



ARIZONA STATE RETIREMENT SYSTEM

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*Paul Matson
Director*

AGENDA

NOTICE OF A PUBLIC MEETING OF THE ARIZONA STATE RETIREMENT SYSTEM (ASRS) INVESTMENT COMMITTEE

3300 North Central Avenue
14th Floor Conference Room
Phoenix, Arizona 85012

Monday, October 26, 2015
2:30 p.m.

Pursuant to A.R.S. § 38-431.02, notice is hereby given to the members of the Arizona State Retirement System (ASRS) Investment Committee (IC) and to the general public that the ASRS Investment Committee will hold a public meeting October 26, 2015 beginning at 2:30 p.m., in the 14th Floor Conference Room of the Arizona State Retirement System office, 3300 North Central Avenue, Phoenix, Arizona. Trustees of the Committee may attend either in person or by telephone conference call.

This is a regularly scheduled meeting of the Investment Committee; however, due to possible attendance by other ASRS Board Trustees, this meeting may technically become a meeting of the Board or one of its Committees. Actions taken will be consistent with Investment Committee governance procedures. Actions requiring Board authority will be presented to the full Board for final decision.

The Chair may take public comment during any agenda item. If any member of the public wishes to speak to a particular agenda item, they should complete a Request to Speak form indicating the item and provide it to the Committee Administrator.

This meeting will be teleconferenced to the ASRS office in Tucson, 7660 E. Broadway Blvd., Suite 108, Tucson, AZ 85710. The conference call to Tucson will be disconnected after 15 minutes if there are no attendees in the Tucson audience.

The Agenda for the meeting is as follows:

1. Call to Order; Roll Call (estimated time 4 min.).....Mr. Tom Connelly
Chair, Investment Committee
2. Approval of Minutes of the August 24, 2015 Investment Committee Meeting (Action item;
estimated time 1 min.).....Mr. Tom Connelly

3. Presentation, Discussion, and Appropriate Action Regarding the Methods and Possible Impacts of Various Possible Federal Reserve Policy Actions (Informational and discussion item; estimated time 120 min.)Mr. Gary Dokes
Chief Investment Officer, ASRS
..... Mr. Dave Underwood
Assistant Chief Investment Officer, ASRS
..... Mr. Patrick Dimick
Senior Portfolio Strategist, Bridgewater Associates
..... Mr. Ian MacFarlane
Chief Strategist, BCA Research
..... Dr. Stuart G. Hoffman
Senior Vice President and Chief Economist, The PNC Financial Services Group
4. Presentation, Discussion, and Appropriate Action Regarding ASRS Investment Program Updates (Informational and discussion item; estimated time 20 min.) Mr. Gary Dokes
..... Mr. Dave Underwood
..... Mr. Al Alaimo
Portfolio Manager of Fixed Income, ASRS
..... Mr. Karl Polen
Head of Private Markets Investing, ASRS
..... Mr. Eric Glass
Portfolio Manager of Private Markets, ASRS
..... Mr. Kien Trinh
Assistant Vice President, Risk Services, State Street Investment Analytics
 - a. ASRS Fund Positioning
 - b. IMD Investment House Views
 - c. Asset Class Committee (ACC) Activities
 - d. Tactical Portfolio Positioning
 - e. IMD Projects, Research, and Initiatives
 - f. State Street Risk Reports

Regarding the following agenda item, pursuant to A.R.S. § 38-431.03(A)(2) and A.R.S. § 38-718(P) notice is hereby given to Trustees of the ASRS Investment Committee and the general public that the ASRS Investment Committee may vote to go into executive session, in the event specific manager data is discussed that is deemed confidential/non-public information. The executive session will take place in the 14th floor conference room.

5. Presentation, Discussion, and Appropriate Action Regarding Independent Reporting, Monitoring and Oversight of the ASRS Investment Program (Informational and discussion item; estimated time 15 min.)Mr. Allan Martin
Partner, NEPC
..... Mr. Dan LeBeau
Consultant, NEPC
6. Presentation, Discussion, and Appropriate Action Regarding the Supplemental Retirement Savings Plan (SRSP) (Informational and discussion item; estimated time 15 min.) Mr. Paul Matson
Director, ASRS
..... Mr. Pat Klein
Assistant Director of External Affairs, ASRS

7. Presentation, Discussion, and Appropriate Action Regarding the Supplemental Salary Deferral Plan (SSDP) (Informational and discussion item; estimated time 15 min.) Mr. Paul Matson
..... Mr. Pat Klein

8. Request for Future Agenda Items (Informational and discussion item; estimated time 5 min.)
.....Mr. Tom Connelly
.....Mr. Gary Dokes

9. Call to the PublicMr. Tom Connelly

Those wishing to address the ASRS Committee are required to complete a Request to Speak form before the meeting indicating their desire to speak. Request to Speak forms are available at the sign-in desk and should be given to the Committee Administrator. Trustees of the Committee are prohibited by A.R.S. § 38-431.01(H) from discussing or taking legal action on matters raised during an open call to the public unless the matters are properly noticed for discussion and legal action. As a result of public comment, the Committee Chair may direct staff to study and/or reschedule the matter for discussion and decision at a later date.

10. The next ASRS Investment Committee Meeting is scheduled for Monday, November 30, 2015 at 2:30 p.m., at 3300 N. Central Avenue, 14th Floor Conference room, Phoenix, Arizona.

11. Adjournment of the ASRS Investment Committee Meeting

A copy of the agenda background material provided to Committee Trustees (with the exception of material relating to possible executive sessions) is available for public inspection at the ASRS offices located at 3300 North Central Avenue, 14th Floor, Phoenix, Arizona, and 7660 East Broadway Boulevard, Suite 108, Tucson, Arizona. The agenda is subject to revision up to 24 hours prior to meeting. These materials are also available on the ASRS website (<https://www.azasrs.gov/web/BoardCommittees.do>) approximately 48 hours prior to the meeting

Persons with a disability may request a reasonable accommodation such as a sign language interpreter or alternate formats of this document by contacting Tracy Darmer, ADA Coordinator at (602) 240-5378 in Phoenix, at (520) 239-3100, ext. 5378 in Tucson or 1-800-621-3778, ext. 5378 outside metro Phoenix or Tucson. Requests should be made as early as possible to allow time to arrange the accommodations

Dated October 21, 2015

ARIZONA STATE RETIREMENT SYSTEM

Gloria Trujillo
Committee Administrator

Gary R. Dokes
Chief Investment Officer

Agenda Item #2



ARIZONA STATE RETIREMENT SYSTEM

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Paul Matson
Director

MINUTES OF THE PUBLIC MEETING OF THE ARIZONA STATE RETIREMENT SYSTEM INVESTMENT COMMITTEE

HELD ON
Monday, August 24, 2015
2:30 p.m.

The Arizona State Retirement System (ASRS) Investment Committee (IC) met at 3300 N. Central Avenue, 14th Floor, Phoenix, AZ 85012. Mr. Tom Connelly, Chair, called the meeting to order at 2:32 p.m.

1. Call to Order; Roll Call; Opening Remarks

Present: Mr. Tom Connelly, Chair
Prof. Dennis Hoffman, Vice-chair (via teleconference)

A quorum was present for the purpose of conducting business.

2. Approval of Minutes of the June 22, 2015 Investment Committee Meeting Minutes

Motion: Prof. Dennis Hoffman moved to approve the minutes of the June 22, 2015 public meeting. Mr. Tom Connelly seconded the motion.

By a vote of 2 in favor, 0 opposed, 0 abstentions, 0 excused, and 1 vacancy, the motion was approved.

3. Presentation, Discussion, and Appropriate Action Regarding ASRS Investment Program Updates

Mr. Gary Dokes, ASRS Chief Investment Officer (CIO), addressed the Committee with an update of latest activities within the investment portfolio. He briefly reviewed the actual-to-policy over/underweights in each asset class and portfolio repositioning changes that have occurred and are expected to occur in the next few weeks. He emphasized IMD's short-to-intermediate concerns in risk asset markets as result of an anticipated continued slow-down in China.

Mr. Hoffman inquired on the internal processes used by the ASRS to communicate to externals (e.g., media, members of the public, etc.) during times of dramatic change within the market. Mr. Dokes responded stating the ASRS Communications & Media Relations Manager, Dave Cannella, and the Assistance CIO, Dave Underwood, developed a Q&A market update document that was available to members and others in the event there were inquiries during last week when the equity markets declined.

Mr. Kien Trinh, State Street Investment Analytics, presented the State Street Risk Report. He discussed the monthly reallocation summary, noting the reductions and additions to various asset classes for the month of June and July of 2015. He further commented that there has been no notable changes in risk metrics over the past three months.

4. Presentation, Discussion, and Appropriate Action Regarding Independent Reporting, Monitoring and Oversight of the ASRS Investment Program – Includes Total Fund and Investment Performance Report Q2-15

Mr. Allan Martin, New England Pension Consultants (NEPC) Consultant, presented information on the investment performance and monitoring/oversight of the ASRS investment program. He advised the Committee his report provided the status of the Fund as of June 30, 2015, and noted the Fund's market value at approximately \$34.9 billion.

Performance results: (as of June 30, 2015)

- 8.1% (20-year annualized net return) vs. 8% (actuarial assumed interest rate)

	Quarter	1 Year	3 Years	5 Years	10 Years	Since Inception 06/30/75
Total Fund	0.6%	3.2%	11.4%	11.8%	6.9%	9.9%
Interim SAA Policy*	0.7%	1.6%	10.5%	11.2%	6.6%	9.6%
Excess Return	-0.1%	1.6%	0.9%	0.6%	0.3%	0.3%

*Interim SAA Policy: 23% S&P 500/3% S&P 400/3% S&P 600/18% MSCI EAFE/2% MSCI EAFE Small Cap/5% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/17% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/6% NCREIF ODCE (lagged one quarter)/2% Bloomberg Commodity Index/5% Multi-Asset Class Custom Index

Note: Interim SAA Policy includes proration of 1.1% Private Equity, 4.1% Real Estate and 5.6% Private Debt which are unfunded. Private Equity was prorated to domestic equity; Real Estate was prorated to domestic equity and fixed income; Private Debt was prorated to Core and High Yield Fixed Income.

The ASRS Strategic Asset Allocation Policy became effective April 1, 2015.

5. Presentation, Discussion, and Appropriate Action Regarding the Real Estate Strategic Plan

Mr. Dokes provided the Committee with a brief overview of the agenda item and turned the meeting over to Mr. Karl Polen, ASRS Head of Private Markets, who presented the Committee with a detailed summary of the Real Estate Program and the development of the separate account program. He noted there were no changes to the overall objectives, program target returns or its benchmark. The proposed Plan changes primarily focused on clarifying verbiage which more accurately reflects the RE Program migration from a closed-end fund to a largely separate manager account dominated program.

Motion: Mr. Tom Connelly moved to recommend the proposed changes of the Real Estate Strategic Plan to the full Board. Prof. Dennis Hoffman seconded the motion.

By a vote of 2 in favor, 0 opposed, 0 abstentions, 0 excused, and 1 vacancy, the motion was approved.

6. Presentation, Discussion, and Appropriate Action Regarding the ASRS Private Market Selection, Diligence, Fees and Monitoring

Mr. Polen addressed the Committee with a detailed outline of the strategies, processes and policies currently in place in Private Market investing. He further provided a detailed description of the areas of concern and explained how the selection, diligence, fees and monitoring oversight processes are completed.

7. Presentation, Discussion, Update and Appropriate Action with Respect to New Investment Strategies and Industry Investment Trends

Mr. Hoffman requested a future agenda item focused on the impact of the Federal Reserve easing. Mr. Dokes stated he would work with the IC Chair and Director to determine the appropriate parties and the best date to hold these discussions.

8. Call to the Public

No members of the public requested to speak.

9. Adjournment

The meeting adjourned at 4:31 p.m.

Respectfully submitted,

ARIZONA STATE RETIREMENT SYSTEM

Gloria Trujillo
Investment Committee Administrator

Date

Gary R. Dokes
Chief Investment Officer

Date

Agenda Item #3



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Paul Matson
Director

MEMORANDUM

TO: The Arizona State Retirement System (ASRS) Investment Committee (IC)

FROM: Mr. Gary Dokes, Chief Investment Officer (CIO)
Mr. Dave Underwood, Assistant Chief Investment Officer (ACIO)

DATE: October 16, 2015

RE: **Agenda Item #3:** Presentation, Discussion, and Appropriate Action Regarding the Methods and Possible Impacts of Various Possible Federal Reserve Policy Actions

Purpose

Presentation and discussion of the impact on the global economy and the capital markets from various potential strategies the Federal Reserve may employ as the Federal Open Market Committee (FOMC) moves monetary policy toward further normalization.

Recommendations

Informational only; no action required.

Background

The IC and the Investment Management Division (IMD) periodically host roundtables to discuss and exchange trends and topics relating to a wide array of economic, capital markets and investment issues. These exchanges are intended to be interactive and address interests expressed primarily by IC Trustees, but can also expose the Committee to meaningful trends, concepts and investment vehicles. The goal of these is enlightenment, not necessarily the production of actionable items. The IC Chair, CIO and Director consult jointly to decide upon topics that fit this mission, tapping a multitude of external experts and collaborative partners for their viewpoints. Experience has demonstrated that these forums have been worthwhile for engaging IC Trustees, ASRS staff, ASRS consultants and external partners, alike.

This forum will center upon the implications and effects on the U.S./global economies and capital markets as the FOMC directs monetary policy away from easing and toward a more normalized state:

- a. The FOMC aggressively lowered its benchmark Federal Funds interest rate during the Global Financial crisis in an effort to boost economic growth. Short-term interest rates in the U.S. have been very low since.
- b. To understand the level of the Federal Funds rate and when it might be normalized rests, in part, on an appreciation of the *natural rate of interest* - the real, or inflation-adjusted interest rate consistent with full employment and stable inflation.

- c. Projections of the natural rate of interest indicate that a gradual return of short-term interest rates to normal over the next few years is consistent with promoting maximum employment and stable inflation.
- d. Because the natural rate of interest is historically, very low, monetary conditions may in fact not be as lenient as perceived despite a Federal Funds Rate at the zero-bound. These possibly (relatively) tight monetary conditions may be suppressing U.S. economic activity and inflation, which would suggest that the normalization process of policy and interest rates in the U.S. might be slow and prolonged.

In response to the Great Recession induced by the Global Financial Crisis (*GFC*, ca 2007-2008), the FOMC quickly lowered its target policy rate - the overnight Federal Funds Rate to its zero lower bound. Despite this stimulus, the rate of economic growth hasn't been stellar although it has been sustained; accompanied by below-trend inflation which gave rise to concerns about disinflation. The Federal Reserve responded even further at earlier points in the post-GFC period through programs that purchased longer-term fixed-income securities; i.e., "*QE*," or quantitative easing - an unconventional monetary policy strategy that pushed down longer-dated yields in hopes that those lower rates would supplement economic stimulus. U.S. QE programs have since ended. The FOMC still thinks it is likely that economic conditions over the next few months will be appropriate for it to begin monetary policy normalization. But that likelihood and timing will depend on the economic outlook shaped by incoming current economic data, which in some cases has softened. Given challenging economic influences from outside the U.S., the timing and means of interest rate normalization seems destined to be tenuous.

We have invited three leading experts to participate in an interactive exchange of their viewpoints and assessments on the implications the U.S. interest rate normalization. The CIO and ACIO will serve as moderators.

Panelist:

Mr. Patrick Dimick, Senior Portfolio Strategist, Bridgewater Associates

Mr. Ian MacFarlane, Chief Strategist, BCA Research

Dr. Stuart G. Hoffman, Economist, The PNC Financial Services Group

Reference Materials:

From Bridgewater

- The Fed: Why the Next Easing is More Concerning than the Next Tightening

From BCA Research

- Global Financial Outlook

Roundtable Participant Biographies

Patrick Dimick

Senior Portfolio Strategist, Bridgewater Associates

Patrick Dimick is a senior member of the Bridgewater Associates research group with expertise in portfolio structuring and the foreign exchange, interest rate, commodity, and equity markets. Patrick works with Bridgewater's clients to develop investment strategies that meet their objectives and to provide insight into the research group's thoughts on global markets and economic conditions. He has been with the firm since 2007. Before joining Bridgewater in 2007, Patrick's 17 years of market experience was with Medley Global Advisors, UBS Investment Bank, and Credit Suisse First Boston. He received a B.A. in Economics (1989) and an M.A. in International Economics and Finance (1990) from Brandeis University.

Ian MacFarlane

Chief Strategist, BCA Research

Ian MacFarlane joined BCA Research in 2006 and is currently the Chief Strategist of *The Bank Credit Analyst* service. During his tenure at BCA, he has served as Chief Strategist of the *European Investment Strategy* service, as well as the *Global Asset Allocation* service. This followed a 25-year career in senior roles as an economist, strategist and fund manager in Johannesburg, Hong Kong, London and New York. He has covered all the major asset classes in both developed and emerging markets, using both qualitative and quantitative investment tools in portfolio construction. Mr. MacFarlane has wide-ranging experience in initiating research and developing research products, and has also advised governments and policymakers on topics as diverse as pensions and economic statistics. He holds a BSc (Honors) in Economics from Hull University, England.

Dr. Stuart G. Hoffman

Senior Vice President & Chief Economist, The PNC Financial Services Group

Dr. Stuart G. Hoffman has held his position since 1991. He has been with PNC since 1980, following a six-year tenure with the Federal Reserve Bank of Atlanta. Dr. Hoffman is a past president and lifetime member of the American Bankers Economic Advisory Committee, which meets regularly with the Federal Reserve Board of Governors chaired by Janet Yellen. He also serves on the board of directors of The Economic Club of Pittsburgh and is a past president of the National Association for Business Economics. Dr. Hoffman received his doctorate degree from the University of Cincinnati as a Charles Phelps Taft Memorial Fellow. In 2011, the university presented him with the Carl Lindner Award for Outstanding Business Achievement.



Presented to:



**Arizona State
Retirement System**

The Fed: Why the Next Easing is More Concerning Than the Next Tightening

October 26, 2015

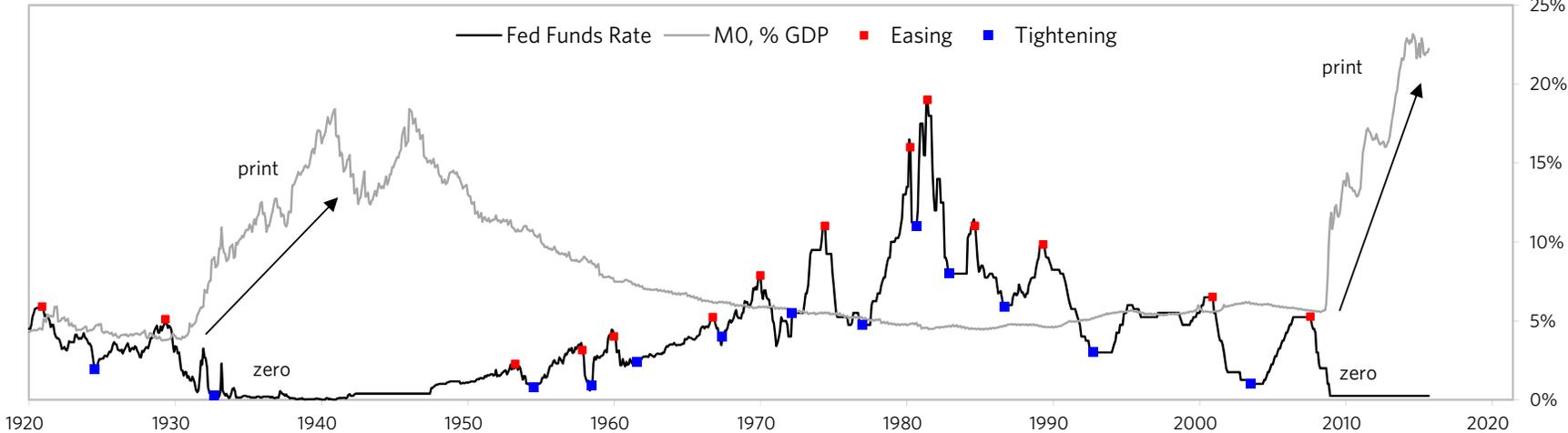
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OBSERVATIONS

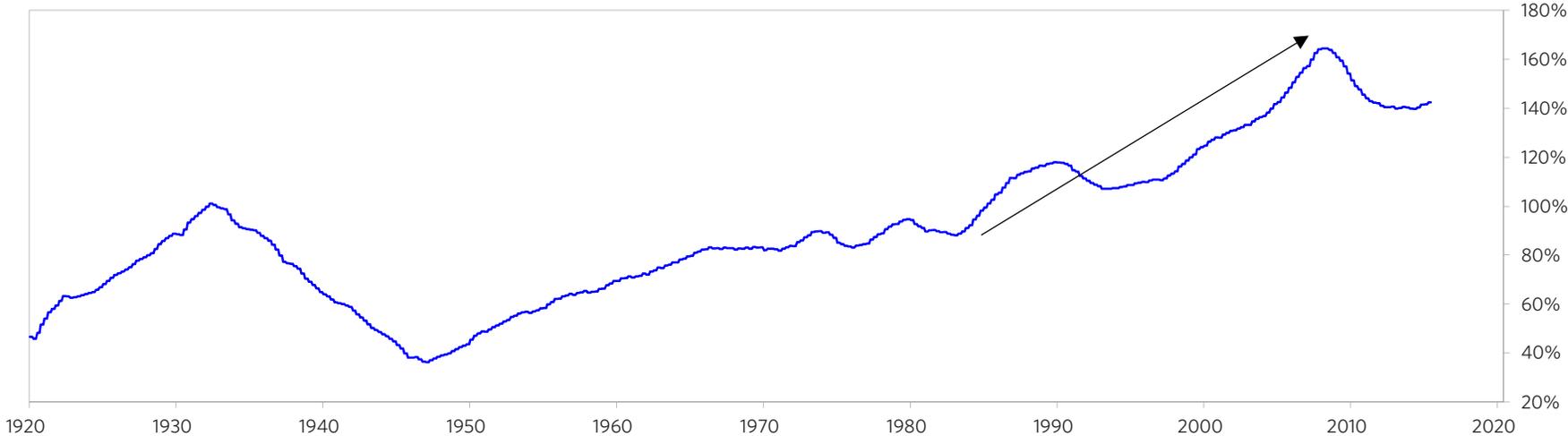
- ◆ We are at the end of the monetary policy super-cycle; debt levels and asset prices are high, while interest rates and inflation are very low, and central banks are impaired
- ◆ The US is mid-cycle with growth above potential, slack roughly neutral, and healthier private sector credit creation: historically tightening cycles have begun when conditions are in this zone
- ◆ But sensitivity to tightening is high, the Fed's ability to reverse a downturn is low, and deflation risk is high and rising
- ◆ Therefore we expect any tightening cycle to be very modest
- ◆ The Fed's next big move is more likely to be an easing rather than tightening

END OF THE MONETARY SUPER-CYCLE

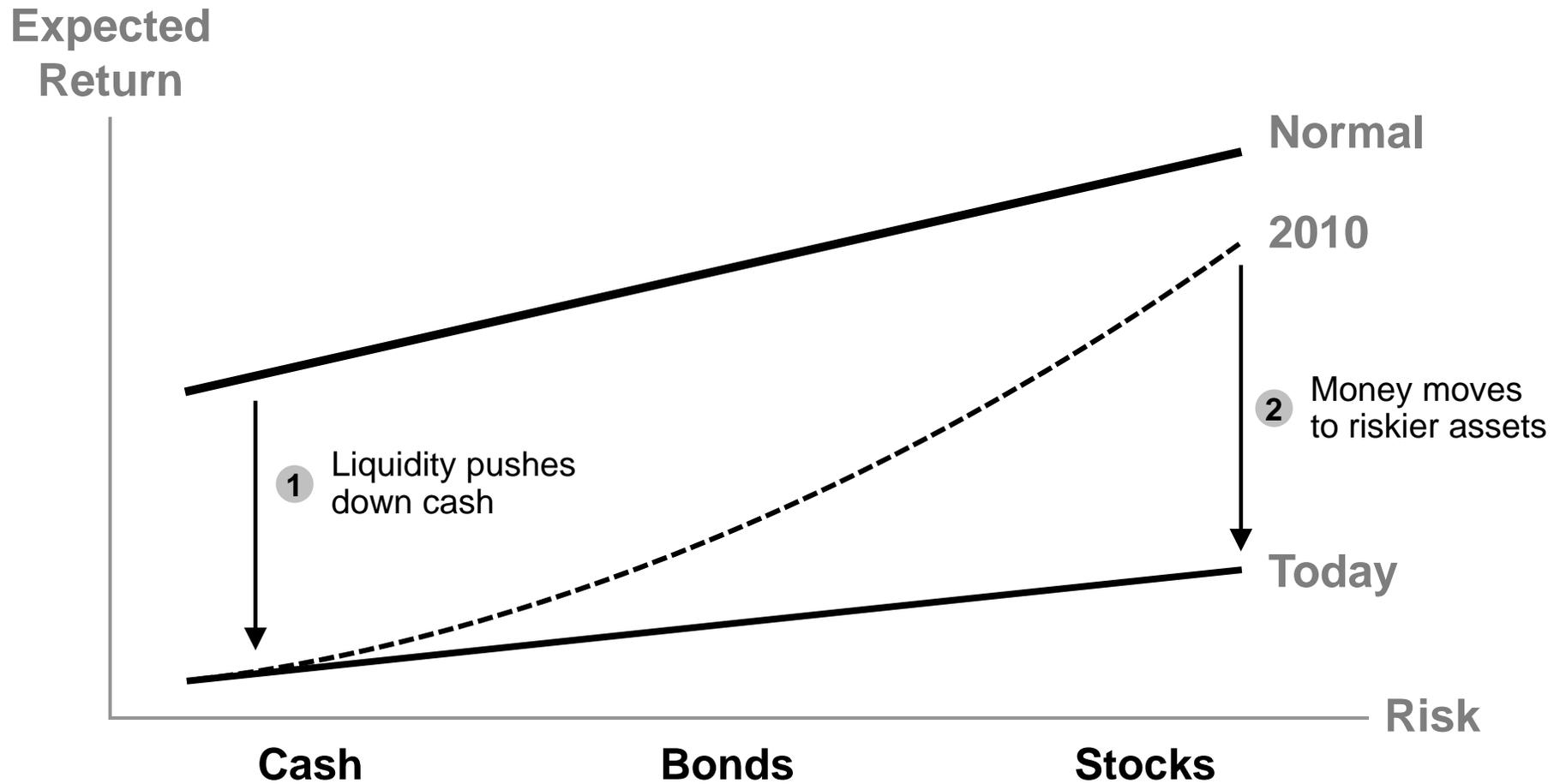
US Interest Rates and Money-Printing



US Nonfinancial Private Sector Debt (%PGDP)



LIMITED ABILITY TO DRIVE ASSET PRICES HIGHER FROM HERE



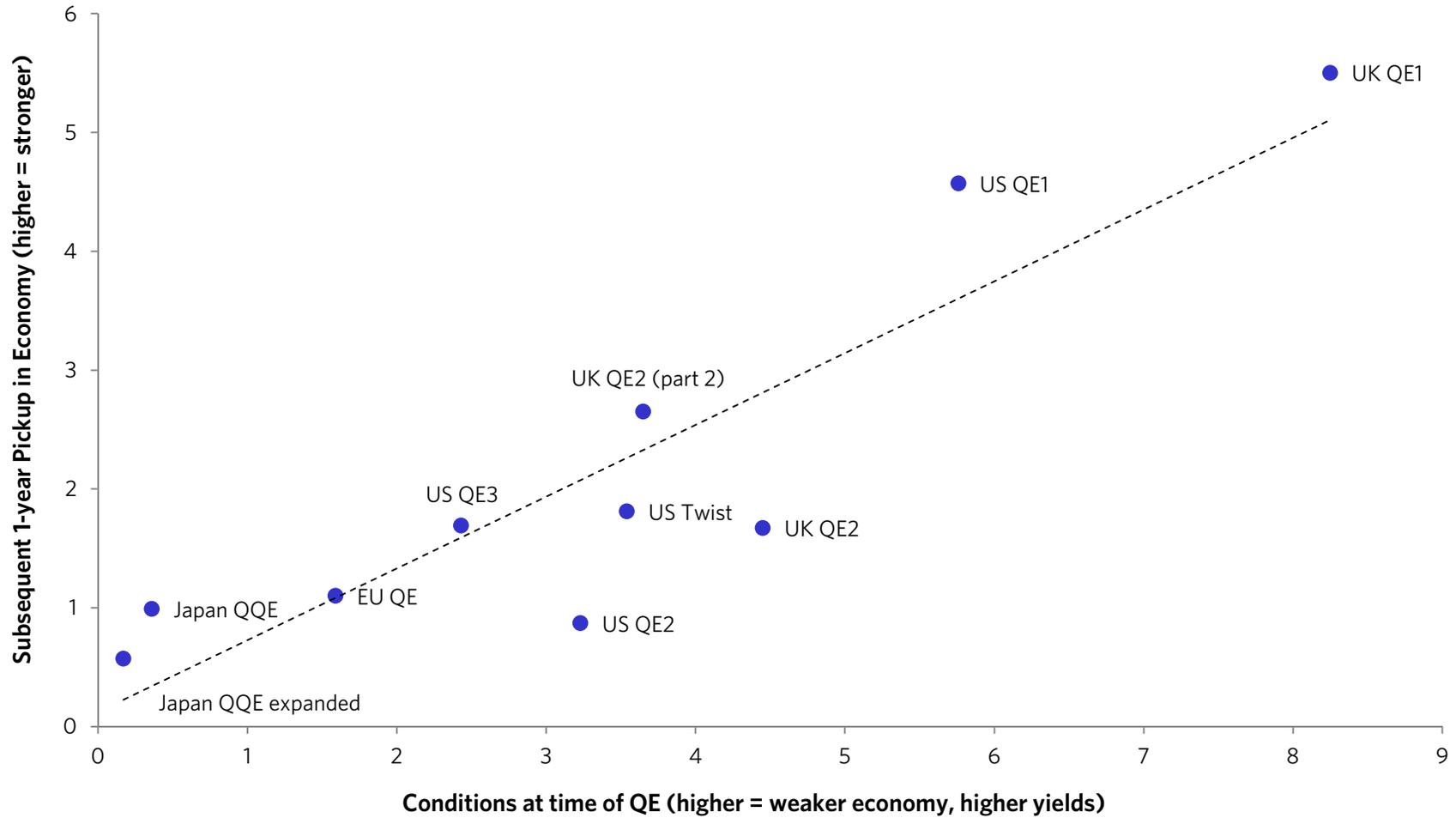
CENTRAL BANKS FACE DIFFICULTY IN EASING WITH LOW “FUEL IN THE TANK”

Developed World Monetary Fuel in the Tank



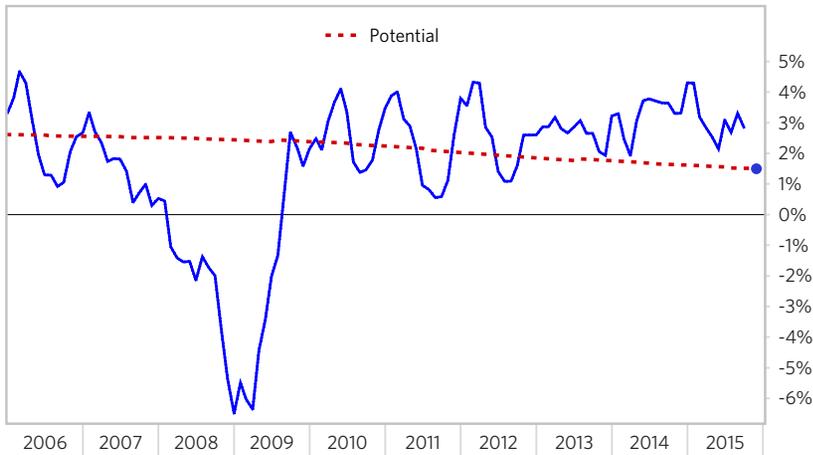
QE EFFECTIVENESS IS DIMINISHED

Impact of QE vs. Conditions

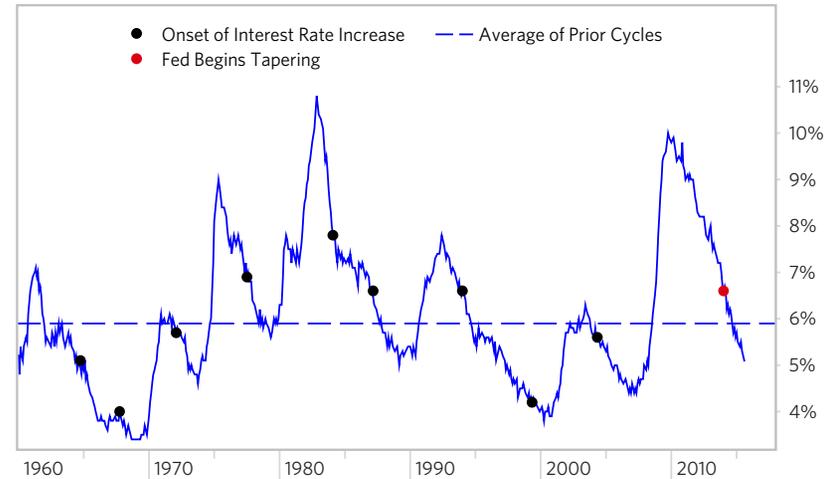


CYCLICAL CONDITIONS ARE CLOSE TO LEVELS WHEN THE FED TYPICALLY TIGHTENS...

