(s) fees and services last benchmarked?
- Determine if consolidation is possible
- Identify if any restrictions in current plans might adversely impact process
- Ensure all parties understand fiduciary responsibilities and agree with primary objective to improve participant value
- Outline goals and objectives for project
- Notify employees in advance of issuing the RFP
- Invite representation from employee unions to be part of the review process
- Recognize the politics but remember there is still a fiduciary duty
- Understand that the typical RFP process will take 4-6 months based on schedules and complexity

If You Only Remember One Thing…

Prudence is a process…

but only if you can prove it!

- ✓ Have a process
- ✓ Follow that process
- ✓ Document, document, document

Putting clients first.

CHICAGO | CLEVELAND | DETROIT | ORLANDO | PITTSBURGH | RENO | TULSA

INVESTMENT ACCOUNTING, AUDITING, AND INTERNAL CONTROLS

Presented by:
William Blend, CPA, CFE
Joel Knopp, CPA

Agenda

- ✓ Accounting and Reporting
- ✓ Investment Accounting and Auditing Issues
- ✓ Investment Internal Controls

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Investment Accounting and Reporting

Investment Accounting

What is an Investment?

- ✓ A security or other asset that (*a*) a government holds primarily for the purpose of income or profit and (*b*) has present service capacity based solely on its ability to generate cash or to be sold to generate cash.
- ✓ Determination of whether an asset meets the definition of an investment is made at acquisition. Once made, the determination should be retained for financial reporting purposes even if the government's usage of the asset changes over time.

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Investment Accounting *(Cont.)*

Fair Value (FV) Applies to?

- ✓ Generally applies to an investment, as described on the previous slide, and assets and liabilities required by other standards to be valued at FV.
- ✓ Does not apply to investments not measured at FV:
  - ❑ Money Market Investments
  - ❑ 2a7-like external investment pools
  - ❑ Investments in life insurance contracts
  - ❑ Common stock requiring equity method application
  - ❑ Unallocated insurance contracts
  - ❑ Synthetic guaranteed investment contracts

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Investment Accounting *(Cont.)*

GASB 72 requires Acquisition Value for:

- ✓ Donated capital assets
- ✓ Donated works of art
- ✓ Historical treasures
- ✓ Capital assets received in a Service Concession Arrangement

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Investment Accounting *(Cont.)*

GASB 79 sets out criteria for identifying pools allowed to be reported at amortized cost and additional disclosure requirements for all qualified investment pools.

- ✓ Sets six criteria for a pool to qualify:
  - ❑ Stable net asset value per share
  - ❑ Portfolio maturity
  - ❑ Portfolio quality
  - ❑ Portfolio diversification
  - ❑ Portfolio liquidity
  - ❑ Shadow pricing requirements

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Investment Accounting *(Cont.)*

Investment Disclosures

- ✓ **Should not** be limited to items reported in the government-wide financial statements.
- ✓ Disclosures **should** be made for the primary government and its governmental activities, business-type activities, major funds, and aggregate non-major funds.
- ✓ **Should** encompass the entire primary government, including its fiduciary funds.

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Investment Accounting *(Cont.)*

Investment Disclosures

- ✓ **Should** briefly describe types of investments authorized by legal or contractual provisions.
- ✓ **Should** disclose any violations during the period of legal or contractual provisions and actions taken to address such violations.
- ✓ **Should** briefly describe investment policies and policies related to investment risks.

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Investment Accounting *(Cont.)*

Investment Disclosures

- ✓ Should be organized by investment type (e.g., U.S. Treasuries, corporate bonds, or commercial paper).
- ✓ Dissimilar investments (e.g., U.S. Treasury bills and U.S. Treasury strips) <u>should not be</u> aggregated into a single investment type.

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Investment Accounting *(Cont.)*

Investment Risk Disclosures

- ✓ Credit Risk
- ✓ Custodial Risk
- ✓ Concentration Risk
- ✓ Interest Rate Risk
- ✓ Foreign Currency Risk

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Investment Accounting *(Cont.)*

Investment Disclosure - FV

- ✓ A government should disclose the following information for each type of asset or liability measured at FV in the statement of net position after initial recognition:
  - ❑ Description of three levels of FV hierarchy
  - ❑ FV measurement at the end of the reporting period
  - ❑ FV hierarchy for each type of investment reported
  - ❑ Description of valuation technique used in FV measurement

Note - there are additional disclosures for investments measured using Net Asset Value (NAV).

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Fair Value Hierarchy

LEVEL 1

- **Quoted prices (unadjusted) in active markets for identical assets or liabilities that a government can access at the measurement date**

LEVEL 2

- **Inputs (other than quoted market prices included within Level 1) that are observable for the asset/liability, either directly or indirectly**
- ***(i.e., observable prices for similar assets in active markets, prices for identical assets in non-active markets, direct/indirect observable market inputs)***

LEVEL 3

- **Unobservable inputs for the asset/liability; used to the extent that observable inputs are not available**

When FV is measured using more than one input, FV level should be identified as the lowest level within the hierarchy of any significant input used in the valuation technique.

Investment Accounting *(Cont.)*

Investment Disclosure – External Investment Pools

- ✓ Qualifying external investment pools should disclose the presence of any limitations or restrictions on withdrawals
  - ❑ Redemption notice periods
  - ❑ Maximum transaction amounts
  - ❑ Authority to impose liquidity fees or redemption gates

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Investment Accounting and Auditing Issues

Accounting Issues

Identifying FV assets (or liabilities) – Upon acquisition

Valuation technique

- ✓ Should maximize observable inputs and minimize unobservable inputs
- ✓ Should have consistent application

Generally, FV information is obtained from/provided by the trustee/custodian for determining FV

- ✓ Takes time to get both level suggestions
- ✓ FV methodology/technique

Accounting Issues *(Cont.)*

Quoted prices may be provided by third parties; however, the government has to determine that the quoted prices provided by those parties are developed in accordance with the FV standards.

This means management needs to understand how the FV is determined.

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Accounting Issues *(Cont.)*

In evaluating third-party valuations, management should consider if:

- ✓ Inputs are based on bid and ask prices
- ✓ Inputs are observable
- ✓ There has been any significant decrease in the volume or level of market activity for the asset
- ✓ Transactions on which the prices are based on “orderly transactions”

In other words – management should understand where and how the third party arrived at its FV.

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Accounting Issues *(Cont.)*

Management is responsible for:

- ✓ Complying with financial reporting and disclosure requirements
- ✓ Maintaining appropriate internal controls over FV measurement and disclosures to prevent or detect material misstatements
- ✓ Assessing the effectiveness of internal controls over financial reporting of investments
- ✓ Maintaining accurate books and records even if using a third party

Accounting Issues *(Cont.)*

Best practices when using third parties for pricing:

- ✓ Obtain understanding of valuation techniques used by pricing vendors at least annually
- ✓ Perform analysis of prices received from pricing services
- ✓ Compare prices received from vendors to actual sale prices from securities sold or to prices reported by another pricing vendor/service
- ✓ For complex investments, consider using a valuation specialist
- ✓ Valuation documentation should be more thorough and detailed for harder to value securities

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Investment Auditing

Investment Assertions

- ✓ Existence or Occurrence (E/O) - Investments represent positions on hand, in transit, or in the custody and safekeeping of others on behalf of the government. Reported investment income represents amounts related to the period and pertains to the entity. Disclosed events and transactions have occurred and pertain to the entity.
- ✓ Completeness (C) - All investment-related income and expenditures/ expenses related to the period and all investment balances have been reported. All required disclosures have been included in the financial statements.
- ✓ Rights or Obligations (R/O) - Conditions and agreements that affect the rights and obligations concerning investments have been properly reflected in the financial statements.

Investment Auditing *(Cont.)*

Investment Assertions

- ✓ Valuation or Allocation (V/A) - Investments are included in the financial statements at appropriate amounts and properly disclosed.
- ✓ Accuracy or Classification (A/CL) - Investment-related income and expenditures/expenses have been recorded at appropriate amounts and in the proper accounts. Investments and investment-related transactions have been appropriately presented and described, and are disclosed fairly and clearly expressed.
- ✓ Cutoff (CO) - Amounts of investment-related income and expenditures/ expenses have been recorded in the correct accounting period.

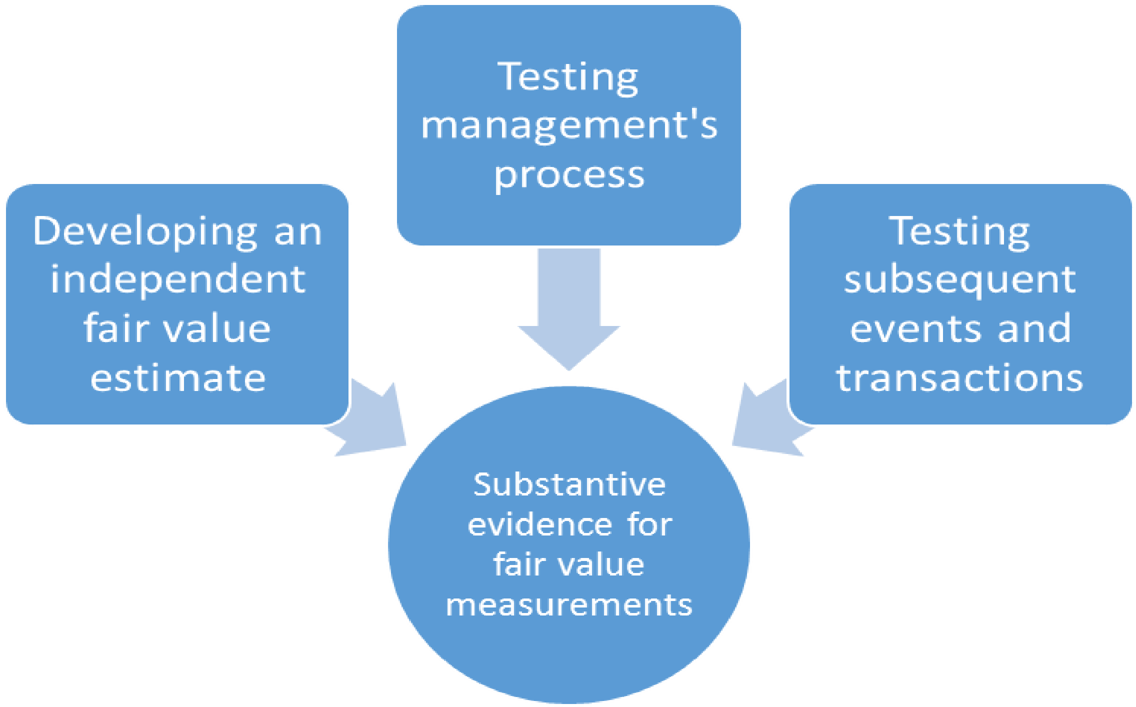
Investment Auditing *(Cont.)*

Investment Procedures

- ✓ Review of documents – policies, procedures, investment statements, investment transactions, etc.
- ✓ Evaluate/test investment internal controls.
- ✓ Confirmation – confirm investment information and values.
- ✓ Inquiry – inquire of staff, investment advisors and others. Validate through inquiry that policies and procedures are being followed.
- ✓ Test valuations and reconciliations – perform procedures related to client reconciliations, trial balances and compare valuations to third-party information.
- ✓ Reporting – review financial statements and note disclosures.

Investment Auditing *(Cont.)*

Possible Approaches to Testing Measurement



Investment Auditing *(Cont.)*

Developing an Independent FV Estimate

- ✓ Establish a point estimate or an acceptable range of prices against which management's estimate will be evaluated
- ✓ Identify the source of the pricing information, verifying that the source is not the same as that used by management
- ✓ Assess the external source's experience in providing valuations in order to assess reliability of the audit price
- ✓ Document the source and rationale for the range of acceptable prices selected

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Investment Auditing *(Cont.)*

Testing Management's Process

- ✓ Obtain understanding of management's valuation methodology (i.e., nature of the FV measurement, estimation uncertainty, underlying assumptions)
- ✓ Accuracy and completeness of internally generated info
- ✓ Evaluate market indicators to determine if management's assumptions are reasonable
- ✓ Evaluate consistency of assumptions with those used for planning and budgeting
- ✓ Evaluate the competence and objectivity of a valuation specialist used by management

Investment Auditing *(Cont.)*

Testing Subsequent Events and Transactions

- ✓ Review relevant subsequent events and transactions to determine if any comparable transactions exist
- ✓ Obtain information regarding executed client transactions on or around the measurement date for the same, or substantially the same, investments.
- ✓ Assess the relevance and reliability of comparable subsequent transactions

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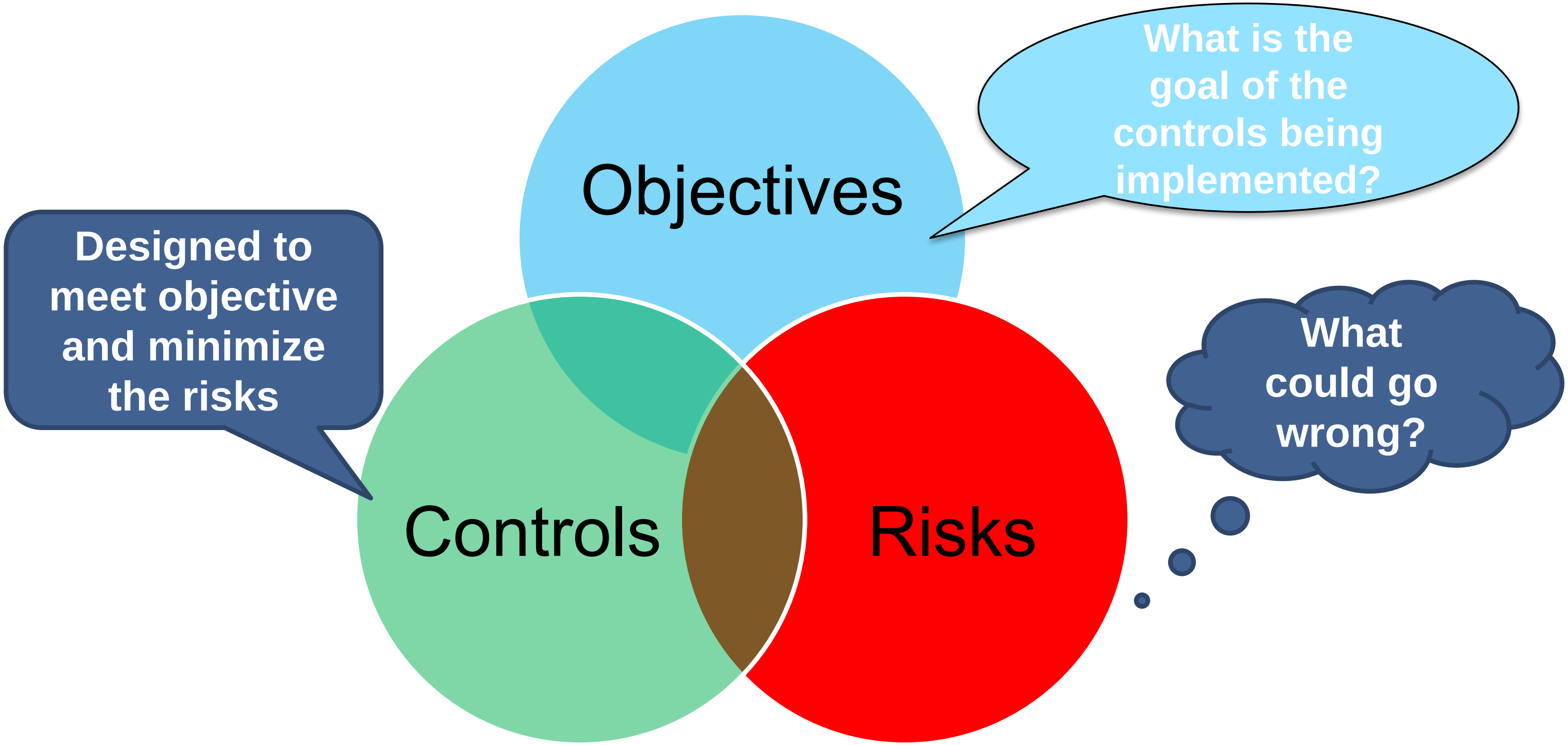
Investment Internal Controls

Internal Controls



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Internal Controls *(Cont.)*

Operations
- Effectiveness
- Efficiency
- Safeguarding assets

Reporting
- Reliability
- Timeliness
- Transparency

Compliance
- Laws
- Policies
- Regulations

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Internal Controls *(Cont.)*

Continuous	• Built into operations • Not one single event • Dynamic
Effected by people	• “Only you can prevent forest fires”
Able to provide reasonable assurance	• Not absolute assurance
Adaptable	• To the entire entity or to a particular division, business process, etc.