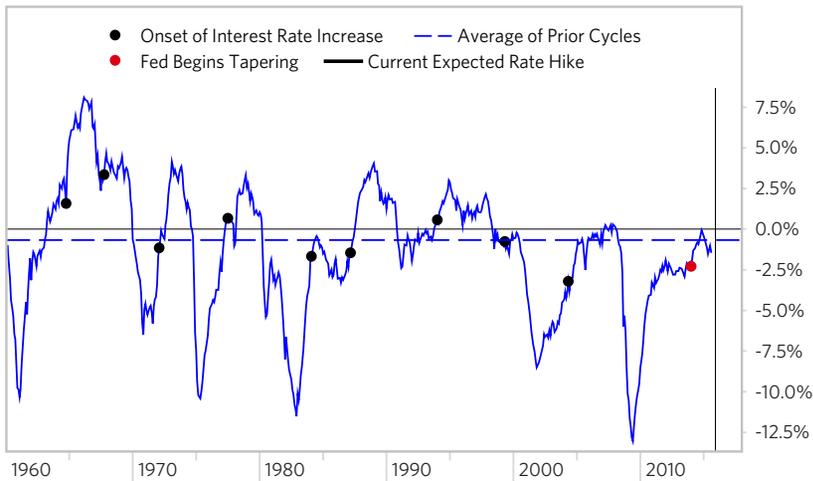
US Growth



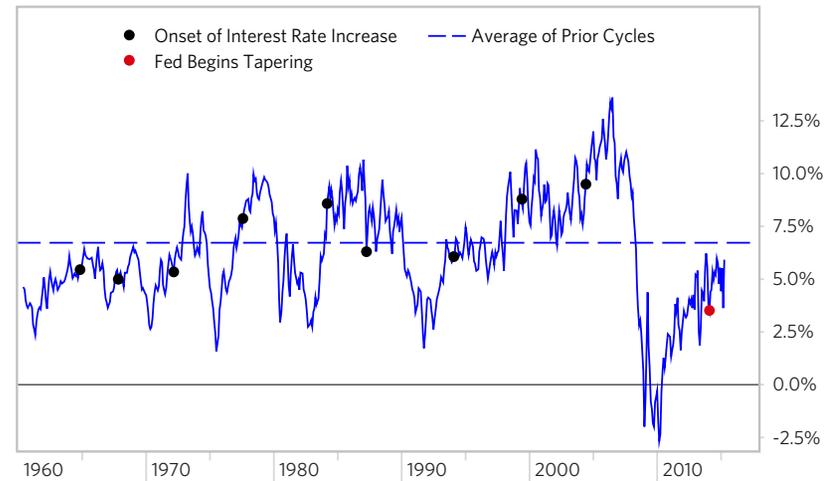
Unemployment Rate



US Capacity Utilization Relative to History

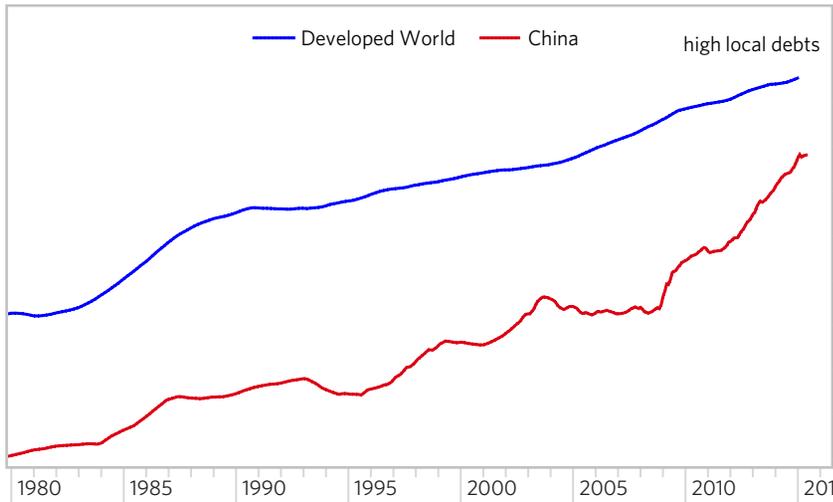


US Private Sector Credit Growth (%GDP)

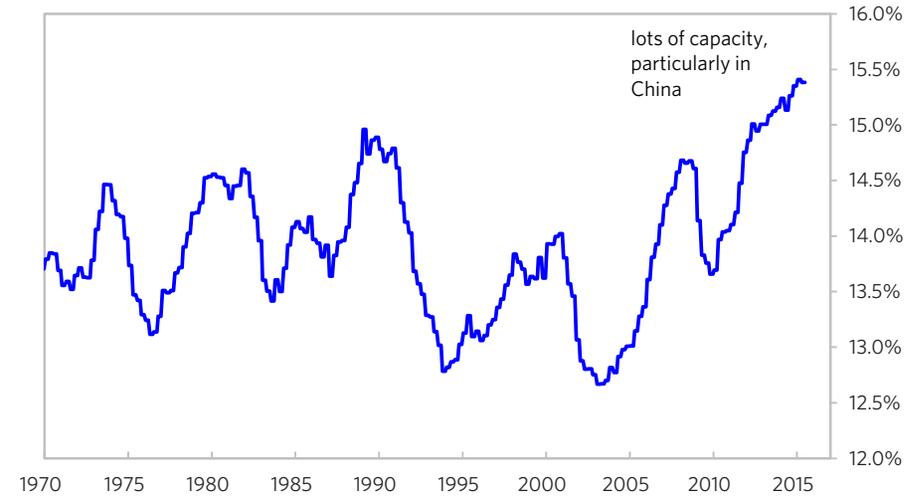


...BUT SECULAR CONDITIONS ARGUE FOR EXTREME CAUTION

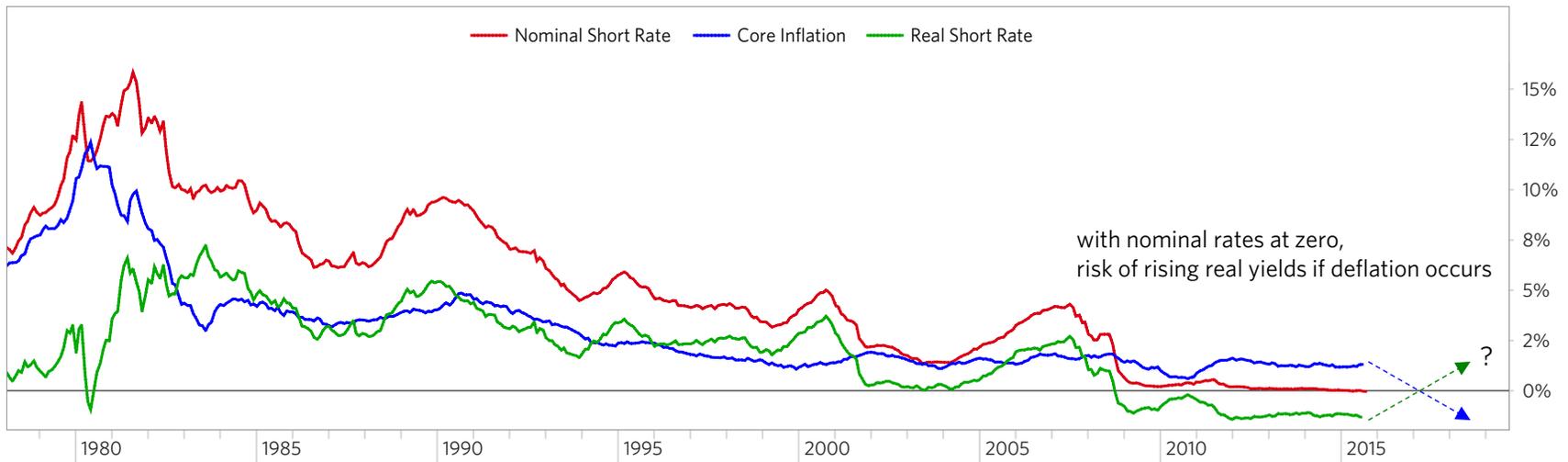
Total Non-Financial Debt (%GDP)



Global Business Fixed Investment (% World GDP)

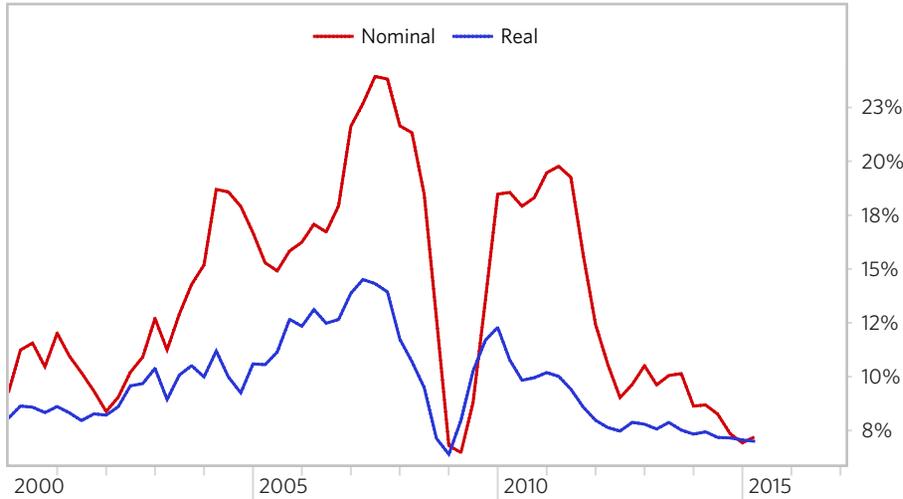


Developed World

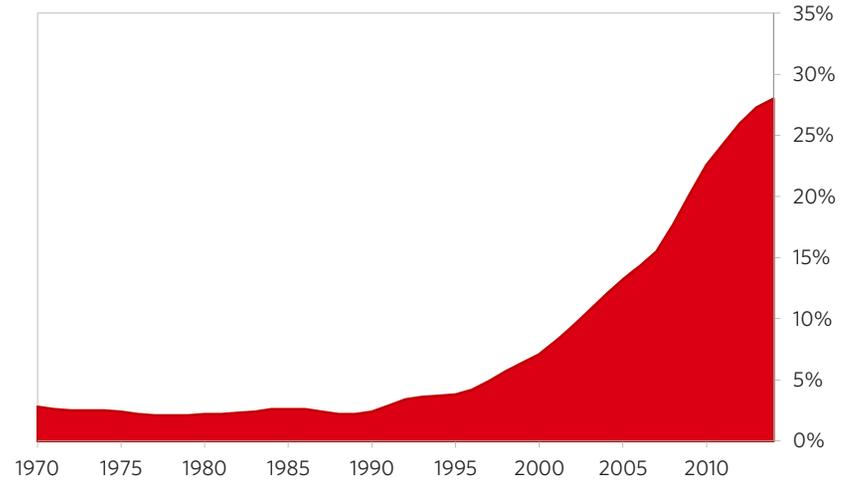


GLOBAL RISKS: CHINA DOWNTURN AND DOLLAR SQUEEZE

China Growth

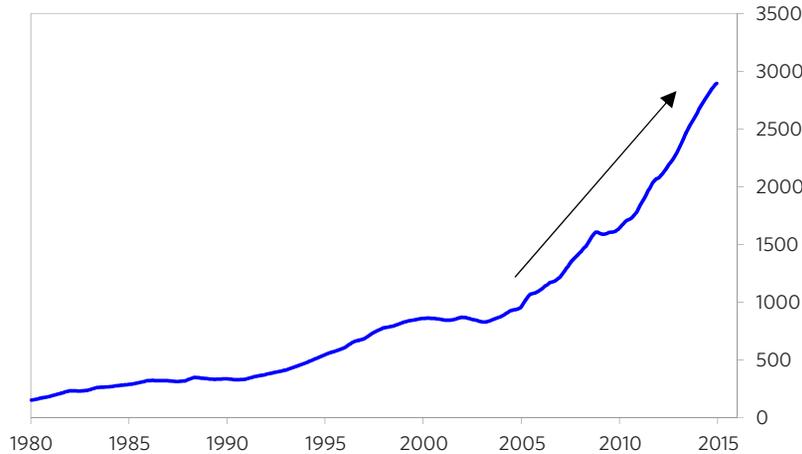


China: Share of Global Growth



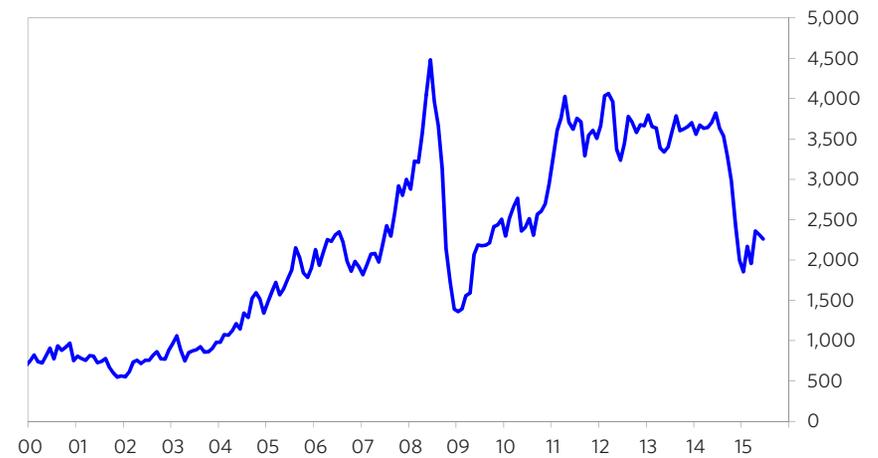
Rising Dollar Debt...

EM ex-China External USD Debt



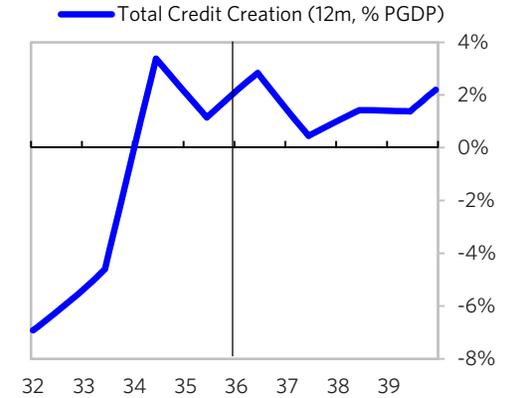
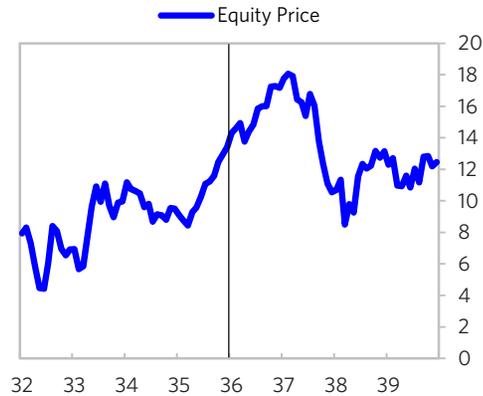
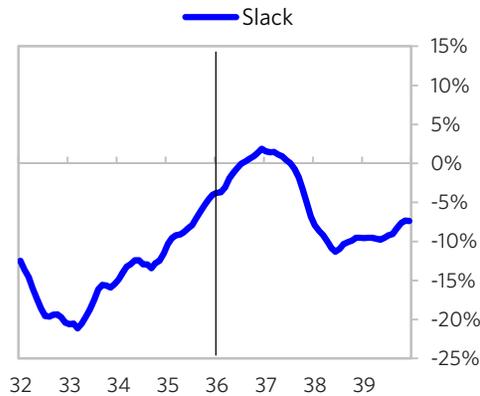
...Falling Dollar Income

Global Commodity Income (USD, bln)

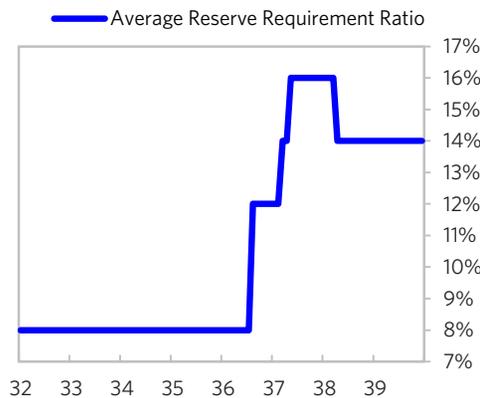


CYCLICAL TIGHTENING IN A SECULAR DELEVERAGING LAST HAPPENED IN 1936

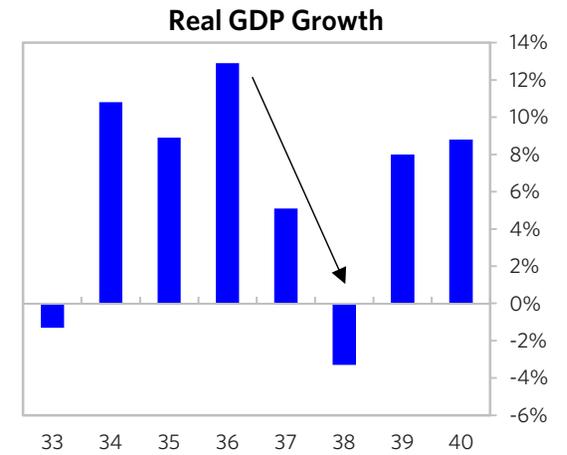
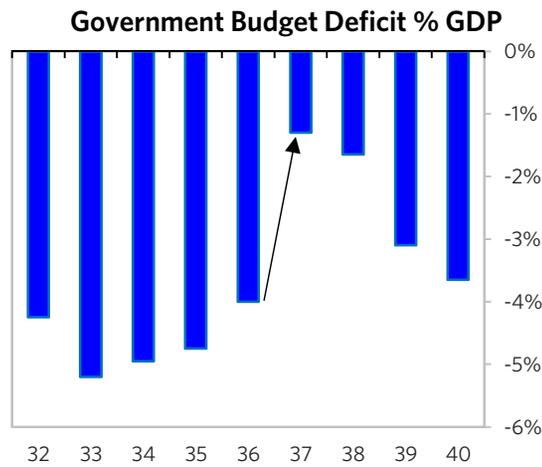
U.S. Conditions in 1936: Normalizing from a Cyclical Perspective



Monetary and fiscal policy tightening ...

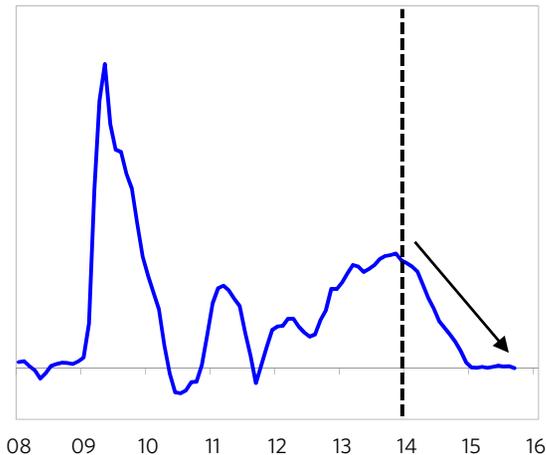


... leads to collapsing growth

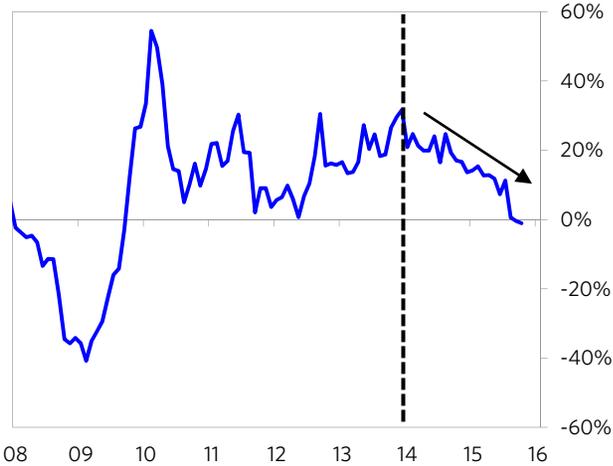


FINANCIAL MARKETS HAVE DONE SOME OF THE TIGHTENING

Quantitative Easing



US Equities (12m rolling return)



Credit Spreads



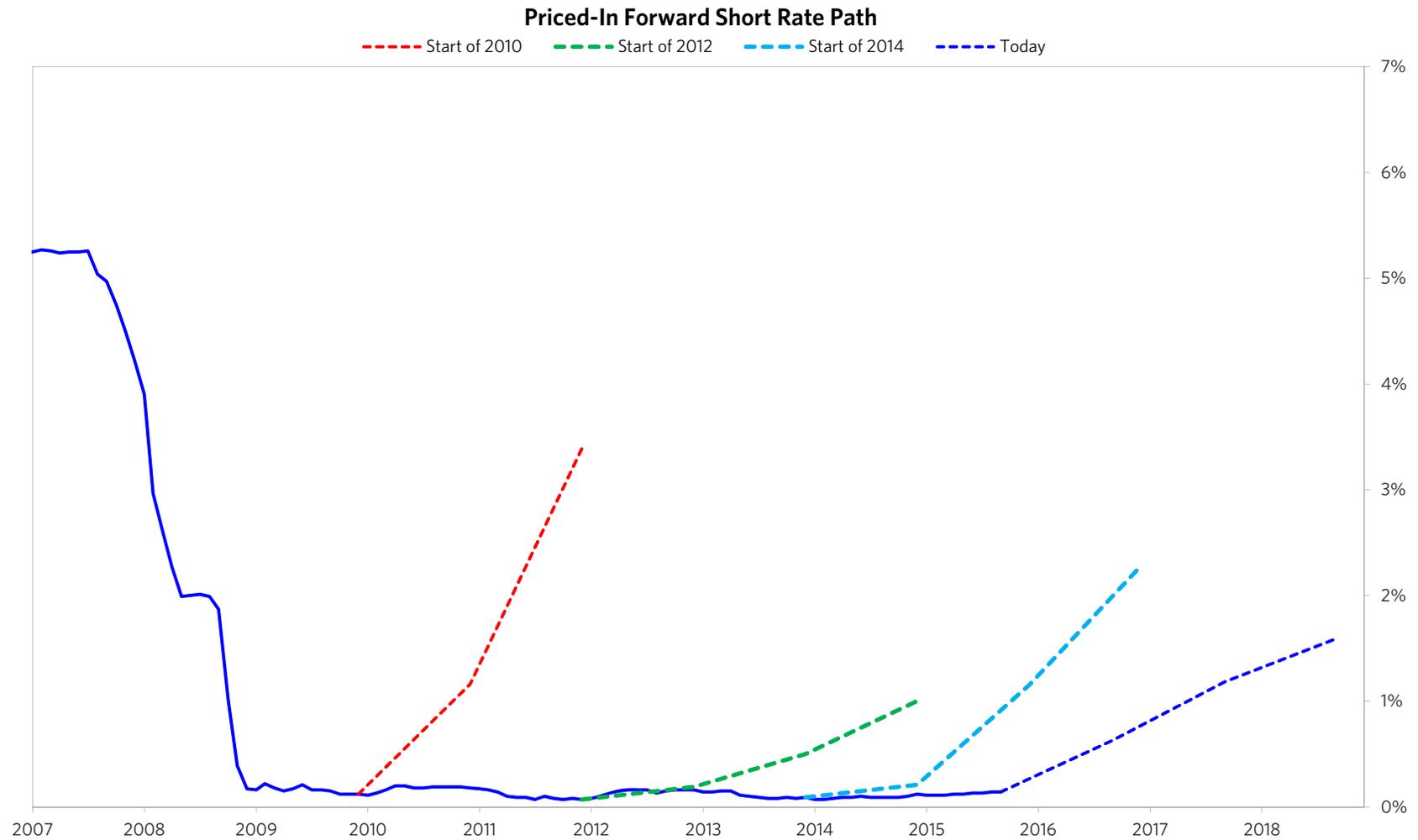
Nominal Dollar Index



Breakeven Inflation

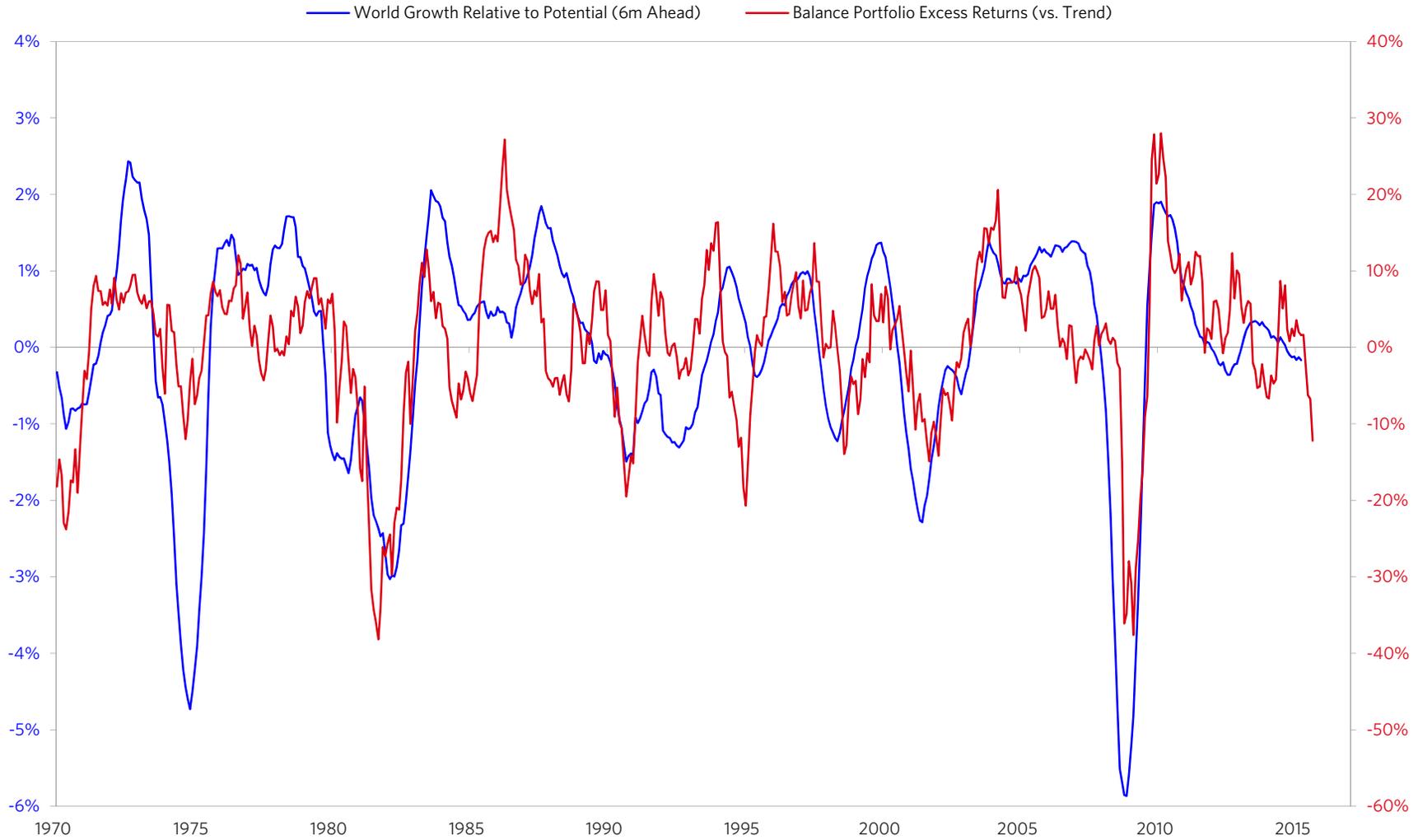


MARKETS HAVE OVERPRICED FED TIGHTENING THROUGHOUT THE DELEVERAGING



THE FED SHOULD BE CAUTIOUS ABOUT TIGHTENING

Future Global Growth vs. Balanced Portfolio Returns



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Independent
Investment Research
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GLOBAL FINANCIAL OUTLOOK

OCTOBER 2015

A Presentation by:

Ian MacFarlane
Chief Strategist, The Bank Credit Analyst
ian@bcaresearch.com

Summary Of Recommendations

Tactical: Oversold based rally should be used as an opportunity to raise cash

Cyclical: Overweight global equities

Strategic: Much better value in equities

Other Suggestions

- › Look for companies who can grow their dividends – growth is at a premium
- › Consumer staples: major beneficiary from lower oil prices
- › Buy calls whenever volatility falls
- › Stay overweight investment grade
- › Oil is due for another dip

Model Medium Risk Portfolio (Common Currency Terms)

MODEL MEDIUM RISK PORTFOLIO (40-60% EQUITIES)		
	WEIGHTING	BENCHMARK RANGE
CASH	2.5%	0-5%
BONDS*	47.5%	35-60%
EQUITIES	50%	40-60%
EQUITY ALLOCATION BY COUNTRY/REGION:		
	ALLOCATION	BENCHMARK WEIGHTING
U.S.	59%	55%
EMU	14%	12%
EM	6%	11%
JAPAN	10%	8%
U.K.	6%	7%
CANADA	3%	4%
AUSTRALIA	2%	3%
BOND ALLOCATION		
	ALLOCATION	BENCHMARK WEIGHTING
GOVERNMENT	65%	73%
INVESTMENT GRADE	30%	22%
HIGH-YIELD	5%	5%

* BELOW-AVERAGE DURATION, OVERWEIGHT CORPORATES.

NOTE: BASED ON 6-MONTH EXPECTED RETURNS IN COMMON CURRENCY TERMS; WEIGHTINGS ARE APPROXIMATE ONLY AND ARE MEANT TO PROVIDE A MEANS OF MONITORING THE PERFORMANCE OF OUR RECOMMENDATIONS.

Global Sector Recommendations

- Maintain defensive positioning. Cyclical/Defensives risk remains to the downside amidst spotty global growth and a commodity bear market.

SECTOR	TACTICAL	STRATEGIC	COMMENTS
Financials	Underweight	Neutral	DM banks face margin and regulatory pressure, and EM banks are under-provisioned. Low Treasury yields will drive earnings disappointments at U.S. banks.
Industrials	Underweight	Neutral	Valuation and growth headwinds remain while pressure on deep cyclicals intensifies. Caterpillar's woes may mark the beginning of a sector-wide trend.
Materials	Underweight	Underweight	Sector most at risk from Chinese struggles. A new commodity supercycle is not at hand.
Consumer Discretionary	Neutral	Underweight	Low yields and cheaper fuel prices will counter-balance extended valuations.
Technology	Neutral	Overweight	Remains a longer-term favorite, and first in line for an upgrade once we position the portfolio less defensively.
Energy	Neutral	Underweight	Oversupplies of crude oil will exert near-term pressure on the services stocks and longer-term pressure on the overall sector.
Telecom	Neutral	Neutral	Offers a haven from growth scares but vulnerable to a normalized rate structure. Very cheap, as befitting a cash-cow sector with sliding cash flows and margins.
Utilities	Neutral	Neutral	Remains the least attractive defensive sector (Staples benefit from low fuel prices, Telecom is cheaper and Health Care offers solid growth).
Consumer Staples	Overweight	Underweight	High-duration characteristics argue for outperformance in lower-for-longer rate environment. Should see a pickup in demand from lower fuel prices once consumers believe they will last.
Healthcare	Overweight	Overweight	Valuations are slightly expensive, but still our favorite defensive sector. A solid mania candidate as demand will benefit from an aging population, rising emerging market incomes and innovation gains.

Global Equity Sector Allocation (Common Currency Terms)

GLOBAL SECTOR ALLOCATION		
	ALLOCATION	BENCHMARK WEIGHTING
ENERGY	7.4%	7.4%
MATERIALS	4.4%	5.4%
INDUSTRIALS	9.5%	10.5%
CONSUMER DISCRETIONARY	12.5%	12.5%
CONSUMER STAPLES*	9.2%	7.2%
HEALTHCARE	14.2%	12.2%
FINANCIALS**	7.0%	7.0%
INFO TECH	13.9%	13.9%
TELECOM	3.7%	3.7%
UTILITIES	3.2%	3.2%
BANKS	8.3%	10.3%
INSURANCE	4.2%	4.2%
FOOD	2.5%	2.5%

* EXCLUDES FOOD.

** EXCLUDES BANKS AND INSURANCE.

NOTE: EXPRESSED IN COMMON CURRENCY TERMS; WEIGHTINGS ARE APPROXIMATE ONLY AND ARE MEANT TO PROVIDE A MEANS OF MONITORING THE PERFORMANCE OF OUR RECOMMENDATIONS.

Model High Risk Portfolio (Common Currency Terms)

MODEL HIGH RISK PORTFOLIO (20-80% EQUITIES)		
	WEIGHTING	BENCHMARK RANGE
CASH	2.5%	0-5%
BONDS*	47.5%	15-80%
EQUITIES	50%	20-80%
EQUITY ALLOCATION BY COUNTRY/REGION:		
	ALLOCATION	BENCHMARK WEIGHTING
U.S.	62%	55%
EMU	16%	12%
EM	1%	11%
JAPAN	12%	8%
U.K.	5%	7%
CANADA	2%	4%
AUSTRALIA	2%	3%
BOND ALLOCATION		
	ALLOCATION	BENCHMARK WEIGHTING
GOVERNMENT	60%	68%
INVESTMENT GRADE	30%	22%
HIGH-YIELD	10%	10%

* BELOW-AVERAGE DURATION, OVERWEIGHT CORPORATES.

NOTE: BASED ON 6-MONTH EXPECTED RETURNS IN COMMON CURRENCY TERMS; WEIGHTINGS ARE APPROXIMATE ONLY AND ARE MEANT TO PROVIDE A MEANS OF MONITORING THE PERFORMANCE OF OUR RECOMMENDATIONS.

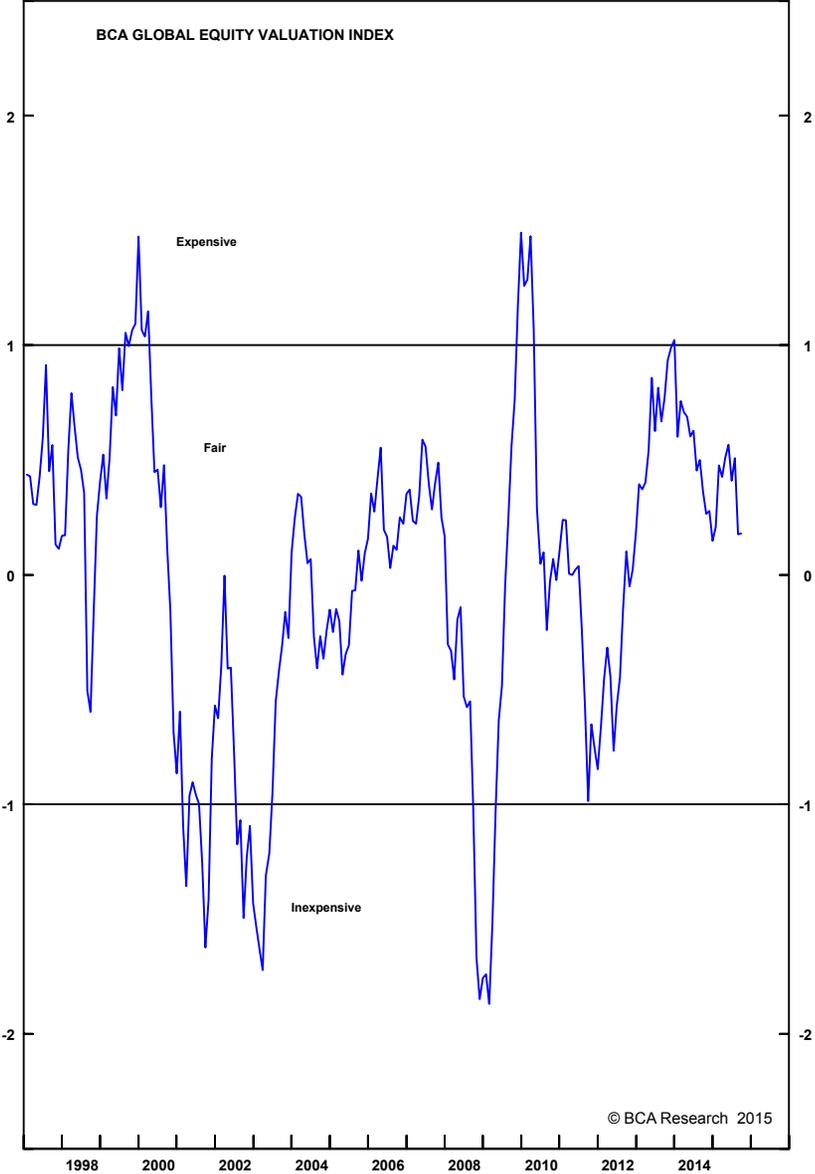
SECTOR ALLOCATION		
	ALLOCATION	BENCHMARK WEIGHTING
ENERGY	7.4%	7.4%
MATERIALS	3.4%	5.4%
INDUSTRIALS	8.5%	10.5%
CONSUMER DISCRETIONARY	12.5%	12.5%
CONSUMER STAPLES*	11.2%	7.2%
HEALTHCARE	16.2%	12.2%
FINANCIALS**	7.0%	7.0%
INFO TECH	13.9%	13.9%
TELECOM	3.7%	3.7%
UTILITIES	3.2%	3.2%
BANKS	6.3%	10.3%
INSURANCE	4.2%	4.2%
FOOD	2.5%	2.5%

* EXCLUDES FOOD.

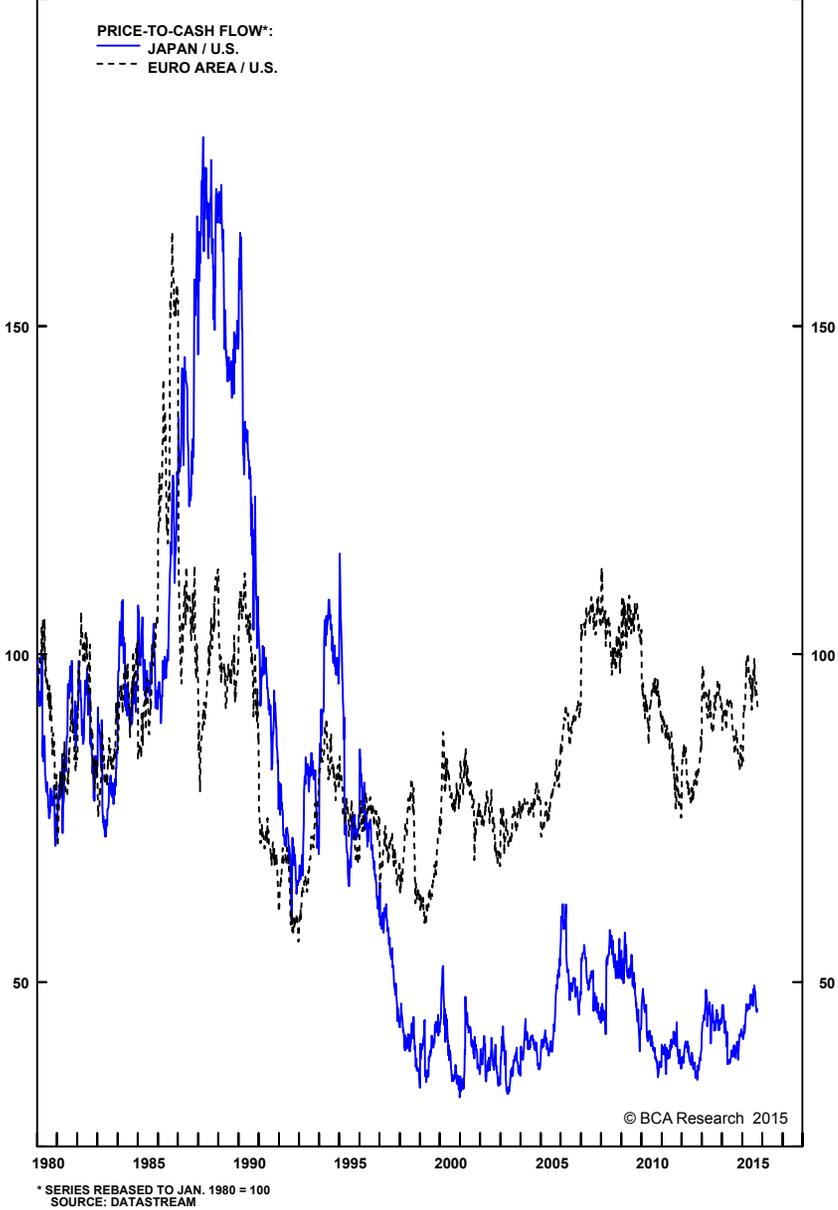
** EXCLUDES BANKS AND INSURANCE.

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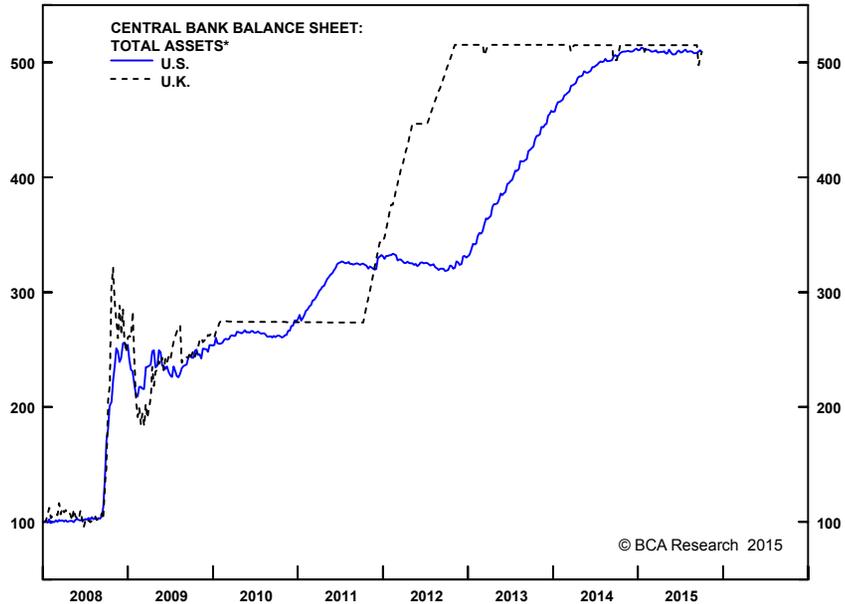
Global Equities Are Fairly Priced



The Better Value Is In Japan

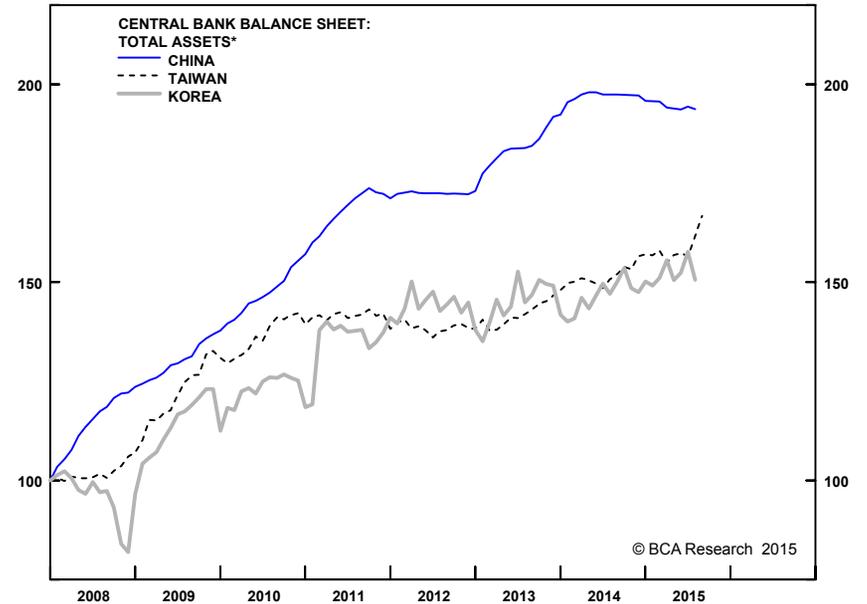


Less Supportive Global Liquidity Backdrop

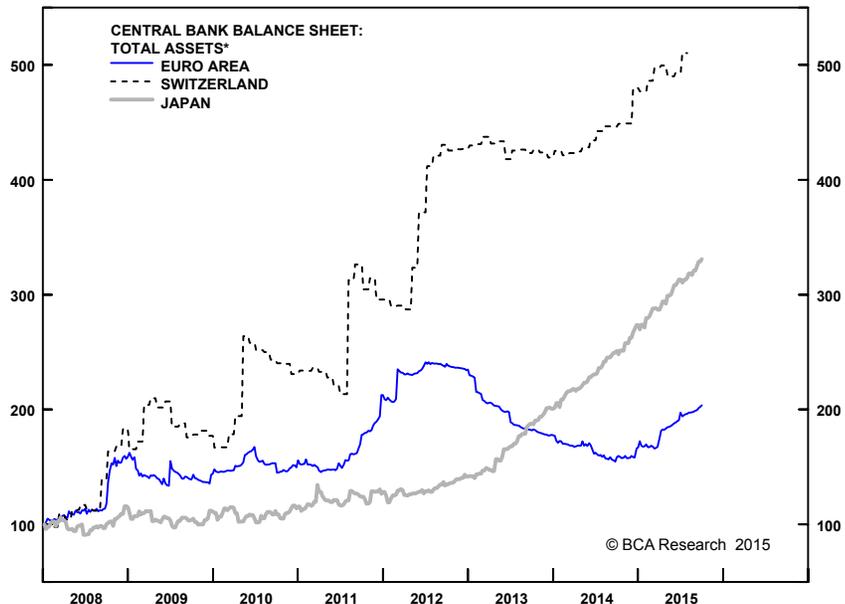


* REBASED TO JANUARY 2008 = 100; LOCAL CURRENCY.

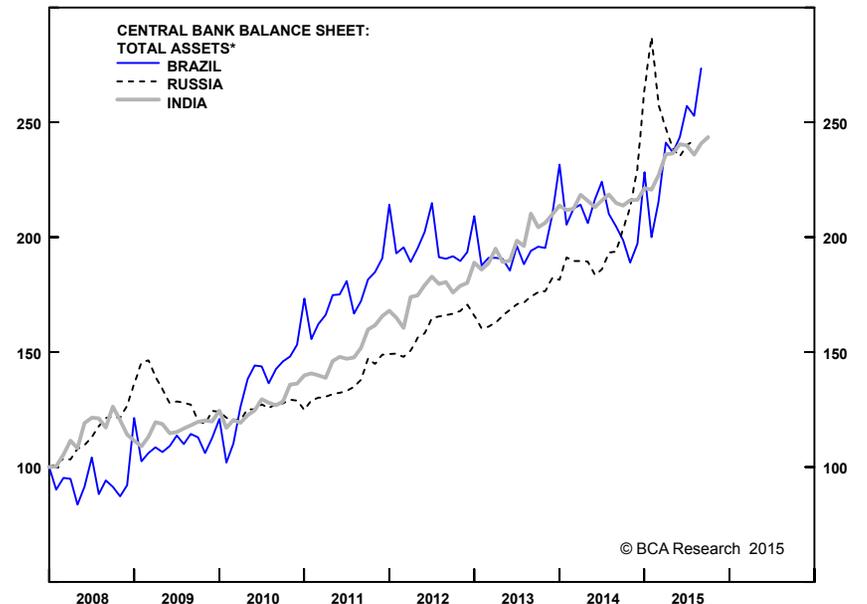
In The Emerging Markets As Well



* REBASED TO JANUARY 2008 = 100; LOCAL CURRENCY.

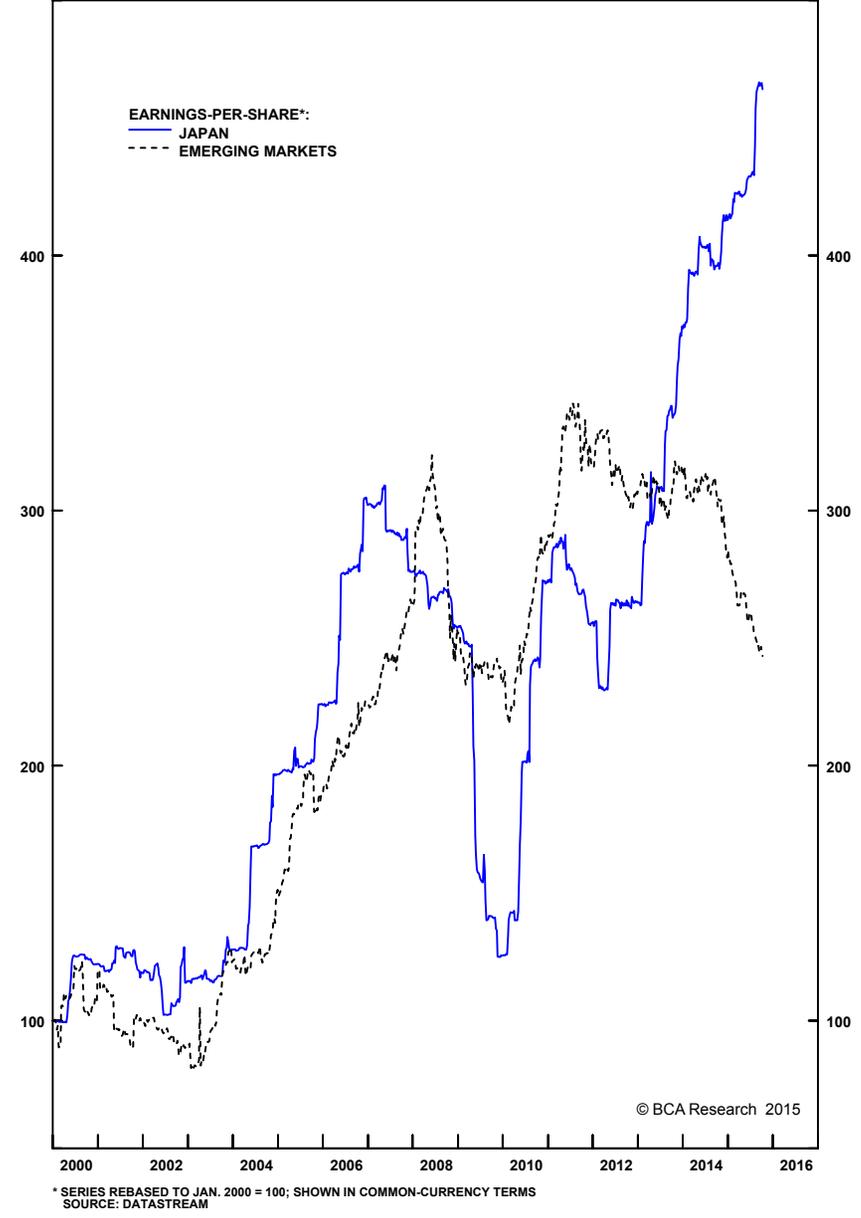
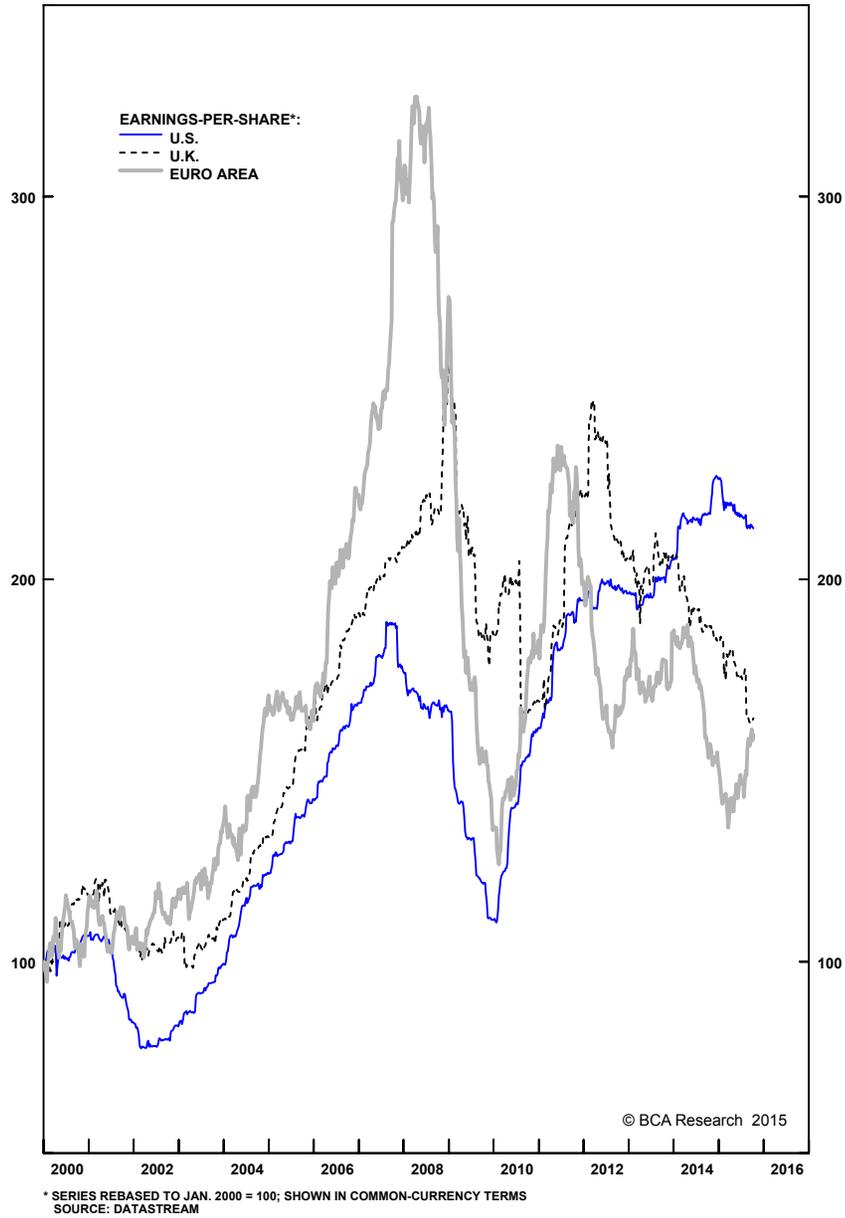


* REBASED TO JANUARY 2008 = 100; LOCAL CURRENCY.

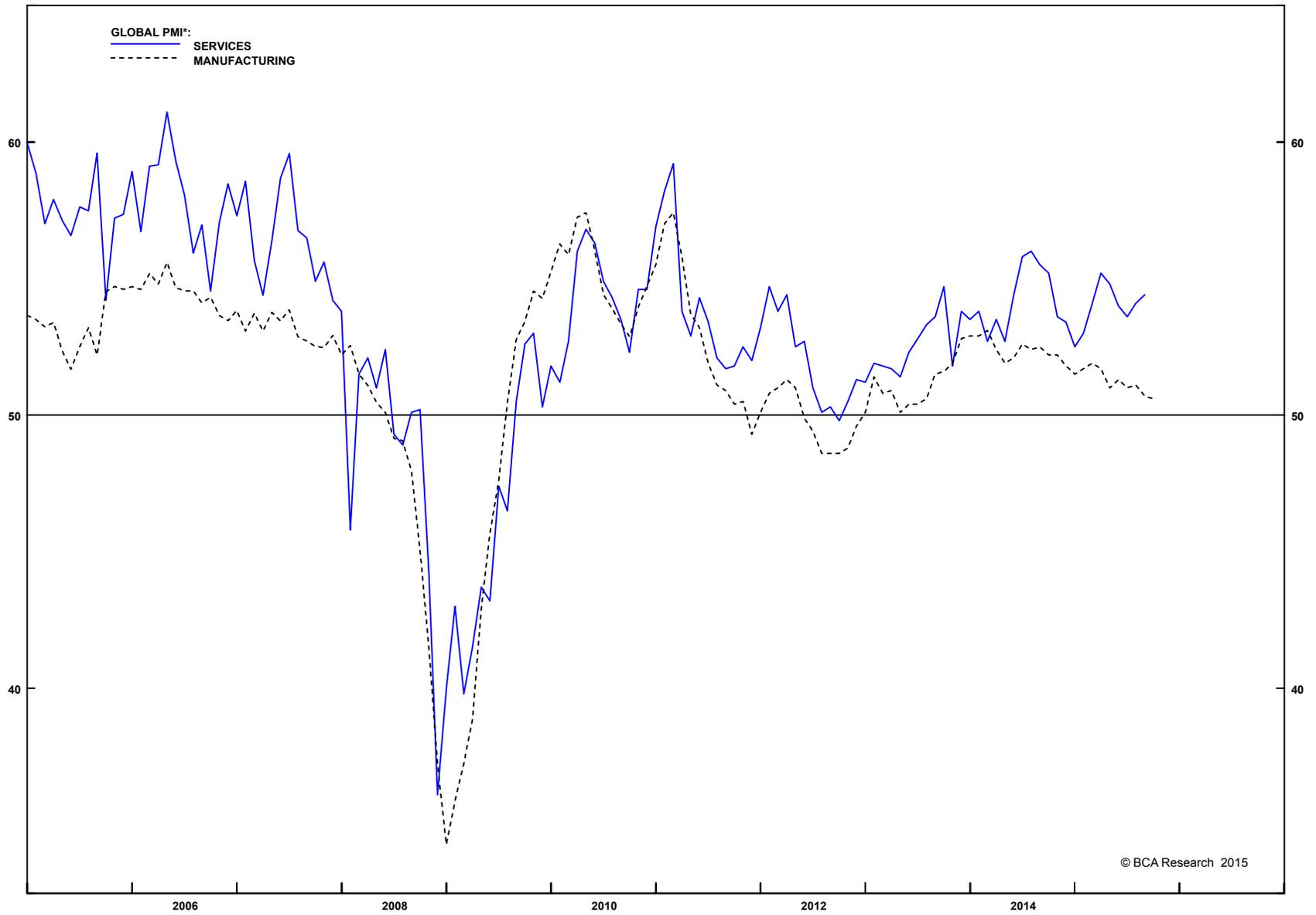


* REBASED TO JANUARY 2008 = 100; LOCAL CURRENCY.

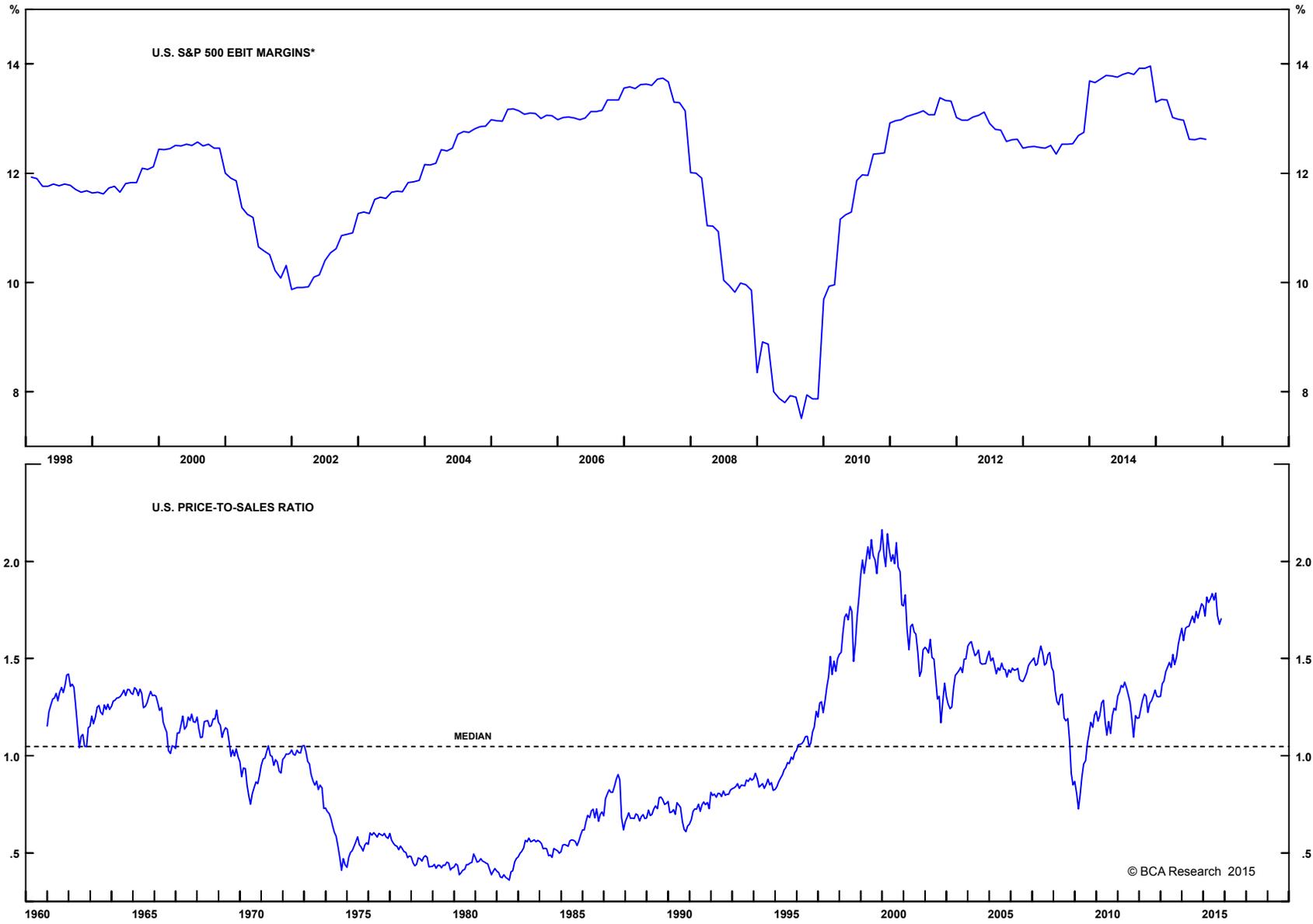
Earnings Growth Is Weak Everywhere But Japan



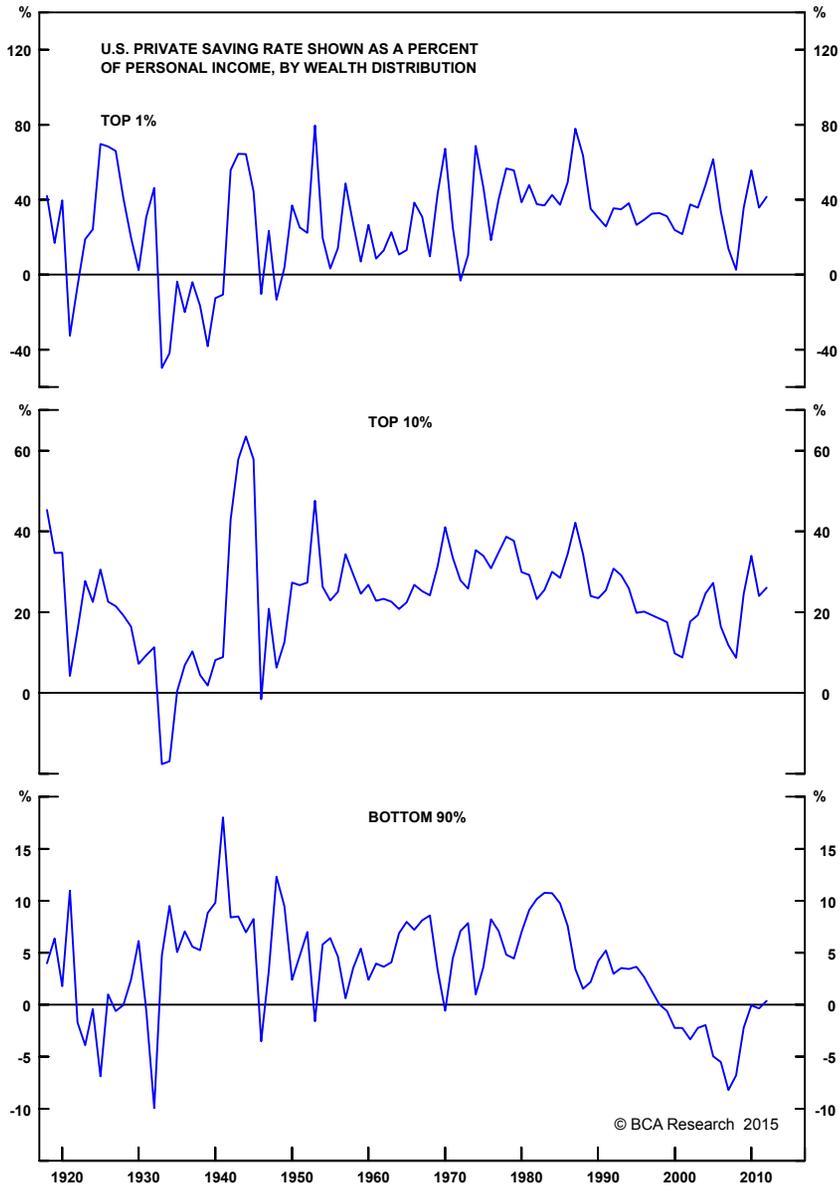
How Long Can The Divergence Persist?



Margins Are Increasingly Vulnerable

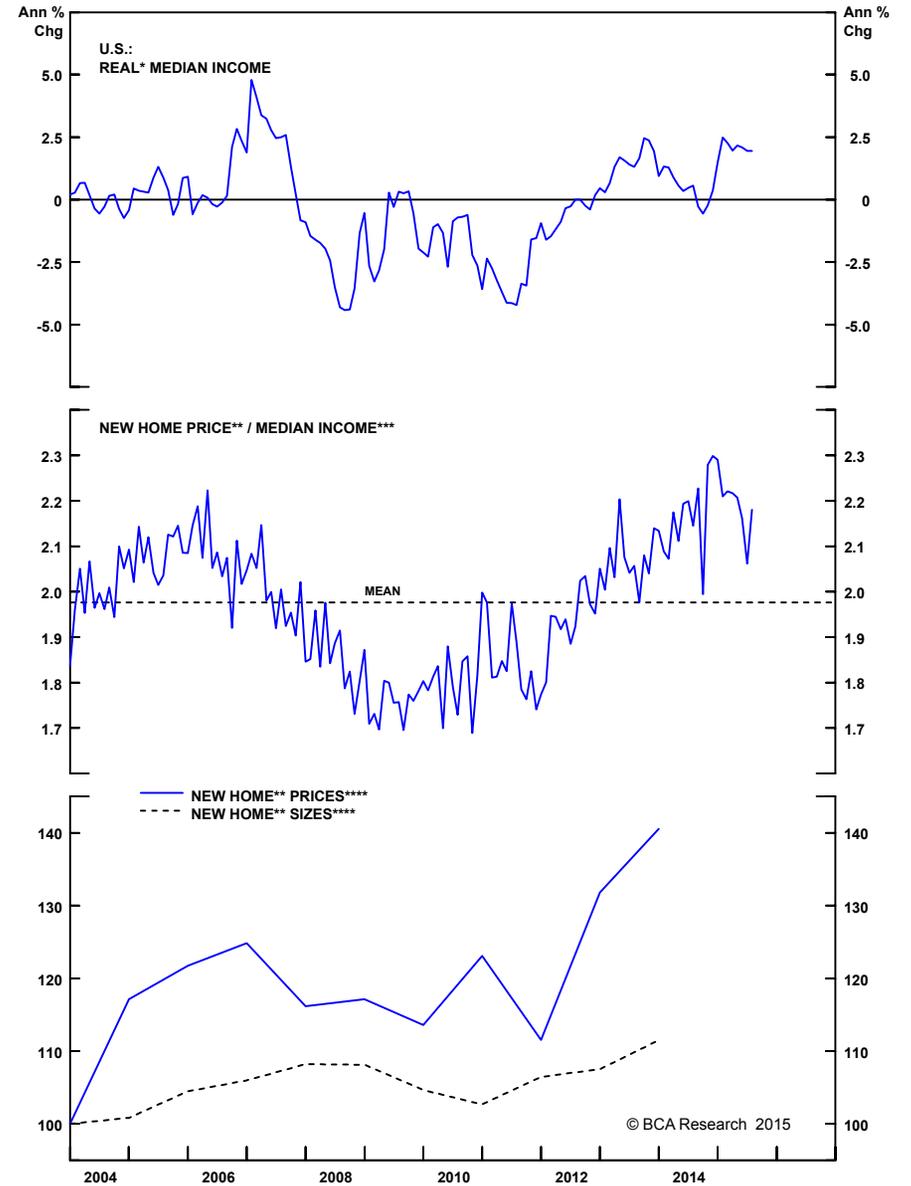


Inequality Depresses Growth



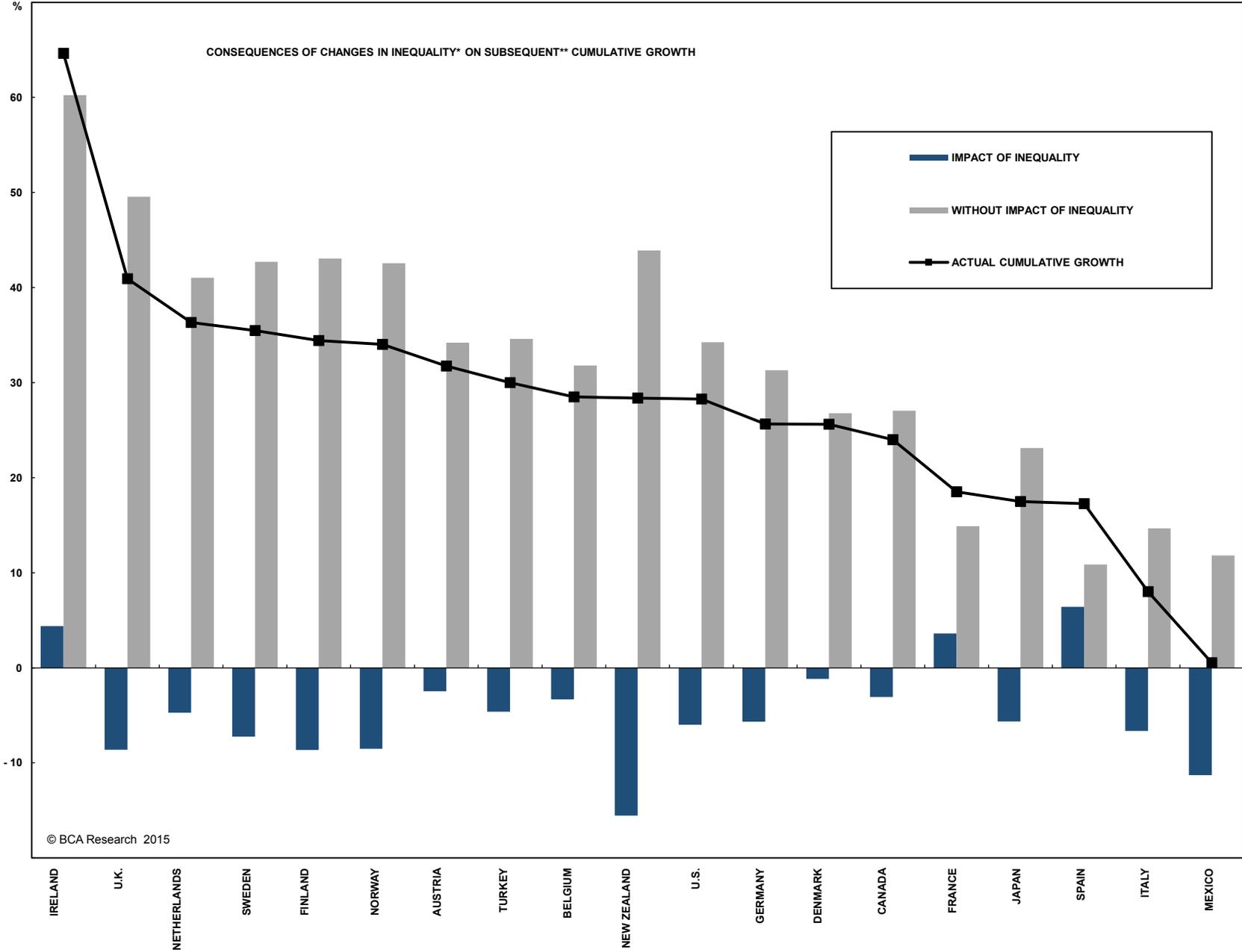
SOURCE: EMMANUEL SAEZ AND GABRIEL ZUCMAN, "WEALTH INEQUALITY IN THE UNITED STATES SINCE 1913: EVIDENCE FROM CAPITALIZED INCOME TAX DATA", NBER WORKING PAPER NO. 20625 (OCTOBER, 2014).

Income Growth At The Bottom Has Been Weak



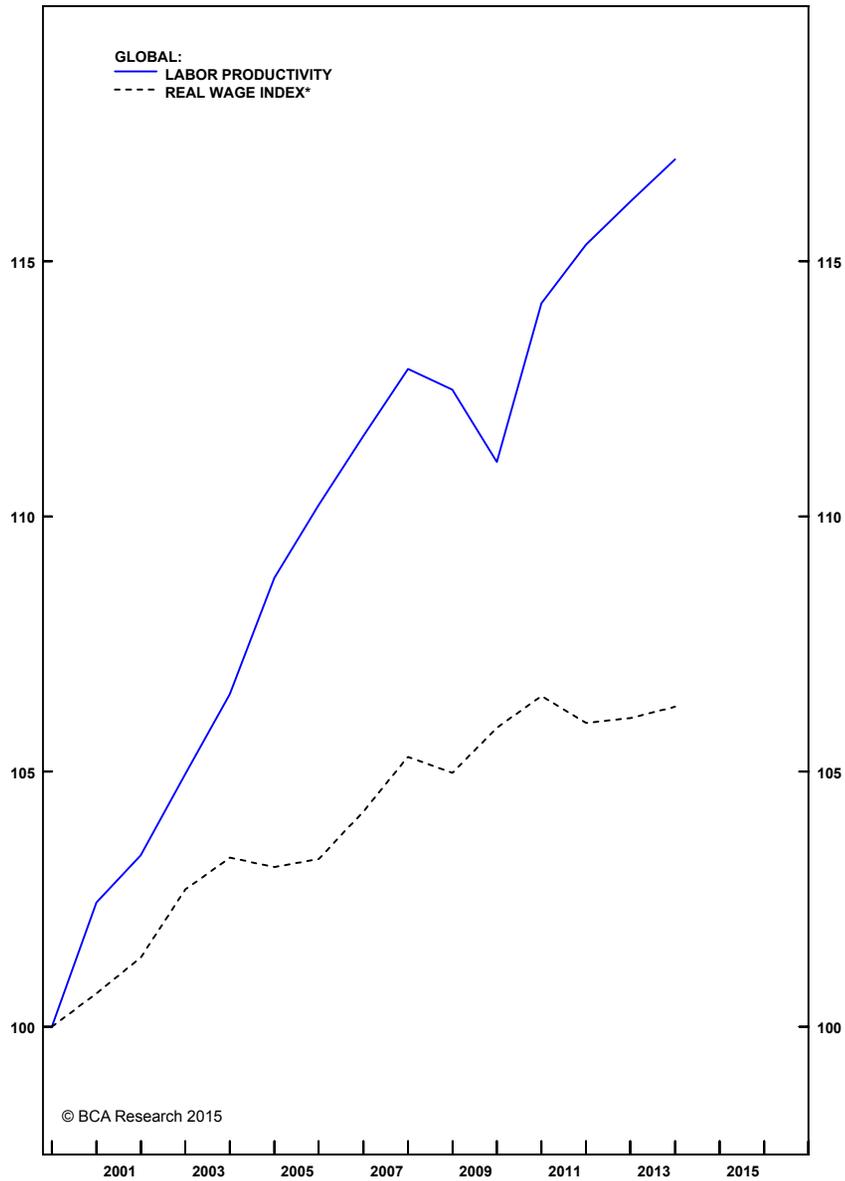
* DEFLATED BY CONSUMER PRICE INDEX
 ** SOURCE: U.S. CENSUS BUREAU
 *** SOURCE: NATIONAL ASSOCIATION OF REALTORS.
 **** SERIES REBASED TO 2003 = 100.

It's Got Much Worse Since 2010!



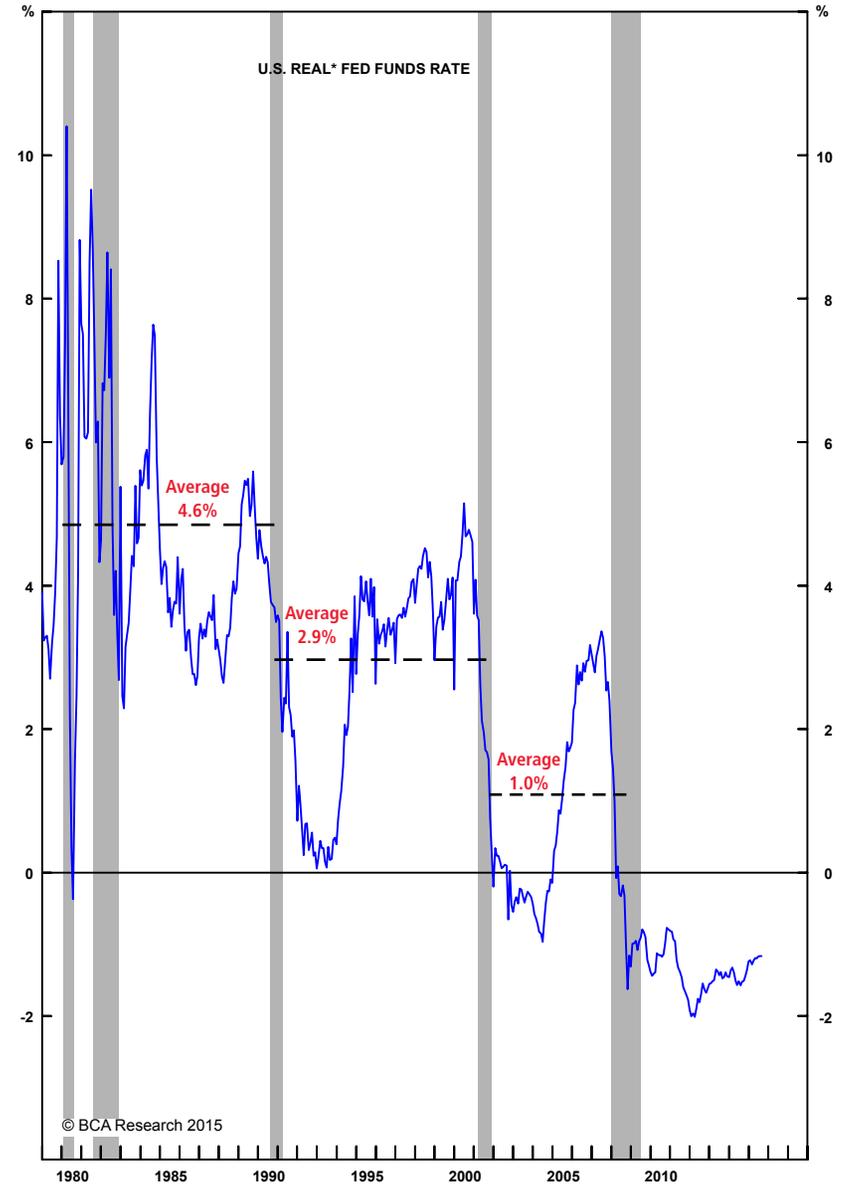
SOURCE: OECD.
 * ESTIMATED; FROM 1985-2005.
 ** FROM 1990-2010.

How Long Can This Continue?



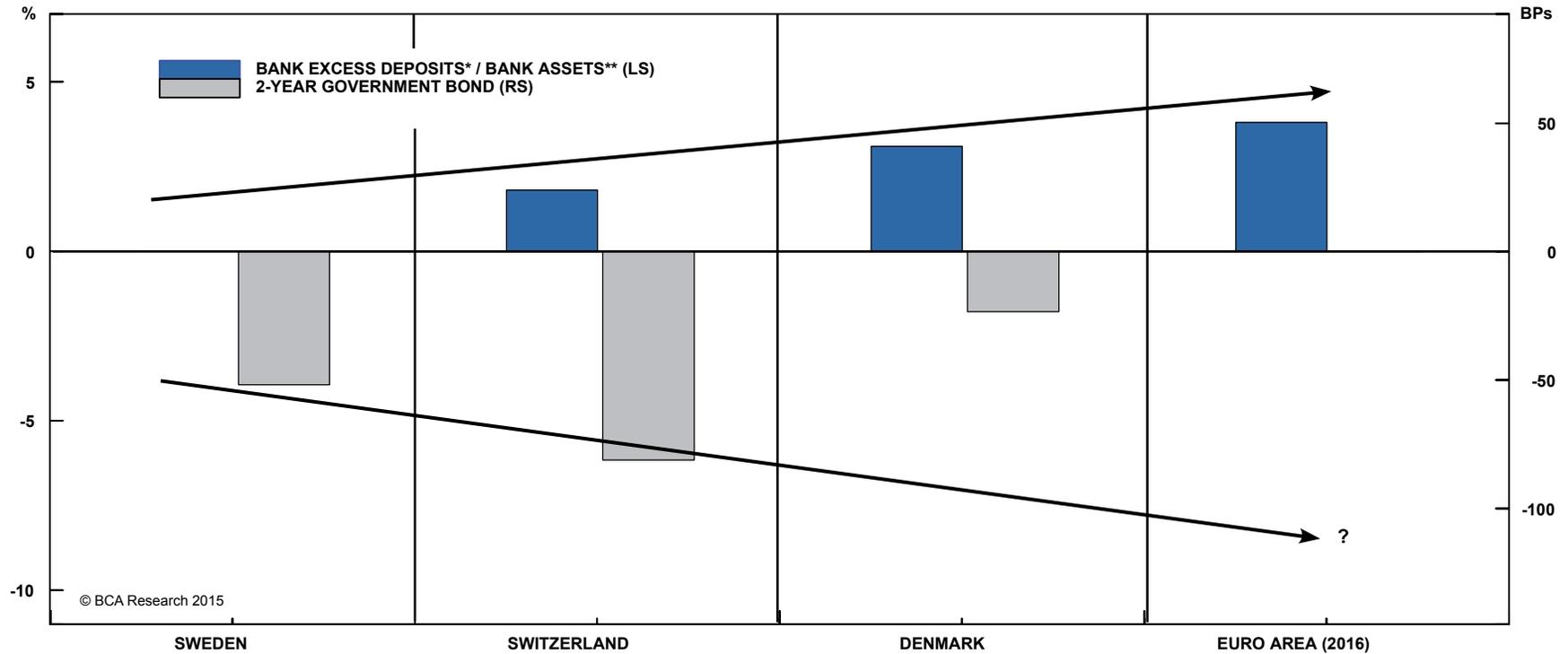
NOTE: ALL SERIES REBASED TO 1999 = 100.
 * SOURCE: ILO GLOBAL WAGE REPORT 2014/15.

Lower Rates Are Here To Stay



* DEFLATED BY CORE PERSONAL CONSUMPTION EXPENDITURE DEFLATOR.
 NOTE: THE HORIZONTAL DASHED LINES REPRESENT PEAK-TO-PEAK AVERAGES OVER NBER-DESIGNATED BUSINESS CYCLES; THE 1980s RECESSIONS ARE TREATED AS ONE CYCLE.
 THE SHADED AREAS REPRESENT NBER-DESIGNATED RECESSIONS.