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Types of Controls

- ✓ Preventive
- ✓ Detective
- ✓ Corrective

Manual and Automated

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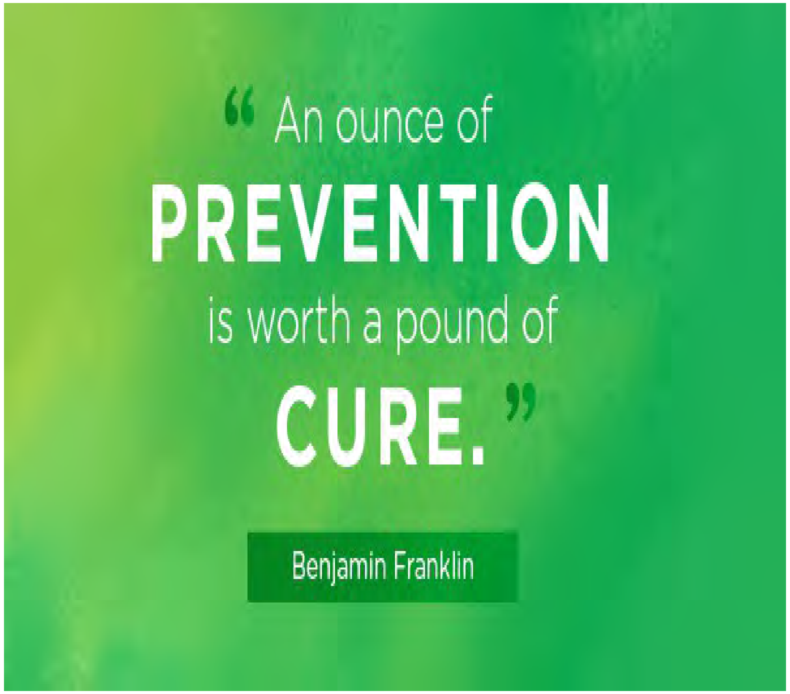
Types of Controls - Preventive

Preventive controls prevent problems <u>before they arise</u>

Examples:

- ✓ Approval, authorization, and verification of transactions
- ✓ Segregation of duties
- ✓ Securing assets



Types of Controls - Detective

Detective controls detect problems <u>that have occurred</u>

Examples:

- ✓ Performance reviews
- ✓ Reconciliations
- ✓ Internal audits

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Types of Controls - Corrective

Corrective controls correct problems that have been detected

Examples:

- ✓ Policies and procedures
- ✓ Training programs
- ✓ Reconstruction of data
- ✓ Disciplinary action

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The COSO Framework

✓ Relationship of Objectives and Components

- ❑ Direct relationship between objectives (which are what an entity strives to achieve) and the components (which represent what is needed to achieve the objectives)

✓ COSO depicts the relationship in the form of a cube:

- ❑ The three objectives are represented by the columns
- ❑ The five components are represented by the rows
- ❑ The entity's organizational structure is represented by the third dimension

Source: COSO

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Five Components of COSO IC Model

1. **Control Environment - sets the tone** influencing awareness of good controls, procedures, accountability, and program management. **It is the foundation for all other IC components.**

2. **Risk Assessment - identification and analysis of relevant risks** associated with achieving objectives, such as risk and performance goals. Forms the basis for determining how risk should be managed.

3. **Information and Communication - is needed by management and employees to monitor progress in meeting the organization's mission and objectives** while maintaining proper accountability and internal control.

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Five Components of COSO IC Model *(Cont.)*

4. **Control Activities - are the policies and procedures established to achieve set objectives.** They help ensure that management's directives are carried out in daily program operations.

5. **Monitoring - accomplished through routine, ongoing activities, separate evaluations, or both**. Internal control systems should be monitored to assess their effectiveness and to modify procedures, as appropriate, based on results of the monitoring activities (feedback).

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Investment Internal Controls

General Controls

- ✓ Government should have a written investment policy. The policy should be reviewed and revised periodically. The policy and changes should be approved by the governing body.

- ✓ The policy should address issues, such as:
  - ❑ Permissible investments by type
  - ❑ Provide guidelines on diversification and credit quality
  - ❑ Describe the process for selecting financial institutions, broker/dealers, custodians, etc.
  - ❑ Require written contracts and agreements with selected entities

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Investment Internal Controls *(Cont.)*

General Controls

- ✓ Investment transactions and strategies should be documented. Could be part of the approved policy or separately documented in documented controls procedures.
- ✓ Process of initiating, reviewing, and approving investment purchases and sales should be recorded and retained for audit purposes.
- ✓ Selected investments should be reviewed for type, authorized trading partner, custodial arrangements, written authorizations, accounting, and disposition of interest earnings.

Investment Internal Controls *(Cont.)*

General Controls

- ✓ Written wire transfer agreement should outline controls and security provisions for making and receiving wire transfers.
- ✓ Written or electronic confirmations of telephone/electronic transactions for investments and wire transfers should be required.
- ✓ Segregation of duties; no one person should have responsibility for investment transactions from beginning to end.

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Investment Internal Controls *(Cont.)*

General Controls

- ✓ Investment procedures should be fully documented, should include descriptions of employee responsibilities, the process for conducting and recording transactions, and outline the authority to approve the transactions.

- ✓ A formal training plan should be part of the investment policy. It should ensure that responsible parties obtain training to understand investment holdings.

- ✓ Monthly verification of both principal and market values of all investments and collateral should be obtained. This information should be reconciled to accounting records.

Investment Internal Controls *(Cont.)*

General Controls

- ✓ Investment reporting should be performed on a periodic basis and presented to the governing body.

- ✓ Periodic internal control audits should be performed to verify that controls are functioning properly, are in compliance with investment policy, and are updated for current operational structure.

- ✓ Consideration should be given to implementation of an investment committee and/or third-party financial advisor separate from broker/advisor. Function should include evaluation of fees, portfolio earnings, and risk.

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Investment Internal Controls *(Cont.)*

General Controls

- ✓ Update authorized individuals on the accounts to remove individuals as soon as they leave the government.
- ✓ Consider requiring that all proceeds from investment activity go directly to a specific bank account of the government.

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Questions or Comments

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Afternoon Break

2:40 pm – 2:55 pm

Active v. Passive Management of Pension Assets

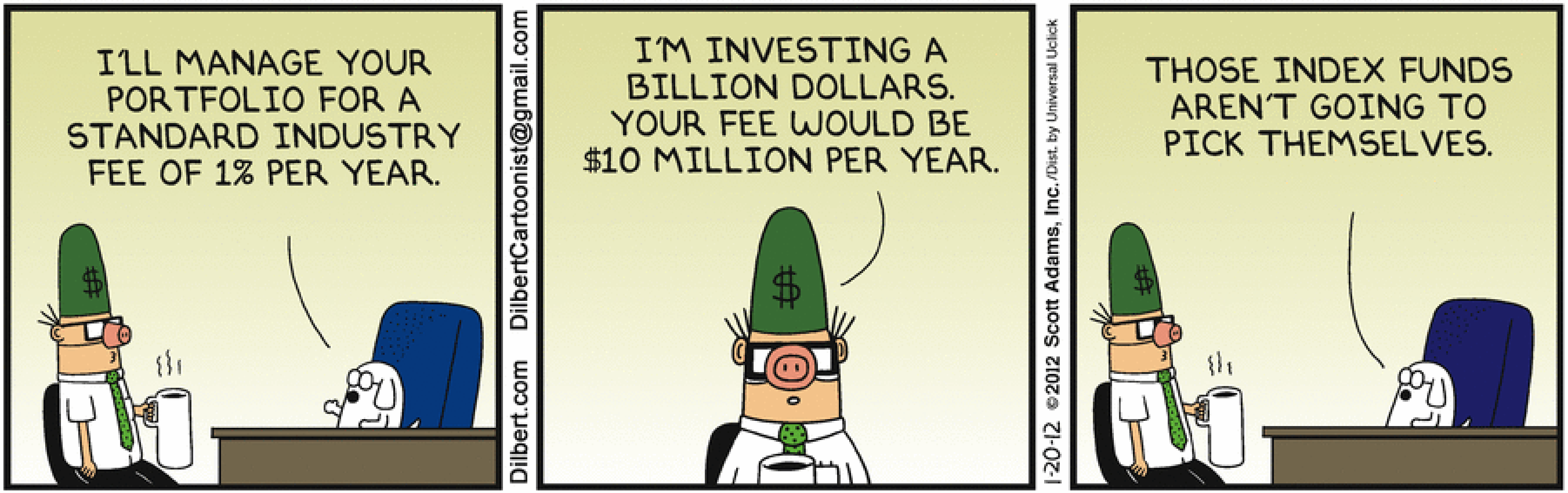
by

Indraneel Chakraborty

UNIVERSITY OF MIAMI

SCHOOL of BUSINESS ADMINISTRATION

Popular Wisdom



Agenda

- Evolution of the investment management landscape
- Fund evaluation strategies
- Limits of such strategies
- My opinions

Who is this guy?

- Assistant Professor of Finance at the University of Miami

- Ph.D. in Finance, **The Wharton School, University of Pennsylvania**, 2010.
- M.S. in EECS, **Massachusetts Institute of Technology (MIT)**, 2003.
- B.Tech. in CSE., **Indian Institute of Technology (IIT) Guwahati**, 2001.
  - (President of India Gold Medalist.)

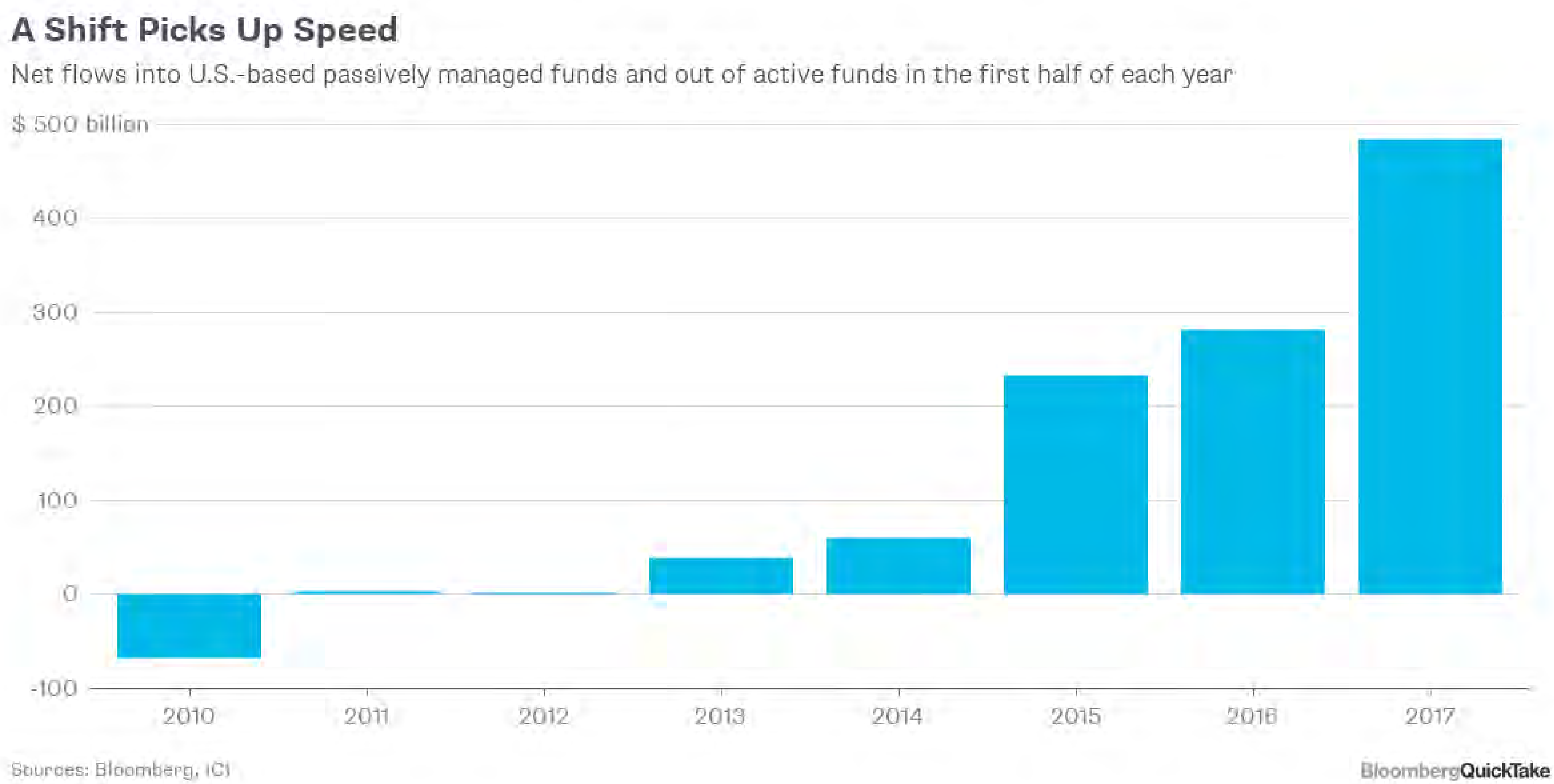
- Worked in Fixed Income from 2005—2007 in
  - Citadel Investments LLC, Chicago
  - Citigroup Global Markets Inc., NY

- Worked with the City of Fort Lauderdale in their investment advisory committees.

Current State of Affairs

- $10 trillion in active management funds.
- However, approximately a third of the assets in the U.S. are in passive funds. ($5 trillion)
- Up from a fifth a decade ago.
- $500 billion flew from active to passive in 2017 first half.
- Investors paid $100 billion+ to Wall Street money managers over the last 10 years.

And its accelerating…



UNIVERSITY OF MIAMI
SCHOOL of BUSINESS ADMINISTRATION

Important Questions

- Can Managers Add Value (through Active Management)?
  - Depends on whether capital markets are efficient.
  - Measuring efficiency itself depends on whether we have the right asset pricing model.
- Do they add value over and above i.e. net of fees?
  - Joint test of asset pricing model and value added.
  - Depends on whether (finance industry) labor markets are efficient.
- If some can, how can we identify those fund managers?

Efficiency

- Can you beat the market?
- Are prices correct?

Do active (equity) funds outperform benchmarks?

Report 1: Percentage of U.S. Equity Funds Outperformed by Benchmarks					
FUND CATEGORY	COMPARISON INDEX	ONE-YEAR (%)	THREE-YEAR (%)	FIVE-YEAR (%)	TEN-YEAR (%)
All Domestic Equity Funds	S&P Composite 1500	90.20	87.41	94.58	87.47
All Large-Cap Funds	S&P 500	84.62	81.31	91.91	85.36
All Mid-Cap Funds	S&P MidCap 400	87.89	83.81	87.87	91.27
All Small-Cap Funds	S&P SmallCap 600	88.77	94.07	97.58	90.75
All Multi-Cap Funds	S&P Composite 1500	91.61	86.13	94.71	90.29
Large-Cap Growth Funds	S&P 500 Growth	95.10	90.32	97.38	98.59
Large-Cap Core Funds	S&P 500	81.25	87.76	92.16	88.21
Large-Cap Value Funds	S&P 500 Value	77.04	82.44	88.78	67.76
Mid-Cap Growth Funds	S&P MidCap 400 Growth	95.56	81.14	88.04	95.21
Mid-Cap Core Funds	S&P MidCap 400	82.48	84.96	87.68	92.31
Mid-Cap Value Funds	S&P MidCap 400 Value	77.78	85.33	81.71	87.21
Small-Cap Growth Funds	S&P SmallCap 600 Growth	90.09	95.26	96.85	94.53
Small-Cap Core Funds	S&P SmallCap 600	90.78	95.56	97.89	89.77
Small-Cap Value Funds	S&P SmallCap 600 Value	83.94	92.06	98.21	90.22
Multi-Cap Growth Funds	S&P Composite 1500 Growth	96.04	92.27	99.06	92.41
Multi-Cap Core Funds	S&P Composite 1500	91.16	93.21	93.37	89.33
Multi-Cap Value Funds	S&P Composite 1500 Value	83.87	77.97	87.50	80.92
Real Estate Funds	S&P US Real Estate Investment Trust	90.53	67.74	89.11	89.16

Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Do active (bond) funds outperform benchmarks?