The European Central Banks Have A Strong Grip



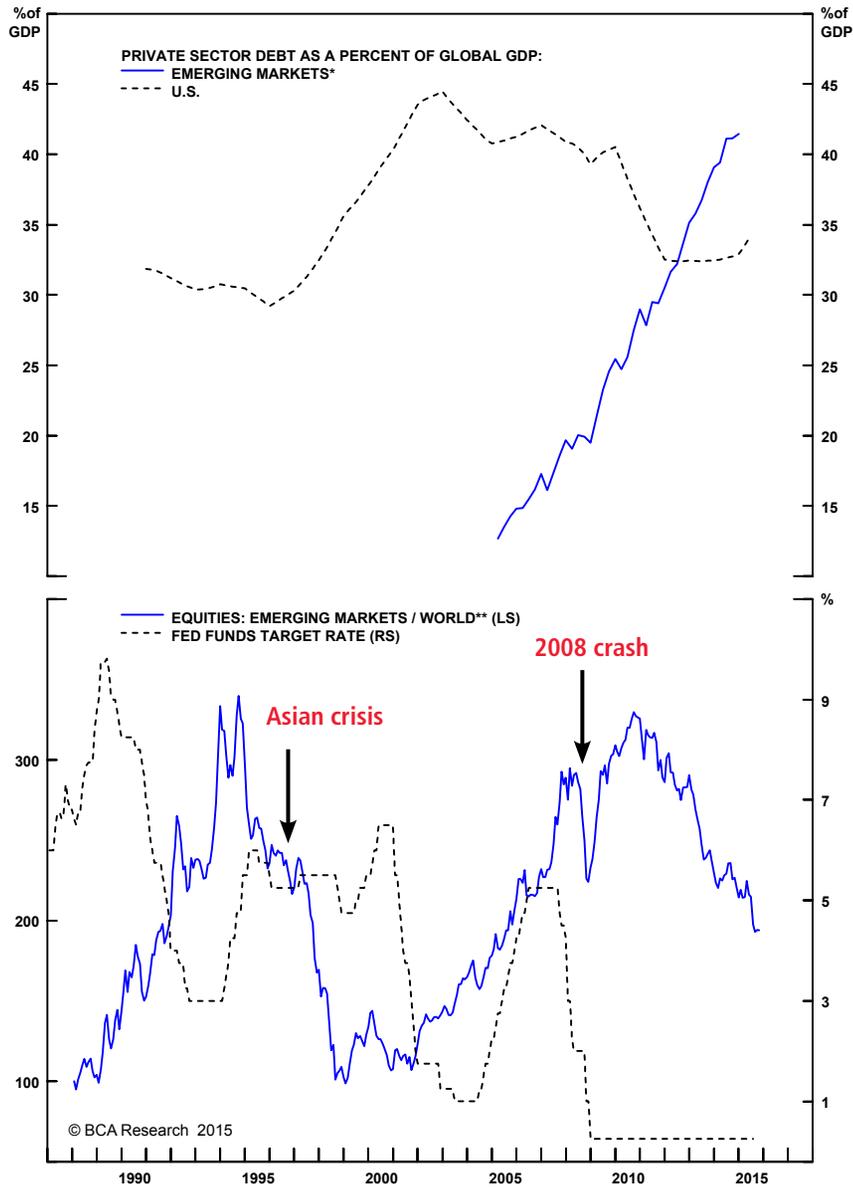
* BANK DEPOSITS SUBJECT TO NEGATIVE DEPOSIT RATE.
 ** TOTAL ASSETS OF MONETARY FINANCIAL INSTITUTIONS (MFIs) EXCLUDING NATIONAL CENTRAL BANK.

But Turning Points In The Secular Bond Cycle Are Violent

	OLD CYCLE END DATE	CYCLE CLOSE*	TROUGH DATE	TROUGH CLOSE*	MAXIMUM DRAWDOWN	TIME TO MAX DRAWDOWN
CYCLE I	12/31/1899	68.13	9/24/1900	52.96	-22.3%	9 MONTHS
CYCLE II	6/30/1920	90.76	8/24/1921	63.90	-29.6%	14 MONTHS
CYCLE III	10/31/1941	9.50	4/28/1942	7.47	-21.4%	6 MONTHS
CYCLE IV	9/30/1981	116.18	8/12/1982	102.42	-11.8%	10.5 MONTHS
				MEDIAN	-21.8%	9.8 MONTHS
				MEAN	-21.3%	9.9 MONTHS

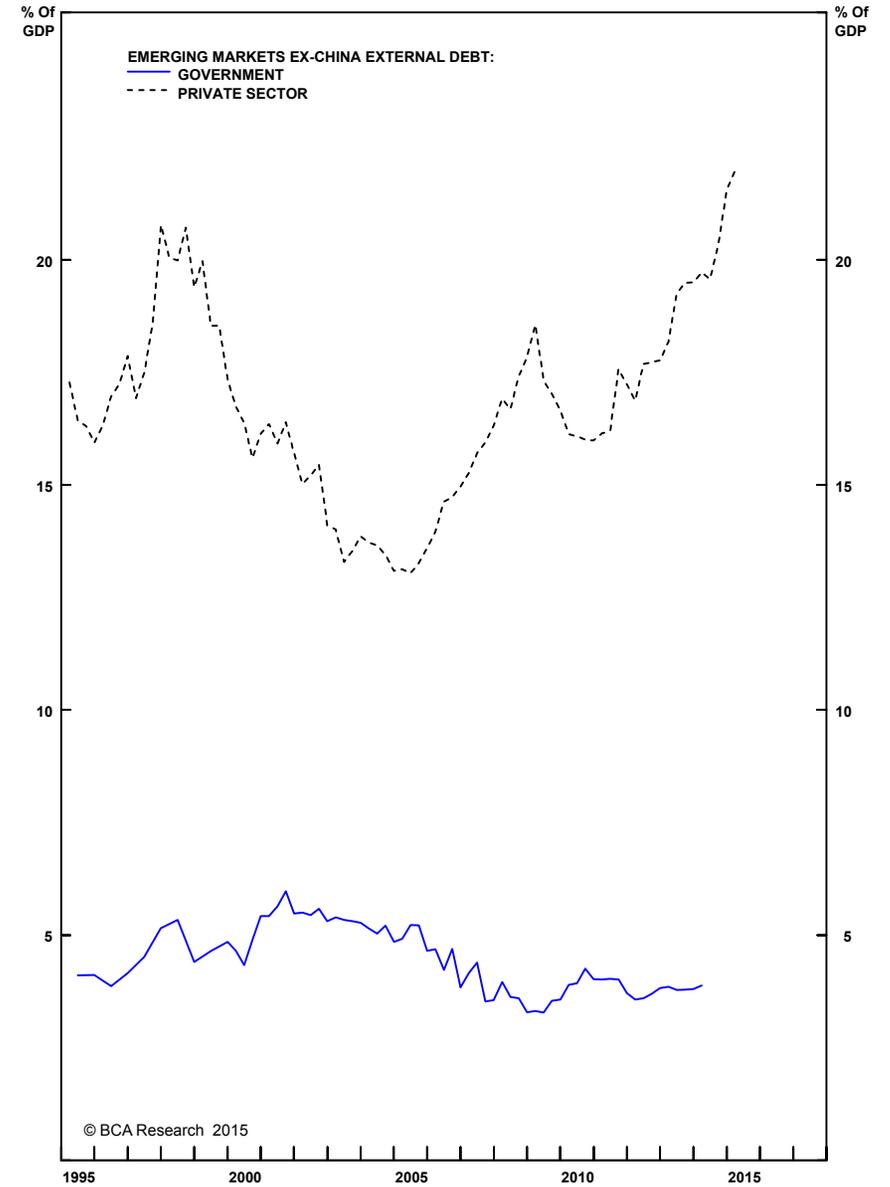
* DOW JONES INDUSTRIALS FOR CYCLES I AND II, S&P 500 FOR CYCLES III AND IV.

Emerging Market Very Sensitive To Rate Increases



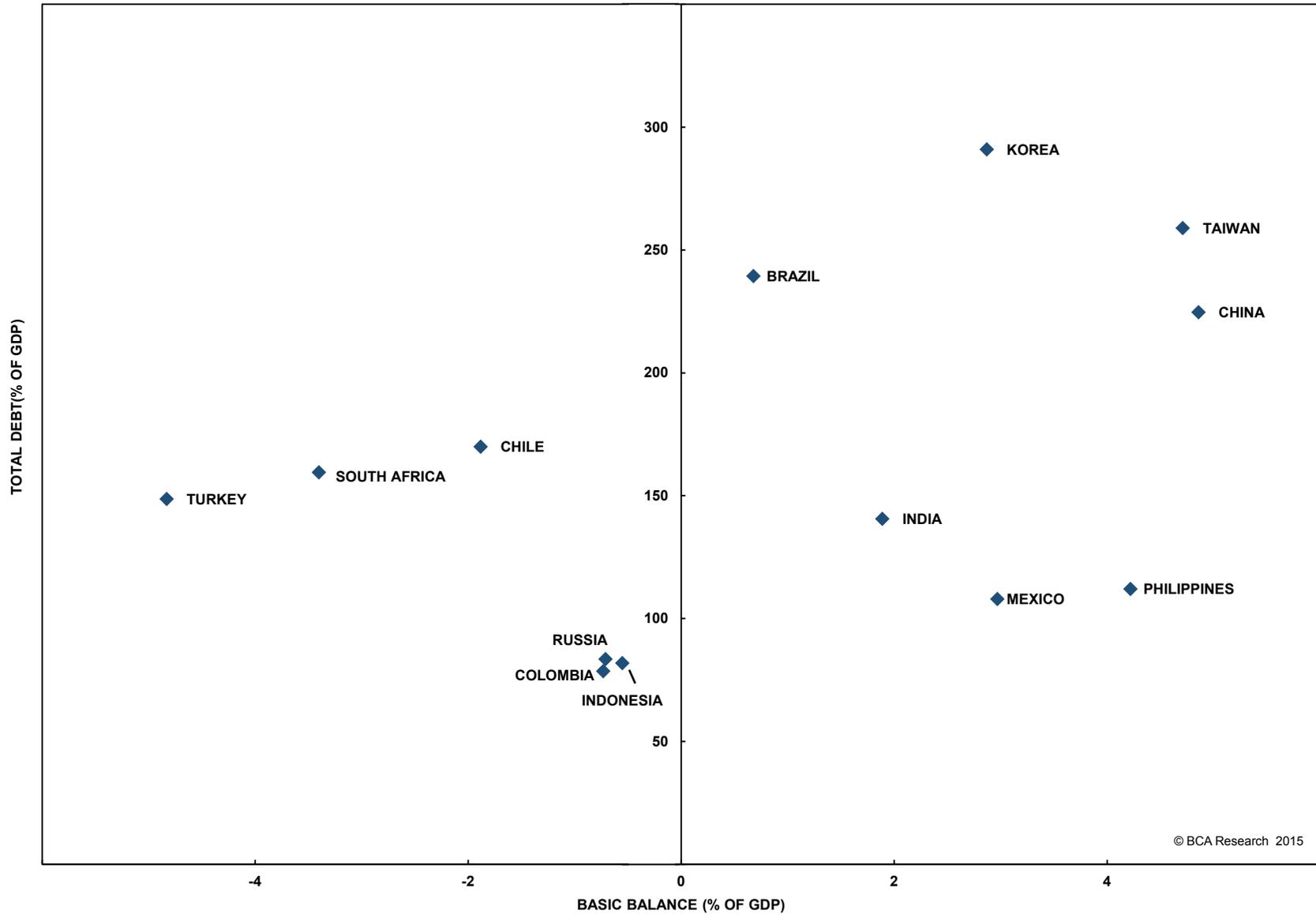
* SOURCE: IMF AND BIS; CHINA PRIVATE SECTOR DEBT IS CALCULATED AS CUMULATIVE TOTAL SOCIAL FINANCING EXCLUDING EQUITY ISSUANCE BY NON-FINANCIAL CORPORATIONS PLUS NON-BANK INTERNATIONAL DEBT SECURITIES AND FOREIGN BANK CLAIMS ON THE NON-BANK CORPORATE SECTOR.
 ** SHOWN IN COMMON-CURRENCY TERMS.

External Debt Now Back To 1990's Levels

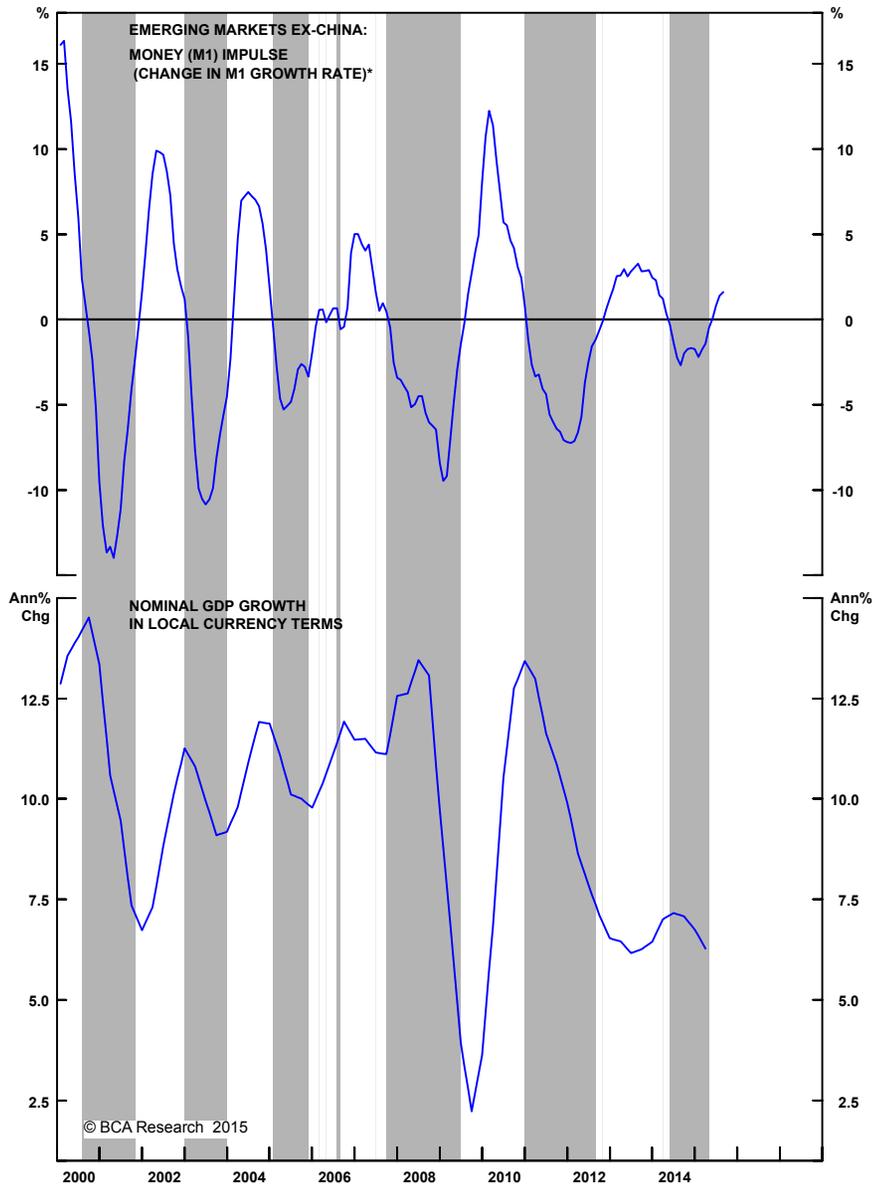


SOURCE: BIS.

Some Countries Are Very Vulnerable To Short-Term Outflows

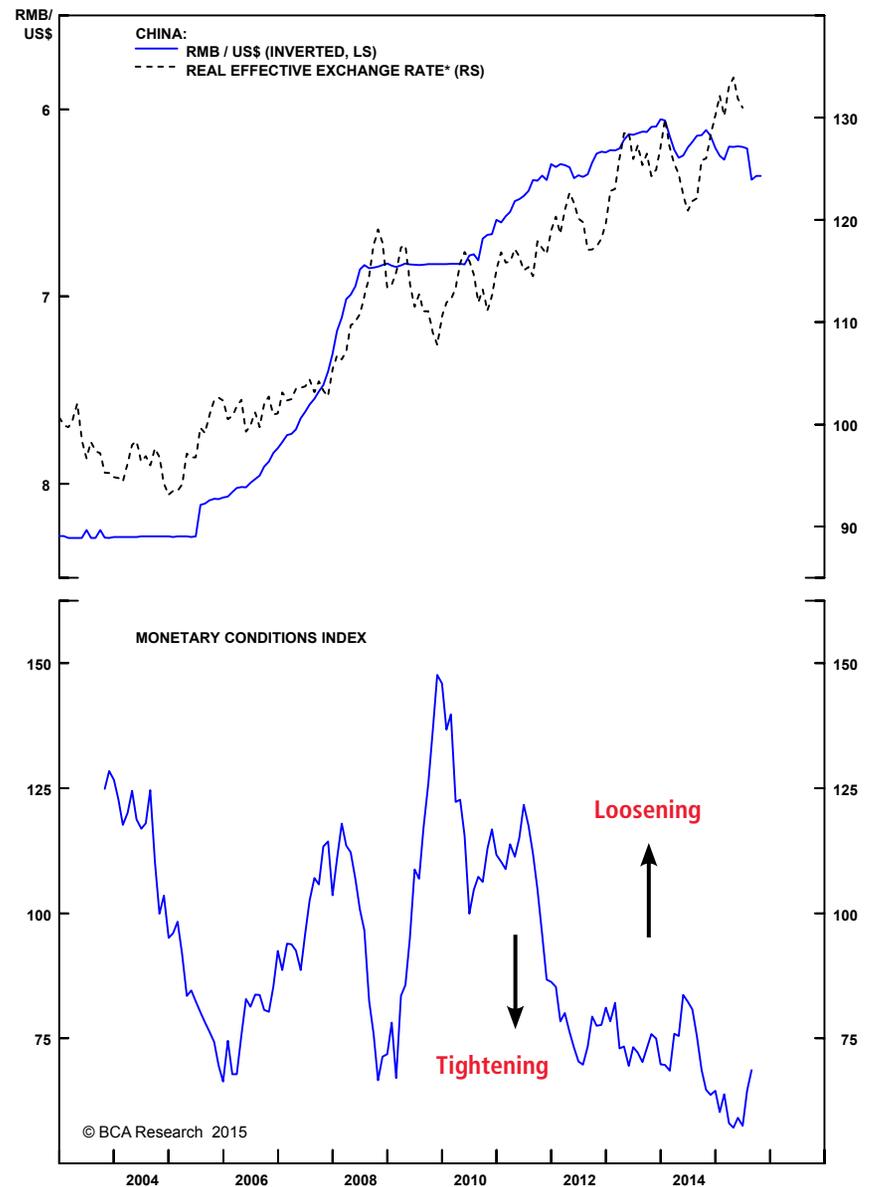


Emerging Markets Monetary Trends Are Not Supportive



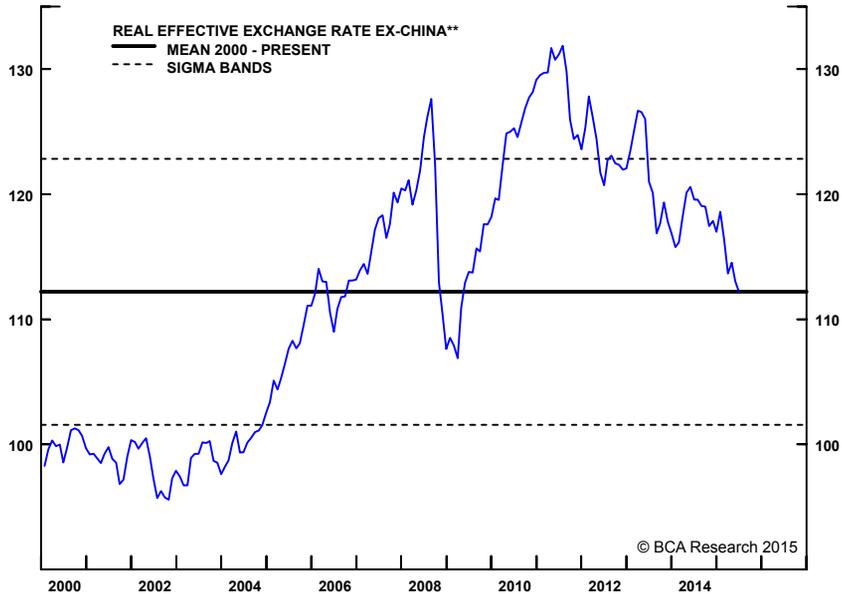
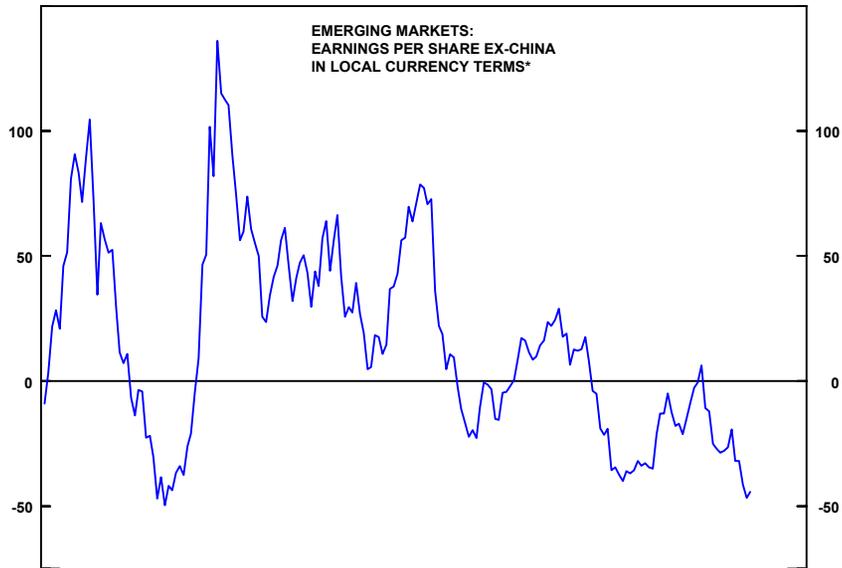
* 12-MONTH CHANGE IN ANNUAL GROWTH RATE
NOTE: THE SHADING DENOTES PERIODS WHEN THE SECOND
DERIVATIVE OF (M1) - MONEY IMPULSE - WAS NEGATIVE

China Monetary Conditions Are Still Tight



* SOURCE: J.P. MORGAN CHASE & CO.

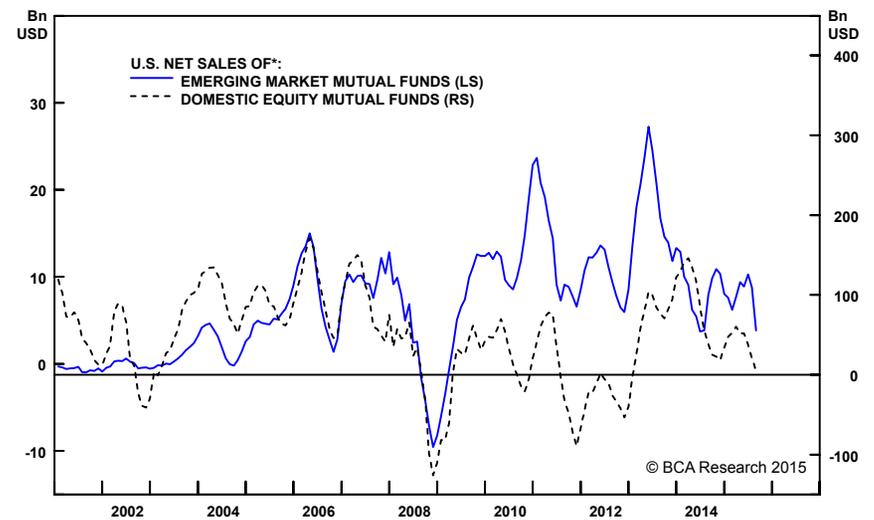
Emerging Markets: Earnings Still Heavily Dependent On Currency Weakening



* CALCULATED AS MARKET VALUE DIVIDED BY PRICE-TO-EARNINGS RATIO SHOWN AS A 6-MONTH MOVING AVERAGE; SOURCE: MSCI INC. (SEE COPYRIGHT DECLARATION)

** GDP-WEIGHTED AVERAGE OF ARGENTINA, BRAZIL, CHILE, CHINA, HONG KONG, HUNGARY, INDIA, INDONESIA, KOREA, MALAYSIA, MEXICO, PHILIPPINES, POLAND, SINGAPORE, SOUTH AFRICA, TAIWAN, THAILAND AND TURKEY. SOURCE: J.P. MORGAN CHASE & CO.

There Is Still Scope For Capital Flight



* SHOWN AS A 6-MONTH MOVING TOTAL; SOURCE: INVESTMENT COMPANY INSTITUTE.

Emerging Markets Allocations

EM EQUITY RECOMMENDATIONS

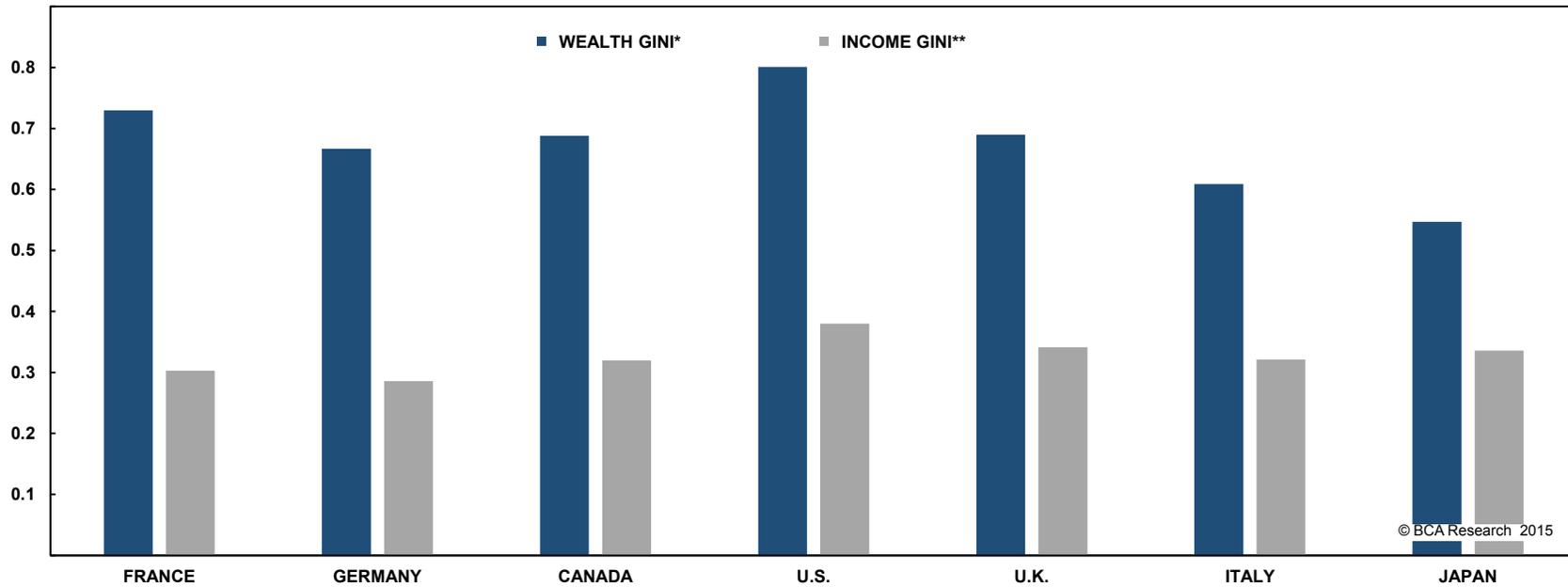
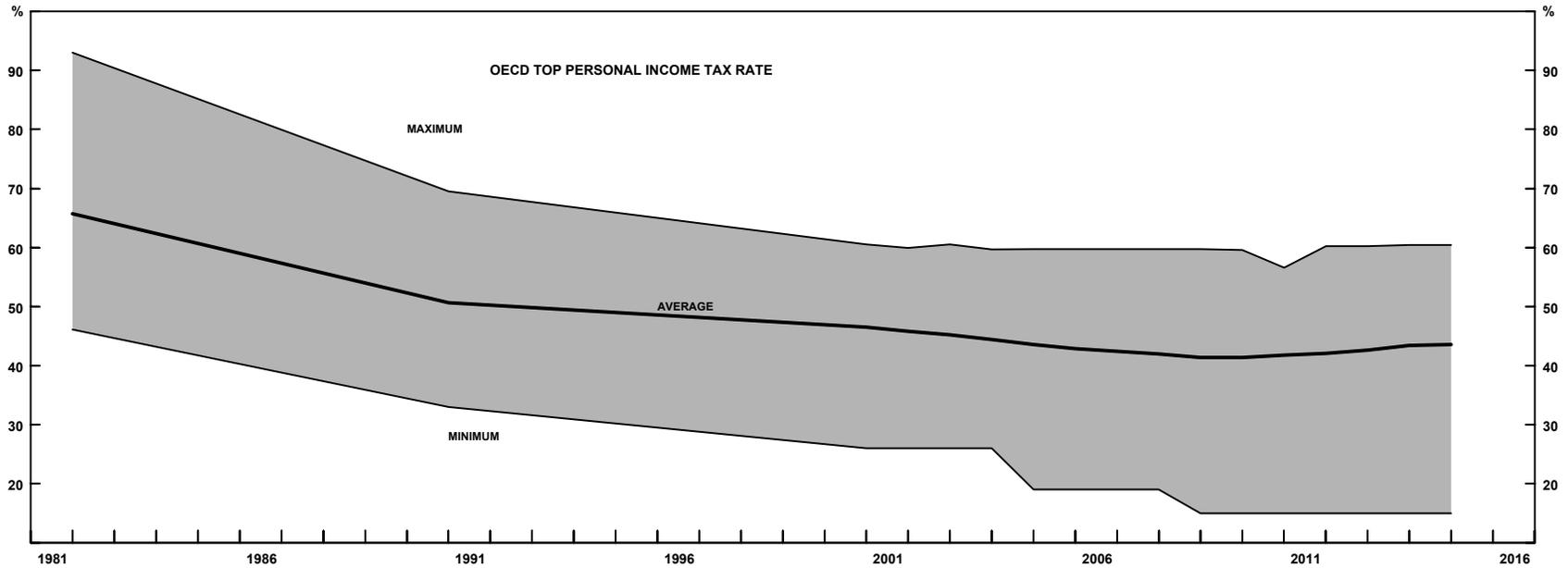
OVERWEIGHT

TAIWAN
KOREAN IT SECTOR
SINGAPORE
HUNGARY
PHILIPPINES
CZECH REPUBLIC
MEXICO
CHINA

UNDERWEIGHT

SOUTH AFRICA
THAILAND
INDONESIA
TURKEY
KOREA (EXCLUDING IT & BANKS)
BRAZIL
COLOMBIA

Globally The Threat Of Tax Increases Is Very Real



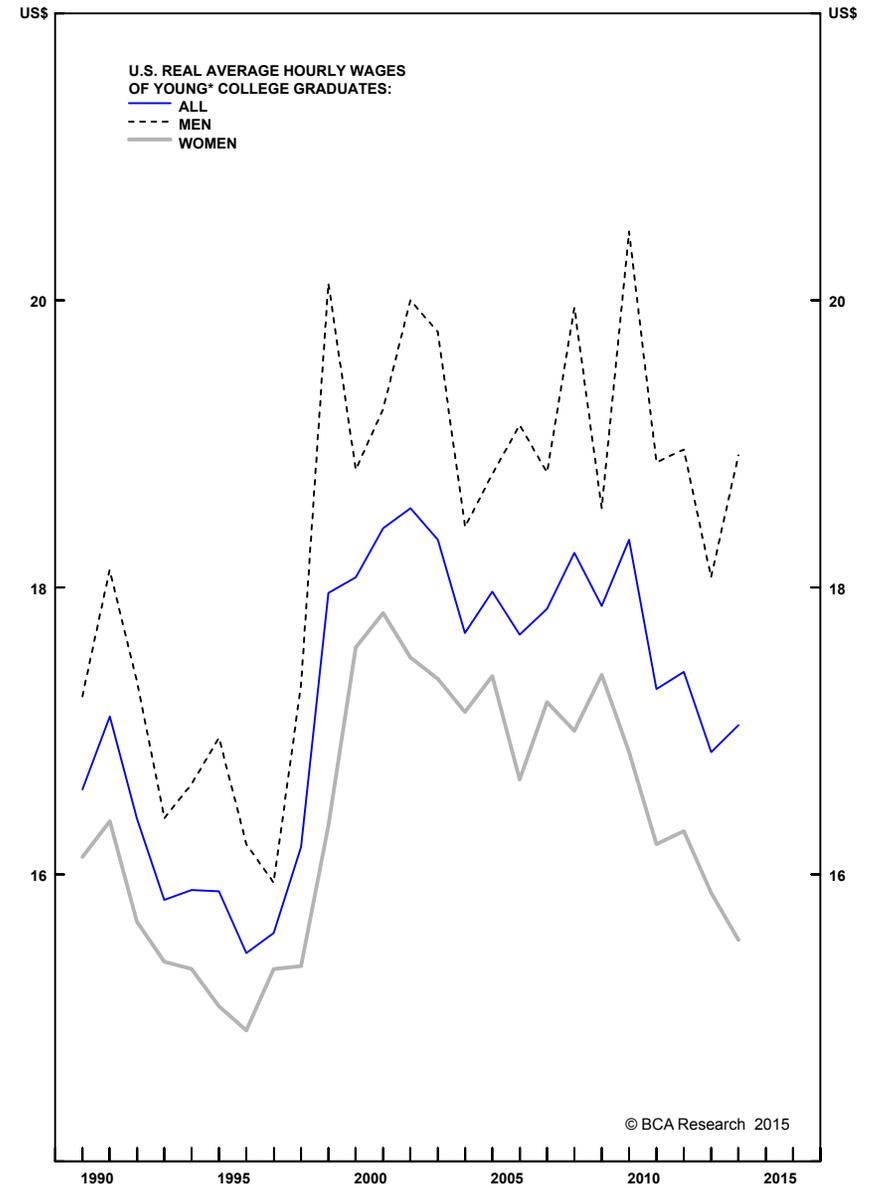
* SOURCE: DAVIES, ET AL. "THE LEVEL AND DISTRIBUTION OF GLOBAL HOUSEHOLD WEALTH", THE ECONOMIC JOURNAL, 2010; CREDIT SUISSE 2014 GLOBAL WEALTH DATABOOK.
 ** SOURCE: OECD.

...And There Is Still Plenty Of Support

PEW GLOBAL ATTITUDES SURVEY	
% OF RESPONDENTS WHO THINK THAT INEQUALITY IS THE BIGGEST ISSUE	
SPAIN	74%
ITALY	73%
FRANCE	60%
U.K.	47%
U.S.	46%
GERMANY	39%
JAPAN	28%
MEDIAN	56%

NOTE: MEDIAN INCLUDES FRANCE, GERMANY, GREECE, ISRAEL, ITALY, JAPAN, SOUTH KOREA, SPAIN, UK & THE U.S.
 SOURCE: PEW RESEARCH CENTER; SPRING 2014 ATTITUDES SURVEY.

Even Graduates Are Being Hurt



* 21-24 YEAR OLDS
 SOURCE: ECONOMIC POLICY INSTITUTE.



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Agenda Item #4



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Paul Matson
Director

MEMORANDUM

TO: The Arizona State Retirement System (ASRS) Investment Committee (IC)

FROM: Mr. Paul Matson, Director
Mr. Gary Dokes, Chief Investment Officer (CIO)
Mr. Dave Underwood, Assistant Chief Investment Officer
Mr. Al Alaimo, Fixed Income Portfolio Manager
Mr. Karl Polen, Head of Private Markets Investing
Mr. Eric Glass, Portfolio Manager of Private Markets

DATE: October 19, 2015

RE: **Agenda Item #4:** Presentation, Discussion, and Appropriate Action Regarding ASRS Investment Program Updates

Purpose

To present and discuss information regarding ASRS investment program updates and Investment Risk Reports.

Recommendation

Informational only; no action required.

Background

The CIO and IMD Portfolio Managers will present and facilitate a discussion of the ASRS Investment Program.

The topics listed below are intended to comprehensively cover how ASRS investments are managed, what and why recent strategic/tactical investment decisions have been made and share other information regarding the investment activities of the ASRS.

- a. ASRS Fund Positioning
- b. IMD Investment House Views
- c. Asset Class Committee (ACC) Activities
- d. Tactical Portfolio Positioning
- e. IMD Projects, Research, and Initiatives
- a. State Street Risk Reports

Additionally, on a quarterly basis; the Director includes in the Board Packet the two primary Investment Risk reports IMD uses to help monitor and manage macro-level Total Fund investment risk. These reports along with other portfolio risk and positioning reports provide the CIO with valuable information needed to manage the ASRS Total Fund.

The Director and CIO will discuss the Total Fund, State Street truView Risk Report as well as IMD's Securities Lending Risk Metrics.

Attachments:

From ASRS

- Investment Program Updates Report

From State Street

- truView Risk Report – as of August 31, 2015

Arizona State Retirement System

Investment Committee

Investment Program Updates

October 26, 2015

Presented by:

Gary R. Dokes, Chief Investment Officer, ASRS

David Underwood, Assistant Chief Investment Officer, ASRS

Karl Polen, Head of Private Markets Investing, ASRS

Al Alaimo, Fixed Income Portfolio Manager, ASRS

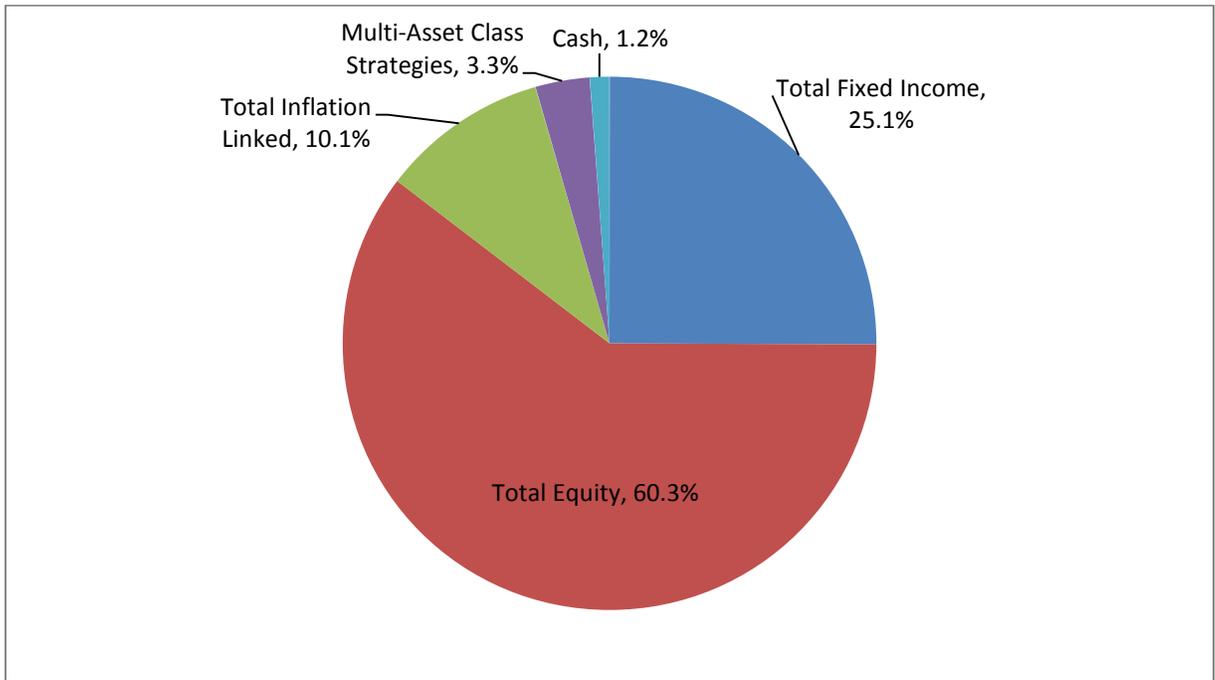
Eric Glass, Portfolio Manager of Private Markets, ASRS



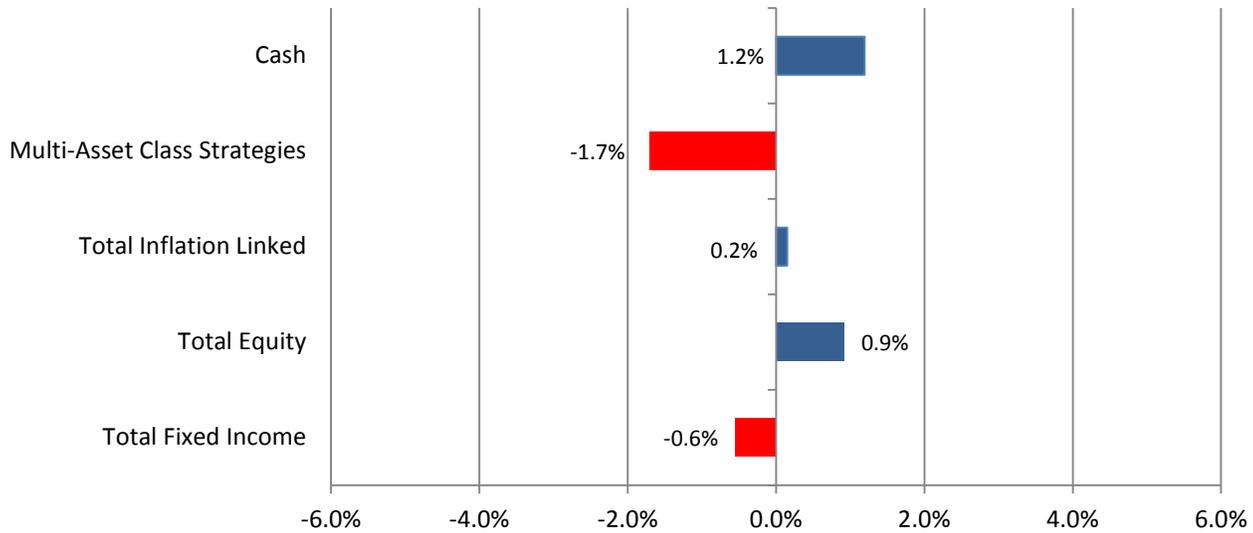
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ACTUAL PORTFOLIO



ACTUAL PORTFOLIO VS. INTERIM SAA POLICY *



**The Interim SAA Policy is prorated thusly: Real Estate was prorated to domestic equity, international equity and fixed income, Private Equity was prorated to domestic equity, and Private Debt was prorated to core fixed income and U.S. high yield. All Private asset classes' market values are reported on a quarter-lag and adjusted to include the current quarter's cash flows.*

Account Manager	Account Manager Style	Fixed Income		Equity		Inflation Linked	Multi-Asset	Total	Pct of Fund
		Active	Enh/Passive	Active	Enh/Passive				
State Street B&T: Boston	Tactical Cash (non-assetized)							0	0.00%
								Tactical Cash Policy Range: 0% - 3%	0.00%
	Operating Cash (non-assetized)		28,917,423					28,917,423	0.09%
	Operating Cash (assetized)		363,086,739					363,086,739	1.10%
	Cash Total							\$392,004,163	1.19%
								Cash Policy: 0%	0.00%
Blackrock: San Francisco	Treasuries (Long Duration)		388,053,350					388,053,350	1.18%
	Treasuries (Long Duration) Total							\$388,053,350	1.18%
								Treasuries (Long Duration) Policy Range: 0% - 10%	0.00%
Blackrock: San Francisco	Passive (Intermediate Gov Credit)		24,544,795					24,544,795	0.07%
ASRS: Phoenix	Enhanced Passive F2		1,882,369,047					1,882,369,047	5.73%
Blackrock: San Francisco	Passive (US Debt Index)		1,824,160,448					1,824,160,448	5.55%
	Core Fixed Income Total							\$4,119,290,906.55	12.53%
								Interest Rate Sensitive: 11%	11.00%
Columbia: Minneapolis	Active	667,136,852						667,136,852	2.03%
JP Morgan: Indianapolis	Active	344,810,187						344,810,187	1.05%
	High Yield Fixed Income Total							\$1,011,960,794	3.08%
								High Yield Fixed Income Policy	4.00%
	Opportunistic Debt	1,130,210,914						\$1,130,210,914	3.44%
								Opportunistic Debt Policy:	0.00%
	Private Debt Total	1,975,871,750						\$1,975,871,750	6.01%
								Total Private Debt: 8% - 12%	10.00%
	Fixed Income Total							\$8,237,351,777	25.06%
								Total Fixed Income Policy Range: 18% - 35%	25.00%
Intech: FL	Active (Growth)			401,193,800				401,193,800	1.22%
LSV: Chicago	Active (Value)			695,386,728				695,386,728	2.12%
ASRS: Phoenix	Passive E2				4,709,661,742			4,709,661,742	14.33%
ASRS: Phoenix	Enhanced Passive E7				619,347,929			619,347,929	1.88%
ASRS: Phoenix	Enhanced Passive E8				533,301,129			533,301,129	1.62%
ASRS: Phoenix	Risk Factor Portfolio				528,676,862			528,676,862	1.61%
	Large Cap Equity Total							\$7,487,568,191	22.78%
								Large Cap Policy	20.00%
Wellington: Boston	Active (Core)			264,319,276				264,319,276	0.80%
ASRS: Phoenix	Passive E3 (Growth)				361,802,581			361,802,581	1.10%
ASRS: Phoenix	Passive E4 (Value)				314,967,234			314,967,234	0.96%
	Mid Cap Equity Total							\$941,089,091	2.86%
								Mid Cap Policy	3.00%
TimesSquare: New York	Active SMD (Growth)			341,034,654				341,034,654	1.04%
DFA: Santa Monica	Active (Value)			257,502,106				257,502,106	0.78%
ASRS: Phoenix	Passive E6				306,381,961			306,381,961	0.93%
	Small Cap Equity Total							\$904,918,721	2.75%
								Small Cap Policy	3.00%
	U.S. Equity Total							\$9,333,576,003	28.40%
								US Equity Policy Range: 16% - 36%	26.00%
Brandes: San Diego	Active (Value)			541,516,738				541,516,738	1.65%
American Century	Active (EAFE)			537,383,072				537,383,072	1.64%
Trinity Street	Active (EAFE)			309,863,753				309,863,753	0.94%
Thompson Siegel Walmsley	Active (EAFE)			283,582,573				283,582,573	0.86%
Blackrock: San Francisco	Passive (EAFE)				3,741,064,555			3,741,064,555	11.38%
	Large Cap Developed Non-US Equity Total							\$5,415,582,762	16.48%
								Large Cap Developed Policy	17.00%
AQR: Greenwich	Active (EAFE SC)			92,187,186				92,187,186	0.28%
DFA: Santa Monica	Active (EAFE SC)			98,397,749				98,397,749	0.30%
Franklin Templeton: San Mateo	Active (EAFE SC)			213,287,152				213,287,152	0.65%
Blackrock: San Francisco	Passive (EAFE SC)				234,113,933			234,113,933	0.71%
	Small Cap Developed Non-US Equity Total							\$637,988,483	1.94%
								Small Cap Developed Policy	2.00%
William Blair: Chicago	Active (EM)			333,419,592				333,419,592	1.01%
Eaton Vance: Boston	Active (EM)			341,080,841				341,080,841	1.04%
LSV: Chicago	Active (EM)			205,834,795				205,834,795	0.63%
Blackrock: San Francisco	Passive (EM)				448,429,652			448,429,652	1.36%
	Emerging Markets Equity Total							\$1,328,764,880	4.04%
								Emerging Markets Policy	5.00%
	Non-US Equity Total							\$7,382,336,124	22.46%
								Non-US Equity Policy Range: 14% - 34%	24.00%
	Private Equity Total			2,630,103,398				\$2,630,103,398	8.00%
								Private Equity Policy Range: 6% - 10%	8.00%
	Opportunistic Equity			479,312,489				\$479,312,489	1.46%
								Opportunistic Equity Policy:	0.00%
	Equity Total							\$19,825,328,014	60.32%
								Total Equity Policy Range: 48% - 65%	58.00%
Gresham: New York	Commodities Total					232,090,430		232,090,430	0.71%
								\$232,090,430	0.71%
								Commodities Policy Range: 0% - 4%	2.00%
	Real Estate Total					2,609,887,576		\$2,609,887,576	7.94%
								Real Estate Policy Range: 8% - 12%	10.00%
	Infrastructure Total					305,645,449		\$305,645,449	0.93%
								Infrastructure Policy Range: 0% - 3%	0.00%
	Farmland & Timber Total					182,866,866		\$182,866,866	0.56%
								Farmland & Timber Policy Range: 0% - 3%	0.00%
	Inflation Linked Total							\$3,330,490,320	10.13%
								Inflation Linked Policy Range: 10% - 16%	12.00%
Bridgewater	Multi-Asset Class Strategies						1,081,100,289	1,081,100,289	3.29%
								\$1,081,100,289	3.29%
								Multi-Asset Class Policy Range: 0% - 12%	5.00%
	TOTAL Amounts	\$4,118,060,871	\$4,511,295,069	\$8,027,164,878	\$11,798,163,136	\$3,330,490,320	\$1,081,100,289	\$32,866,274,564	Total Fund
	TOTAL Percent	12.53%	13.73%	24.42%	35.90%	10.13%	3.29%		

Asset Class	Actual Portfolio	SAAP Target (Range)	Interim SAA* Adj Policy	Actual - Interim SAA**		Policy Band check Actual - Adj Policy	
				% diff	\$ diff		
Tactical Cash	0.00%	0% (0-3%)	0.00%	0.00%			
Cash	1.19%	0.00%	0.00%	1.19%	392,004,163		
Interest Rate Sensitive	12.53%	11%	14.54%	-2.01%			
High Yield	3.08%	4%	5.06%	-1.98%			
Opportunistic Debt	3.44%	0%	0.00%	3.44%	\$1,130,210,914		
Private Debt	6.01%	10% (8-12%)	6.01% (4-8%)	0.00%			
Total Fixed Income	25.06%	25% (18-35%)	25.62% (19-36%)	-0.55%	-\$182,238,828	OK	
Large Cap	22.78%	20%	20.80%	1.98%	\$651,186,157		
Mid Cap	2.86%	3%	3.00%	-0.14%	-\$44,899,146		
Small Cap	2.75%	3%	3.00%	-0.25%	-\$81,069,515		
US Equity	28.40%	26% (16-36%)	26.8% (17-37%)	1.60%	\$525,217,496	OK	
Developed Large Cap	16.48%	17%	17.60%	-1.12%	-\$367,938,480		
Developed Small Cap	1.94%	2%	2.00%	-0.06%	-\$19,337,008		
Emerging Markets	4.04%	5%	5.00%	-0.96%	-\$314,548,848		
Non-US Equity	22.46%	24% (14-34%)	24.6% (15-35%)	-2.14%	-\$701,824,336	OK	
Private Equity	8.00%	8% (6-10%)	8.00%	0.00%	\$0	OK	
Opportunistic Equity	1.46%	0%	0.00%	1.46%	\$479,312,489		
Total Equity	60.32%	58% (48-65%)	59.4% (49-66%)	0.92%	\$302,705,648	OK	
Commodities	0.71%	2% (0-4%)	2.04%	-1.34%	-\$438,769,859	OK	
Real Estate	7.94%	10% (8-12%)	7.94%	0.00%	\$0	OK	
Infrastructure	0.93%	0% (0-3%)	0.00%	0.93%	\$305,645,449	OK	
Farmland & Timber	0.56%	0% (0-3%)	0.00%	0.56%	\$182,866,866	OK	
Opportunistic I/L	0.00%	0%	0.00%	0.00%	\$0		
Total Inflation Linked	10.13%	12% (10-16%)	9.98% (8-12%)	0.15%	\$49,742,456	OK	
Multi-Asset Strategies***	3.29%	5% (0-12%)	5% (0-12%)	-1.71%	-\$562,213,439	OK	
Total	100.00%	100%	100.00%	0.00%	\$0		
						Internally Managed Portfolios:	
						\$8,727,831,623	27%
*Interim SAA includes a proration of unfunded Private Equity, Private Debt, and Real Estate							
**Private Equity is prorated to domestic equity; Real Estate is prorated to equity, commodities, and fixed income; Private Debt is prorated to Interest Rate Sensitive and High Yield							
***Opportunistic definitions:							
An investment in a category that is not included in the ASRS Asset Allocation policy and represents an investment opportunity that is tactical in nature.							
Opportunistic investments have a 0% target (0%-10% range), regardless of asset class.							
Total Opportunistic							
Opportunistic Debt	\$1,130,210,914	3.4%					
Opportunistic Equity	\$479,312,489	1.5%					
Opportunistic IL	\$0	0.0%					
	\$1,609,523,404	4.9%					

(Notable changes from the previous month are highlighted in RED)

OCTOBER 2015

U.S. EQUITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**

- Economic data still shows stable, sub-trend growth in 2015.
- U.S. unemployment, is displaying sustained improvement. Income growth has not, although some localized instances of upward pressure has begun to surface.
- At possible risk longer term due to stimulus measures, inflation remains generally subdued.
- Liquidity remains ample; Federal Reserve policy remains accommodative without its asset purchases program.
- Overall U.S. corporate profits growth has decelerated, mostly due to the impact of lower energy prices; revenues are still in a modest uptrend; high profit margins are no longer expanding.

2. Valuations: **NEUTRAL**

- U.S. equity markets have been trendless since reaching highs first in March, then and again in May, apparently buffeted by mixed macro data, downward revisions to earnings estimates and anxiety over the timing and scale of the first upward reset to interest rates and more volatility in foreign exchange markets.
- Though marginally rich, price/earnings multiples remain near historic averages: S&P 500, 15.8x-17.6x; S&P MID, 16.0x-19.8x; S&P SC600, 17.8x-20.9x.
- Historic P/Es imply advances of 5-10% for mid and small caps; 9-12% for S&P 500.
- Still rising earnings and low yields on 10-Yr Treasury notes combine for equity risk premiums that are favorably above the 4.0% long-range average for large caps, whereas those of mid- and small-caps are around 4.0%.

3. Sentiment: **NEUTRAL**

- Short-term caution has moved up a notch following the sustained advance of equity markets without a significant pullback throughout 2013 and 2014.
- Lessened near-term equity market volatility (i.e., VIX Index) still reflects growing acceptance of risk-oriented assets.
- The relative strength of the U.S. Dollar continues to encourage assets into U.S. equities.

Commentary:

The "NEUTRAL" opinions on Sentiment and Valuations are unchanged as is the "POSITIVE" opinion on Fundamentals

The moderately fluctuating values, but essentially net sideways movement of the U.S. equities markets that was experienced throughout most of 3Q2015 gave way to a broad selloff in mid-September. The markets were trendless leading up to the 17th September Federal Open Markets Committee meeting in general expectation

that the committee would take the first step, albeit token, toward monetary policy normalization. When instead, the FOMC postponed that out of sensitivity to the softening economic conditions and more volatile markets abroad, many short-term participants misinterpreted it as an indication that the FOMC sensed the domestic economy was stalling. They unwound aggressively optimistic positions which resulted in a sharp correction across the global markets. Only after a series of moderating statements by Federal Reserve governors did the equities markets regain confidence and recoup a fair amount of the selloff.

Long-term prospects for the U.S. equities markets are constructive even if the current phase of price fluctuations appears to weaken that case. The major indexes of U.S. stocks have responded generally as anticipated. Robust, macro-driven momentum of the past two years was overdue for some deceleration, even a downright pause, if only to allow fundamentals time to catch up with prices. Having reached an all-time high, prices have backed off a bit, snuffing out positive year-to-date returns and eroding investor confidence.

There is a positive macro environment for domestic equities, with an essentially sound U.S. economy in a setting of unusually low interest rates. Although some stumbling is likely as the cycle of rising interest rates gets underway, and perhaps the markets have prematurely telescoped-in some of that already this year, history has shown that stocks tend to fare reasonably well as interest rates ascend. Official Federal Reserve policy remains clear in its expectation to normalize the level of the federal funds rate only gradually and reflect the slow, but continuing diminution of economic headwinds. Thus any interest rates increases will be a function of sustained improvement in the U.S. economy, not because the FOMC wants to forestall an overheated economy and induce recession. That's hardly a precursor for falling corporate earnings and stock prices.

Almost perversely, analysts have been taking down 2015 earnings estimates since last November, coinciding with a period in which the both the rise of the exchange rate of the U.S. Dollars and the decline in oil prices accelerated. Reductions in estimates for energy sector earnings and the effects of the higher USD exchange rate account for the 2015 year-on-year growth rate of S&P 500 earnings tumbling to 2%. Viewed at the index level and not necessarily from a top-down context, nor sector by sector, the markets seemed to have inferred that business was undergoing a widespread weakening. However, the benefits derived from quantitative easing provoking global reflation haven't been translated into the present cohort of non-energy corporate earnings estimates. They are apt to be meaningful catalysts to stocks as 2015 rolls on.

Misconceptions about the speed and magnitude by which the FOMC will move interest rates upward, apprehension over the direction of earnings estimates revisions, and transient anxieties about the potential impact from fluctuating Chinese equity markets have triggered these recent bouts of relatively minor volatility. This is likely to go on until visible signs appear later this year from the positive combined follow-on effects of ex-U.S. QE programs, of the favorable relative exchange rates engendered by those programs, and from low energy prices. As those signs appear, widespread U.S. corporate earnings growth rates should also turn up.

CURRENT PORTFOLIO POSTURE: OVERWEIGHT vs. SAA target

NON – U.S. EQUITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **NEUTRAL (from POSITIVE)**

- Progress of Eurozone and Japanese economic conditions plateauing; economic continues are weakening in many lesser-developed economies.
- Although relatively inexpensive, liquidity is shifting away from these developing, US Dollar-sensitive economies.
- Monetary and economic policies that are focused on promoting economic growth and stemming disinflation seem to be blunted by the collateral impact of the change in drivers of the Chinese economy.

2. Valuations: **POSITIVE**

- Reasonable global valuations relative to U.S.; price-to-book values of 1.4x - 1.6x; P/Es of 11.9x – 15.2x on trend earnings.
- Dividend yields are incrementally more favorable -ranging from 1.1x to 1.9x that of the S&P500.

3. Sentiment: **NEUTRAL (from POSITIVE)**

- Excepting the Emerging Markets, money flows continue toward developed market counterparts, both non-U.S. and domestic U.S. equities. The late 3Q 2015 anxiety and accompanying volatility notwithstanding, investors remain overall constructive on global equities.
- Until recently, major non-U.S. markets performance had mostly strengthened in 2015; postponement of normalization of U.S. monetary policy is supportive for the markets.

Commentary:

The “POSITIVE” opinion on Valuations is unchanged; reflective of the IMD tactical move to reduce some exposure to risk-oriented assets, Fundamentals and Sentiment opinions have been changed to “NEUTRAL”.

Consistent with a reduction in Total Fund risk assets, IMD further reduced exposure to Emerging Market equities (“EM”). EM now represents approximately 4% of compared to a target weight of 5.0%. Proceeds of the drawdown, which was borne equally by the sub-class’s passive and active strategies, were reinvested in instruments replicating long-dated U.S. Treasury securities in the Total Fund Cash Assetization category.

The long-term case for global equities is still upbeat on the back of the global reflationary effort. Flow-driven major markets remain capable of posting high, single digit returns (in USD terms). Both the distant past and recent history have shown that liquidity injections, when delivered in sufficient size and duration, can greatly surpass most other market influences. ECB quantitative easing of over a trillion Euros certainly meets those criteria.

Some risks still threaten, e.g.: Investor leverage, threats to profitability, crowding of trades and some geopolitical risks. The effects of moving foreign exchange rates dominate most factors and have led to Japanese and European equities responding to profitability-driven margin expansion. The markets don’t seem to have priced this in completely, yet momentum risk-on, and reflation oriented strategies, especially in the European markets, seem to be prevailing.

Support from robust liquidity in Europe, and a stronger than expected economy, are impressive enticements to under-owned, low-leverage equities. Upside potential remains, although an overly strong rise too early in the process could burn that out. The impact of quantitative and qualitative easing in Japan has effectively collared the downside of its markets even as overall returns on corporate equity are normalizing further to the upside.

That large, globally-exposed corporations now face more significant revenue and earnings headwinds is one negative consequence in the US from a stronger US Dollar (USD). In contrast, the weakening of currencies against the USD should help augment the revenues of large, multinational equities based outside the U.S. Similarly, European corporate earnings are destined to grow at a double-digit pace, despite lingering weakness in the peripheral regional economies. European equities currently benefit from three significant tailwinds: the fall in the EUR exchange rate; a reduction in borrowing costs; and the resulting boost to growth from protracting lower oil prices. The European Central Bank's quantitative easing program should continue to support the first two tailwinds in the near term, while oil prices should continue to fall in year-on-year terms for several months, even should the clearing price cease falling further, which supports the third tailwind.

UK equities have fallen out of favor since the Scottish referendum in September last year. Although, the recent UK elections outcomes aren't necessarily capital markets friendly the markets seem discounted the political risks even though the UK market faces a zero expected return in 2015.

Emerging market economies are still beset by political interference, intractable labor markets and structural problems with what drives those economies. Despite sustained liquidity coursing through their capital markets, the stocks are largely unresponsive. Moreover, capital flows into the USD will continue weighing on the EMs.

A persistently rising USD is not a common theme in markets. It appears to be less prevalent during a "risk on" trend – driven by economics and fundamentals – rather than during a "risk-off" mode. Still, the ramifications of a strong USD in 2015 will be important globally and across assets. Many of the first-round consequences of a strong USD have already been felt. The strength of the USD has helped to push commodity prices and inflation down, restraining bond yields and leading to increased flows into U.S. equities and bonds. These trends should persist and even second-round influences may emerge. The latter might surface as financial conditions in some EM economies tighten further and should any further firming in U.S. consumption elevate the rate of GDP growth. Again, this bolsters the case for multinational non-U.S. companies with sizeable revenues from exports to the U.S.

Also, a rising USD has significant effect on the global flows of capital. The implications are substantial for financial conditions globally and probably felt most acutely by those countries running current account deficits and where a higher proportion of debt is issued in USD. Economic, asset price and currency outperformance in the U.S. may hinder domestic investors from aggressively deploying assets abroad. Meanwhile, investors in weak economies where currencies are depreciating and asset price performance is equally meager are apt to invest the U.S. These potential secondary forces suggest to us that the significant outperformance of U.S. and of developed non-U.S., equity markets relative to those of emerging economies is a multi-year, structural theme.

CURRENT PORTFOLIO POSTURE: UNDERWEIGHT vs. SAA target

FIXED INCOME

Primary Markets Metrics & Indicators:

1. Fundamentals: **NEGATIVE (from NEUTRAL)**
 - Concerns about slowing global growth driven by weakening fundamentals in China and emerging markets have spilled over into the U.S. markets in a variety of ways. Credit spreads have materially widened in both the investment grade and high yield bond markets. While initially led by commodity sectors such as energy and mining, the spread widening has repriced a number of other

sectors in these markets as well as trading liquidity has diminished due to regulatory changes. In addition, China is exerting significant deflationary pressure in the global markets while other developed economies are struggling with disinflation. All of these factors have contributed to increased uncertainty regarding Federal Reserve policy with respect to raising short-term interest rates. In August, due to concerns about slowing global growth, deflationary pressures, and a potential repricing of risk in the financial markets, we reduced our exposure to high yield bonds and reallocated funds to the Treasuries (Long Duration) asset class.

- We believe that long-term U.S. interest rates may remain relatively low by historical standards for a number of reasons. These include slowing growth and disinflationary (or deflationary) pressures in many regions of the world including Europe and China, accommodative monetary policies in other countries and very low competing long-term interest rates in other developed markets.

2. Valuations: **NEUTRAL (from NEGATIVE)**

- The core fixed income market is likely to generate low returns due to low overall yields as Treasury rates remain at low levels. That being said, core fixed income remains a safe haven in times of market turbulence and tends to perform well when risky assets such as equities sell off.
- With a recent sell-off in the credit markets, valuations as measured by credit spreads in both the investment-grade and high yield bond markets have become more attractive. However, wider spreads may primarily reflect deteriorating credit quality. Over the coming years, we expect both an increase in the number of bond issuers that are likely to lose their investment-grade ratings and a rise in corporate defaults. Initially, this deterioration in credit quality will be led by sectors that have been adversely affected by the severe decline in global commodity prices including energy, energy services, metals and mining. However, as we may be in the later stages of credit cycle (that began with an upturn in 2009), credit ratings may decline and defaults may increase in other sectors as well. Private debt offers the most attractive opportunity in the fixed income markets with double-digit yields readily available for investors willing to accept illiquidity. We believe the market opportunity has recently improved due to a number of factors including the piecemeal sale of GE Capital, a leading provider of capital to the middle market; a reduced capacity to lend by business development companies; and the enforcement of leveraged lending guidelines by banking regulators which further restricts the ability of banks to provide leveraged loans and underwrite high yield bonds. We recently expanded our commitments to take advantage of the attractive opportunities in the private debt asset class.
- Select areas of opportunistic debt such as distressed debt also offer opportunities to potentially achieve double-digit returns. That being said, in the near-term, returns for distressed debt may be adversely impacted by the recent sell-off in the credit markets.

3. Sentiment: **NEGATIVE (from NEUTRAL)**

Sentiment has declined in the credit markets due to a combination of weakening fundamentals and diminished trading liquidity. While U.S. Treasuries remain a safe haven for investors looking to reduce risk, these securities may face technical selling pressure from central banks in China and other emerging market countries that may sell U.S. dollar assets to support their currencies to counteract recent U.S. dollar appreciation.

Commentary:

IMD remains bifurcated on their fixed income House Views: less positive on HY and interest rate sensitive core spread sectors but positive private debt

REAL ESTATE

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**

- Improved levels of demand and supportive credit conditions, combined with broad improvement in the economy, are supportive of continued expansion of commercial lending and building. Better levels of occupancy while there is a lack of construction has resulted in rising rents.
- Our review of property market fundamentals leads to emphasize apartments, industrial properties, medical office buildings, senior housing, self-storage, and student housing in our current investing efforts for demographic and macro policy reasons.
- There are relatively few foreclosures on high quality property, but there continues to be pressures on refinancing of legacy leverage structures and we participate in those transactions through several of our manager relationships.
- Single family housing continues to exhibit tight supply and moderate demand driven by healing household balance sheets, improved employment conditions, and continued affordability. This should lead to reacceleration of new construction and continued moderate price increases. Recovery in construction and NOI has been led by apartments to date.

2. Valuations: **NEUTRAL**

- On a total market basis, valuations have recovered from recession lows but are still about 5% below prior peak. However, coastal markets have rebounded more strongly than interior markets.
- High quality coastal market properties are trading at historic low cap rates; however these cap rates still reflect approximately a normal spread to treasury. The financing market for assets of this quality has recovered and supports these valuations by providing fixed rate financing that mitigates the risk of later cap rate expansion. International investors looking for safe assets have contributed to demand in the coastal markets.
- Recent increases in treasury rates do not appear to have affected commercial real estate valuations. Many observers believe that ~100bps of rate increase was already discounted into cap rates.
- In **August**, REITs were trading at an average dividend yield of **4.08%** (**186bp** above 10y treasury) and a **12%** discount to NAV. The dividend yield spread is above the historical average of 110 while the historical difference to NAV is a 4% premium.

3. Sentiment: **POSITIVE**

- U.S. focused real estate fund raising rose 13% to \$76 billion per year. U.S. focused dry powder has trended down to approximately \$80 billion.
- Global commercial real estate transaction volume peaked at around \$700 billion in 2007, but dropped to about a third of that during the global financial crisis. Current volume of approximately \$550 billion is double the recession trough, but still well below the peak.
- Debt availability has improved considerably since the depth of the recession, but is still tight by historic standards for all but the most desirable properties. Construction financing remains a considerable challenge, even for well justified projects.

Commentary:

IMD continues to implement its separate account real estate strategic manager program. ASRS 2016 RE Program Implementation Plan (sector valuations, pacing, etc.) is scheduled to occur in Q4-15.

CURRENT PORTFOLIO POSTURE: UNDERWEIGHT vs. SAA target (in program funding/build-out phase)

PRIVATE EQUITY

Primary Market Metrics & Indicators:

1. Fundamentals: **POSITIVE**

- The U.S. economy continues to show steady improvement.
 - ◇ Oil prices have remained in the range of their 2014 price correction which will result in reduced service costs and tempered production growth in the medium term. Debt markets have locked up and equity transactions will take time to sort out. We expect industry consolidation at the margin favoring low cost producers with less leverage and more production hedged.
 - ◇ Healthcare is being reshaped to implement the requirements of “Obamacare.”
 - ◇ The U.S. continues to be a global leader in technology innovation.
- Europe continues to struggle in recovering from the financial crisis with the ECB increasing its stimulus efforts by buying €60B per month. Its problems are exacerbated by a unified currency without unified fiscal policy and it is expected to experience a very slow recovery.
- Emerging markets have slowed while the largest emerging markets are transitioning to focus on domestic consumption.

2. Valuations: **NEUTRAL**

- U.S. median purchase price multiples in 2014 were 8.9x, down from the 10.0x 2013 levels (which were close to the previous peak).
- The leveraged loan and high yield debt markets were active in 2014 but down from 2013 highs. Single B high yield spreads have widened to ~530bps.
- The U.S. median Debt/EBITDA ratio of 5.8x in 2014 was down from 6.5X in 2013 (slightly above the previous peak).

3. Sentiment: **NEUTRAL**

- Globally, **\$242B (484 funds)** have closed in 2015 (**as of 6/30/2015**) compared to \$545B (1,237 funds) for all of 2014 and \$539B (1,281 funds) for all of 2013.
- Dry powder of nearly \$1.3T globally has ticked up from \$1.2T for 2014 and 2013.
- The global number of buyout deals was **1,595 (as of 6/30/2015)** compared to 3,648 for all of 2014 and 3,383 for all of 2013. The aggregate value of deals was **\$199B (as of 6/30/2015)** compared to \$345B for all of 2014 and \$305B for all of 2013.
- There were **755** exits representing **\$219B (as of 6/30/2015)**. For all of 2014 there were 1,622 exits representing \$448B compared to 1,583 exits representing \$327B in 2013.
- The IPO market in 2015 has softened to a level of **\$20B (as of 6/30/2015)** versus \$67B for all of 2014 and \$48B for all of 2013.

Commentary:

Areas of emphasis are U.S. middle market buyout with focus on managers with strong operational capability. Vertical strategies in energy, healthcare and technology are under consideration. IMD will reduce emphasis on large buyout strategies though larger managers with specialized deal flow remain of interest and continue to monitor Europe for a favorable reentry point and look for opportunities to capitalize upon distress.

ASRS 2016 PE Program Implementation Plan (sector valuations, pacing, etc.) is scheduled to occur in Q4-15.

CURRENT PORTFOLIO POSTURE: EQUAL WEIGHT vs. SAA target

COMMODITIES

Primary Market Metrics & Indicators:

1. Fundamentals: **NEGATIVE**

- The U.S. dollar has strengthened on a relative basis as the Fed appears poised to raise interest rates. China's economy has slowed down while Europe has begun to deal with its economic weakness with stimulus.
- Most commodity sectors appear well supplied, particularly for the current global growth environment.
- The decision by Saudi Arabia not to reduce production with the potential addition of Iranian supply has kept energy markets depressed, resulting in rig lay downs in the U.S. while the budgetary impacts globally continue to add up.
- Corn and wheat stockpiles have recently hit multi-year highs while world food prices continue to slide. Energy markets reflect the continued growth in global production as WTI and Brent prices are both **near** \$50. Metals have weakened as precious metals have suffered from U.S. dollar strength while industrial metals still exhibit weak demand.

2. Valuations: **NEGATIVE**

- The Bloomberg Commodities Index **is just above its** 12 year low as global supplies outpace demand.
- On a trailing twelve-month basis, commodities are down **25%** with ags being the least impacted sector with a decline of 11%.

3. Sentiment: **NEGATIVE**

- The moderate growth and weak inflation environment in the U.S. has tempered investor enthusiasm for commodities and resulted in outflows from commodities.
- The slowdown in the Chinese economy and its equity market has tempered enthusiasm for commodities.
- Geopolitical news has not been constructive for energy prices. Looking across the individual commodities, most remain well supplied, which is reflected in prices as inflationary fears are muted.

Commentary:

IMD has maintained a tactical underweight relative to the SAA approved in 2015 which reduced the commodities target from 4% to 2%, recognizing the effects of the Chinese slowdown and sufficient global

supplies. As a result of the changing dynamics in the energy markets IMD reduced its exposure to commodities in December and further reduced its exposure in July as inflationary pressures are still soft.

The North American shale play has resulted in increased U.S. energy production and represents a long-term phenomenon. China's growth rate is also moderating and the era of infrastructure build-out which fueled a portion of the demand for commodities (particularly industrial metals) is abating. Precious metals may also be challenged as the U.S. has moved to the front of the global recovery and other countries' stimulus should result in US dollar strength at the margin. While grains are currently well supplied, the unpredictability of weather inhibits long-term forecasting.

IMD will maintain a tactical underweight relative to the SAAP and **monitor global supply and demand swings for inflationary pressures**. Improving economic conditions and inflationary pressures would serve as a catalyst to initiate a neutral position should the conditions arise.

CURRENT PORTFOLIO POSTURE: UNDERWEIGHT vs. SAA target

OPPORTUNISTIC INVESTMENTS

IMD continues to monitor and assess co-investment flow from real estate, private equity and debt managers for select opportunistic investments with favorable capital market dynamics. Opportunistic investments are tactical in nature AND are outside ASRS SAAP benchmarks or absolute return oriented.

CURRENT PORTFOLIO POSTURE: Approx. 4.9% of ASRS TOTAL MARKET VALUE

GLOSSARY

Commentary: Provides verbiage on 1) the current asset class market environment and possible changes to this environment and 2) ASRS asset class portfolio positioning relative to ASRS SAA policy, its rationale for positioning and anticipated changes which may occur in such positioning.

Current Portfolio Posture: Indicates ASRS asset class position relative to its asset allocation policy weight. "Overweight" indicates an asset class weight is greater than its policy target, "Neutral" indicates an equal weight and "Underweight" indicates a lesser weight than its policy target.

Investment House Views: Synthesizes IMD's current and forward-looking investment perspectives and tactical positioning in asset classes and investment strategies in which the ASRS invests.

Primary Market Metrics and Indicators: Broadly-defined metrics (Fundamentals, Valuations, and Sentiments) applied universally to ASRS asset classes and used collectively to evaluate existing market conditions. Indicators ("Positive," "Neutral" and "Negative") reflect IMD's existing views of these metrics and, in addition to other factors, generally determine the basis for the existing (and possible future changes) to ASRS aggregate portfolio position relative to or within ASRS SAA policy targets.

2015 ASSET CLASS COMMITTEE AND IC MEETINGS

2015		Asset Class Committees				Board Committee		Grand Totals	
		Private Market Committee (PRIVMC)		Public Market Committee (PUBMC)		Investment Committee (IC)			
Quarter	Month	Dates		Total	Dates	Total	Dates	Total	
1 st	January	01/23	01/29	2					
	February	02/27		1			02/09	02/23	2
	March	03/19	03/20	3					
03/27									
2 nd	April	04/21		1			04/20/15	1	
	May	05/18		1					
	June	06/04	06/23	2			06/22	1	
3 rd	July	07/20	07/29	2					
	August	08/28		1	08/14	1	08/24	1	
	September	09/15		1					
4 th	October	10/15		1			10/26	1	
	November								
	December								
Totals				15		1		6	22

INVESTMENT MANAGEMENT DIVISION (IMD) ACTIVITIES: FUND REPOSITIONING, RESEARCH, PROJECTS & INITIATIVES

- IMD reallocated approximately \$1.2bn / 3.5% of the Total Fund from higher to lower market risk assets In August and September. This action was the result of a View that market turbulence will continue and downside risk exists in risk assets for the short-to-intermediate period and the need to “replenish” ASRS Cash Assetization fund to meet its negative external cash flow needs and larger expected private market capital call over the next 3-6 months.

Consequently, IMD reduced:

- 1) The Emerging Markets Equity class by \$350 MN;
- 2) The High-Yield debt class by \$250MN;
- 3) The Commodities class by \$200MN; and
- 4) The Multi-Asset Class by \$420MN

And reapportioned proceeds:

- 1) \$387.5MN to Fixed Income-Long Treasuries;
- 2) \$287MN to Private Debt capital calls;
- 3) \$107MN to Real Estate capital calls;
- 4) \$438MN to Cash Assetization program with an interim exposure to defensive longer-maturity Treasuries.

- As a standard course of business, IMD meets with both incumbent and potential investment managers to discuss macro-economies and capital markets as well as providing a means to review new initiatives, relationships and new strategy offerings. Since the last IC meeting, IMD has met via conference call or in-person with a total of 123 investment managers: Private markets (RE, PE, Debt) – 57 and Public markets (Equity and Debt) – 66.
- IMD internally manages 7 public equities and fixed income portfolios which had an approximate aggregate market value of over \$8.7BN or 27% of Total Fund. On a calendar quarter-to-date through September30, 2015, 3 of 7 met or exceeded their benchmarks, and 7 of 7 portfolios met or exceeded their benchmarks on an inception-to-date basis.