Report 11: Percentage of Fixed Income Funds Outperformed by Benchmarks					
FUND CATEGORY	COMPARISON INDEX	ONE-YEAR (%)	THREE-YEAR (%)	FIVE-YEAR (%)	TEN-YEAR (%)
Government Long Funds	Barclays Long Government	93.10	96.83	97.56	95.74
Government Intermediate Funds	Barclays Intermediate Government	64.29	58.62	71.05	79.66
Government Short Funds	Barclays 1-3 Year Government	69.23	67.50	68.42	79.07
Investment-Grade Long Funds	Barclays Long Government/Credit	94.39	97.32	98.41	98.21
Investment-Grade Intermediate Funds	Barclays Intermediate Government/Credit	40.00	37.33	39.35	59.81
Investment-Grade Short Funds	Barclays 1-3 Year Government/Credit	60.19	46.67	27.40	63.75
High Yield Funds	Barclays High Yield	75.00	80.47	88.78	96.62
Mortgage-Backed Securities Funds	Barclays Mortgage-Backed Securities	78.69	75.00	66.67	80.36
Global Income Funds	Barclays Global Aggregate	86.15	70.77	59.13	65.57
Emerging Markets Debt Funds	Barclays Emerging Markets	74.65	88.89	92.31	81.82
Loan Participation Funds[1]	S&P/LSTA U.S Leveraged Loan 100 Index	40.74	31.82	60.00	N/A
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond Index	47.73	33.73	33.77	74.44
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond Index	27.78	30.56	21.21	83.33
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond Index	29.63	50.00	48.28	91.67

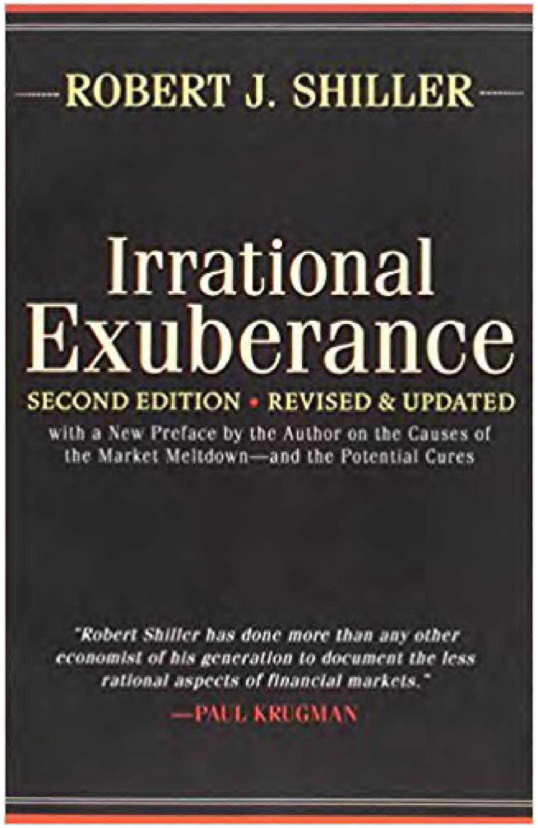
Source: S&P Dow Jones Indices LLC, CRSP. Data as of June 30, 2016. Outperformance is based upon equal-weighted fund counts. All index returns used are total returns. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Efficiency

- Can you beat the market (through skill or luck)?
  – About 10% of managers are able to beat the market
  – (when that means beating the benchmark.)

- Are prices correct?

"Markets can remain irrational for longer than you can remain solvent"
-- John Maynard Keynes.



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Are prices correct?

- In hindsight, all prices are wrong, because more information allows better pricing over time.
- The question is, even if prices are wrong in hindsight, are they wrong given the information at a certain point in time?

- Maybe not always in every corner of the market. But mostly, yes: especially given the size of the finance industry busy searching for anomalies.
- That is why, only some managers can beat the market.

Important Questions

- Can Managers Add Value (through Active Management)?
  - Depends on whether capital markets are efficient.
  - **Measuring efficiency itself depends on whether we have the right asset pricing model.**
- Do they add value over and above i.e. net of fees?
  - Joint test of asset pricing model and value added.
  - Depends on whether (finance industry) labor markets are efficient.
- If some can, how can we identify those fund managers?

Asset Pricing Models

- CAPM: Sharpe (1964, Journal of Finance); Lintner (1965, Review of Economic Statistics)
  - Market
- Fama French (1993, Journal of Financial Economics)
  - Size, Value
- Carhart (1997, Journal of Finance)
  - Momentum
- Fama and French (2015, Journal of Financial Economics)
  - Market, Size, Value, Profitability, Investment Patterns
  - Fails for small firms that overinvest despite low profitability

The cottage industry of factors

… and the Cross-Section of Expected Returns

Campbell R. Harvey
Duke University, National Bureau of Economic Research

Yan Liu
Texas A&M University

Heqing Zhu
The University of Oklahoma

Hundreds of papers and factors attempt to explain the cross-section of expected returns. Given this extensive data mining, it does not make sense to use the usual criteria for establishing significance. Which hurdle should be used for current research? Our paper introduces a new multiple testing framework and provides historical cutoffs from the first empirical tests in 1967 to today. A new factor needs to clear a much higher hurdle, with a t-statistic greater than 3.0. We argue that most claimed research findings in financial economics are likely false. (*JEL* C12, C52, G12)

The cottage industry of factors

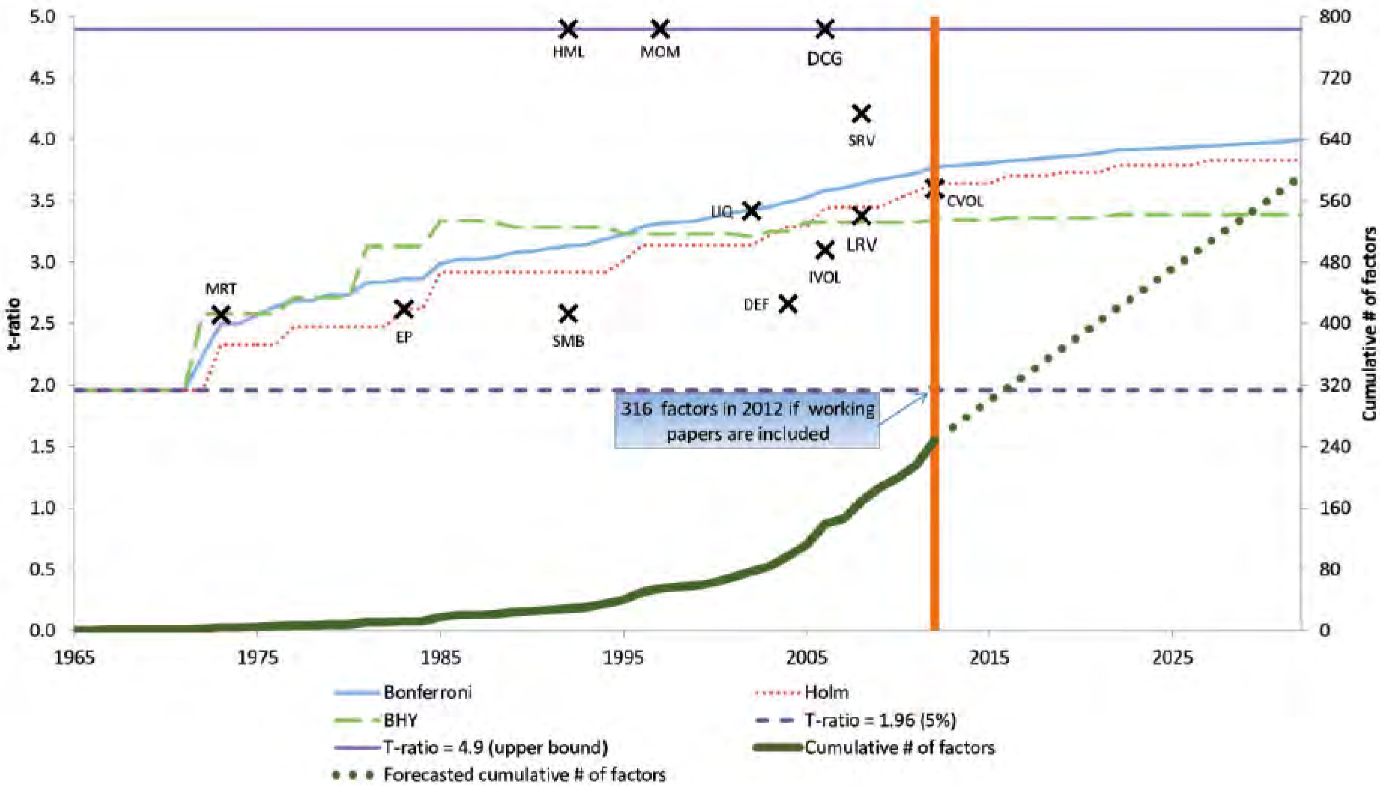


Figure 3
Adjusted t-statistics, 1965–2032.
Bonferroni and Holm are multiple testing adjustment procedures that control the family-wise error rate (FWER) and are described in Sections 4.4.1 and 4.4.2, respectively. BHY is a multiple testing adjustment procedure that controls the false discovery rate (FDR) and is described in Section 4.4.3. The green solid curve shows the historical cumulative number of factors discovered, excluding those from working papers. Forecasts (dotted green line) are based on a linear extrapolation. The dark crosses mark selected factors proposed by the literature. They are MRT (market beta; Fama and MacBeth 1973), EP (earnings-price ratio; Basu 1983), SMB and HML (size and book-to-market; Fama and French (1992)), MOM (momentum; Carhart 1997), LIQ (liquidity; Pastor and Stambaugh 2003), DEF (default likelihood; Vassalou and Xing 2004), IVOL (idiosyncratic volatility; Ang et al. 2006); DCG (durable consumption goods; Yogo 2006), SRV and LRV (short-run and long-run volatility; Adrian and Rosenberg 2008), and CVOL (consumption volatility; Boguth and Kuehn 2012). t-statistics over 4.9 are truncated at 4.9. For detailed descriptions of these factors, see Table 6 and http://faculty.fuqua.duke.edu/~charvey/Factor-List.xlsx.

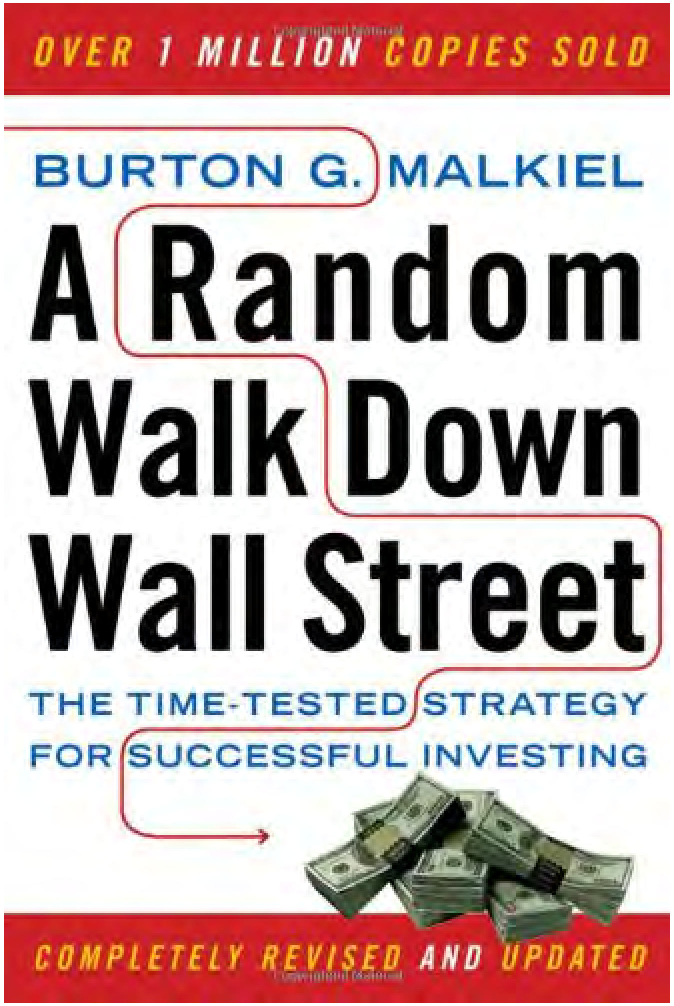
Recap: Important Questions

- Can Managers Add Value (through Active Management)?
  - Some of them can
  - As a rule of thumb, use the 4 factor or 5 factor models, or the Vanguard same style index fund.
- **Do managers add value net of fees?**
  - **Joint test of asset pricing model and value added.**
  - **Depends on whether (finance industry) labor markets are efficient.**
- If some can, how can we identify those fund managers?

Do Managers Have Skill?

- Prof. Malkiel, 1973:

"A monkey throwing darts at a newspaper's financial page would select a portfolio doing as well as an average money manager."



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Do Managers Have Skill?

- Berk and Binsbergen (2015, Journal of Financial Economics)
  - Average mutual fund generates $3.2 million per year (due to skill).
  - Skills are persistent (up to 10 years).
  - Investors recognize this skill and invest more capital.
  - The result is higher aggregate fees.

Return to investors

Table 6
Net alpha (in bp/month): The table reports the net alpha of two investment strategies: Investing $1 every month by equally weighting over all existing funds and investing $1 every month by value weighting (based on AUM) over all existing funds.

	Vanguard benchmark	FFC risk measure
Equally weighted	2.74	−3.88
t-statistic	0.73	−1.40
Value weighted	−0.95	−5.88
t-statistic	−0.31	−2.35

- The average net alpha is not statistically positive.
- In other words, net of fees, investors do not receive a return higher than the benchmark return.

In other words…

"The reason I get a huge bonus is because I think I'm worth it."

Recap: Important Questions

- Can Managers Add Value (through Active Management)?
  - Some of them can
  - As a rule of thumb, use the 4 factor or 5 factor models, or the Vanguard same style index fund.
- Do they add value over and above net of fees?
  - Joint test of asset pricing model and value added.
  - Depends on whether (finance industry) labor markets are efficient.
- **If some can, how can we identify those fund managers?**

How can we identify those managers?

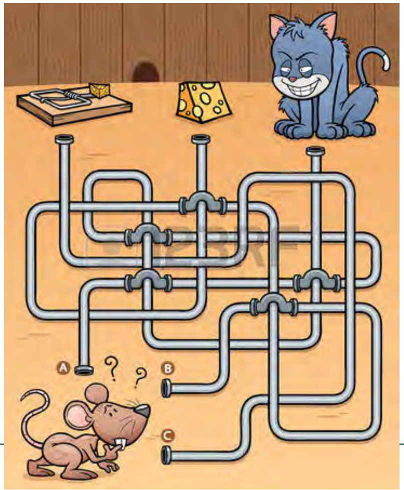
- Alpha is not a good measure of skill (Berk van Binsbergen 2015)
  - Reminder: Alpha using 4 or 5 factor model, or Vanguard benchmark.

- This is because managers with better gross alpha have higher AUM.
  - Because labor markets are efficient too!
  - Investors seek out such funds and put money with them.

- Value added = AUM * Gross Alpha is a measure of skill.

What are the steps?

- First, identify the right asset pricing model.
- Then measure alpha with respect to the model.
- Adjust for AUM to measure value added net of fees.
- After all this, you will find that, nothing is left for investors over benchmark!



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American Financial Association 2008

THE JOURNAL OF FINANCE • VOL. LXIII, NO. 4 • AUGUST 2008

Presidential Address: The Cost of Active Investing

KENNETH R. FRENCH*

ABSTRACT

I compare the fees, expenses, and trading costs society pays to invest in the U.S. stock market with an estimate of what would be paid if everyone invested passively. Averaging over 1980–2006, I find investors spend 0.67% of the aggregate value of the market each year searching for superior returns. Society's capitalized cost of price discovery is at least 10% of the current market cap. Under reasonable assumptions, the typical investor would increase his average annual return by 67 basis points over the 1980–2006 period if he switched to a passive market portfolio.

What is the equilibrium?

THE JOURNAL OF FINANCE • VOL. LXX, NO. 1 • FEBRUARY 2015

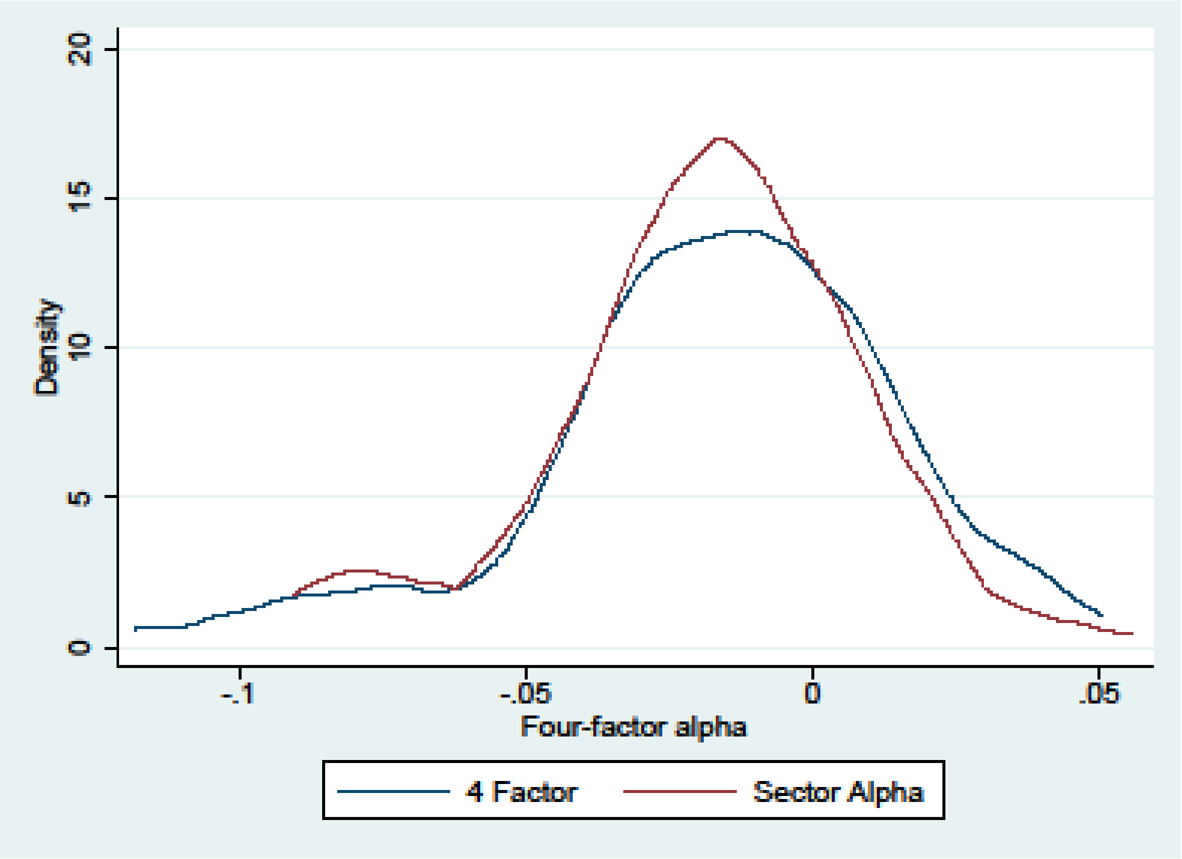
Money Doctors

NICOLA GENNAIOLI, ANDREI SHLEIFER, and ROBERT VISHNY*

ABSTRACT

We present a new model of investors delegating portfolio management to professionals based on trust. Trust in the manager reduces an investor's perception of the riskiness of a given investment, and allows managers to charge fees. Money managers compete for investor funds by setting fees, but because of trust, fees do not fall to costs. In equilibrium, fees are higher for assets with higher expected return, managers on average underperform the market net of fees, but investors nevertheless prefer to hire managers to investing on their own. When investors hold biased expectations, trust causes managers to pander to investor beliefs.