Executive Presentation

To: Arizona State Retirement System

truView Risk Report August 31, 2015

Produced by State Street Investment Analytics, Risk Services

Monthly Reallocation Summary*

Month Ending August 31, 2015

Portfolio Reductions

- TOTAL FIXED INCOME
 - \$125M – COLUMBIA (High Yield)
 - \$62.5M - JP MORGAN (High Yield)
- GLOBAL INFLATION LINKED
 - \$200M – GRESHAM
- TOTAL MULTI-ASSET CLASS
 - \$391M – WINDHAM (Multi-Asset Class)
- TOTAL REDUCTIONS**
 - \$778.5M

Portfolio Additions

- TOTAL FIXED INCOME
 - \$387.5M – BR LONG TERM GOVT BOND INDEX (Core Fixed Income)
- TOTAL TRANSITION
 - \$391M – TOTAL EQUITY TRANSITION
- TOTAL ADDITIONS**
 - \$778.5M

*Based on State Street accounting records for public markets and therefore exclude private market drawdowns.

**Reductions and additions do not include plan distributions.

Monthly Reallocation Summary*

Month Ending September 30, 2015

Portfolio Reductions

- TOTAL TRANSITION
 - \$398M – TOTAL EQUITY TRANSITION
- TOTAL FIXED INCOME
 - \$62.5M – JP MORGAN (High Yield)
- TOTAL MULTI-ASSET CLASS
 - \$3.7M – WINDHAM (Multi-Asset Class)
- **TOTAL REDUCTIONS****
 - **\$464.2M**

Portfolio Additions

- TOTAL CASH
 - \$354M – CASH-ASSETIZED
 - \$110.2M – CASH-UNASSETIZED
- **TOTAL ADDITIONS****
 - **\$464.2M**

*Based on State Street accounting records for public markets and therefore exclude private market drawdowns.

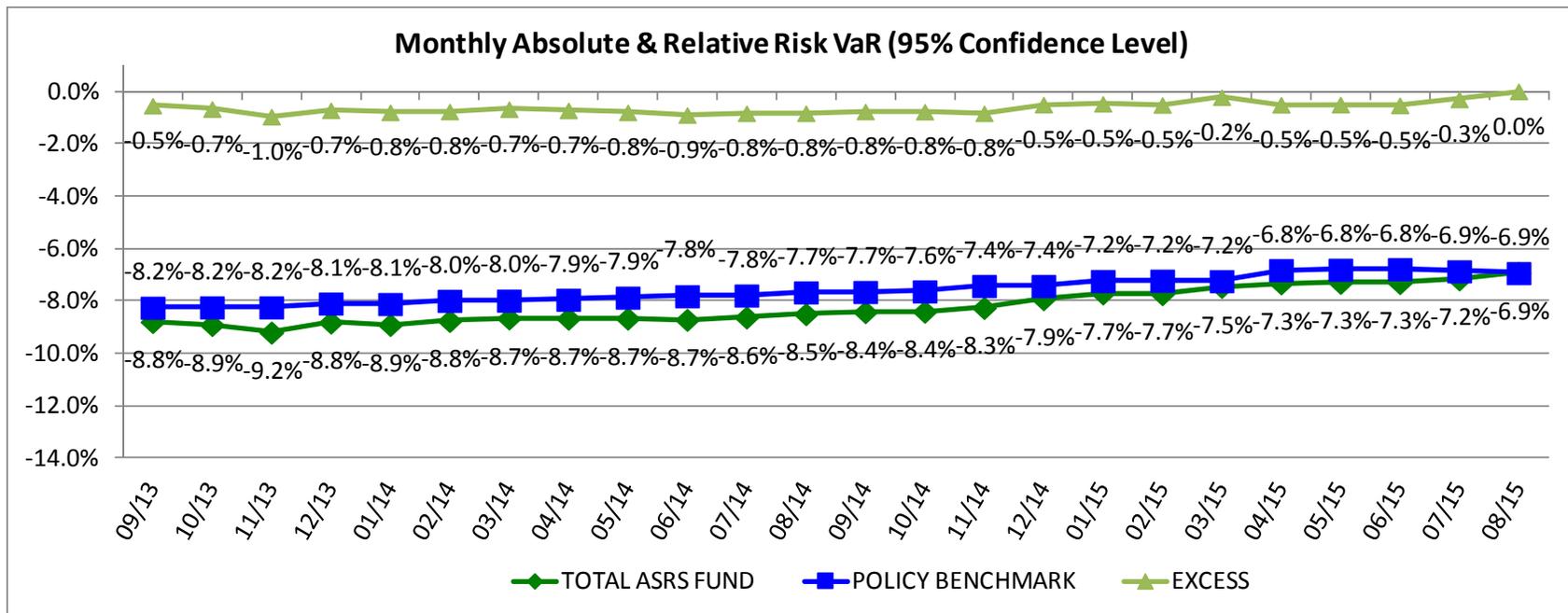
**Reductions and additions do not include plan distributions.

Monthly Risk Summary

Month Ending August 31, 2015

Month-end Risk Profile

- Historical Risk (95% VaR) for all asset classes remain relatively constant from prior months. Total Plan risk decreased 24bps primarily due to the divesting from Windham (GTAA) and the reallocation of \$187M from High Yield to Core Fixed Income. The Policy Benchmark increased 7bps.
- Excess risk over the Policy Benchmark has steadily declined to reach its smallest gap of 0%.



ARIZONA STATE RETIREMENT SYSTEM

TOTAL PLAN EXPOSURE OVERVIEW

As of August 31, 2015

Sector (Public US Equity Only)	\$ Value	% Value	**Blended US BM	Difference
CONSUMER NON-CYCLICAL	\$ 2,258,988,759	23.6%	24.3%	(0.7%)
FINANCIAL	\$ 1,541,507,911	16.1%	17.2%	(1.1%)
TECHNOLOGY	\$ 1,104,076,876	11.5%	13.2%	(1.7%)
CONSUMER CYCLICAL	\$ 985,558,549	10.3%	10.6%	(0.3%)
INDUSTRIAL	\$ 960,186,148	10.0%	9.7%	0.3%
COMMUNICATIONS	\$ 844,506,012	8.8%	12.2%	(3.3%)
ENERGY	\$ 595,493,517	6.2%	7.3%	(1.1%)
FUNDS	\$ 528,356,440	5.5%	0.0%	5.5%
UTILITIES	\$ 318,072,019	3.3%	3.0%	0.4%
BASIC MATERIALS	\$ 259,603,596	2.7%	2.6%	0.1%
CASH	\$ 132,109,399	1.4%	0.0%	1.4%
GOVERNMENT	\$ 28,112,561	0.3%	0.0%	0.3%
INDEX	\$ 10,641,562	0.1%	0.0%	0.1%
DIVERSIFIED	\$ 1,847,250	0.0%	0.0%	(0.0%)
GRAND TOTAL	\$ 9,569,060,598	100.0%	100.0%	0.0%

Country Category (Total Plan)	\$ Value	% Value	*Blended TOTAL BM	Difference
NORTH AMERICA	\$ 24,811,715,795	75.8%	67.0%	8.7%
EUROPE DEVELOPED	\$ 4,427,240,844	13.5%	17.4%	(3.9%)
ASIA DEVELOPED	\$ 2,239,117,990	6.8%	10.2%	(3.4%)
ASIA EM	\$ 736,676,404	2.2%	3.2%	(1.0%)
LATIN AMERICA	\$ 243,181,560	0.7%	1.2%	(0.4%)
AFRICA	\$ 145,225,904	0.4%	0.6%	(0.1%)
MIDDLE EAST	\$ 99,444,551	0.3%	0.3%	0.0%
EUROPE EM	\$ 49,755,697	0.2%	0.1%	0.0%
GRAND TOTAL	\$ 32,752,358,745	100.0%	100.0%	0.0%

Market Cap^ (Public Equities Only)	\$ Value	% Value	*Blended TOTAL BM	Difference
1) 0 - 100M	\$ 2,561,013	0.0%	0.0%	0.0%
2) 100M - 500M	\$ 229,683,728	1.3%	1.5%	(0.1%)
3) 500M - 1B	\$ 568,091,332	3.3%	3.2%	0.1%
4) 1B - 5B	\$ 2,483,728,770	14.5%	21.7%	(7.2%)
5) 5B - 10B	\$ 1,836,572,461	10.7%	9.7%	1.1%
6) 10B - 50B	\$ 5,813,135,091	34.0%	30.4%	3.6%
7) >50B	\$ 6,184,052,823	36.1%	33.5%	2.6%
GRAND TOTAL	\$ 17,117,825,219	100.0%	100.0%	0.0%

^Excludes cash and non-traded securities

Top 20 Issuer (Total Plan)	\$ Value	% Value	Market Cap	Sector	Industry Group
1 CASH**	\$ 2,377,130,526	7.3%		CASH	Cash
2 US TREASURY N/B	\$ 1,274,229,889	3.9%		GOVERNMENT	SOVEREIGN
3 FANNIE MAE	\$ 705,703,639	2.2%		MORTGAGE SECURITIES	FNMA COLLATERAL
4 FREDDIE MAC	\$ 247,260,342	0.8%		MORTGAGE SECURITIES	FHLMC COLLATERAL
5 APPLE INC	\$ 218,720,702	0.7%	7) 50B+	TECHNOLOGY	COMPUTERS
6 TREASURY BILL	\$ 213,607,417	0.7%		GOVERNMENT	SOVEREIGN
7 MICROSOFT CORP	\$ 156,462,937	0.5%	7) 50B+	TECHNOLOGY	SOFTWARE
8 GOVERNMENT NATIONAL MORTGAGE	\$ 144,415,917	0.4%		MORTGAGE SECURITIES	GNMA COLLATERAL
9 ISHARES MSCI USA MOMENTUM FACTO	\$ 140,515,200	0.4%	3) 500M - 1B	FUNDS	EQUITY FUND
10 ISHARES MSCI USA QUALITY FACTOR F	\$ 134,285,250	0.4%	4) 1B - 5B	FUNDS	EQUITY FUND
11 EXXON MOBIL CORP	\$ 134,058,268	0.4%	7) 50B+	ENERGY	OIL&GAS
12 JOHNSON & JOHNSON	\$ 131,262,609	0.4%	7) 50B+	CONSUMER NON-CYCLICAL	PHARMACEUTICALS
13 ISHARES MSCI USA SIZE FACTOR ETF	\$ 127,399,840	0.4%	2) 100M - 500M	FUNDS	EQUITY FUND
14 ISHARES MSCI USA VALUE FACTOR ET	\$ 126,156,150	0.4%	3) 500M - 1B	FUNDS	EQUITY FUND
15 PFIZER INC	\$ 115,655,467	0.4%	7) 50B+	CONSUMER NON-CYCLICAL	PHARMACEUTICALS
16 AT&T INC	\$ 114,811,516	0.4%	7) 50B+	COMMUNICATIONS	TELECOMMUNICATIONS
17 JPMORGAN CHASE & CO	\$ 110,855,352	0.3%	7) 50B+	FINANCIAL	BANKS
18 GOOGLE INC	\$ 103,736,155	0.3%	7) 50B+	COMMUNICATIONS	INTERNET
19 NESTLE SA	\$ 94,856,892	0.3%	7) 50B+	CONSUMER NON-CYCLICAL	FOOD
20 NOVARTIS AG	\$ 94,336,032	0.3%	7) 50B+	CONSUMER NON-CYCLICAL	PHARMACEUTICALS

*Blended TOTAL BM: 23% SP500, 3% SP400, 3% SP600, 7% R2000, 18% MSCI EAFE, 5% MSCI EM, 2% MSCI Sml Cap, 16% BC US AGG, 6% BC US HY, 6% FTSE NAREIT GLOBAL, 2% DJ-UBS COMMODITY, 5% CUSTOM MULTI-ASSET CLASS, 4% S&P/LSTA LEVERED LOAN.

**Blended US BM: 80% SP500, 10% SP400, 10% SP600.

***Cash does not represent an IMD tactical view; Cash includes the ASRS Cash balance, manager- level portfolio cash & equivalents and cash collateralizing sundry portfolio-level futures contracts.

ARIZONA STATE RETIREMENT SYSTEM

As of August 31, 2015

Sector (Public Intl Equity Only)	\$ Value	% Value	*Blended NON-US BM	Difference
FINANCIAL	\$ 1,960,276,139	25.1%	26.0%	(1.0%)
CONSUMER NON-CYCLICAL	\$ 1,686,181,856	21.6%	21.6%	(0.1%)
CONSUMER CYCLICAL	\$ 1,078,736,820	13.8%	12.2%	1.6%
INDUSTRIAL	\$ 902,996,949	11.6%	11.5%	0.0%
COMMUNICATIONS	\$ 632,215,284	8.1%	8.6%	(0.5%)
BASIC MATERIALS	\$ 393,564,225	5.0%	6.1%	(1.1%)
ENERGY	\$ 392,203,054	5.0%	5.3%	(0.3%)
TECHNOLOGY	\$ 320,492,960	4.1%	4.4%	(0.3%)
UTILITIES	\$ 259,380,657	3.3%	3.4%	(0.1%)
CASH	\$ 113,004,462	1.4%	0.0%	1.4%
DIVERSIFIED	\$ 52,911,037	0.7%	0.7%	0.0%
INDEX	\$ 19,048,930	0.2%	0.0%	0.2%
FX	\$ 10,816	0.0%	0.0%	0.0%
GRAND TOTAL	\$ 7,811,023,189	100.0%	100.0%	-0.1%

Top 20 Industry Groups (Public Intl Only)	\$ Value	% Value	*Blended NON-US BM	Difference
1 BANKS	\$ 1,056,557,498	13.5%	13.9%	(0.4%)
2 PHARMACEUTICALS	\$ 631,423,122	8.1%	8.0%	0.1%
3 TELECOMMUNICATIONS	\$ 439,004,521	5.6%	5.9%	(0.3%)
4 INSURANCE	\$ 397,742,550	5.1%	5.1%	(0.0%)
5 FOOD	\$ 388,441,198	5.0%	4.7%	0.3%
6 OIL&GAS	\$ 359,691,346	4.6%	4.8%	(0.2%)
7 RETAIL	\$ 312,232,437	4.0%	3.1%	0.9%
8 AUTO MANUFACTURERS	\$ 257,965,292	3.3%	3.4%	(0.1%)
9 CHEMICALS	\$ 212,779,866	2.7%	3.3%	(0.5%)
10 DIVERSIFIED FINAN SERV	\$ 190,294,077	2.4%	2.5%	(0.1%)
11 COMMERCIAL SERVICES	\$ 175,465,188	2.2%	1.9%	0.3%
12 ELECTRIC	\$ 175,083,688	2.2%	2.3%	(0.0%)
13 REAL ESTATE	\$ 167,644,384	2.1%	2.3%	(0.2%)
14 BEVERAGES	\$ 155,435,368	2.0%	2.2%	(0.2%)
15 SEMICONDUCTORS	\$ 152,441,786	2.0%	2.2%	(0.2%)
16 TRANSPORTATION	\$ 126,252,946	1.6%	1.7%	(0.1%)
17 BUILDING MATERIALS	\$ 124,435,841	1.6%	1.3%	0.3%
18 MINING	\$ 113,625,979	1.5%	1.8%	(0.4%)
19 CASH	\$ 113,004,462	1.4%	0.0%	1.4%
20 ENGINEERING&CONSTRUCTIC	\$ 108,742,743	1.4%	1.4%	(0.0%)

*Blended NON-US BM: 72% MSCI EAFE, 20% MSCI EM, 8% MSCI Sml Cap.

INTERNATIONAL EQUITY EXPOSURE OVERVIEW

Country Category (Public Intl Equity Only)	\$ Value	% Value	*Blended NON-US BM	Difference
EUROPE DEVELOPED	\$ 4,147,892,769	53.1%	51.6%	1.5%
ASIA DEVELOPED	\$ 2,217,380,816	28.4%	31.6%	(3.2%)
ASIA EM	\$ 749,470,628	9.6%	10.8%	(1.2%)
LATIN AMERICA	\$ 234,291,360	3.0%	2.8%	0.2%
NORTH AMERICA	\$ 181,588,681	2.3%	0.1%	2.3%
AFRICA	\$ 132,284,735	1.7%	1.7%	(0.0%)
MIDDLE EAST	\$ 97,740,350	1.3%	1.0%	0.3%
EUROPE EM	\$ 50,373,850	0.6%	0.5%	0.2%
GRAND TOTAL	\$ 7,811,023,189	100.0%	100.0%	0.0%

Market Cap** (Public Intl Equities Only)	\$ Value	% Value	*Blended NON-US BM	Difference
1) 0 - 100M	\$ 2,325,016	0.0%	0.0%	0.0%
2) 100M - 500M	\$ 73,543,114	1.0%	0.5%	0.5%
3) 500M - 1B	\$ 166,264,689	2.2%	1.3%	0.9%
4) 1B - 5B	\$ 1,034,659,890	13.5%	12.7%	0.7%
5) 5B - 10B	\$ 1,031,981,490	13.4%	12.6%	0.9%
6) 10B - 50B	\$ 3,086,329,672	40.2%	39.1%	1.1%
7) >50B	\$ 2,280,493,963	29.7%	33.8%	(4.1%)
GRAND TOTAL	\$ 7,675,597,834	100.0%	100.0%	0.0%

**Excludes cash and non-traded securities

ARIZONA STATE RETIREMENT SYSTEM As of August 31, 2015

TOTAL FIXED INCOME EXPOSURE OVERVIEW

Sector (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
GOVERNMENT	\$ 1,609,865,629	33.6%	32.2%	1.5%
MORTGAGE SECURITIES	\$ 1,081,304,122	22.6%	21.9%	0.7%
FINANCIAL	\$ 410,391,121	8.6%	9.3%	(0.7%)
COMMUNICATIONS	\$ 335,326,928	7.0%	7.3%	(0.3%)
CONSUMER NON-CYCLICAL	\$ 330,703,602	6.9%	7.1%	(0.2%)
ENERGY	\$ 225,515,658	4.7%	5.8%	(1.1%)
CONSUMER CYCLICAL	\$ 216,331,995	4.5%	5.2%	(0.7%)
INDUSTRIAL	\$ 150,143,075	3.1%	3.8%	(0.7%)
TECHNOLOGY	\$ 106,666,377	2.2%	2.1%	0.2%
BASIC MATERIALS	\$ 91,092,205	1.9%	2.5%	(0.6%)
UTILITIES	\$ 89,313,067	1.9%	2.2%	(0.3%)
CASH	\$ 50,713,378	1.1%	0.0%	1.1%
BANK LOANS	\$ 35,930,624	0.8%	0.0%	0.8%
INDEX	\$ 31,021,892	0.6%	0.0%	0.6%
ASSET BACKED SECURITIES	\$ 15,142,883	0.3%	0.4%	(0.1%)
DIVERSIFIED	\$ 6,028,031	0.1%	0.2%	(0.1%)
GRAND TOTAL	\$ 4,785,490,587	100.0%	100.0%	0.0%

Top 20 Industry Groups (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
1 SOVEREIGN	\$ 1,504,734,899	31.4%	30.1%	1.4%
2 FNMA COLLATERAL	\$ 644,762,069	13.5%	9.3%	4.2%
3 FGLMC COLLATERAL	\$ 212,560,649	4.4%	5.6%	(1.2%)
4 BANKS	\$ 207,321,668	4.3%	5.1%	(0.7%)
5 TELECOMMUNICATIONS	\$ 173,310,673	3.6%	4.1%	(0.4%)
6 OIL&GAS	\$ 145,218,663	3.0%	3.8%	(0.8%)
7 MEDIA	\$ 131,215,166	2.7%	2.7%	0.0%
8 DIVERSIFIED FINAN SERV	\$ 118,852,602	2.5%	2.3%	0.2%
9 GNMA2 COLLATERAL	\$ 111,397,881	2.3%	4.5%	(2.1%)
10 HEALTHCARE-SERVICES	\$ 91,193,265	1.9%	1.8%	0.1%
11 ELECTRIC	\$ 86,573,659	1.8%	2.0%	(0.2%)
12 PHARMACEUTICALS	\$ 86,424,116	1.8%	1.5%	0.3%
13 RETAIL	\$ 79,921,867	1.7%	1.7%	(0.1%)
14 COMMERCIAL MBS	\$ 74,489,990	1.6%	1.4%	0.2%
15 PIPELINES	\$ 73,041,526	1.5%	1.5%	(0.0%)
16 SOFTWARE	\$ 65,985,553	1.4%	1.0%	0.4%
17 CHEMICALS	\$ 57,231,016	1.2%	0.9%	0.3%
18 MUNICIPAL	\$ 53,982,561	1.1%	0.6%	0.5%
19 CASH	\$ 50,713,378	1.1%	0.0%	1.1%
20 REITS	\$ 43,939,702	0.9%	0.9%	0.0%

Credit Rating Group** (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
01) AAA	\$ 2,693,098,520	56.3%	52.7%	3.6%
02) AA	\$ 198,465,056	4.1%	3.2%	0.9%
03) A	\$ 449,300,977	9.4%	8.3%	1.1%
04) BBB	\$ 418,195,570	8.7%	9.6%	(0.9%)
05) BB	\$ 454,710,789	9.5%	13.2%	(3.7%)
06) B	\$ 444,224,500	9.3%	9.8%	(0.5%)
07) CCC	\$ 113,504,584	2.4%	3.0%	(0.7%)
08) CC	\$ 443,767	0.0%	0.0%	(0.0%)
09) C	\$ -	0.0%	0.0%	(0.0%)
10) D	\$ 7,635,250	0.2%	0.0%	0.1%
11) Not Rated	\$ 5,911,572	0.1%	0.0%	0.1%
GRAND TOTAL	\$ 4,785,490,587	100.0%	100.0%	0.0%

Maturity Bucket (Public Fixed Income Only)	\$ Value	% Value	*Blended FI BM	Difference
0-1Y	\$ 131,280,464	2.8%	0.6%	2.2%
1Y-3Y	\$ 753,280,940	15.8%	19.8%	(4.0%)
3Y-5Y	\$ 708,779,897	14.9%	16.6%	(1.7%)
5Y-10Y	\$ 1,582,127,762	33.2%	30.6%	2.6%
10Y-15Y	\$ 181,747,911	3.8%	4.5%	(0.6%)
15Y+	\$ 1,403,891,195	29.5%	27.8%	1.6%
GRAND TOTAL	\$ 4,761,108,170	100.0%	100.0%	0.0%

*Blended TOTAL BM: 73% BC US AGG, 27% BC US HY.

ARIZONA STATE RETIREMENT SYSTEM
As of August 31, 2015

TOTAL PLAN RISK OVERVIEW

Strategy	\$ Value	% Value	Historical VaR 95%	HVaR Contri 95%	HVaR Contri % to Total	Parametric VaR 95%	PVaR Contri 95%	PVaR Contri % to Total	Exp Tail Loss 95%	Exp Tail Loss Contri 95%	Exp Tail Loss Contri % to Total	Max Loss	Std Dev	Downside Risk (8%)	Downside Risk Contri (8%)	Downside Risk Contri (8%) to Total
MONTHLY RISK																
CASH - UNASSETIZED	\$ 33,573,695	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	(0.6%)	(0.0%)	0.0%
CASH - ASSETIZED	\$ 330,148,439	1%	(8.6%)	0.0%	(0.1%)	(8.8%)	0.0%	(0.4%)	(11.2%)	0.1%	(0.4%)	(17.8%)	5.5%	(4.0%)	0.0%	(0.4%)
TOTAL FIXED INCOME	\$ 4,785,490,587	15%	(2.0%)	(0.0%)	0.4%	(1.8%)	(0.0%)	0.4%	(2.8%)	(0.0%)	0.1%	(4.4%)	1.1%	(1.2%)	(0.0%)	0.7%
US EQUITY	\$ 9,569,060,598	29%	(8.5%)	(2.6%)	38.0%	(8.1%)	(2.3%)	35.0%	(14.7%)	(4.3%)	36.7%	(29.6%)	5.7%	(4.1%)	(1.2%)	35.2%
INTERNATIONAL EQUITY	\$ 7,811,023,189	24%	(10.3%)	(2.1%)	30.2%	(9.6%)	(2.2%)	33.1%	(15.5%)	(3.5%)	30.3%	(35.4%)	6.4%	(4.6%)	(1.1%)	32.3%
REAL ESTATE	\$ 2,393,146,076	7%	(9.4%)	(0.7%)	10.0%	(9.0%)	(0.6%)	9.2%	(15.9%)	(1.1%)	9.3%	(31.6%)	5.8%	(4.5%)	(0.3%)	9.1%
FARMLAND & TIMBER	\$ 182,866,865	1%	(12.1%)	(0.1%)	1.0%	(11.6%)	(0.1%)	0.9%	(20.5%)	(0.1%)	0.9%	(40.8%)	7.5%	(5.7%)	(0.0%)	0.9%
PRIVATE EQUITY	\$ 2,645,453,925	8%	(11.6%)	(0.9%)	13.2%	(10.8%)	(0.8%)	12.3%	(18.7%)	(1.5%)	12.9%	(36.5%)	7.0%	(5.4%)	(0.4%)	12.5%
PRIVATE DEBT	\$ 1,757,926,461	5%	(2.6%)	(0.0%)	0.5%	(3.9%)	(0.1%)	1.9%	(7.7%)	(0.3%)	2.5%	(16.4%)	2.6%	(2.2%)	(0.1%)	2.1%
OPPORTUNISTIC EQUITY	\$ 472,079,058	1%	(10.8%)	(0.2%)	2.2%	(10.1%)	(0.1%)	2.1%	(17.5%)	(0.2%)	2.2%	(34.2%)	6.6%	(5.0%)	(0.1%)	2.1%
OPPORTUNISTIC DEBT	\$ 1,135,355,947	3%	(6.5%)	(0.2%)	2.7%	(9.0%)	(0.2%)	3.7%	(14.6%)	(0.4%)	3.8%	(28.6%)	5.7%	(4.2%)	(0.1%)	3.6%
GLOBAL INFLATION LINKED	\$ 256,919,642	1%	(7.7%)	(0.0%)	0.7%	(7.4%)	(0.0%)	0.6%	(11.5%)	(0.1%)	0.6%	(24.2%)	4.4%	(3.8%)	(0.0%)	0.6%
INFRASTRUCTURE	\$ 294,905,100	1%	(9.7%)	(0.1%)	1.2%	(9.1%)	(0.1%)	1.2%	(15.6%)	(0.1%)	1.2%	(35.1%)	5.8%	(4.6%)	(0.0%)	1.2%
MULTI-ASSET CLASS	\$ 1,084,409,165	3%	(0.4%)	0.0%	(0.0%)	(0.4%)	0.0%	(0.0%)	(0.5%)	0.0%	(0.0%)	(0.9%)	0.2%	(0.7%)	(0.0%)	0.0%
GRAND TOTAL	\$ 32,752,358,745	100%	(6.9%)	(6.9%)	100.0%	(6.6%)	(6.6%)	100.0%	(11.6%)	(11.6%)	100.0%	(25.5%)	4.5%	(3.4%)	(3.4%)	100.0%
INTERIM POLICY BENCHMARK			(6.9%)			(6.7%)			(11.5%)			(25.5%)	5.8%	(3.4%)		

ANNUALIZED RISK																
CASH - UNASSETIZED	\$ 33,573,695	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	N/A	0.0%	(2.2%)	(0.0%)	0.0%
CASH - ASSETIZED	\$ 330,148,439	1%	(29.7%)	0.0%	(0.1%)	(30.6%)	0.1%	(0.4%)	(38.9%)	0.2%	(0.4%)	N/A	19.2%	(13.8%)	0.0%	(0.4%)
TOTAL FIXED INCOME	\$ 4,785,490,587	15%	(7.0%)	(0.1%)	0.4%	(6.2%)	(0.1%)	0.4%	(9.5%)	(0.1%)	0.1%	N/A	3.7%	(4.2%)	(0.1%)	0.7%
US EQUITY	\$ 9,569,060,598	29%	(29.4%)	(9.1%)	38.0%	(28.2%)	(8.0%)	35.0%	(50.8%)	(14.8%)	36.7%	N/A	19.7%	(14.4%)	(4.1%)	35.2%
INTERNATIONAL EQUITY	\$ 7,811,023,189	24%	(35.6%)	(7.3%)	30.2%	(33.2%)	(7.6%)	33.1%	(53.6%)	(12.2%)	30.3%	N/A	22.1%	(16.1%)	(3.8%)	32.3%
REAL ESTATE	\$ 2,393,146,076	7%	(32.6%)	(2.4%)	10.0%	(31.2%)	(2.1%)	9.2%	(55.0%)	(3.8%)	9.3%	N/A	20.3%	(15.6%)	(1.1%)	9.1%
FARMLAND & TIMBER	\$ 182,866,865	1%	(42.0%)	(0.2%)	1.0%	(40.2%)	(0.2%)	0.9%	(71.0%)	(0.4%)	0.9%	N/A	26.1%	(19.8%)	(0.1%)	0.9%
PRIVATE EQUITY	\$ 2,645,453,925	8%	(40.0%)	(3.2%)	13.2%	(37.3%)	(2.8%)	12.3%	(64.9%)	(5.2%)	12.9%	N/A	24.4%	(18.6%)	(1.5%)	12.5%
PRIVATE DEBT	\$ 1,757,926,461	5%	(9.0%)	(0.1%)	0.5%	(13.4%)	(0.4%)	1.9%	(26.7%)	(1.0%)	2.5%	N/A	9.2%	(7.5%)	(0.3%)	2.1%
OPPORTUNISTIC EQUITY	\$ 472,079,058	1%	(37.5%)	(0.5%)	2.2%	(35.0%)	(0.5%)	2.1%	(60.8%)	(0.9%)	2.2%	N/A	22.9%	(17.5%)	(0.2%)	2.1%
OPPORTUNISTIC DEBT	\$ 1,135,355,947	3%	(22.6%)	(0.7%)	2.7%	(31.3%)	(0.8%)	3.7%	(50.7%)	(1.5%)	3.8%	N/A	19.9%	(14.5%)	(0.4%)	3.6%
GLOBAL INFLATION LINKED	\$ 256,919,642	1%	(26.5%)	(0.2%)	0.7%	(25.8%)	(0.1%)	0.6%	(39.7%)	(0.2%)	0.6%	N/A	15.4%	(13.1%)	(0.1%)	0.6%
INFRASTRUCTURE	\$ 294,905,100	1%	(33.8%)	(0.3%)	1.2%	(31.6%)	(0.3%)	1.2%	(54.2%)	(0.5%)	1.2%	N/A	20.2%	(16.1%)	(0.1%)	1.2%
MULTI-ASSET CLASS	\$ 1,084,409,165	3%	(1.2%)	0.0%	(0.0%)	(1.2%)	0.0%	(0.0%)	(1.7%)	0.0%	(0.0%)	N/A	0.8%	(2.3%)	(0.0%)	0.0%
GRAND TOTAL	\$ 32,752,358,745	100%	(24.0%)	(24.0%)	100.0%	(23.0%)	(23.0%)	100.0%	(40.2%)	(40.2%)	100.0%	N/A	15.5%	(11.8%)	(11.8%)	100.0%
INTERIM POLICY BENCHMARK			(24.0%)			(23.1%)			(39.7%)			N/A	20.1%	(11.7%)		

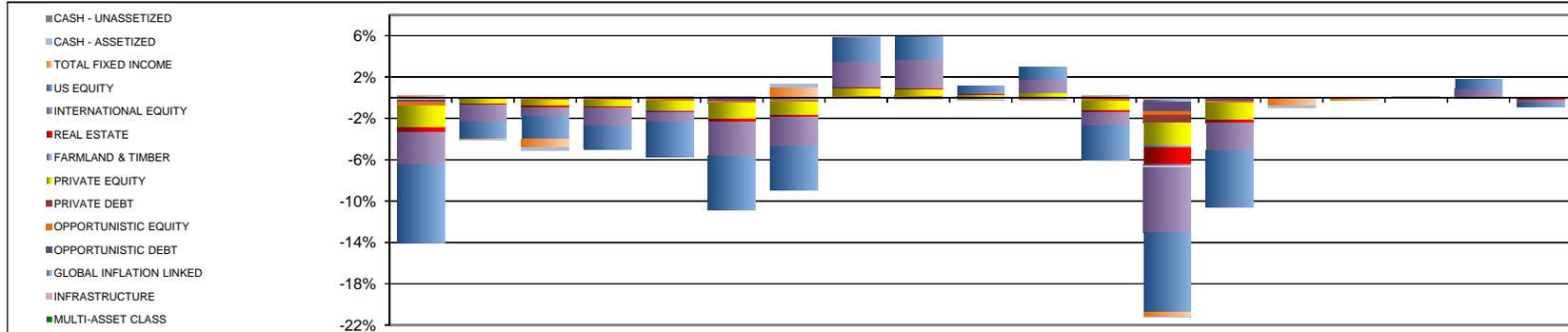
Strategy	\$ Value	% Value	Beta SP500	Corr SP500	Beta MSCI EAFE	Corr MSCI EAFE	Duration	Convexity	Notional Exposure	Gross Exposure	Gross Leverage
CASH - UNASSETIZED	\$ 33,573,695	0%	0.00		0.00				\$ 33,573,695	\$ 33,573,695	100.0%
CASH - ASSETIZED	\$ 330,148,439	1%	(0.13)	(0.31)	(0.09)	(0.28)			\$ 843,107,634	\$ 330,148,439	100.0%
TOTAL FIXED INCOME	\$ 4,785,490,587	15%	(0.00)	(0.00)	0.01	0.08	5.32	0.178	\$ 4,542,707,818	\$ 4,785,490,587	100.0%
US EQUITY	\$ 9,569,060,598	29%	1.03	0.99	0.80	0.90	0.35	0.001	\$ 9,741,123,592	\$ 9,569,060,598	100.0%
INTERNATIONAL EQUITY	\$ 7,811,023,189	24%	1.08	0.90	1.00	0.99			\$ 7,811,131,214	\$ 7,847,204,872	100.5%
REAL ESTATE	\$ 2,393,146,076	7%	0.95	0.87	0.81	0.88			\$ 2,393,146,076	\$ 2,393,146,076	100.0%
FARMLAND & TIMBER	\$ 182,866,865	1%	1.23	0.87	1.05	0.88			\$ 182,866,865	\$ 182,866,865	100.0%
PRIVATE EQUITY	\$ 2,645,453,925	8%	1.25	0.95	0.95	0.85			\$ 2,645,453,925	\$ 2,645,453,925	100.0%
PRIVATE DEBT	\$ 1,757,926,461	5%	0.30	0.60	0.24	0.58	0.50	0.003	\$ 1,757,608,008	\$ 1,776,414,079	101.1%
OPPORTUNISTIC EQUITY	\$ 472,079,058	1%	1.17	0.95	0.89	0.85			\$ 472,079,058	\$ 472,079,058	100.0%
OPPORTUNISTIC DEBT	\$ 1,135,355,947	3%	0.75	0.70	0.64	0.71			\$ 1,135,355,947	\$ 1,135,355,947	100.0%
GLOBAL INFLATION LINKED	\$ 256,919,642	1%	0.27	0.64	0.25	0.68	0.29	0.001	\$ 499,163,492	\$ 256,919,642	100.0%
INFRASTRUCTURE	\$ 294,905,100	1%	1.05	0.97	0.90	0.98			\$ 294,905,100	\$ 294,905,100	100.0%
MULTI-ASSET CLASS	\$ 1,084,409,165	3%	(0.00)	(0.02)	(0.00)	(0.13)	(7.31)	(1.010)	\$ 1,115,956,058	\$ 1,402,064,480	129.3%
GRAND TOTAL	\$ 32,752,358,745	100%	0.79	0.97	0.66	0.95	4.92	0.151	\$ 33,468,178,481	\$ 33,124,683,362	101.1%

ARIZONA STATE RETIREMENT SYSTEM
As of August 31, 2015

TOTAL PLAN STRESS TESTS

Strategy	\$ Value	% Value	Historical Scenarios													Predictive Scenarios					
			Black Monday - 5 Day	Gulf War - 5 Day	Bond Crash: Feb 94 - May 94	Asian Crisis 97-98 - 5 day	Russian Crisis - 5 Day	Masdaq Correction: July 98 - Aug 98	Russian Debt Crisis Aug - Oct	IR Steepening: Sept 98 - Nov 98	Emerging Markets Rally: Jan 99 - May 99	Fed Tightening: April - June 99	Masdaq Rally: Nov 99 - Jan 00	9/11 Attack - 5 Day	09-10-2008	S&P 500 - 20%	IR Parallel Shift + 100bps	Spread Up 100bps	Inflation +1%	Gold Shock -20%	Oil Shock -20%
Stress Test Stand Alone																					
CASH - UNASSETIZED	\$ 33,573,695	0.1%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CASH - ASSETIZED	\$ 330,148,439	1.0%	5.6	(2.5)	(30.6)	3.9	3.1	5.4	33.7	0.1	(4.5)	(3.9)	(6.5)	7.8	(0.6)	0.0	(21.3)	0.0	3.1	0.0	1.9
TOTAL FIXED INCOME	\$ 4,785,490,587	14.6%	1.0	(0.4)	(6.1)	0.7	0.6	0.9	7.0	0.0	(0.8)	(0.7)	(1.2)	1.3	(2.9)	0.0	(5.4)	(0.2)	0.6	0.0	0.3
US EQUITY	\$ 9,569,060,598	29.2%	(26.2)	(5.8)	(7.4)	(7.9)	(11.6)	(18.3)	(14.9)	8.2	7.6	2.7	4.0	(11.2)	(26.4)	(19.3)	(0.0)	0.0	0.0	3.2	(1.3)
INTERNATIONAL EQUITY	\$ 7,811,023,189	23.8%	(13.0)	(6.8)	(3.5)	(7.2)	(3.5)	(13.5)	(11.5)	10.3	11.5	(0.6)	5.3	(5.5)	(27.6)	(10.8)	0.0	0.0	0.0	3.5	(1.3)
REAL ESTATE	\$ 2,393,146,076	7.3%	(5.5)	(1.2)	(1.6)	(1.7)	(2.4)	(3.9)	(3.1)	1.8	1.6	0.6	0.8	(2.4)	(22.5)	(4.1)	0.0	0.0	0.0	0.0	(0.3)
FARMLAND & TIMBER	\$ 182,866,865	0.6%	(7.1)	(1.6)	(2.0)	(2.2)	(3.2)	(5.0)	(4.0)	2.3	2.0	0.7	1.1	(3.0)	(29.0)	(5.2)	0.0	0.0	0.0	0.0	(0.4)
PRIVATE EQUITY	\$ 2,645,453,925	8.1%	(26.3)	(5.8)	(7.5)	(8.0)	(11.6)	(18.5)	(14.9)	8.3	7.6	2.7	4.0	(11.2)	(27.1)	(19.3)	0.0	0.0	0.0	0.0	(1.4)
PRIVATE DEBT	\$ 1,757,926,461	5.4%	(0.9)	(0.2)	(0.3)	(0.3)	(0.4)	(0.6)	(0.5)	0.3	0.3	0.1	0.1	(0.4)	(14.6)	(0.7)	(0.0)	(0.0)	0.0	0.0	(0.1)
OPPORTUNISTIC EQUITY	\$ 472,079,058	1.4%	(24.6)	(5.4)	(7.1)	(7.5)	(10.9)	(17.4)	(14.0)	7.8	7.1	2.5	3.7	(10.5)	(25.4)	(18.1)	0.0	0.0	0.0	0.0	(1.3)
OPPORTUNISTIC DEBT	\$ 1,135,355,947	3.5%	(4.2)	(0.9)	(1.2)	(1.3)	(1.9)	(2.9)	(2.4)	1.3	1.2	0.4	0.6	(1.8)	(27.3)	(3.1)	0.0	0.0	0.0	0.0	(0.3)
GLOBAL INFLATION LINKED	\$ 256,919,642	0.8%	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	0.0	0.0	(0.0)	(15.9)	0.0	0.0	0.0	(0.0)	(5.9)	(5.6)
INFRASTRUCTURE	\$ 294,905,100	0.9%	(20.5)	(4.5)	(5.9)	(6.2)	(9.1)	(14.4)	(11.6)	6.5	5.9	2.1	3.1	(8.7)	(28.3)	(15.1)	0.0	0.0	0.0	0.0	(1.5)
MULTI-ASSET CLASS	\$ 1,084,409,165	3.3%	(1.1)	(0.2)	(0.3)	(0.5)	(0.6)	(0.9)	(1.3)	0.3	0.6	0.2	0.2	(0.6)	(0.7)	0.5	0.0	(0.0)	0.1	0.0	(0.0)
GRAND TOTAL	\$ 32,752,358,745	100.0%	(13.9)	(4.1)	(5.1)	(4.9)	(5.6)	(10.7)	(7.7)	5.9	5.8	0.8	2.7	(5.7)	(21.2)	(10.7)	(1.0)	(0.2)	0.1	1.7	(0.8)
INTERIM POLICY BENCHMARK			(14.0)	(4.5)	(5.5)	(5.4)	(5.4)	(11.3)	(7.6)	6.7	6.6	0.7	3.1	(5.8)	(20.7)	(10.8)	(1.2)	(0.4)	0.1	2.0	(0.9)