Limits of fund evaluation strategies



- From Chakraborty, Kumar, Muhlhofer, and Sastry (2017)

In other words…

- Managers instill trust
- Allowing investors to take more risk than they would otherwise
- Such managers charge more, even if these managers do not beat the market

My Opinion

- Then how can we keep costs low?
  - Trust but verify
  - If you have more information, you need to trust less.

- Costs are larger than what you think
- When choosing actively managed funds, its good to be a bit pessimistic and introspective
  - What do you really want them to do for you?
- Educate your investors about the risk return tradeoff
- Passive/index funds make it transparent to everyone
- Also they keep costs low

Million/Million tradeoff

Low-cost mutual funds -

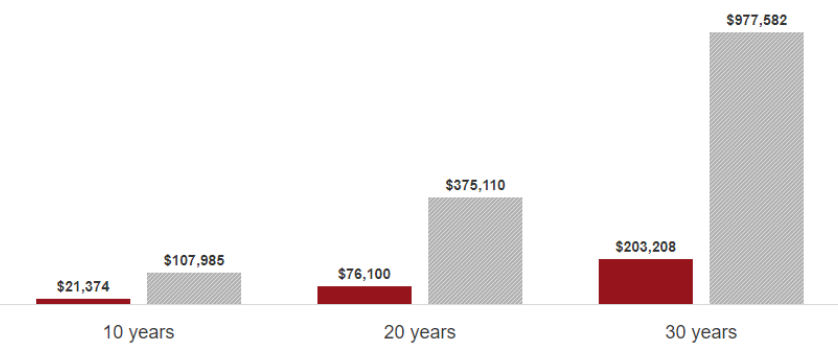
The Vanguard Group, Inc. [US] | https://investor.vanguard.com/mutual-funds/low-cost

Move the slider below to discover the long-term impact Vanguard's low-cost approach can have on your savings compared with the industry average.

Compare Vanguard costs vs. the industry average

Amount you could save at Vanguard

$86,611	$299,010	$774,374



$1,000,000

Initial investment amount

Vanguard average expense ratio: 0.12%

Industry average expense ratio: 0.62%

This hypothetical illustration assumes a 6% return for all examples. If the rate of return were altered, results would vary from those shown. The final balance shown is after costs. This example doesn't represent any particular investment and doesn't account for inflation. There may be other material differences between investment products that must be considered prior to investing.

All averages are asset-weighted. Industry averages exclude Vanguard. Sources: Vanguard and Morningstar, Inc., as of December 31, 2016.

When choosing actively managed funds

- Separate the services you are receiving
  - Money management
  - Record keeping
  - Market advice

- Actively managed funds should be chosen very carefully.

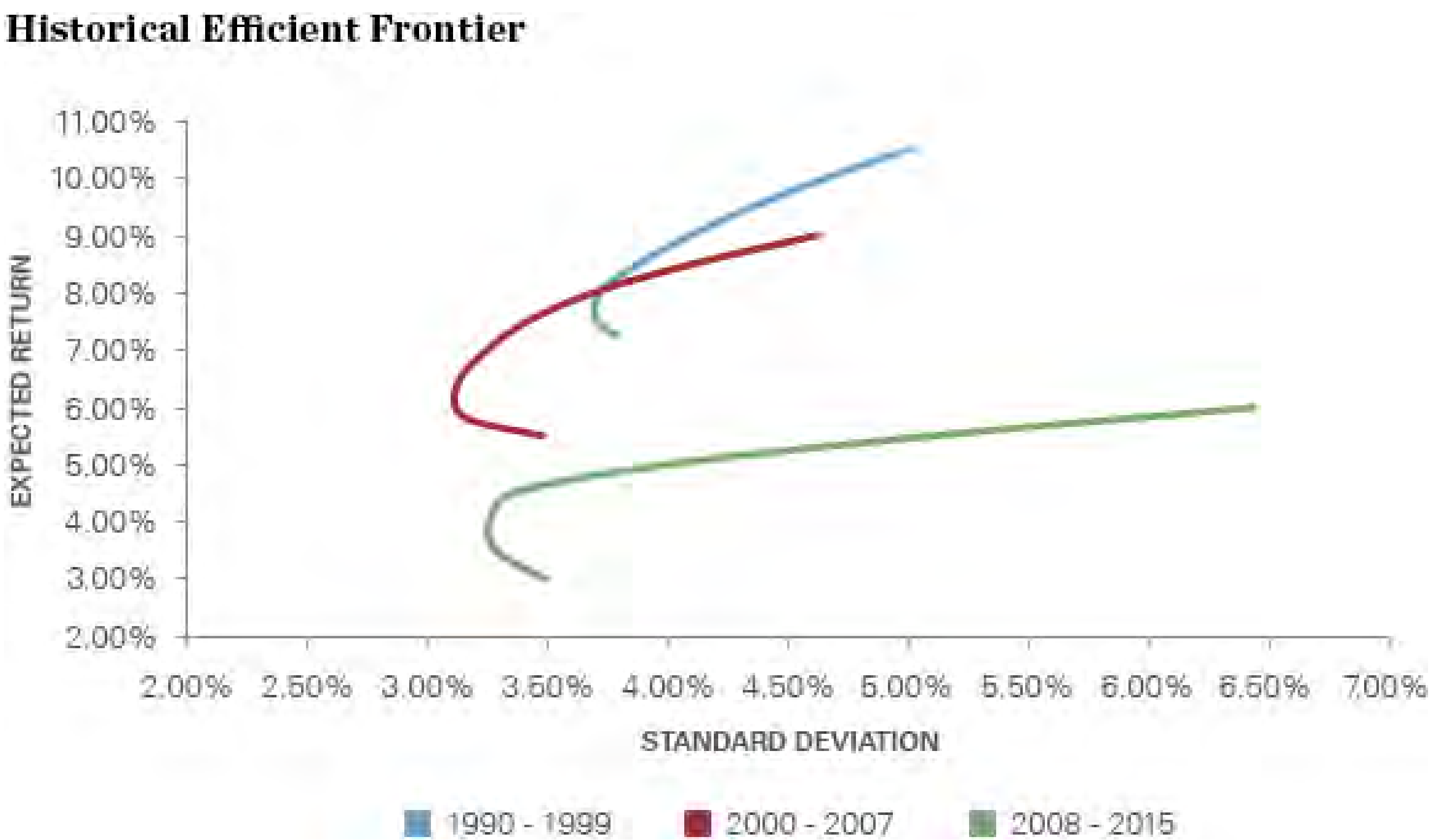
Glass half empty

- Odds are that the fund will not beat the benchmark.
- Even if the manager is skilled and beats the benchmark, net of fees, your return will be close to benchmark at best.

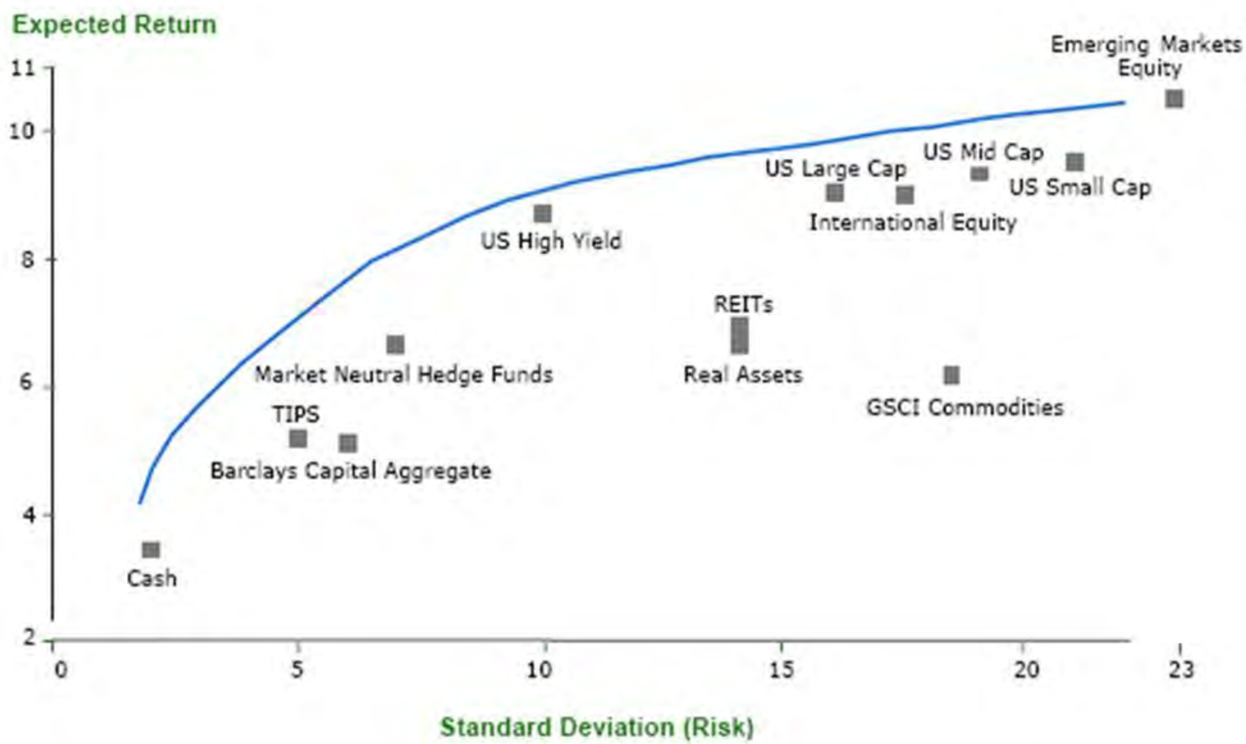
Efficient Frontier is your friend

- Allows you to know expected return for expected risk
- Educate your investors that the additional return will come with more than 1:1 risk

And the frontier is getting flatter



Across Asset Classes…



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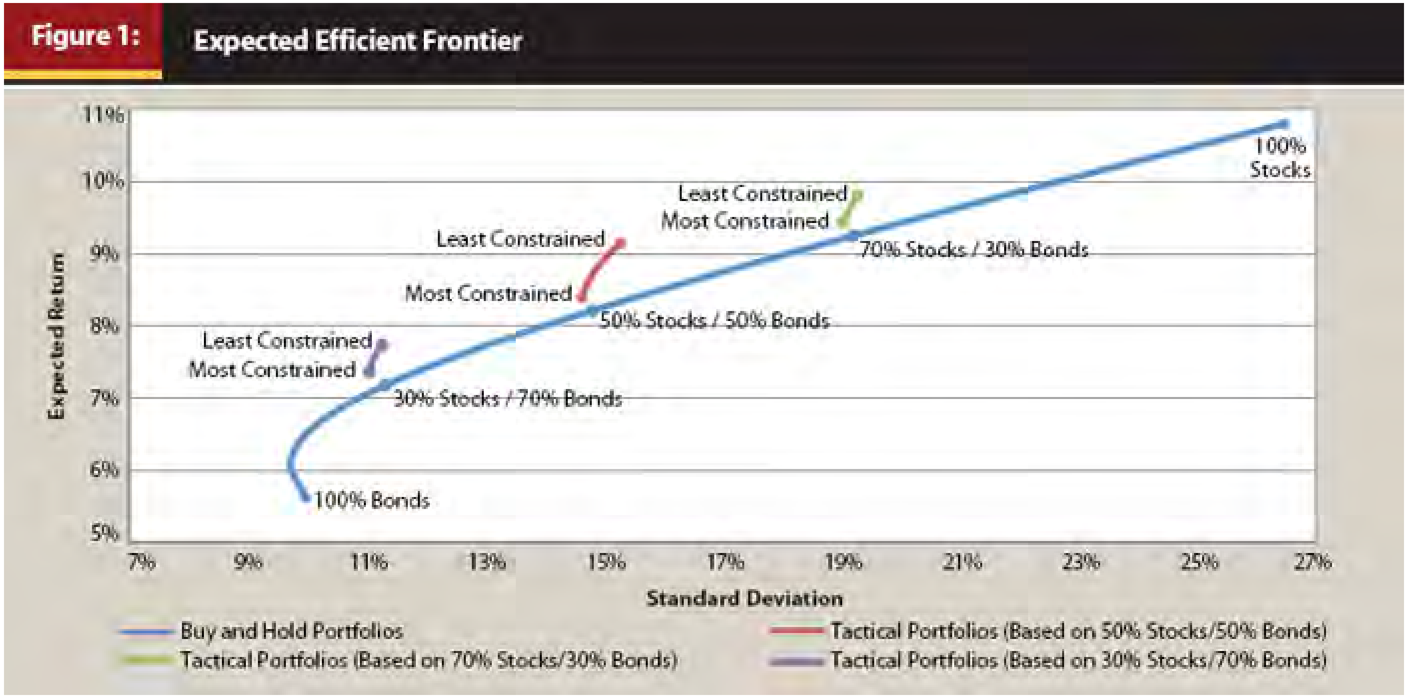
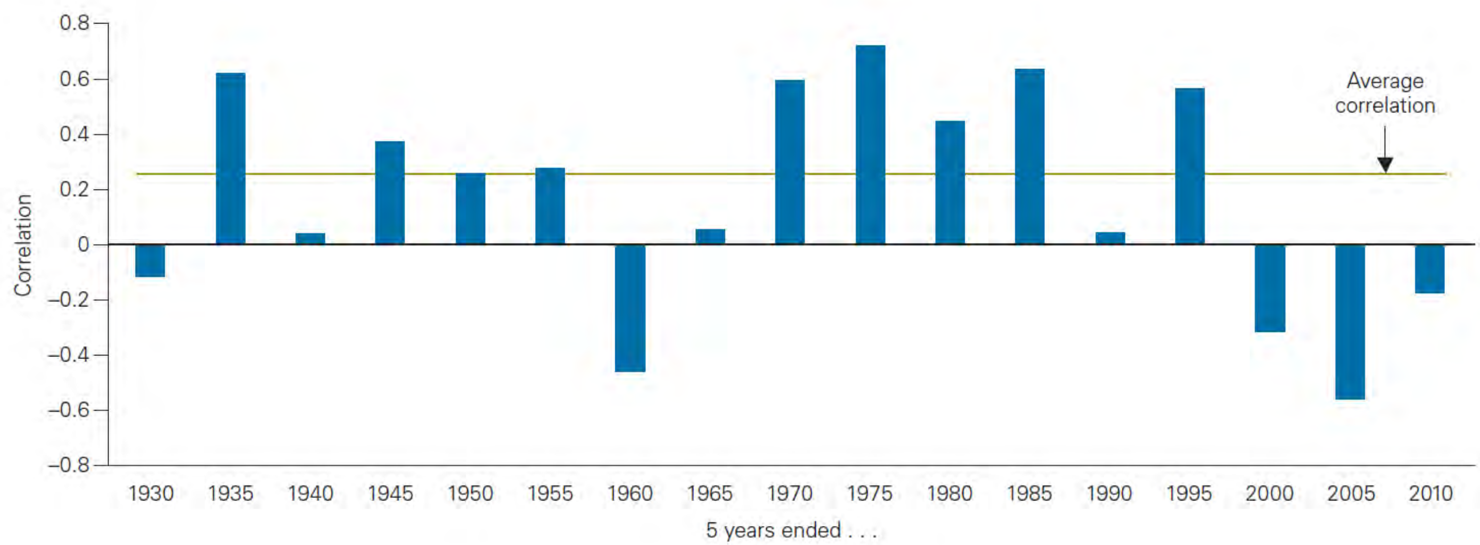
Across weights of assets…



Understand correlation between classes

- Even all passive fund strategies need to be rebalanced because of dynamic correlations



Sources: Vanguard calculations, using data from Standard & Poor's, Dow Jones, MSCI, Citigroup, and Barclays Capital. Data cover the period January 1, 1926, through December 31, 2010.