Stress Test Contribution																					
CASH - UNASSETIZED	\$ 33,573,695	0.1%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CASH - ASSETIZED	\$ 330,148,439	1.0%	0.1	(0.0)	(0.3)	0.0	0.0	0.1	0.3	0.0	(0.0)	(0.0)	(0.1)	0.1	(0.0)	0.0	(0.2)	0.0	0.0	0.0	0.0
TOTAL FIXED INCOME	\$ 4,785,490,587	14.6%	0.1	(0.1)	(0.9)	0.1	0.1	0.1	1.0	0.0	(0.1)	(0.1)	(0.2)	0.2	(0.4)	0.0	(0.8)	(0.2)	0.1	0.0	0.0
US EQUITY	\$ 9,569,060,598	29.2%	(7.7)	(1.7)	(2.2)	(2.3)	(3.4)	(5.3)	(4.4)	2.4	2.2	0.8	1.2	(3.3)	(7.7)	(5.6)	(0.0)	0.0	0.0	0.9	(0.4)
INTERNATIONAL EQUITY	\$ 7,811,023,189	23.8%	(3.1)	(1.6)	(0.8)	(1.7)	(0.8)	(3.2)	(2.7)	2.5	2.7	(0.1)	1.3	(1.3)	(6.6)	(2.6)	0.0	0.0	0.0	0.8	(0.3)
REAL ESTATE	\$ 2,393,146,076	7.3%	(0.4)	(0.1)	(0.1)	(0.1)	(0.2)	(0.3)	(0.2)	0.1	0.1	0.0	0.1	(0.2)	(1.6)	(0.3)	0.0	0.0	0.0	0.0	(0.0)
FARMLAND & TIMBER	\$ 182,866,865	0.6%	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.2)	(0.0)	0.0	0.0	0.0	0.0	(0.0)
PRIVATE EQUITY	\$ 2,645,453,925	8.1%	(2.1)	(0.5)	(0.6)	(0.6)	(0.9)	(1.5)	(1.2)	0.7	0.6	0.2	0.3	(0.9)	(2.2)	(1.6)	0.0	0.0	0.0	0.0	(0.1)
PRIVATE DEBT	\$ 1,757,926,461	5.4%	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.8)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)
OPPORTUNISTIC EQUITY	\$ 472,079,058	1.4%	(0.4)	(0.1)	(0.1)	(0.1)	(0.2)	(0.3)	(0.2)	0.1	0.1	0.0	0.1	(0.2)	(0.4)	(0.3)	0.0	0.0	0.0	0.0	(0.0)
OPPORTUNISTIC DEBT	\$ 1,135,355,947	3.5%	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	0.0	0.0	0.0	0.0	(0.1)	(0.9)	(0.1)	0.0	0.0	0.0	0.0	(0.0)
GLOBAL INFLATION LINKED	\$ 256,919,642	0.8%	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	(0.1)	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)
INFRASTRUCTURE	\$ 294,905,100	0.9%	(0.2)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	0.1	0.1	0.0	0.0	(0.1)	(0.3)	(0.1)	0.0	0.0	0.0	0.0	(0.0)
MULTI-ASSET CLASS	\$ 1,084,409,165	3.3%	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)
GRAND TOTAL	\$ 32,752,358,745	100.0%	(13.9)	(4.1)	(5.1)	(4.9)	(5.6)	(10.7)	(7.7)	5.9	5.8	0.8	2.7	(5.7)	(21.2)	(10.7)	(1.0)	(0.2)	0.1	1.7	(0.8)
INTERIM POLICY BENCHMARK			(14.0)	(4.5)	(5.5)	(5.4)	(5.4)	(11.3)	(7.6)	6.7	6.6	0.7	3.1	(5.8)	(20.7)	(10.8)	(1.2)	(0.4)	0.1	2.0	(0.9)



GLOSSARY	DEFINITION	INTERPRETATION
Historical VaR 95%	A risk metric that is derived from a full revaluation historical simulation of the risk factors impacting a portfolio, <u>making no assumption of the tail distribution</u> , and reporting the largest loss likely to be suffered over a holding period (1Month for ASRS) 5 times out of 100, or 1 month out of 20	Value at Risk is a number, measured in price units or as percentage of portfolio value, which tells you that in a defined large percentage of cases (usually 95% or 99%) your portfolio is likely to not lose more than that amount of money. Or said the other way around, in a defined small percentage of cases (5% or 1%) your loss is expected to be greater than that number.
HVaR Contri 95%	This is the decomposition of the VaR, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
HVaR Contri % to Total	This is the VaR contribution displayed in percent.	
Parametric VaR 95%	A risk metric that is derived from a full revaluation historical simulation of the risk factors impacting a portfolio, <u>making a Normal distribution assumption of the tail distribution</u> , and reporting the largest loss likely to be suffered over a holding period (1Month for ASRS) 5 times out of 100, or 1 month out of 20.	Value at Risk is a number, measured in price units or as percentage of portfolio value, which tells you that in a defined large percentage of cases (usually 95% or 99%) your portfolio is likely to not lose more than that amount of money. Or said the other way around, in a defined small percentage of cases (5% or 1%) your loss is expected to be greater than that number.
PVaR Contri 95%	This is the decomposition of the VaR, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
PVaR Contri % to Total	This is the VaR contribution displayed in percent.	
Exp Tail Loss 95%	Also known as Conditional VaR or ETL, it is derived by taking a weighted average between the VaR and losses exceeding the VaR. If VaR is reported at 95.0%, then ETL will average the losses between 95.1% to 99.9%. It is a risk measure that assesses the risk beyond VaR and into the tail end of the distribution of loss.	A measure that produces better incentives for traders than VaR is expected shortfall. This is also sometimes referred to as Conditional VaR, or tail loss. <u>Where VaR asks the question 'how bad can things get?', expected shortfall asks 'if things do get bad, what is our expected loss?'</u>
Exp Tail Loss Contri 95%	This is the decomposition of the ETL making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
Exp Tail Loss Contri % to Total	This is the ETL contribution displayed in percent.	
Max Loss	The maximum projected loss.	
Downside Risk (8.7%)	A risk metric that distinguishes between "good" and "bad" returns by assigning risk only to those returns below a return specified by an investor. Downside risk is considered a more effective risk measure than standard deviation (volatility) for two important reasons: 1) it is investor specific, and 2) it identifies return distributions that have higher probabilities for negative ("left tail") market events. Downside risk is also referred to as downside deviation or target semi-deviation.	A 5 % downside risk with an 8.7% MAR means that the conditional average underperformance (below 8.7% annual) is 5%, adjusted for a positive skew (greater than the MAR). Effectively, downside risk amplifies a big loss (by squaring the distance of that loss to the target) and smoothes out the risk measure by taking into account the gains setting them up to be equal to the target MAR.
Downside Risk Contri (8.7%)	This is the decomposition of the downside risk, making it an additive measure, showing positive values where risk is decreased and correlations are negative.	
Downside Risk Contri (8.7%) to Total	This is the downside risk contribution displayed in percent.	

Agenda Item #5



NEPC, LLC

To: The Arizona State Retirement System (ASRS) Investment Committee (IC)

From: Mr. Allan Martin, Partner, Consultant, NEPC
Mr. Dan LeBeau, Consultant, NEPC

Date: October 20, 2015

Subject: Agenda Item #5: Presentation, Discussion and Appropriate Action Regarding Independent Reporting, Monitoring and Oversight of the ASRS Investment Program

Purpose

To present and discuss information regarding the independent reporting, monitoring and oversight of the ASRS Investment Program.

Recommendation

Informational only; no action required.

Background

NEPC is responsible for providing an independent reporting, monitoring and oversight function from the Investment Program information which is presented by the CIO and IMD.

As a result, NEPC has developed reports for both the IC and Board designed to 1) provide the appropriate level of investment information for the purposes of independent oversight (ASRS SAAP compliance, Asset Class Committee minutes review, investment selection due diligence packet compliance, etc.); 2) provide ASRS investment program performance relative to its goals/objectives (presented quarterly); and 3) communicate NEPC's perspectives on the market environment, investment outlook or other initiatives or topics they believe are important to convey to the IC.

As of October 8, 2015, the Total Fund's market value was approximately \$33.7 billion.

Attachments:

- NEPC's Independent Reporting, Monitoring and Oversight reports

Arizona State Retirement System

Independent ASRS Investment Program Oversight

October 26, 2015

Allan Martin, Partner, NEPC

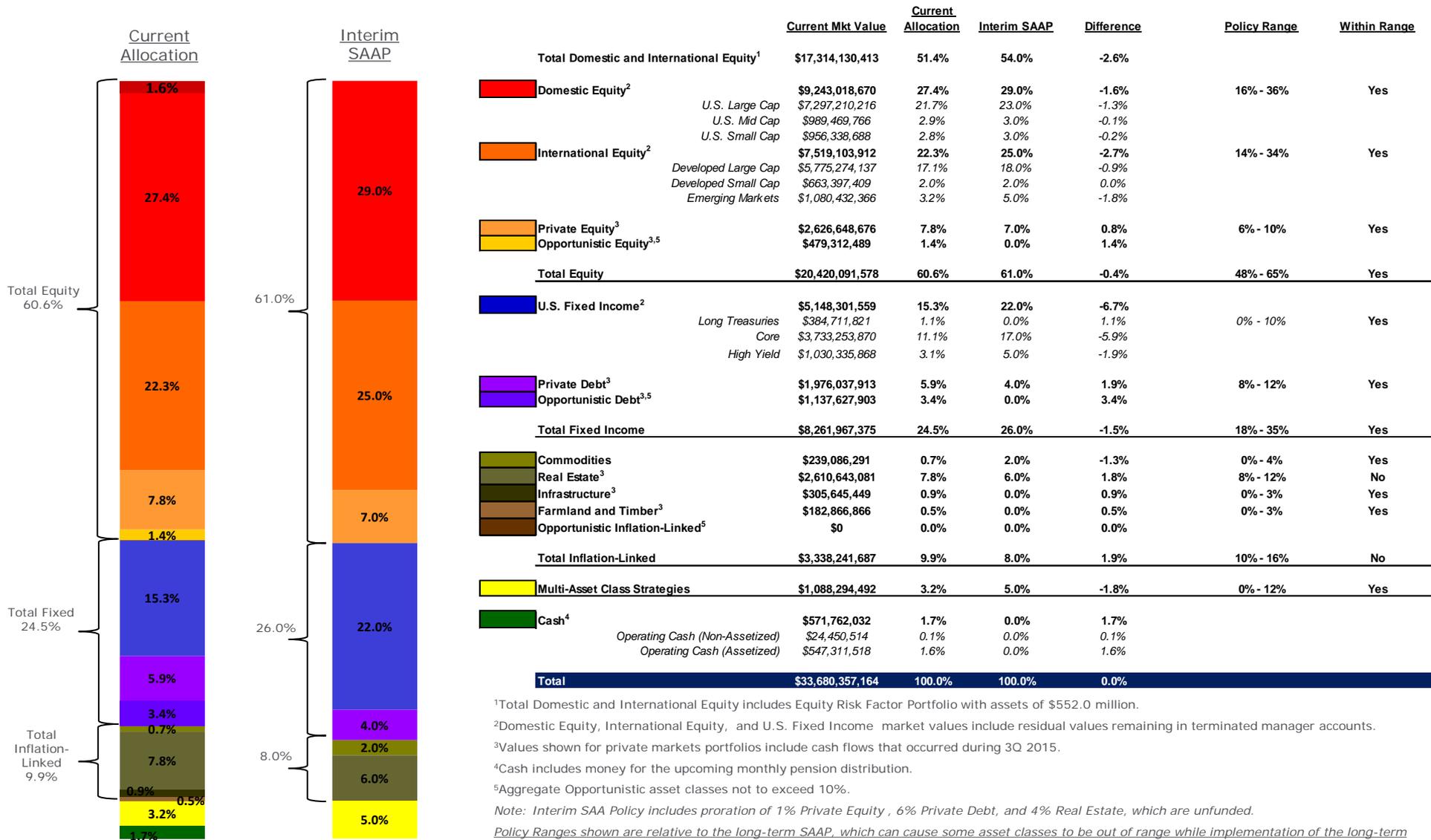


- Independent Oversight/Compliance
 - SAA Policy Compliance
 - Asset Class Committee Monitoring
- Market Environment Update
- Appendix: SAA Policy History

Independent Oversight/Compliance

Arizona State Retirement System

SAA Policy Compliance



	Current Mkt Value	Current Allocation	Interim SAAP	Difference	Policy Range	Within Range
Total Domestic and International Equity¹	\$17,314,130,413	51.4%	54.0%	-2.6%		
Domestic Equity²	\$9,243,018,670	27.4%	29.0%	-1.6%	16% - 36%	Yes
U.S. Large Cap	\$7,297,210,216	21.7%	23.0%	-1.3%		
U.S. Mid Cap	\$989,469,766	2.9%	3.0%	-0.1%		
U.S. Small Cap	\$956,338,688	2.8%	3.0%	-0.2%		
International Equity²	\$7,519,103,912	22.3%	25.0%	-2.7%	14% - 34%	Yes
Developed Large Cap	\$5,775,274,137	17.1%	18.0%	-0.9%		
Developed Small Cap	\$663,397,409	2.0%	2.0%	0.0%		
Emerging Markets	\$1,080,432,366	3.2%	5.0%	-1.8%		
Private Equity³	\$2,626,648,676	7.8%	7.0%	0.8%	6% - 10%	Yes
Opportunistic Equity^{3,5}	\$479,312,489	1.4%	0.0%	1.4%		
Total Equity	\$20,420,091,578	60.6%	61.0%	-0.4%	48% - 65%	Yes
U.S. Fixed Income²	\$5,148,301,559	15.3%	22.0%	-6.7%		
Long Treasuries	\$384,711,821	1.1%	0.0%	1.1%	0% - 10%	Yes
Core	\$3,733,253,870	11.1%	17.0%	-5.9%		
High Yield	\$1,030,335,868	3.1%	5.0%	-1.9%		
Private Debt³	\$1,976,037,913	5.9%	4.0%	1.9%	8% - 12%	Yes
Opportunistic Debt^{3,5}	\$1,137,627,903	3.4%	0.0%	3.4%		
Total Fixed Income	\$8,261,967,375	24.5%	26.0%	-1.5%	18% - 35%	Yes
Commodities	\$239,086,291	0.7%	2.0%	-1.3%	0% - 4%	Yes
Real Estate³	\$2,610,643,081	7.8%	6.0%	1.8%	8% - 12%	No
Infrastructure³	\$305,645,449	0.9%	0.0%	0.9%	0% - 3%	Yes
Farmland and Timber³	\$182,866,866	0.5%	0.0%	0.5%	0% - 3%	Yes
Opportunistic Inflation-Linked⁵	\$0	0.0%	0.0%	0.0%		
Total Inflation-Linked	\$3,338,241,687	9.9%	8.0%	1.9%	10% - 16%	No
Multi-Asset Class Strategies	\$1,088,294,492	3.2%	5.0%	-1.8%	0% - 12%	Yes
Cash⁴	\$571,762,032	1.7%	0.0%	1.7%		
Operating Cash (Non-Assetized)	\$24,450,514	0.1%	0.0%	0.1%		
Operating Cash (Assetized)	\$547,311,518	1.6%	0.0%	1.6%		
Total	\$33,680,357,164	100.0%	100.0%	0.0%		

¹Total Domestic and International Equity includes Equity Risk Factor Portfolio with assets of \$552.0 million.

²Domestic Equity, International Equity, and U.S. Fixed Income market values include residual values remaining in terminated manager accounts.

³Values shown for private markets portfolios include cash flows that occurred during 3Q 2015.

⁴Cash includes money for the upcoming monthly pension distribution.

⁵Aggregate Opportunistic asset classes not to exceed 10%.

Note: Interim SAA Policy includes proration of 1% Private Equity, 6% Private Debt, and 4% Real Estate, which are unfunded.

Policy Ranges shown are relative to the long-term SAAP, which can cause some asset classes to be out of range while implementation of the long-term SAAP is in process.

Current Market Value and Current Allocation are based on unaudited values as of October 8, 2015. Data shown above will differ from what is presented in the 3Q 2015 Board Report that is scheduled to be presented at the December 4, 2015 Board meeting.

Market values include manager held cash.

- **Five Asset Class Committee meetings have been held since the last time we provided an update on the ASRS Asset Class Committee Meetings.**

- **July 29, 2015 – Private Markets Committee**
 - Opportunistic Equity Manager Recommendation (Lesser of 20% of capital raised in this round of fundraising or \$100 million co-investment) – Follow Up from July 20, 2015 PRIVMC meeting
 - The PRIVMC requested additional due diligence at the July 20, 2015 PRIVMC meeting
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Opportunistic Equity is 0%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

- **August 14, 2015 – Public Markets Committee**
 - Public Markets Staff Reports and Capital Markets Discussion
 - Update on Cash Assetization Program and Liquidity Cash Flow Sourcing Discussion
 - Equity Risk Factor Portfolio Asset Allocation Reassignment Discussion
 - Non-U.S. Equities Portfolio Development
 - Public Equity Risk Management Options

- **August 28, 2015 – Private Markets Committee**

- Variance Request

- The Private Markets Team, in conjunction with RCLCO, recommended the ASRS approve a variance request from an existing real estate manager that would allow the manager to invest in a property that does not meet the current investment criteria for the portfolio.
 - Current investment criteria requires stabilization of an asset within four years of investment, but the asset in question is not expected to achieve stabilization until 4Q 2019, which is during the fifth year.
- Committee approved the recommendation

- Change in Investment Criteria

- The Private Markets Team, in conjunction with RCLCO, recommended the ASRS approve a change to the investment criteria of an existing real estate manager that would allow the manager to pursue opportunities without the use of leverage.
 - Current investment criteria identifies IRR return hurdles that each asset must meet prior to investment. The asset in question is attractive and meets the IRR return hurdle on a levered basis; however, the private markets team believes it is preferable to pursue the opportunity on an unlevered basis at this time.
 - In addition, changing the investment criteria to allow for future investments on an unlevered basis allows for more flexibility in managing risk and focusing the use of leverage on situations where it is most advantageous to the ASRS.
- Committee approved the recommendation

- **September 15, 2015 – Private Markets Committee**

- Monthly Status Report, General Discussion and Deal Flow
- Real Estate Manager Recommendation – Additional Commitment (\$40 million; \$100 million original commitment)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 10%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
 - The Committee approved the original \$100 million investment at the May 12, 2014 PRIVMC meeting
 - In addition to the additional commitment, the investment criteria of the portfolio were also amended to accommodate the higher commitment amount and a proposed transaction that is currently in the pipeline.
- Investment Valuation Discussion
 - KPMG presented the results of their valuation analysis of an existing ASRS investment
- Private Debt Manager Recommendation – Additional Commitment (\$650 million to 7 existing ASRS private debt mandates)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Debt is 10%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
 - Fund A – \$1.0 billion - \$1.1 billion
 - Fund B - \$0.5 billion - \$0.6 billion
 - Fund C - \$0.5 billion - \$0.6 billion
 - Fund D - \$0.35 billion - \$0.5 billion
 - Fund E - \$0.35 billion - \$0.45 billion
 - Fund F - \$0.35 billion - \$0.4 billion
 - Fund G - \$0.16 billion - \$0.25 billion

- **October 15, 2015 – Private Markets Committee**

- Monthly Status Report, General Discussion and Deal Flow
- Real Estate Manager Recommendation (\$300 million commitment)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 10%)
 - The ASRS has invested with this manager in a prior fund in the private debt program
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Real Estate Manager Recommendation – Additional Commitment (\$50 million; \$300 million original commitment)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Real Estate is 10%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
 - The Committee approved the original \$300 million investment at the October 29, 2012 PRIVMC meeting
 - In addition to the additional commitment, the investment criteria of the portfolio were also amended to allow for investments in Dallas, TX.
- Private Equity Manager Recommendation (\$50 million commitment)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation
- Private Equity Manager Recommendation (\$50 million commitment)
 - Consistent with strategic plan at the Total Fund level (SAAP Target to Private Equity is 8%)
 - Due diligence process was followed in accordance with SIP 006 – Investment Manager, Partner, and Co-Investment Selection and Oversight
 - Committee approved the recommendation

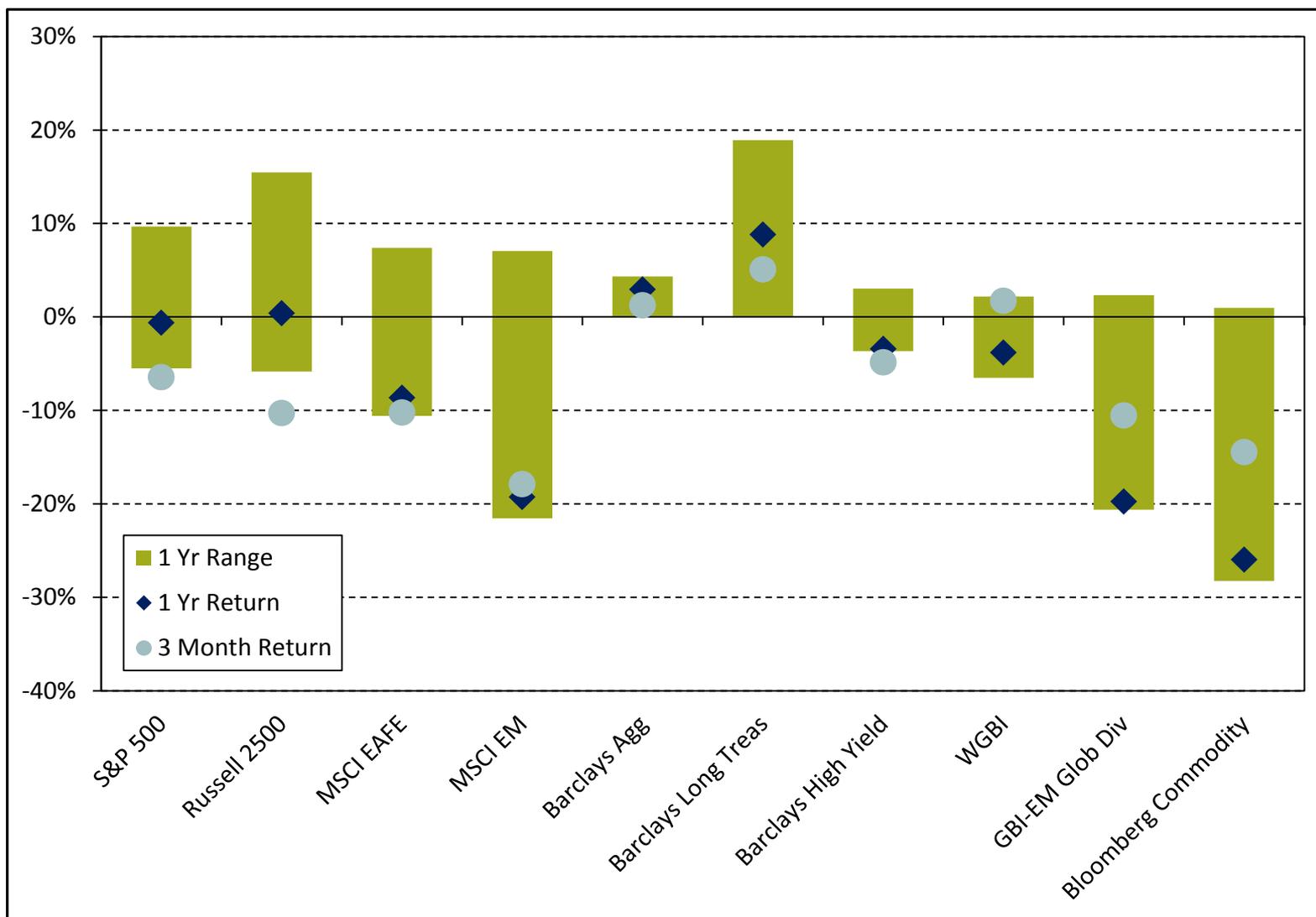
- **The Fund continues to make significant progress moving the portfolio from the Interim SAAP toward the long-term SAAP. New long-term SAAP adopted as of April 1, 2015.**
 - Current Interim SAAP includes proration of 1% Private Equity, 6% Private Debt, and 4% Real Estate, which are unfunded.
 - Continued build out of private markets asset classes provides opportunity to take advantage of illiquidity premium to produce expected returns in excess of what we believe can be achieved in the public markets.
- **IMD has already taken significant steps to move the Fund toward implementation of the recently approved SAAP.**
 - The largest single underweight position in the Fund is Private Debt, which was increased from a 3% SAAP target to a 10% SAAP target with an 8% - 12% range (current actual is 5.9%).
 - \$4.55 billion in commitments to private debt strategies equates to approximately 13.5% of Total Fund assets vs. the SAAP target of 10%.
 - Additional \$500 million commitment is currently being contemplated, which would bring commitments to \$5.1 billion, or 15.1% of Total Fund assets vs. the SAAP target of 10%.
 - Estimate private debt asset class reaching 10% target by the end of 2016.
 - Estimate private debt asset class reaching 12% cap in 3Q 2017.
 - Multi-Asset Class Strategies (formerly GTAA) has been restructured and moved 'above the line', and now has an explicit 5% target within the SAAP.
- **Long Treasuries mandate funded in August 2015 to mitigate volatility experienced during the third quarter.**
- **Tactical positioning consistent with IMD House Views.**

Market Environment Update

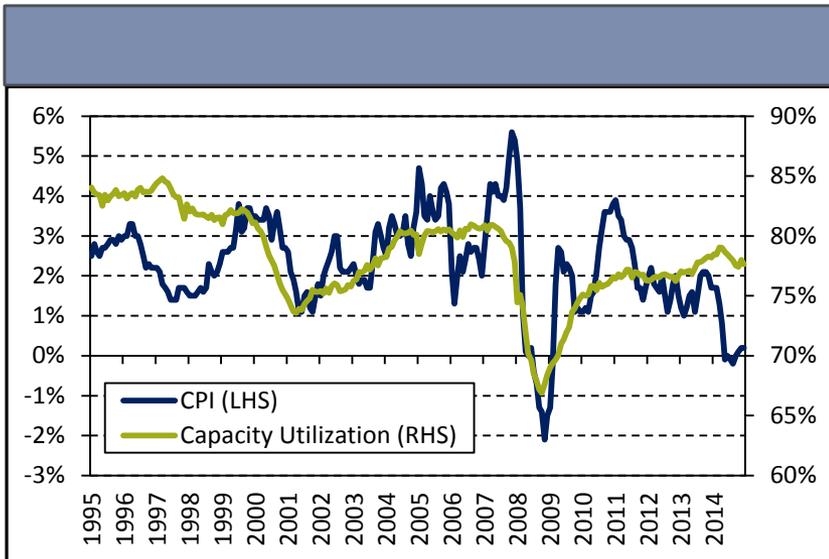
Index Performance Summary as of 9/30/2015

	2008	2009	2010	2011	2012	2013	2014	Q1	Q2	JUL	AUG	SEPT	Q3	YTD
Barclays Municipal	-2.5%	12.9%	2.4%	10.7%	6.8%	-2.6%	9.1%	1.0%	-0.9%	0.7%	0.2%	0.7%	1.7%	1.8%
Barclays US Agg Interm	4.9%	6.5%	6.1%	6.0%	3.6%	-1.0%	4.1%	1.3%	-0.7%	0.5%	0.0%	0.7%	1.1%	1.7%
Credit Suisse Lev Loan	-28.8%	44.9%	10.0%	1.8%	9.4%	6.2%	2.1%	2.1%	0.8%	0.1%	-0.7%	-0.7%	-1.2%	1.6%
Barclays US Agg Bond	5.2%	5.9%	6.5%	7.8%	4.2%	-2.0%	6.0%	1.6%	-1.7%	0.7%	-0.1%	0.7%	1.2%	1.1%
Barclays US Gov/Cred 1-3Yr	5.0%	3.8%	2.8%	1.6%	1.3%	0.6%	0.8%	0.6%	0.1%	0.1%	-0.1%	0.3%	0.3%	1.0%
Credit Suisse Hedge Fund	-19.1%	18.6%	10.9%	-2.5%	7.7%	9.7%	4.1%	2.5%	-0.5%	0.9%	-2.0%	N/A	N/A	0.8%
JPM EMBI Glob Div	-12.0%	29.8%	12.2%	7.3%	17.4%	-5.3%	7.4%	2.0%	-0.3%	0.5%	-0.9%	-1.3%	-1.7%	-0.1%
Citi WGBI	10.9%	2.6%	5.2%	6.4%	1.6%	-4.0%	-0.5%	-2.5%	-1.5%	0.5%	0.5%	0.8%	1.7%	-2.4%
Barclays US Gov/Cred Long	8.4%	1.9%	10.2%	22.5%	8.8%	-8.8%	19.3%	3.4%	-7.6%	2.2%	-0.8%	0.8%	2.2%	-2.4%
Barclays US Corp High Yield	-26.2%	58.2%	15.1%	5.0%	15.8%	7.4%	2.5%	2.5%	0.0%	-0.6%	-1.7%	-2.6%	-4.9%	-2.5%
Barclays US Strips 20+ Yr	59.5%	-36.0%	10.9%	58.5%	3.0%	-21.0%	46.4%	5.5%	-14.3%	5.9%	0.1%	1.5%	7.6%	-2.7%
FTSE NAREIT Equity REITs	-37.7%	28.0%	28.0%	8.3%	18.1%	2.5%	30.1%	4.8%	-10.0%	5.6%	-6.2%	2.9%	2.0%	-3.8%
Barclays US Long Credit	-3.9%	16.8%	10.7%	17.1%	12.7%	-6.6%	16.4%	3.1%	-7.3%	1.5%	-1.3%	0.4%	0.5%	-3.9%
Russell 1000	-37.6%	28.4%	16.1%	1.5%	16.4%	33.1%	13.2%	1.6%	0.1%	1.9%	-6.0%	-2.7%	-6.8%	-5.2%
MSCI EAFE	-43.4%	31.8%	7.8%	-12.1%	17.3%	22.8%	-4.9%	4.9%	0.6%	2.1%	-7.4%	-5.1%	-10.2%	-5.3%
S&P 500	-37.0%	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.0%	0.3%	2.1%	-6.0%	-2.5%	-6.4%	-5.3%
Russell 2500	-36.8%	34.4%	26.7%	-2.5%	17.9%	36.8%	7.1%	5.2%	-0.3%	-0.2%	-5.9%	-4.5%	-10.3%	-6.0%
MSCI ACWI	-42.2%	34.6%	12.7%	-7.3%	16.1%	22.8%	4.2%	2.3%	0.3%	0.9%	-6.9%	-3.6%	-9.5%	-7.0%
Russell 2000	-33.8%	27.2%	26.9%	-4.2%	16.3%	38.8%	4.9%	4.3%	0.4%	-1.2%	-6.3%	-4.9%	-11.9%	-7.7%
JPM GBI-EM Glob Div	-5.2%	22.0%	15.7%	-1.8%	16.8%	-9.0%	-5.7%	-4.0%	-1.0%	-2.6%	-5.4%	-3.0%	-10.5%	-14.9%
MSCI EM	-53.3%	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	2.2%	0.7%	-6.9%	-9.0%	-3.0%	-17.9%	-15.5%
Bloomberg Commodity	-35.6%	18.9%	16.8%	-13.3%	-1.1%	-9.5%	-17.0%	-5.9%	4.7%	-10.6%	-0.9%	-3.4%	-14.5%	-15.8%
Alerian MLP	-36.9%	76.4%	35.9%	13.9%	4.8%	27.6%	4.8%	-5.2%	-6.1%	-3.2%	-5.0%	-15.3%	-22.1%	-30.7%

Source: Morningstar Direct



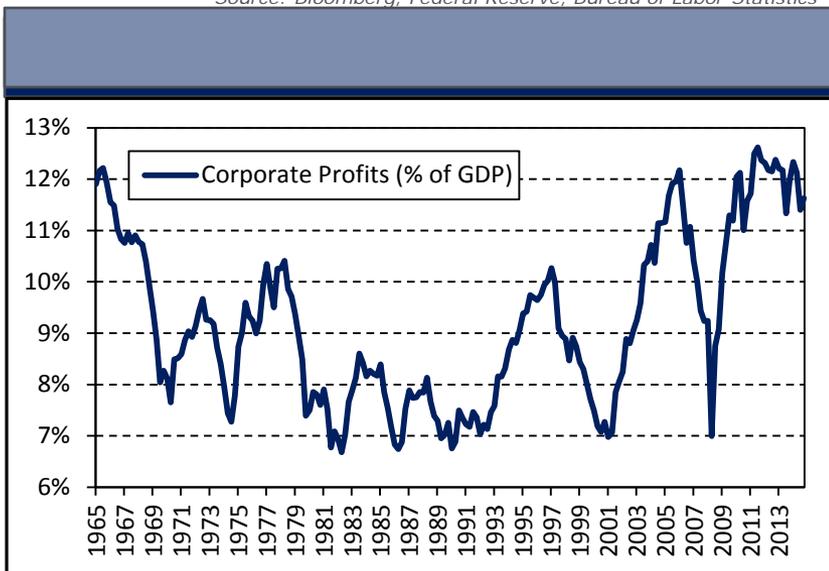
Source: Bloomberg, Standard and Poors, Russell, MSCI, Barclays, Citigroup, JP Morgan
 *1 Yr Range: Represents range of cumulative high/low daily index returns for an investment made one year ago



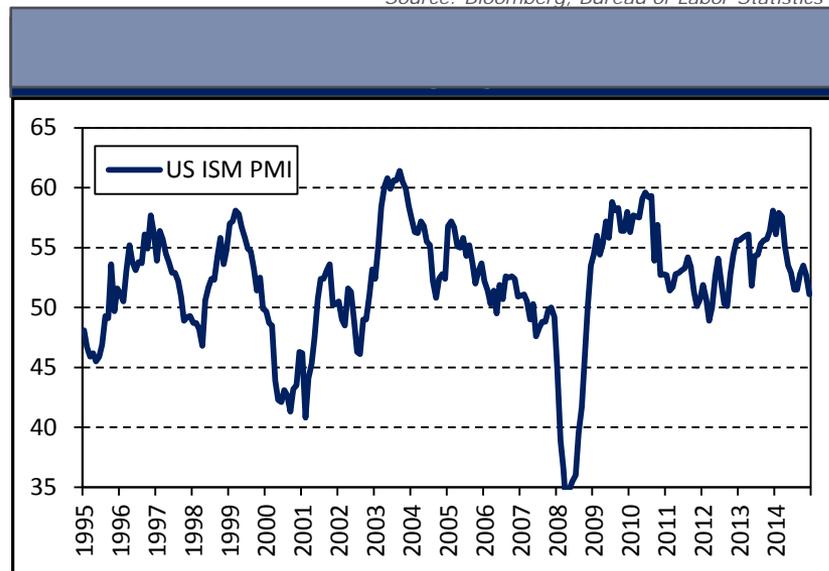
Source: Bloomberg, Federal Reserve, Bureau of Labor Statistics



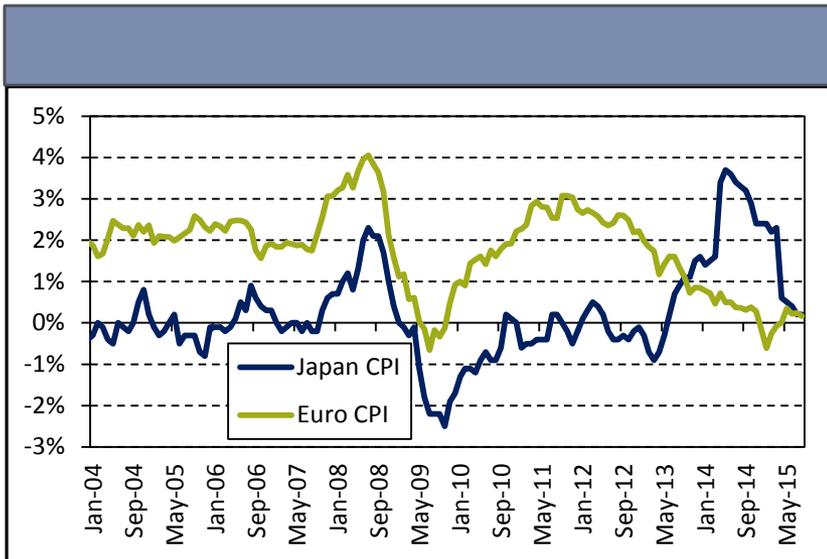
Source: Bloomberg, Bureau of Labor Statistics