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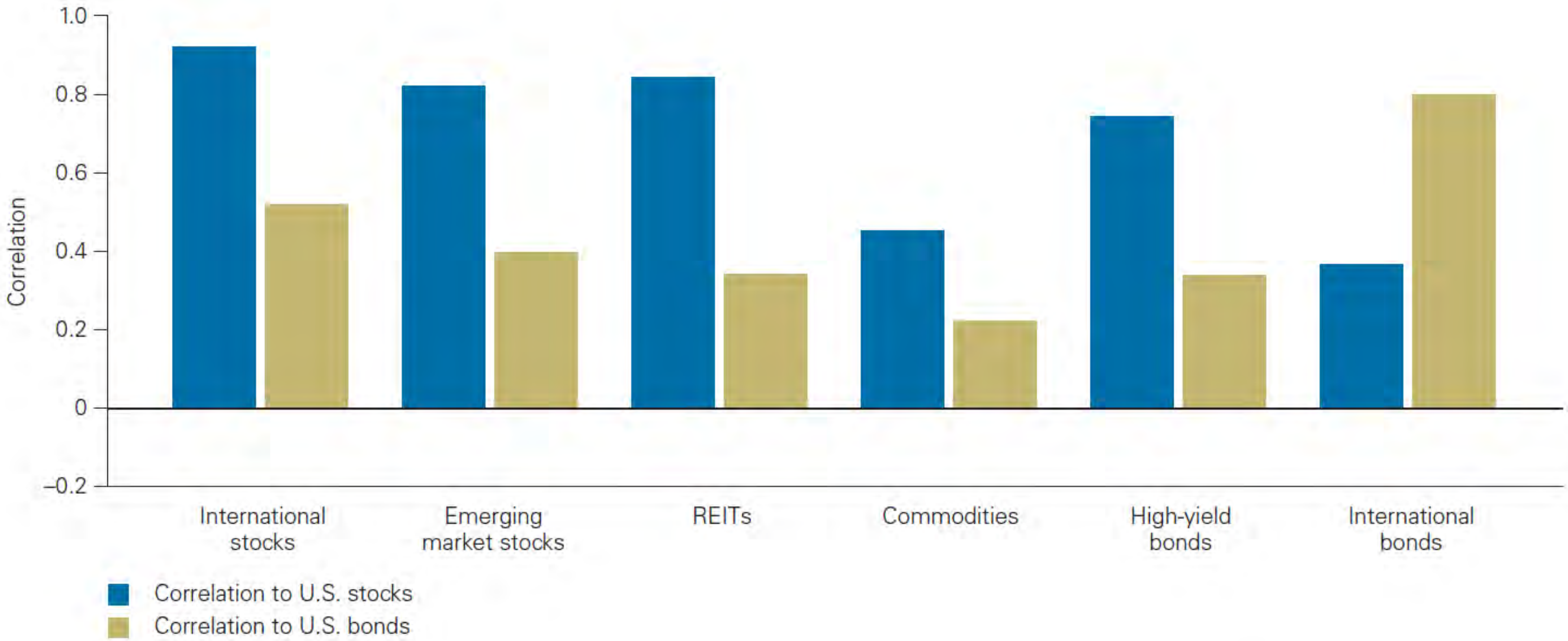
Understand correlation between classes



Notes: A similar spike in correlations was observed in 1998, a period characterized by the Asian Contagion, the Russian debt default, and the collapse of Long-Term Capital Management. See Figure 3 for benchmark descriptions.

Sources: Vanguard calculations, using data provided by Thomson Reuters Datastream.

Thank you!

I'M STARTING A MUTUAL FUND FOR INVESTORS WHO AREN'T BRIGHT ENOUGH TO KNOW THEIR ALTERNATIVES.
www.unitedmedia.com
S.Adams
IT MUST BE A HUGE MARKET. OTHERWISE MOST PEOPLE WOULD INVEST IN INDEX FUNDS.
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WHAT'S AN INDEX FUND?
OUCH, OUCH! YOU'RE MAKING ME WAG TOO HARD!

2017 SFGFOA Investment Seminar

Investing strategies for the current rate environment and beyond

David Witthohn, CFA, CIPM Senior Portfolio Specialist

Tuesday, August 15, 2017

Insight INVESTMENT

Insight's 2017 US outlook

- Our economic outlook should support corporate fundamentals and permit moderate outperformance in spread markets

- We believe that 2.2–2.5% GDP* growth is the 'sweet spot for credit' as the economy seems strong enough to help companies grow into their capital structure

- We expect the Fed to hike one more time in 2017 with the 10-year treasury ending the next 12 months in the 2.9%** range. And while rates may go higher, we are not forecasting an extreme sell-off, due to structural headwinds and demand for duration from insurers, pension funds and international investors

- Market optimism may be susceptible to political headlines as the Trump administration seeks to execute on a tax cut

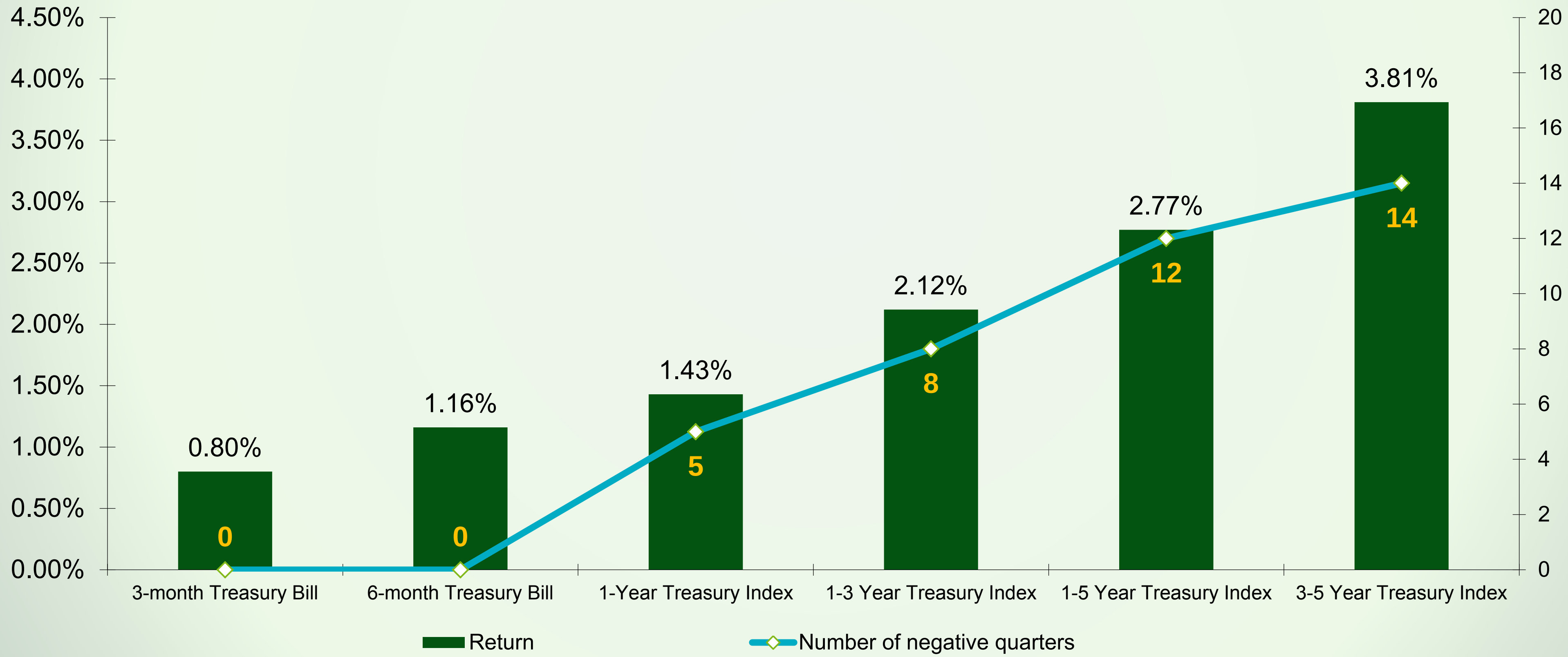
Source: Bloomberg, as of June 30, 2017. * Gross domestic product. ** The forecast are based on a 12 month time horizon. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate. This material is provided for general information only and should not be construed as investment advice or a recommendation.

Analyzing the risk/return tradeoff

Insight INVESTMENT

Our portfolio management team analyzes risk/return tradeoffs and rebalances portfolios accordingly.

Average annual investment returns and the quarters of negative performance January 1, 2007 to December 31, 2016



Source: Bloomberg Finance LP, December 31, 2016.

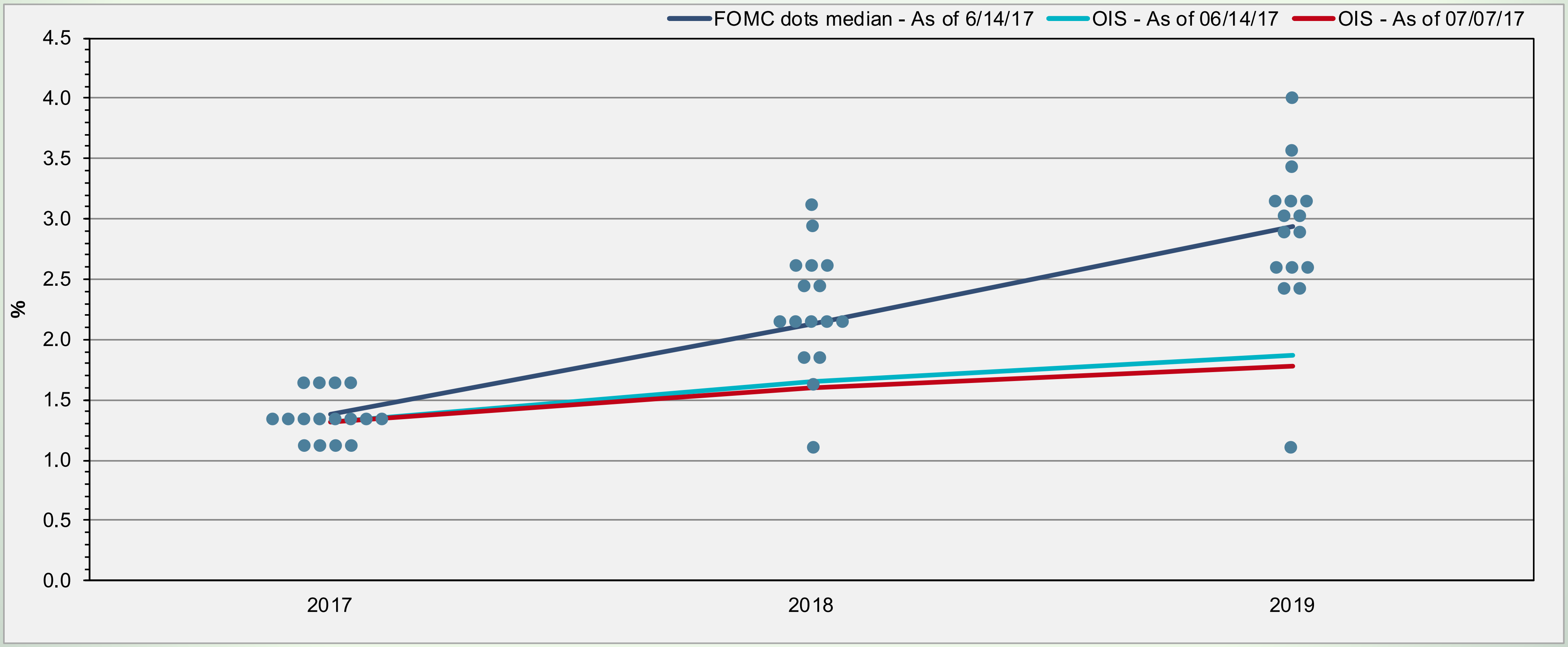
Rates are rising!

Yield on the 2-year Treasury

Source: Bloomberg, as of July 31, 2017.

Fed forecast versus the futures market

- The market appears to essentially believe the FOMC's (Federal Open Market Committee) 2017 forecast: pricing in nearly two more hikes
- However, the market is skeptical of the Fed's path beyond this year, seeming to question its ability to continue raising rates
- With a self-sustaining recovery and loose financial conditions, we believe the market is underappreciating the capacity for future rate hikes, which is reflected in our US interest rate forecast

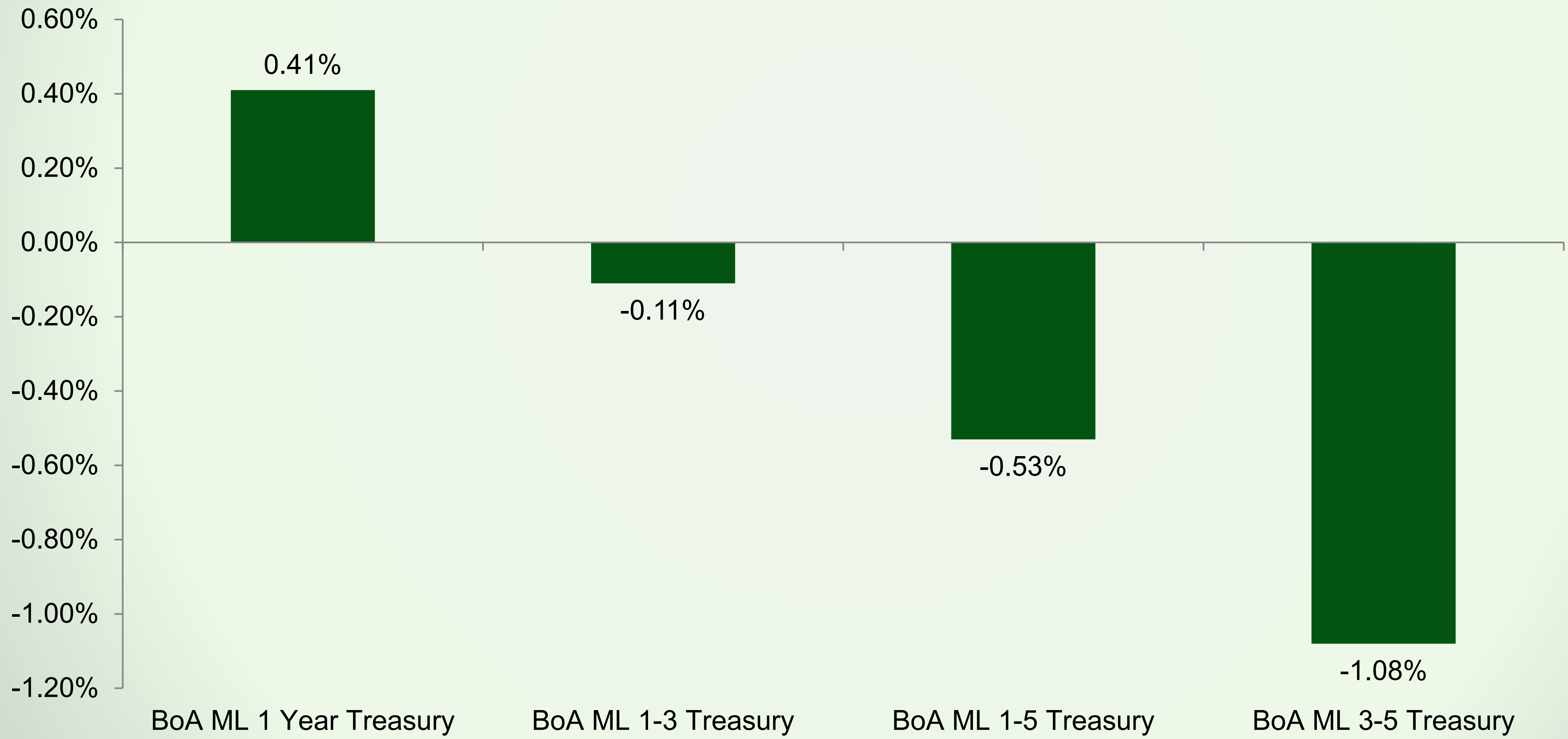


Source: Bloomberg, as of July 7, 2017. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

Rising rates effect on recent performance

Insight INVESTMENT

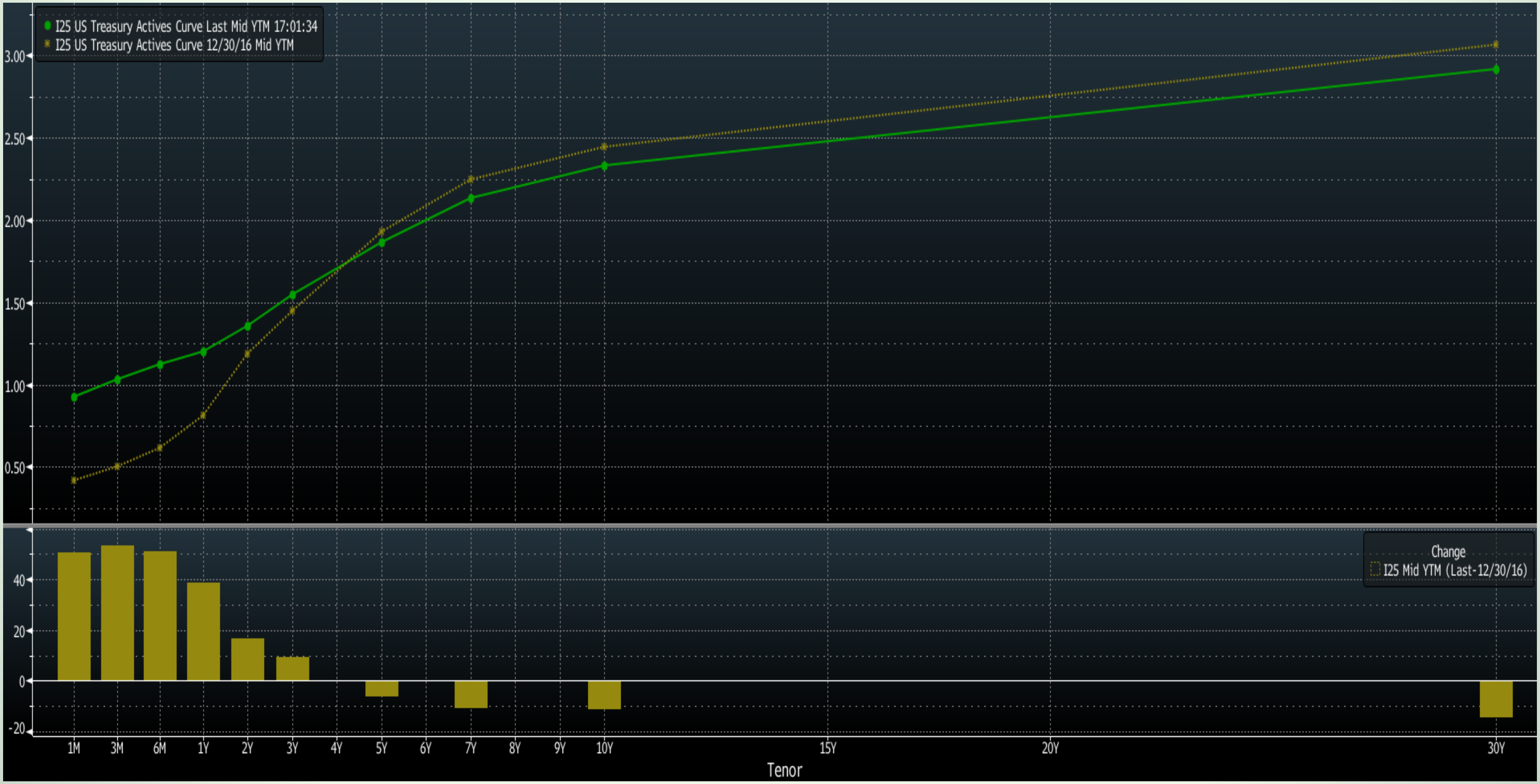
Total return last 12 months ending June 30, 2017



Source: Bloomberg, as of June 30, 2017.

How is the yield curve changing?

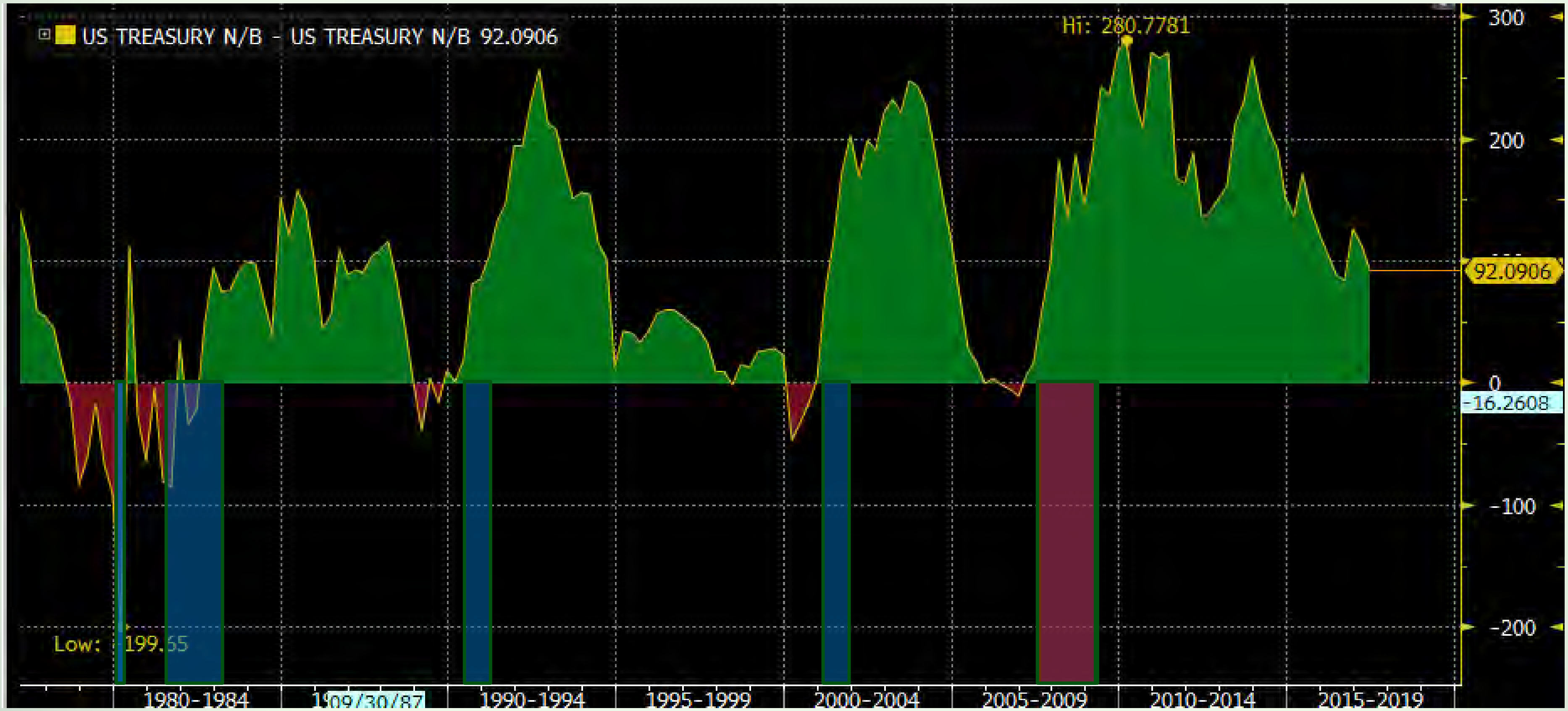
How has the yield curve changed in 2017?



Source: Bloomberg, as of August 1, 2017.

Yield curve inversions and recessions

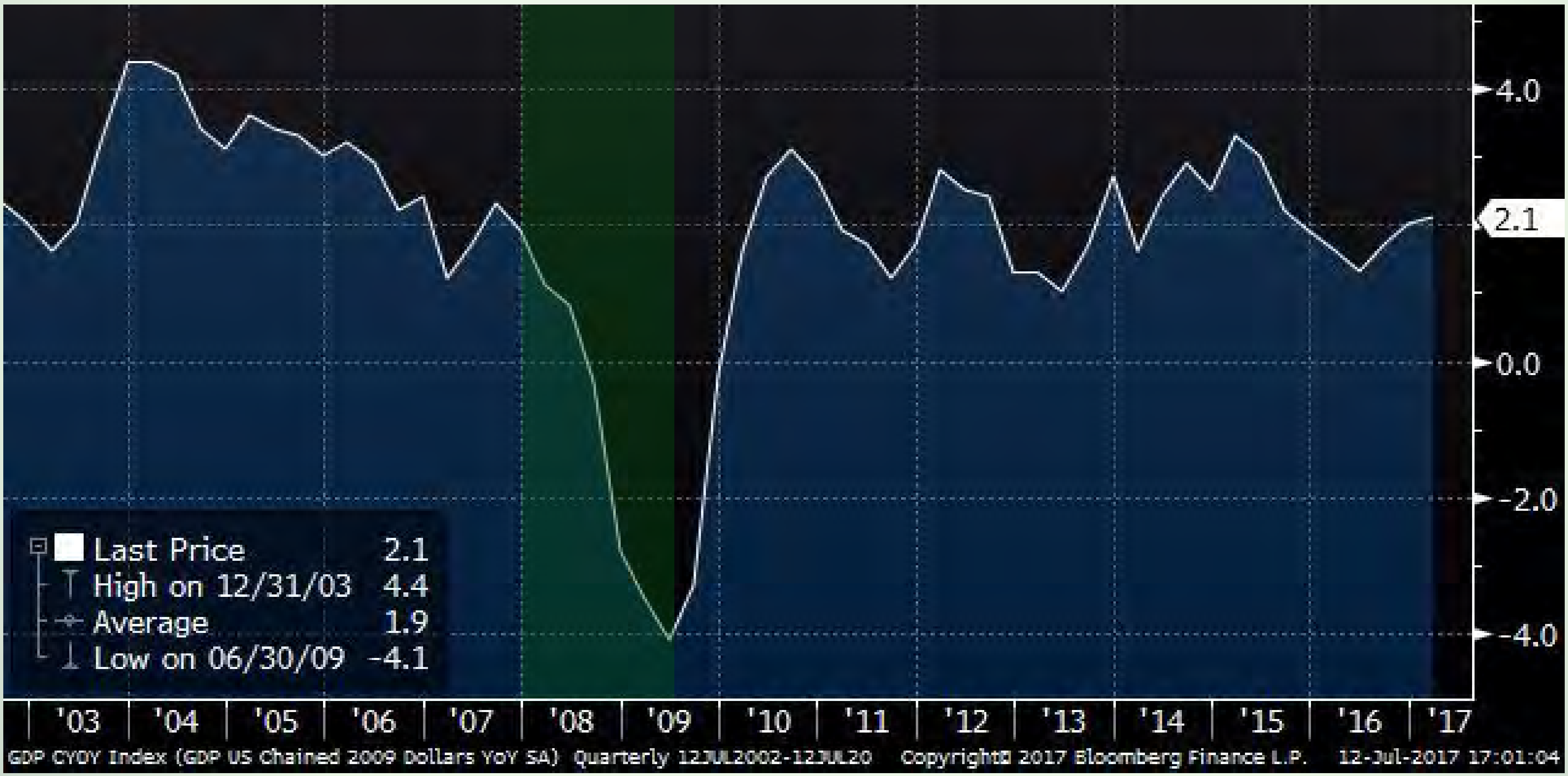
Spread between 2-year Treasury and the 10-year Treasury overlaid with negative GDP (recession)



Source: Bloomberg, as of August 1, 2017.

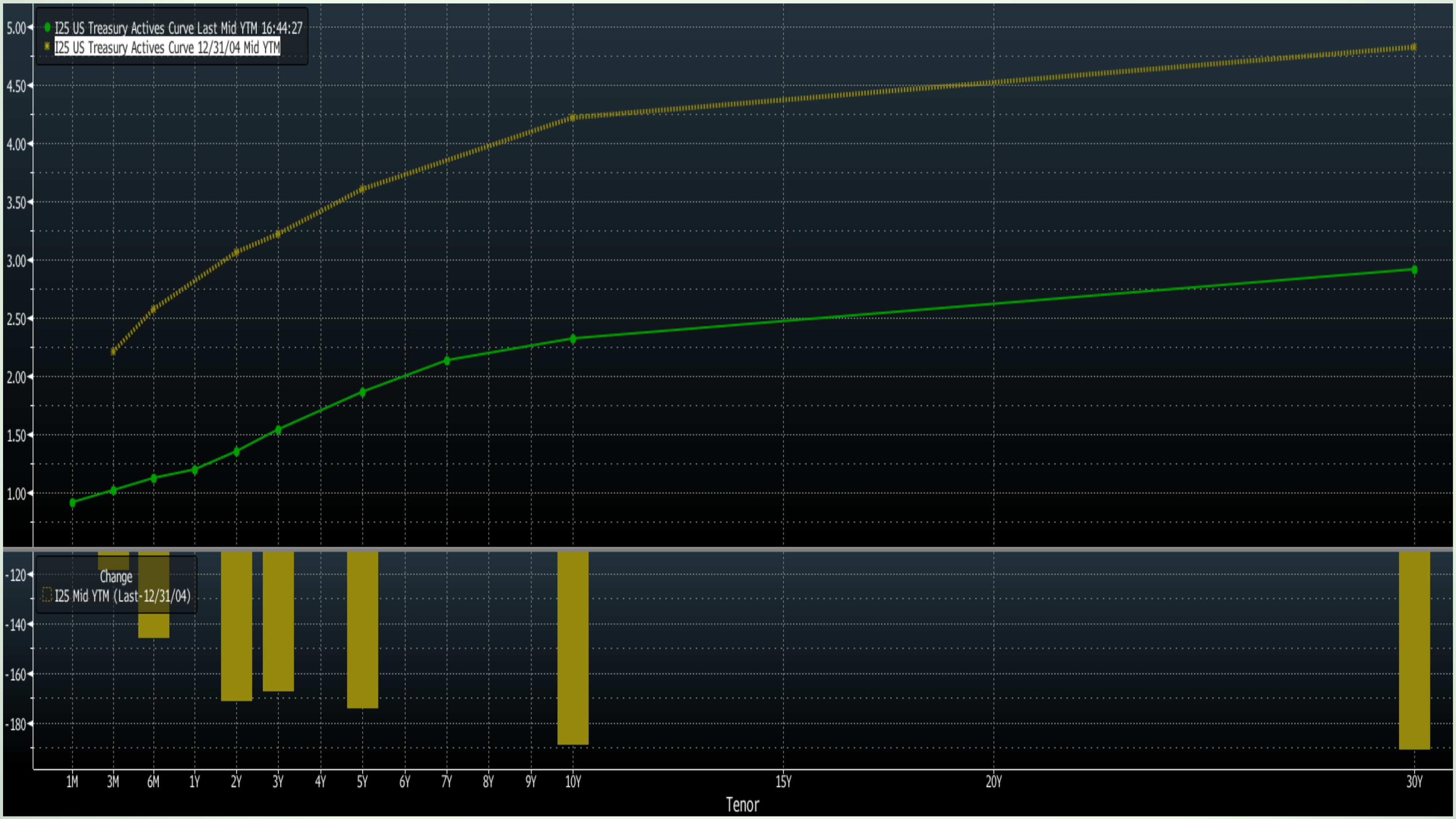
Yield curves – A lesson from the past! (December 2004)

GDP YoY growth with Great Recession highlighted (December 2007 to June 2009, 19 months)



Source: Bloomberg, as of August 1, 2017.

December 29, 2004 – Yield curve is normal



Source: Bloomberg, as of August 1, 2017.

Yield curves – A lesson from the past! (December 2005)

GDP YoY growth with Great Recession highlighted (December 2007 to June 2009, 19 months)

Source: Bloomberg, as of August 1, 2017.

December 30, 2005 – Yield curve is flat

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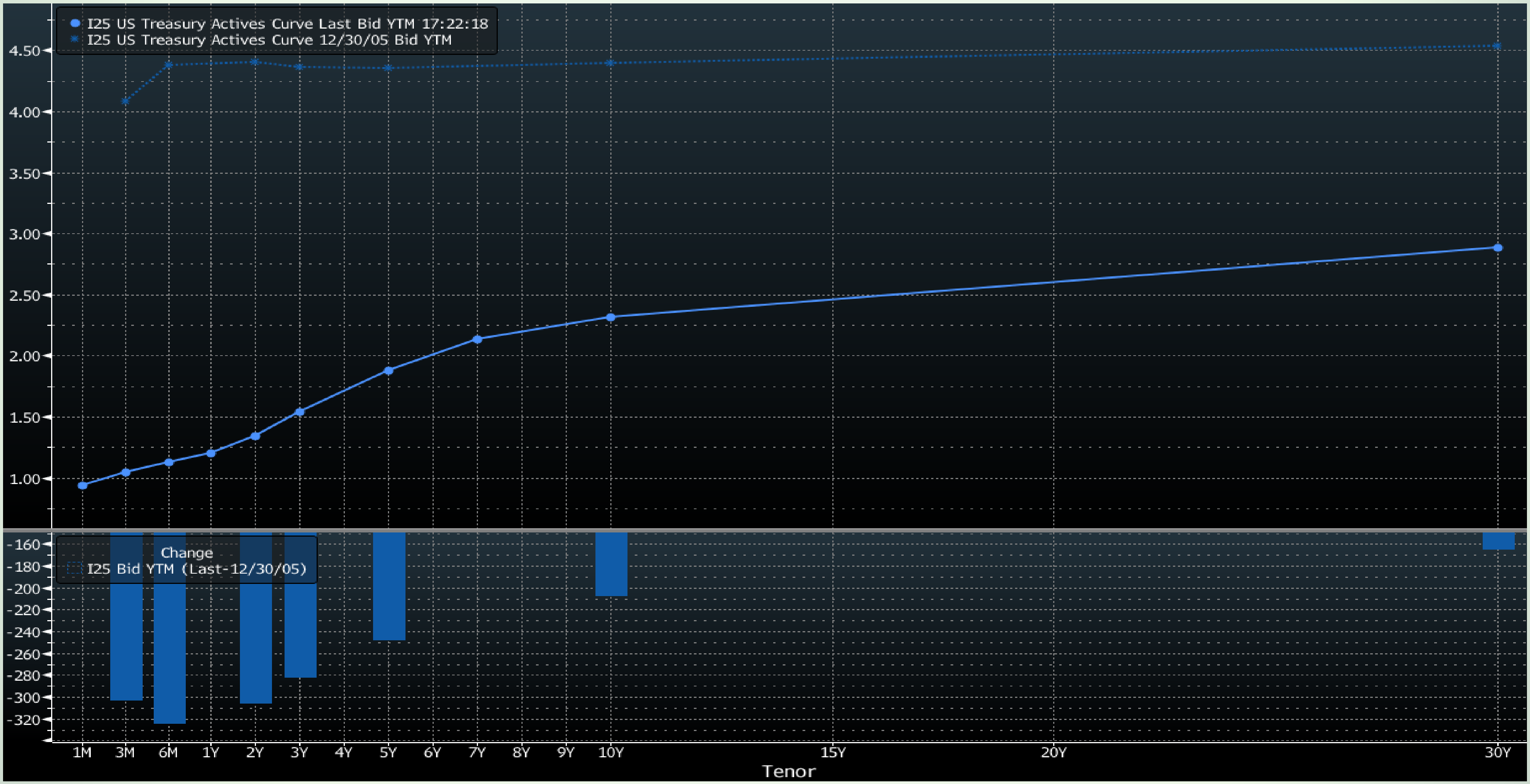
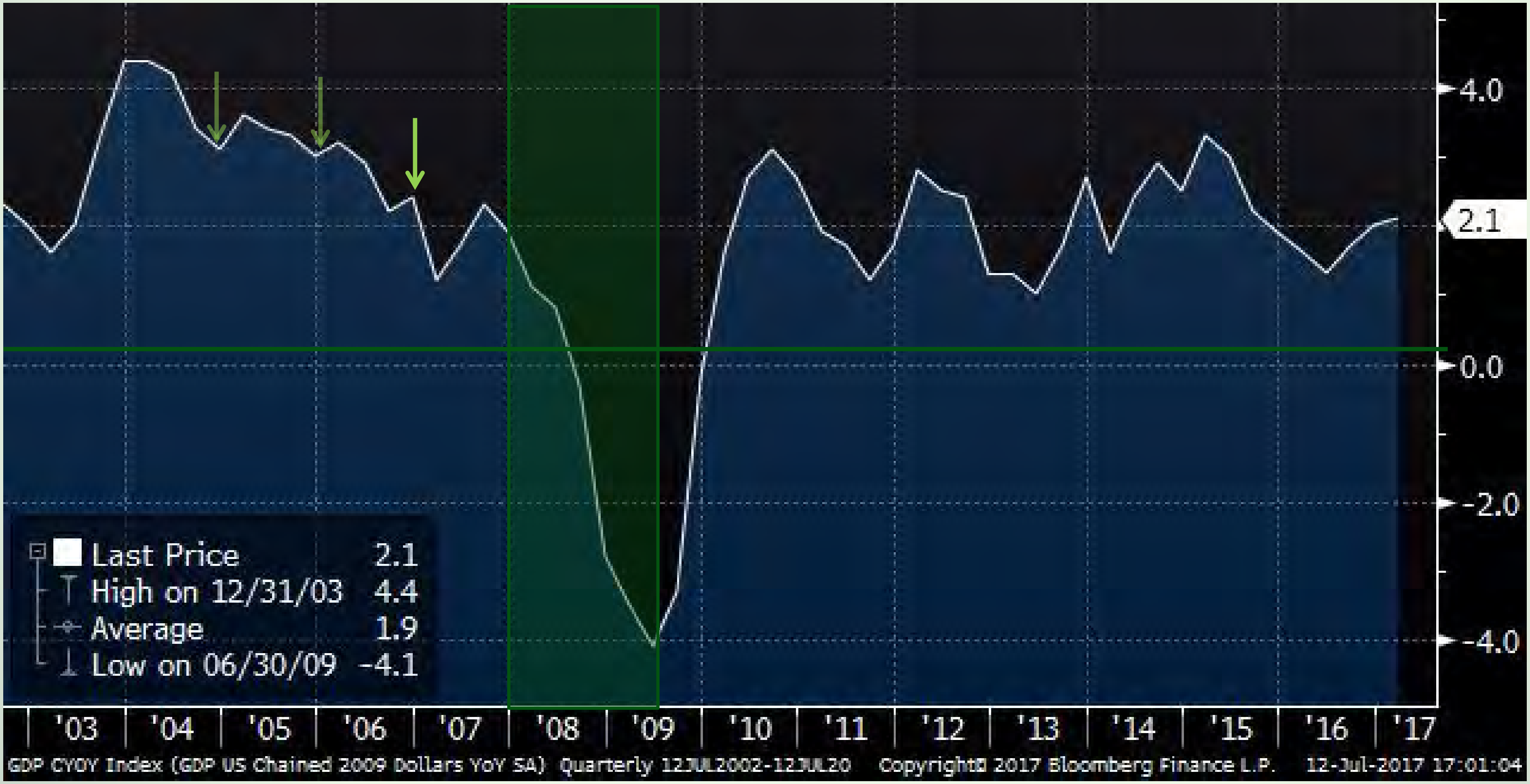


Source: Bloomberg, as of August 1, 2017.

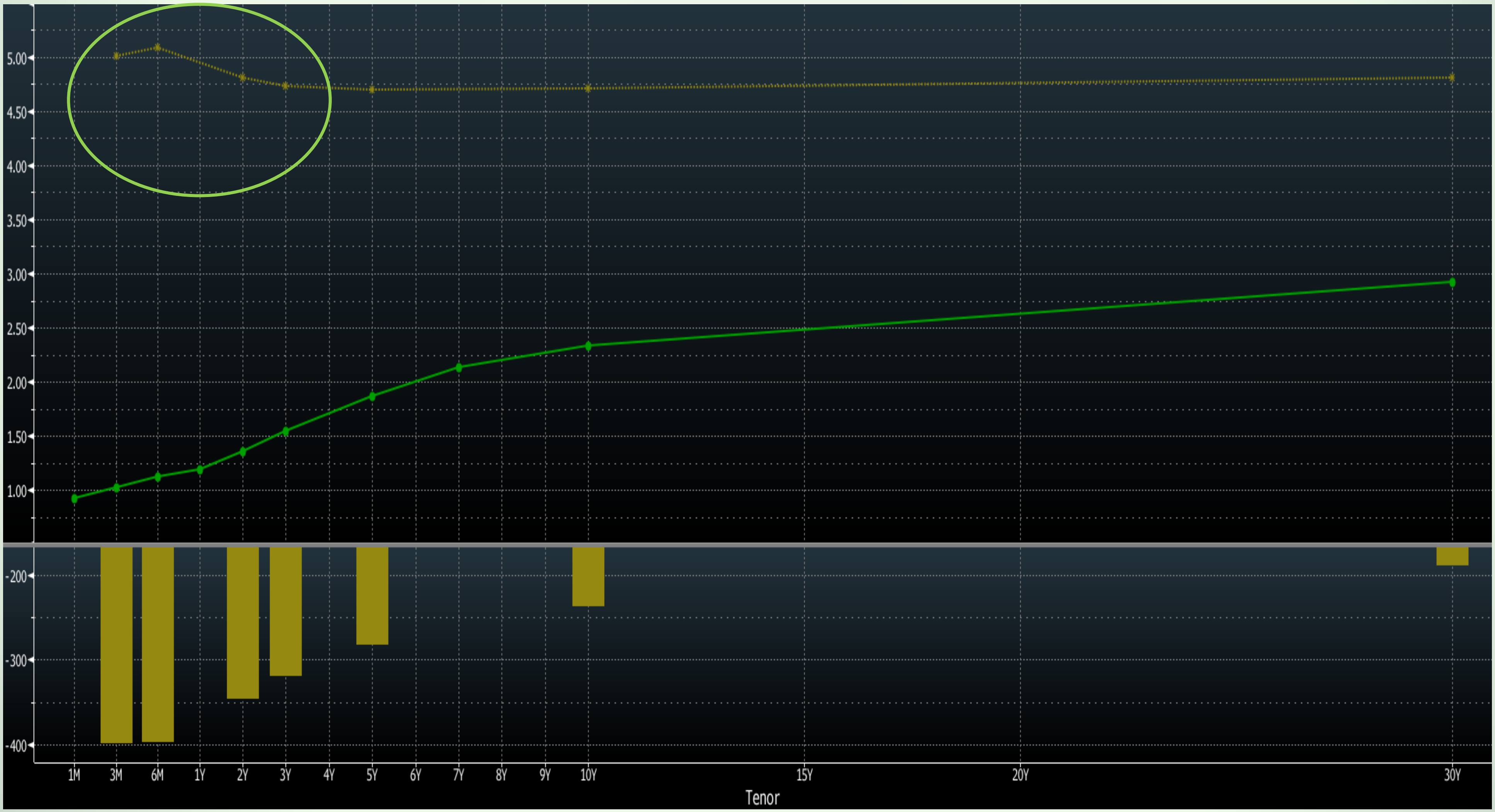
Yield curves – A lesson from the past! (December 2006)

GDP YoY growth with Great Recession highlighted (December 2007 to June 2009, 19 months)



Source: Bloomberg, as of August 1, 2017.

December 31, 2006 – Yield curve is inverted



Source: Bloomberg, as of August 1, 2017.

Yield curves – A lesson from the past! (December 2007)

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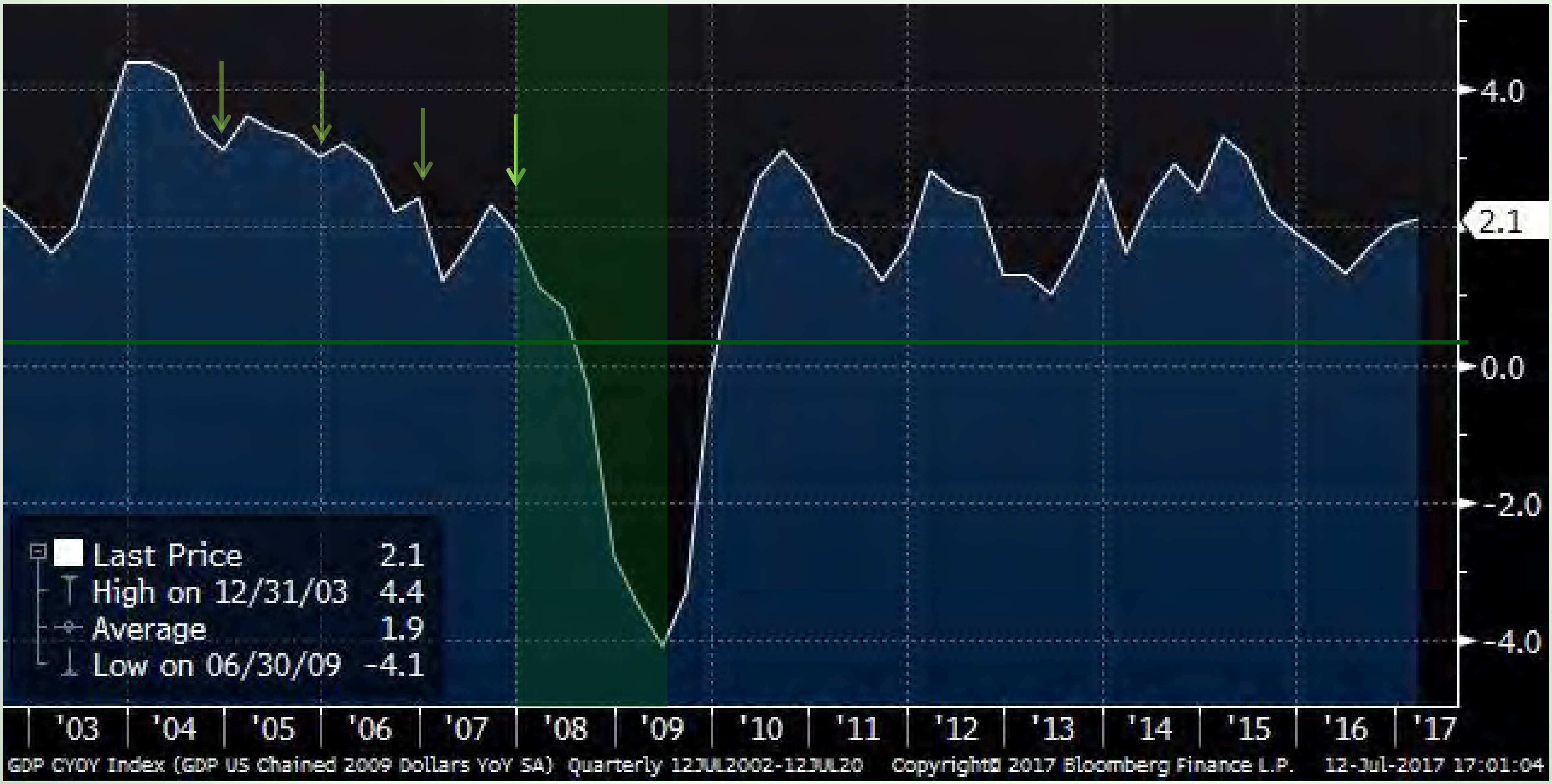
GDP YoY growth with Great Recession highlighted (December 2007 to June 2009, 19 months)



Source: Bloomberg, as of August 1, 2017.

December 29, 2007 – Inversion is breaking down

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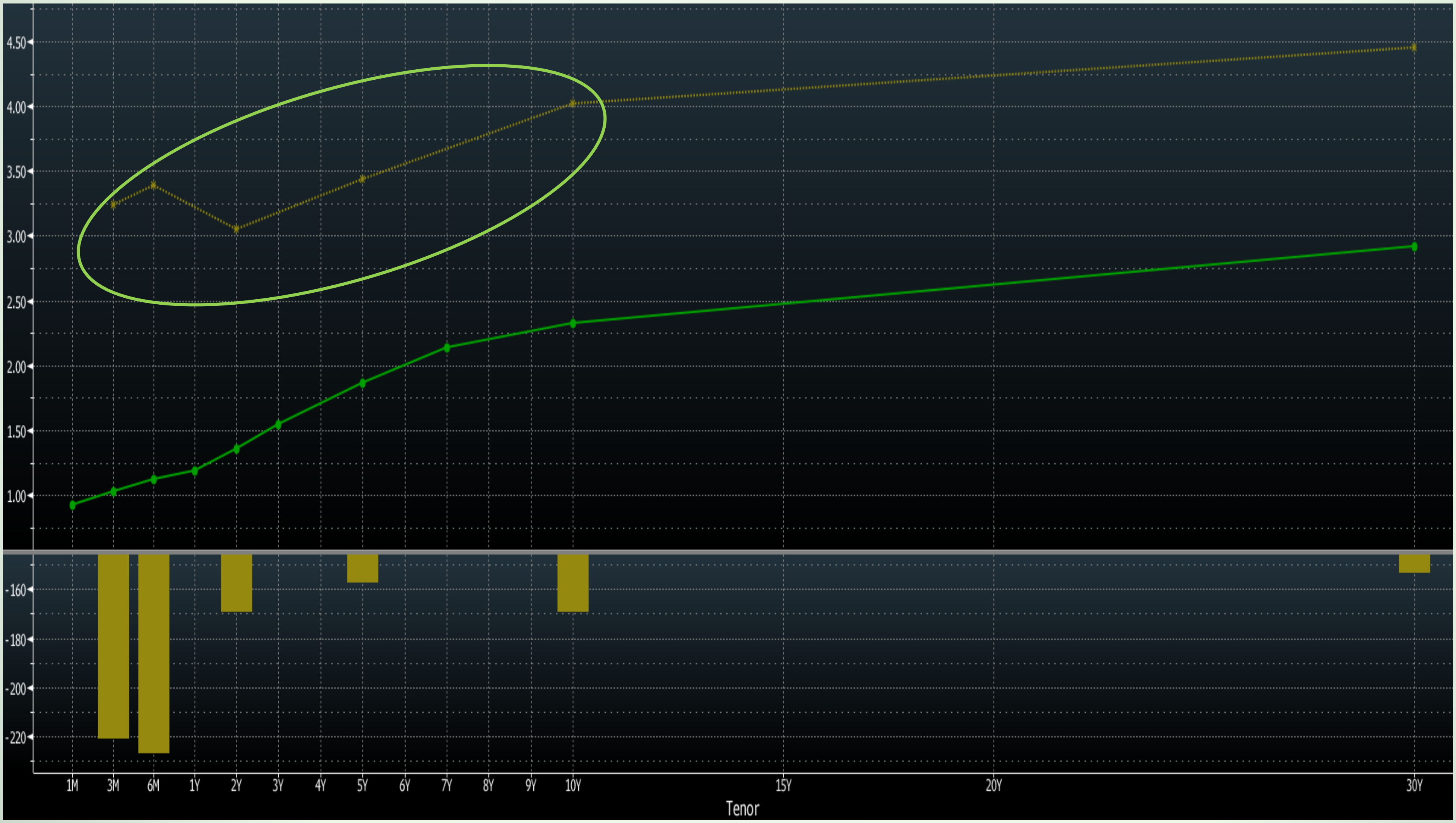


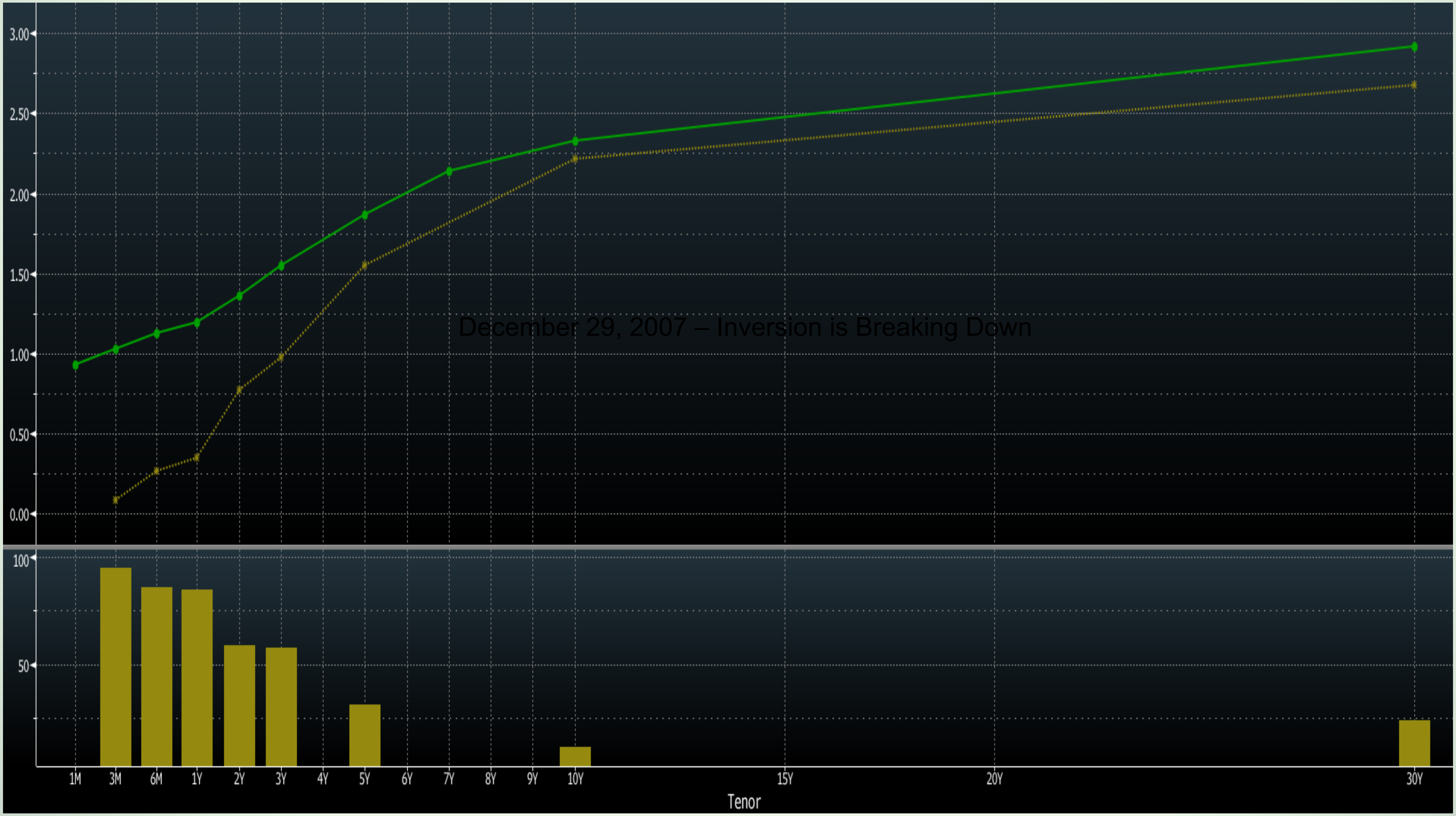
Source: Bloomberg, as of August 1, 2017.

Yield curves – A lesson from the past! (December 2008)

GDP YoY growth with Great Recession highlighted (December 2007 to June 2009, 19 months)

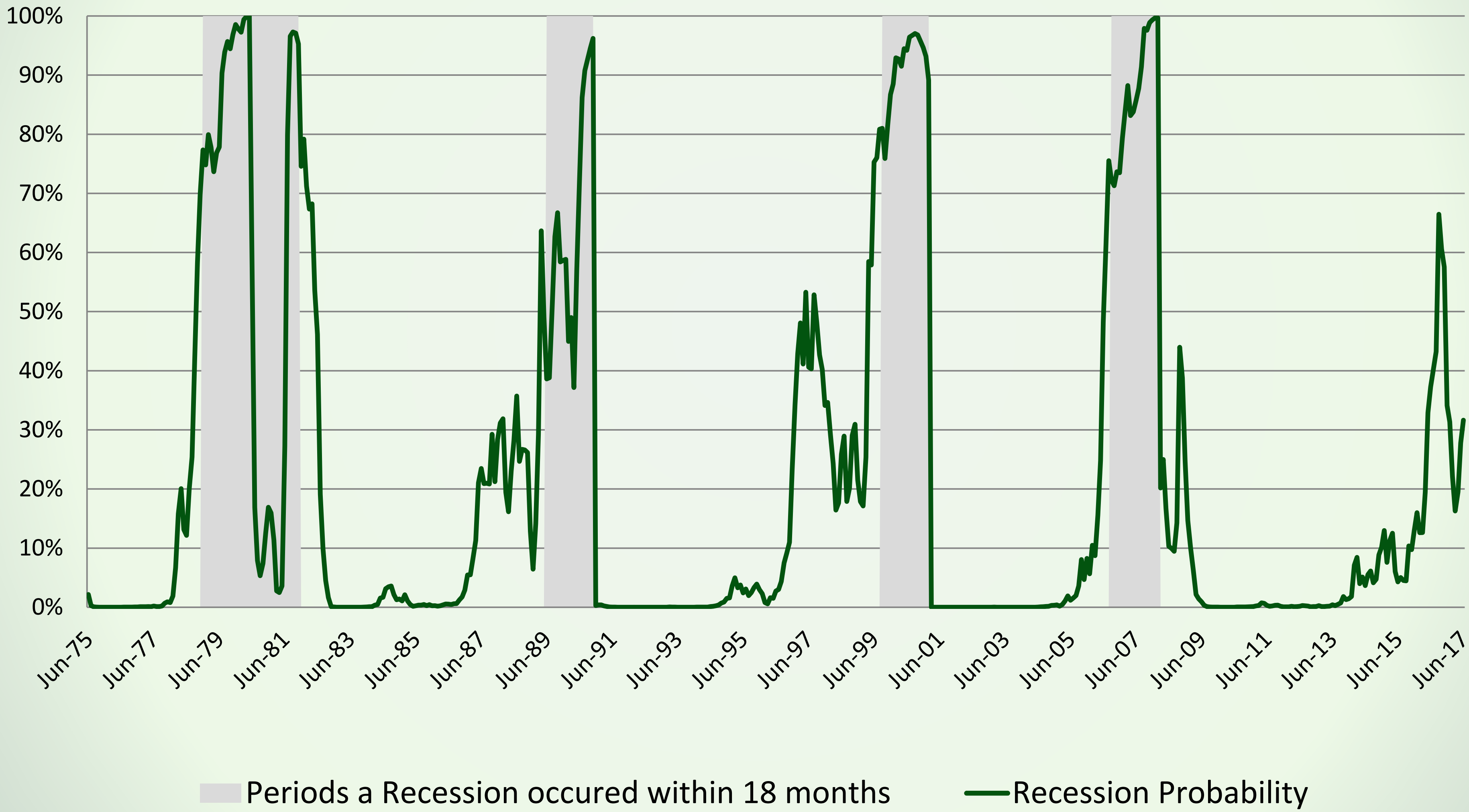
Source: Bloomberg, as of August 1, 2017.

December 31, 2008 – Yield curve has crashed



Source: Bloomberg, as of August 1, 2017.

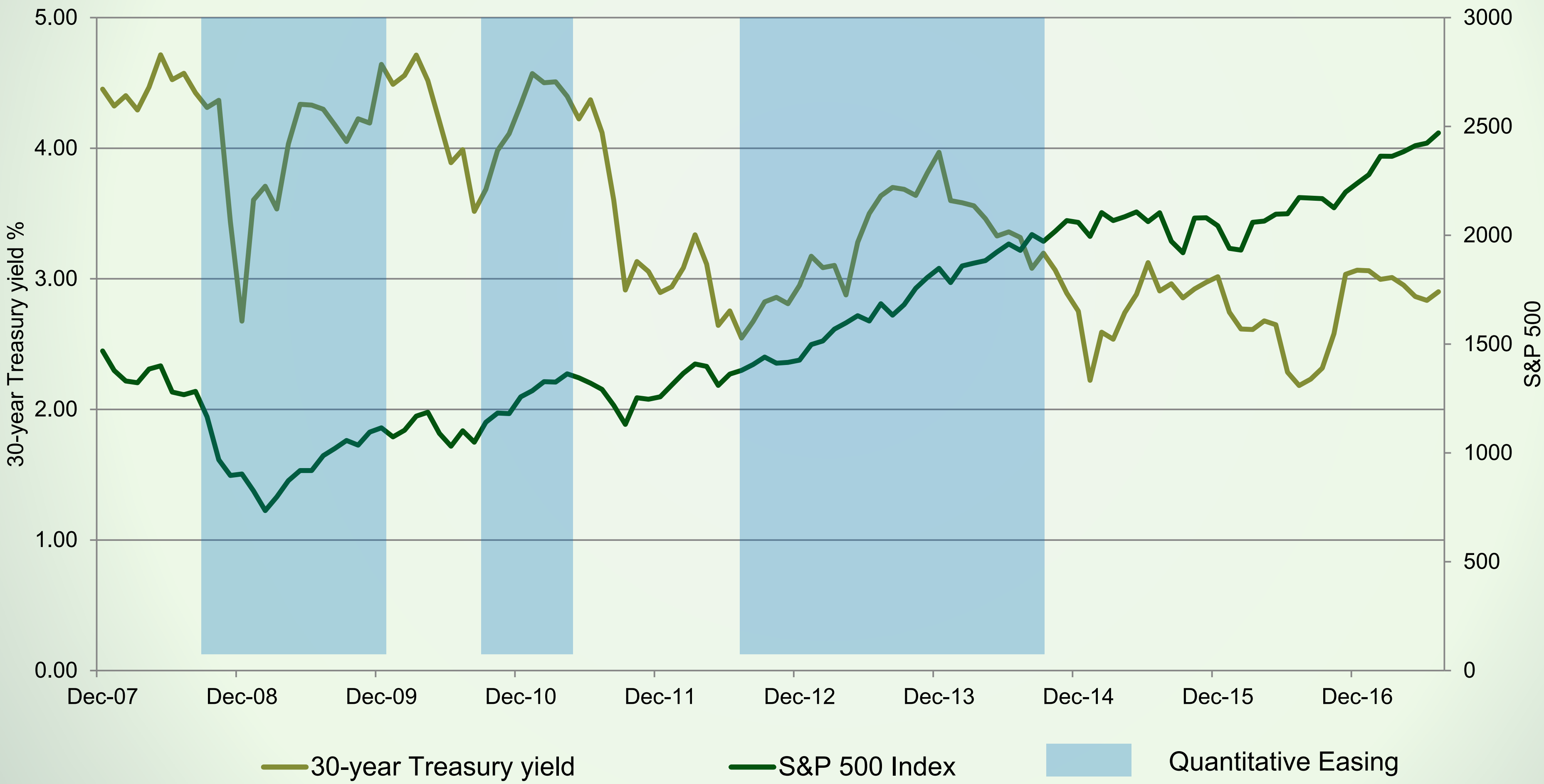
Canary Index – Based on fundamental factors



Insight Investment August 3, 2017.

Quantitative tightening?

How will the Federal Reserve's balance sheet reduction affect the markets?



Bloomberg June 30, 2017.

Higher interest rates:
a good thing for short duration portfolios

A BNY MELLON COMPANY℠

Insight
INVESTMENT

Implications of a higher-rate environment

- Short duration portfolios may benefit from rising rates
- Managing constituents
  - Finance committees and directors
  - Accountants and auditors
  - Public disclosure
- Distinguishing what is ‘priced in’ from surprises

Forward rates indicate pricing

- **Option A**: Buy a 3-year Treasury at 1.49% and hold for three years
  - (1.0150) * (1.0150) * (1.0150) = 1.0456783 = 4.57% holding period return

- **Option B**: Buy a 1-year Treasury at 1.20%, buy a 2-year Treasury in one year
  - Assuming no change in yields or expectations, investor should be indifferent from Option A
  - Forward rates calculate what that 2-year Treasury will yield
    - (1.0120) * (1+X) * (1+X) = 4.54%
    - X = 1.65%

Information is provided for illustrative purposes only and should not be construed as investment recommendations.

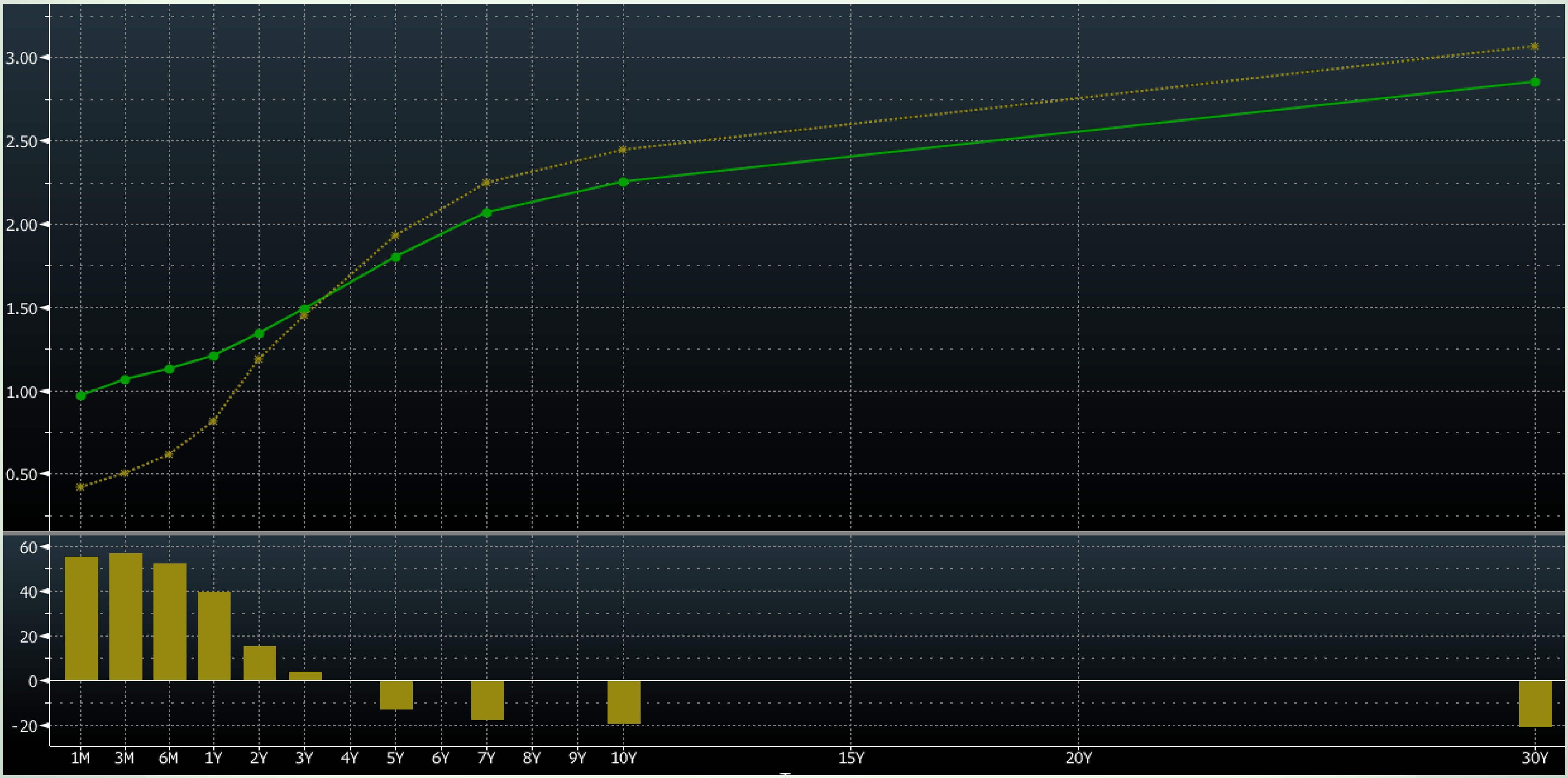
Approximation method

- Current rates
  - 1-Year = 1.20%, 3-Year = 1.50%, 2-Year is 1.34%
  - Difference is .30% add it to the current 2-year rate
  - .30% + 1.34% = 1.64%

Information is provided for illustrative purposes only and should not be construed as investment recommendations.

How is the yield curve changing?

How has the yield curve changed in 2017?



Source: Bloomberg, as of August 1, 2017.

Investing in the rising rate environment

- How are you measuring performance?
  - Yield to worst?
  - Total return?
- What is the market narrative?
  - Is the Fed raising rates? How quickly?
  - Are corporate widening or narrowing?
- Are your assets appropriately positioned?
  - Are you shortening duration?
  - How much current income are you willing to forgo to limit losses?
- Maintain flexibility as the yield curve changes shape

Important disclosures

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