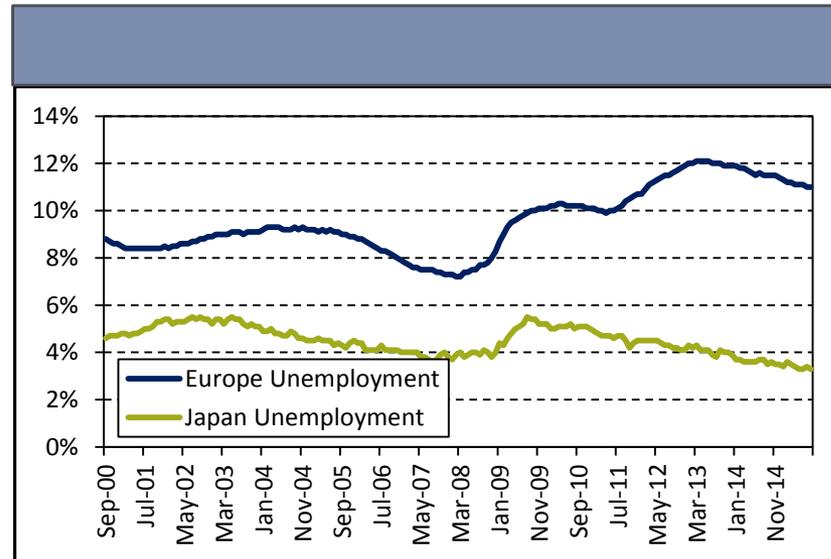
Source: Bloomberg, Bureau of Economic Analysis



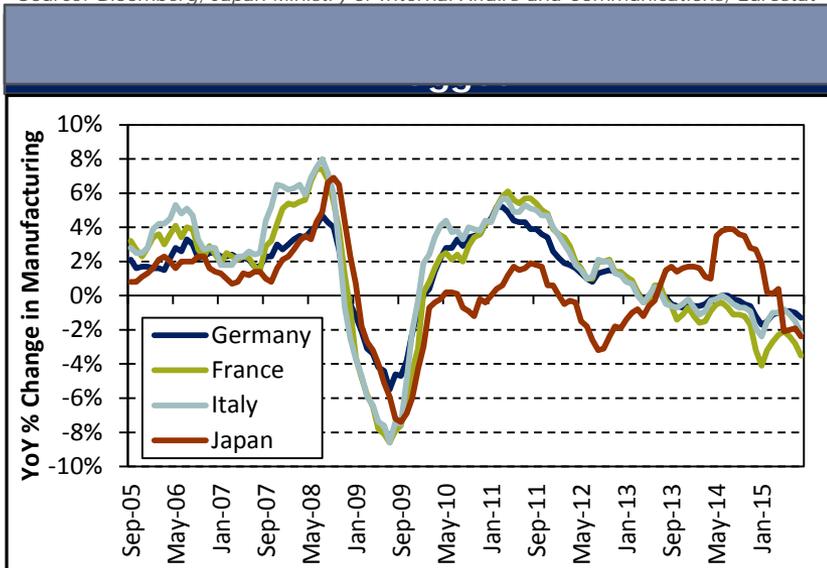
Source: Bloomberg, Institute for Supply Management



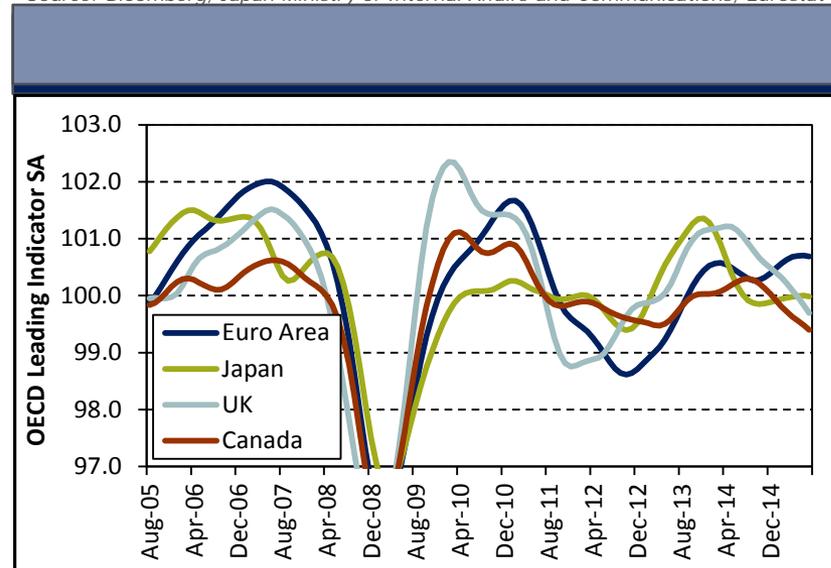
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat



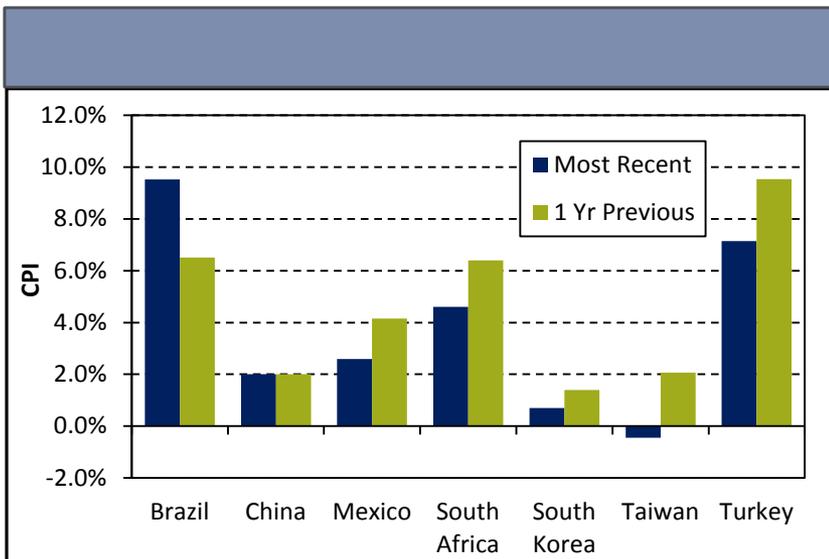
Source: Bloomberg, Japan Ministry of Internal Affairs and Communications, Eurostat



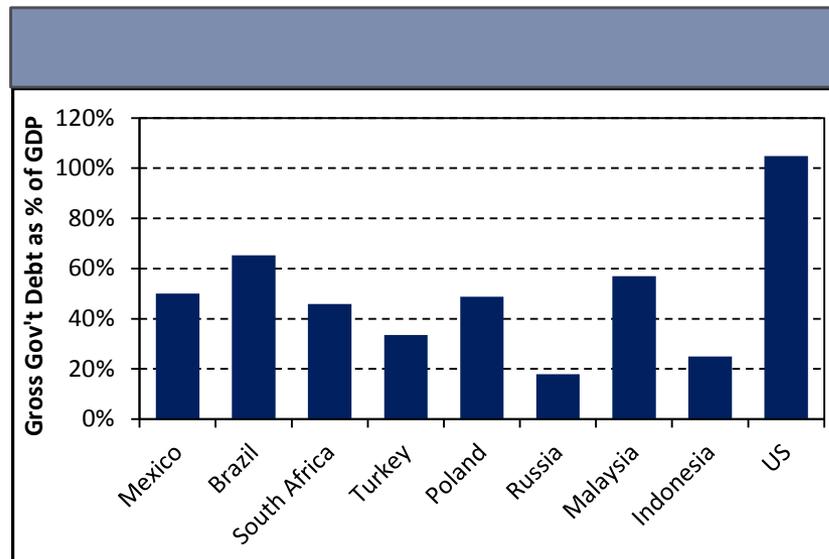
Source: Bloomberg, OECD, Eurostat



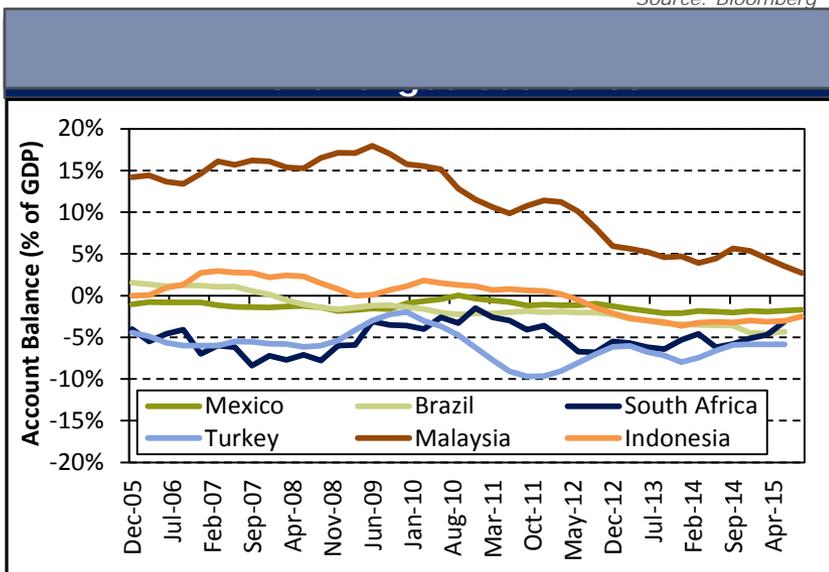
Source: Bloomberg, OECD



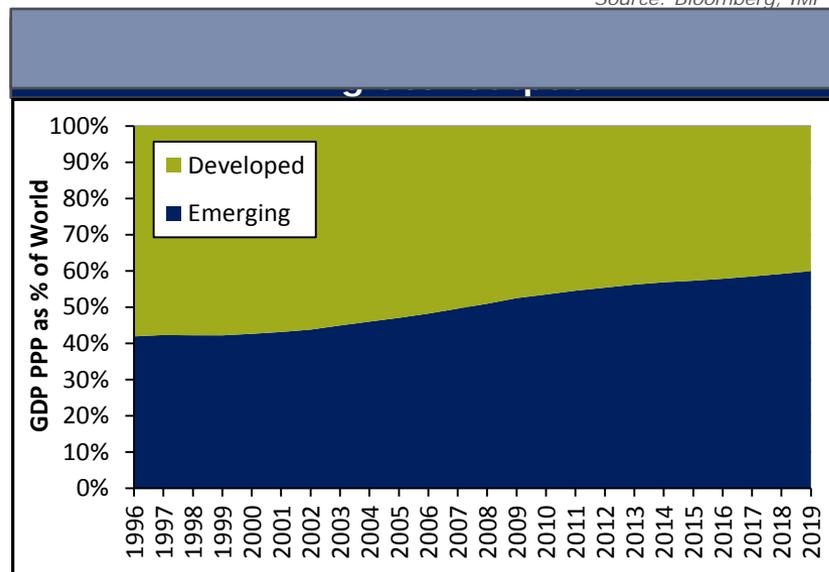
Source: Bloomberg



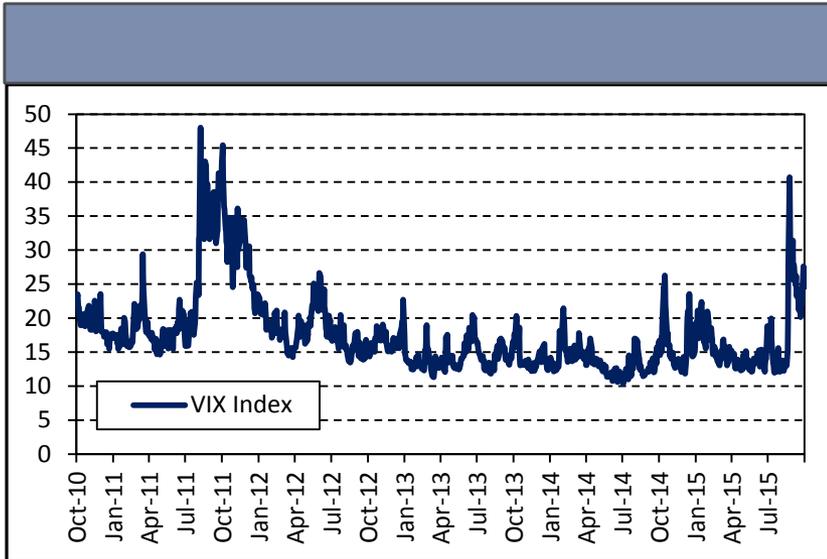
Source: Bloomberg, IMF



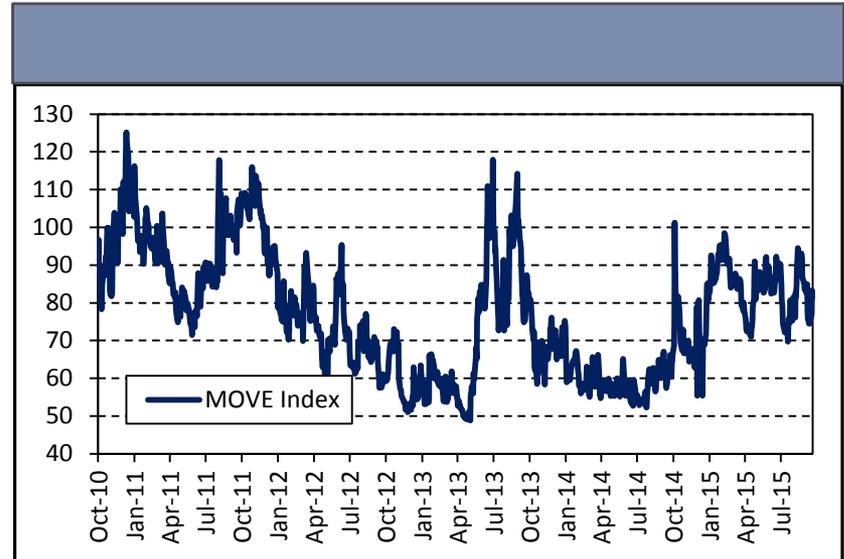
Source: Bloomberg



Source: Bloomberg, IMF



Source: Bloomberg, CBOE



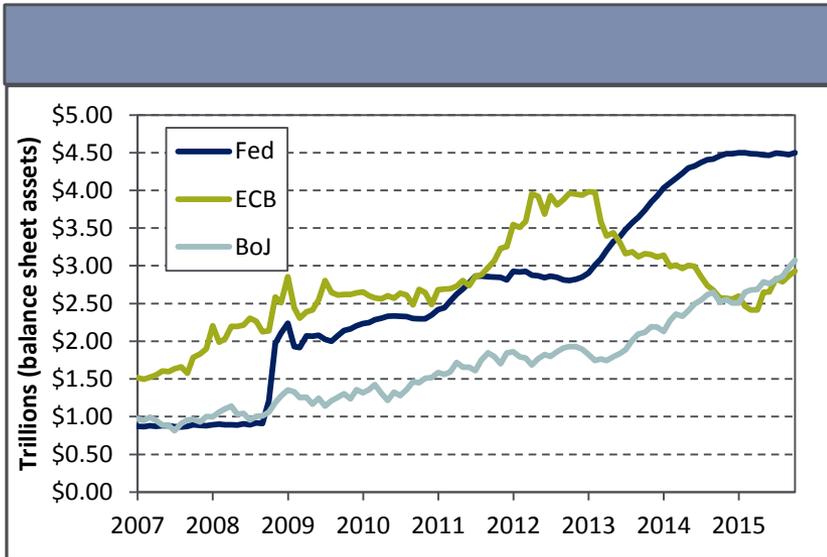
Source: Bloomberg, Merrill Lynch



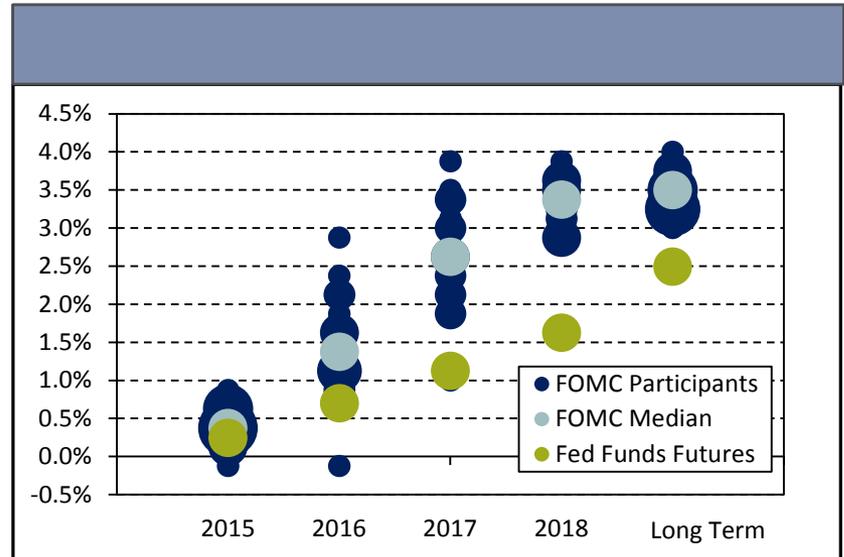
Source: Bloomberg, Deutsche Bank



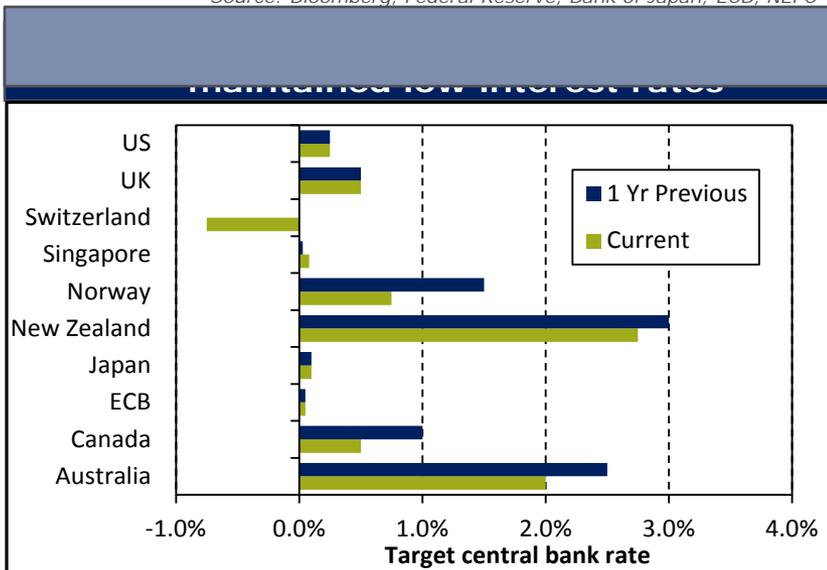
Source: Bloomberg, Merrill Lynch



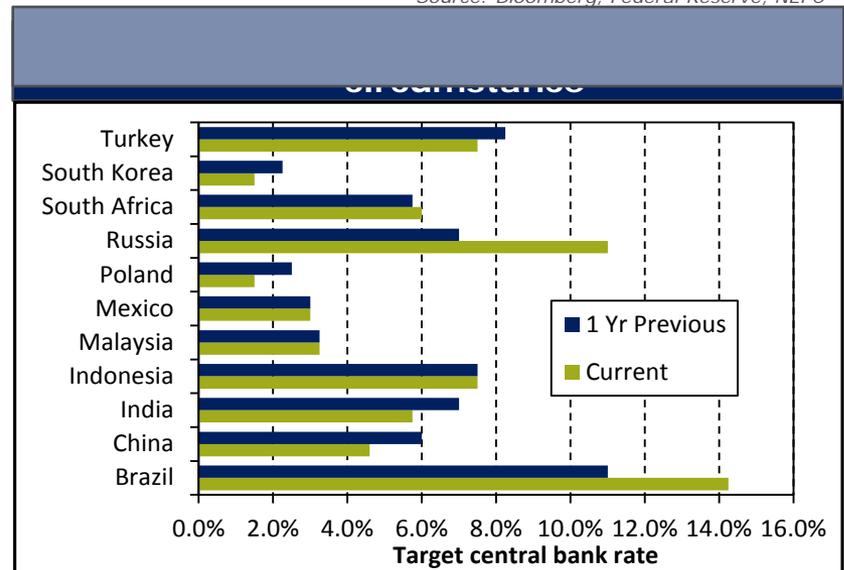
Source: Bloomberg, Federal Reserve, Bank of Japan, ECB, NEPC



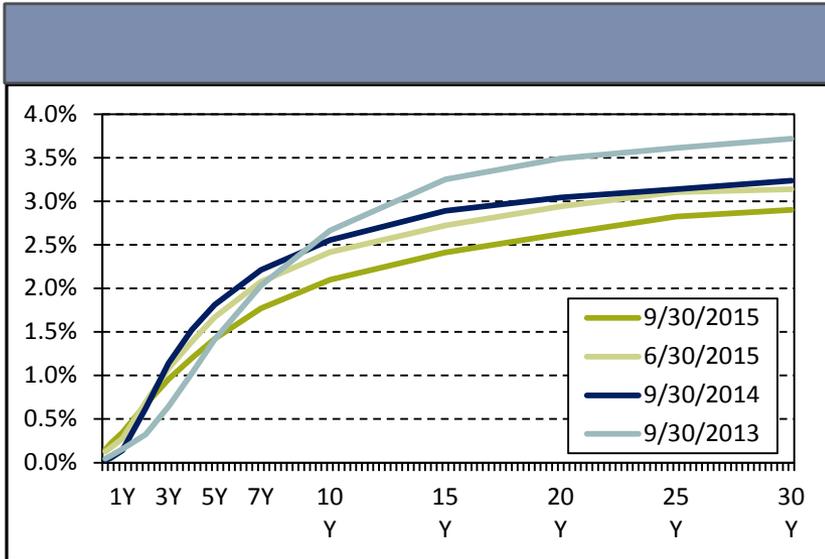
Source: Bloomberg, Federal Reserve, NEPC



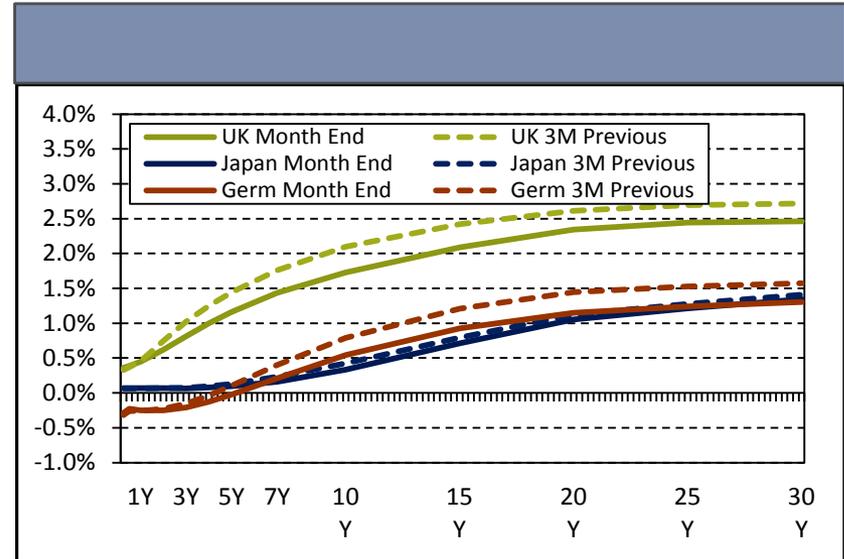
Source: Bloomberg



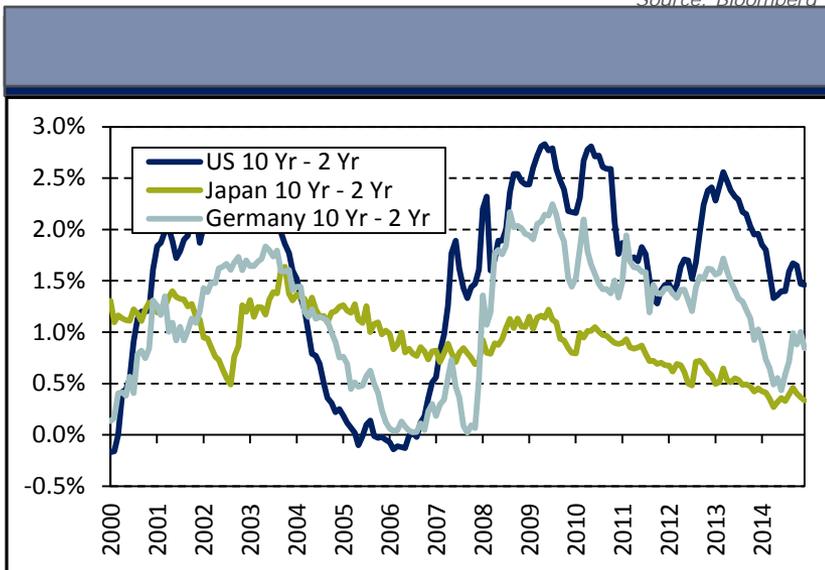
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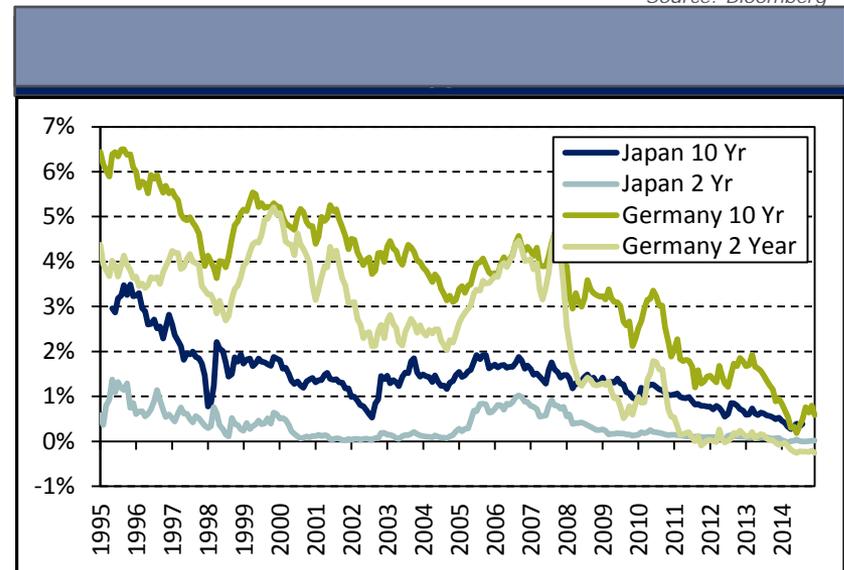
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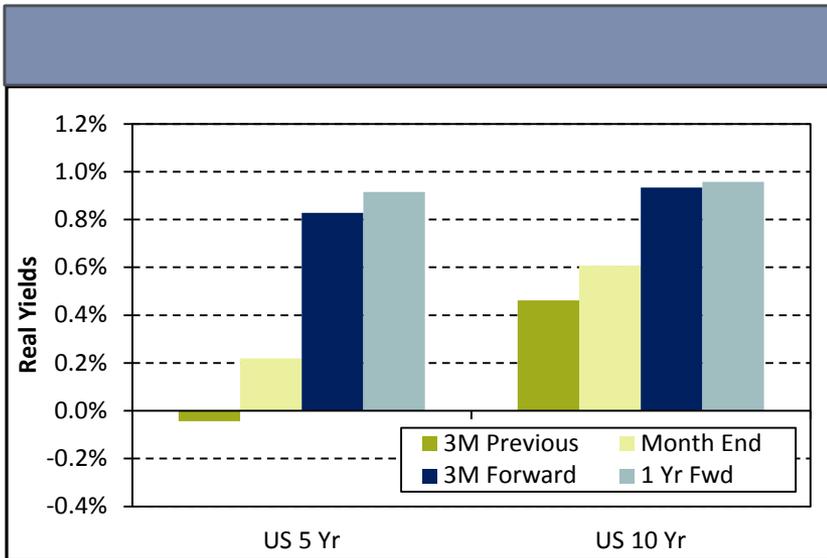
Source: Bloomberg



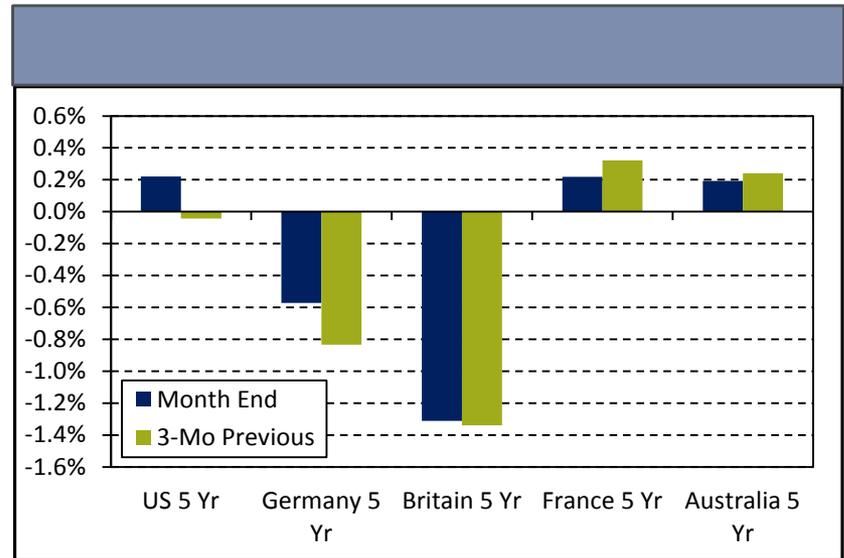
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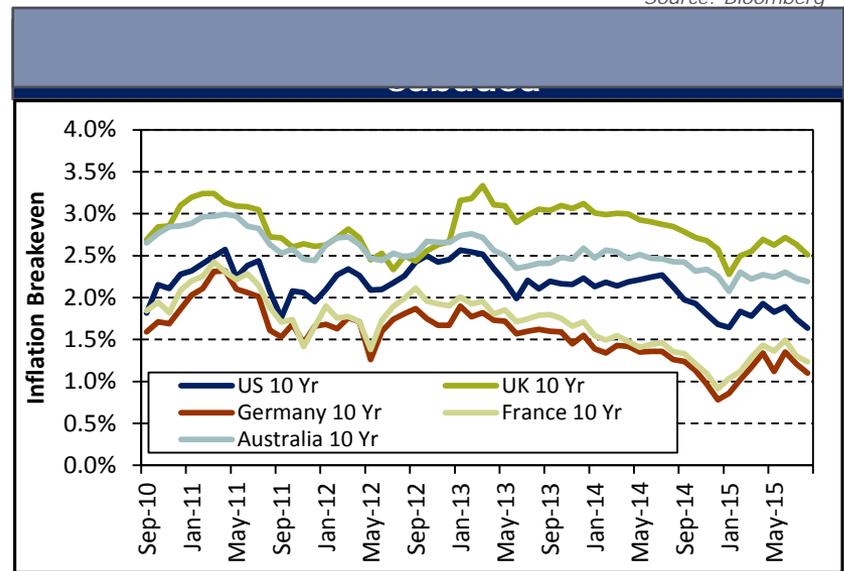
Source: Bloomberg



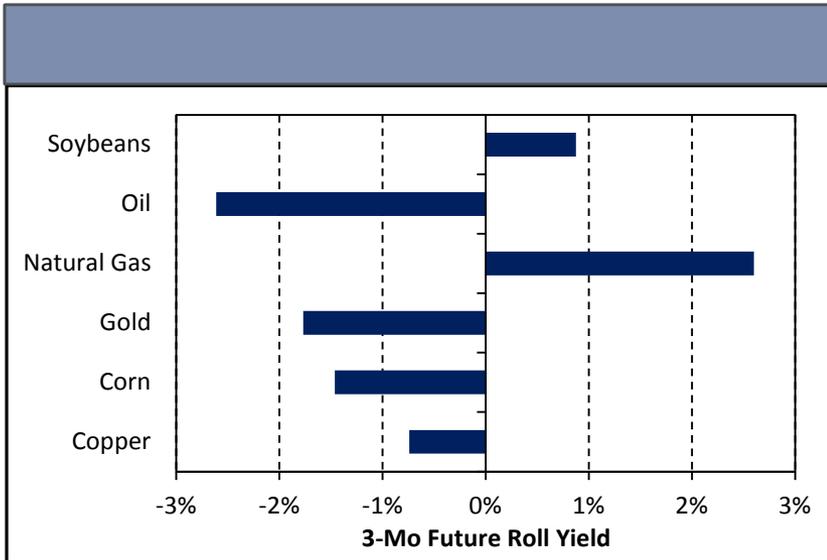
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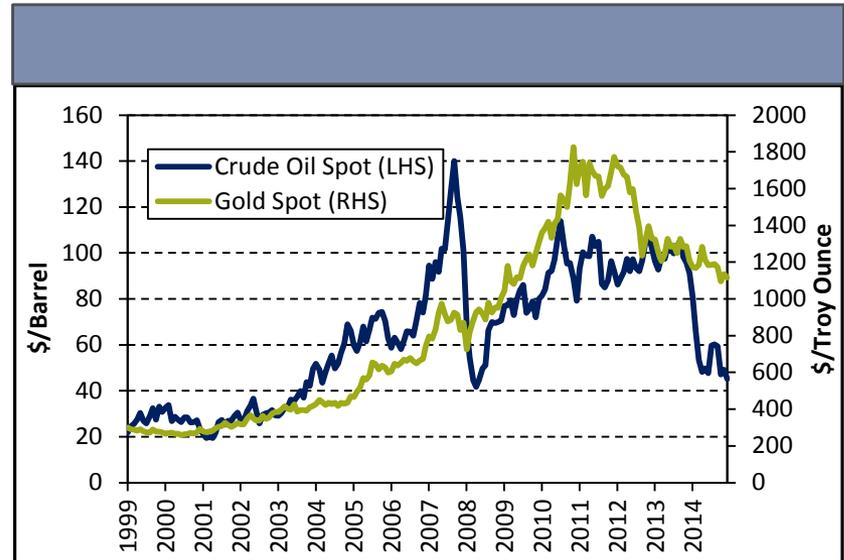
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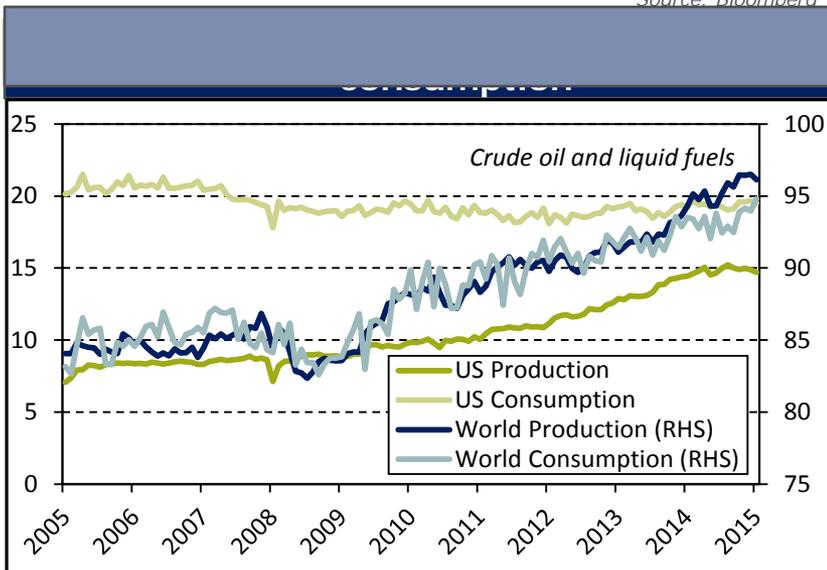
Source: Bloomberg



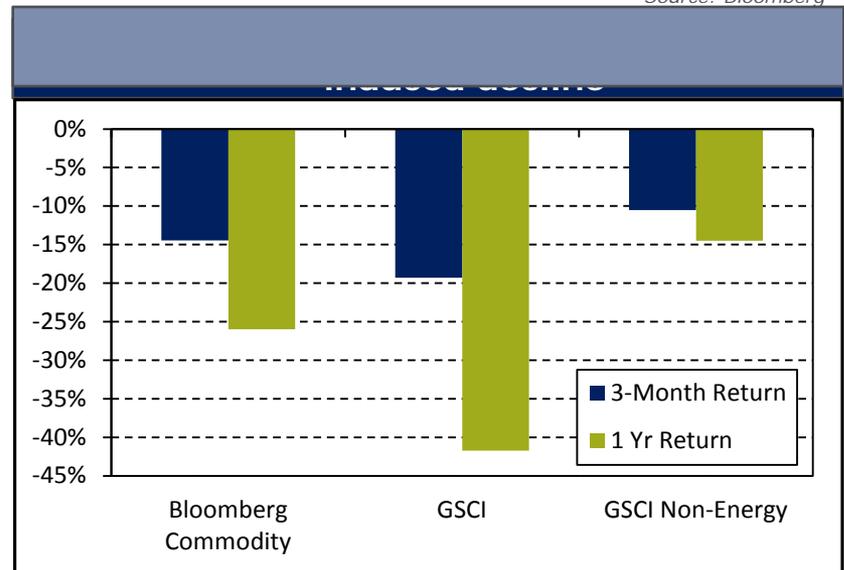
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg, US Department of Energy *Crude oil and liquid fuels



Source: Bloomberg, Standard and Poors

Appendix: SAA Policy History

Strategic Asset Allocation Policy (SAAP) History

- 7/1/75 – 12/31/79 – 40% S&P 500/60% Barclays Capital Aggregate
- 1/1/80 – 12/31/83 – 50% S&P 500/50% Barclays Capital Aggregate
- 1/1/84 – 12/31/91 – 60% S&P 500/40% Barclays Capital Aggregate
- 1/1/92 – 12/31/94 – 50% S&P 500/10% MSCI EAFE/40% Barclays Capital Aggregate
- 1/1/95 – 6/30/97 – 45% S&P 500/15% MSCI EAFE/40% Barclays Capital Aggregate
- 7/1/97 – 12/31/99 – 50% S&P 500/15% MSCI EAFE/35% Barclays Capital Aggregate
- 1/1/00 – 9/30/03 – 53% S&P 500/17% MSCI EAFE/30% Barclays Capital Aggregate
- 10/1/03 – 12/31/06 – 53% S&P 500/15% MSCI EAFE/ACWI ex-U.S.¹/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 1/1/07 – 10/31/2009 – 31% S&P 500/7% S&P 400/7% S&P 600/18% MSCI ACWI ex-U.S./5% Russell 2000 (lagged one quarter)/26% Barclays Capital Aggregate/6% NCREIF ODCE (lagged one quarter)
- 11/1/2009 – 6/30/2012 – 28% S&P 500/6% S&P 400/6% S&P 600/13% MSCI EAFE/2% MSCI EAFE Small Cap/3% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/24% Barclays Capital Aggregate/2% Barclays Capital High Yield/6% NCREIF ODCE (lagged one quarter)/3% Dow Jones/UBS Commodities Index
- 7/1/2012 – 3/31/2015 – 23% S&P 500/5% S&P 400/5% S&P 600/14% MSCI EAFE/3% MSCI EAFE Small Cap/6% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/13% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% JP Morgan GBI-EM Global Diversified/3% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/8% NCREIF ODCE (lagged one quarter)/4% Dow Jones/UBS Commodities Index
- **4/1/2015 - present – 20% S&P 500/3% S&P 400/3% S&P 600/17% MSCI EAFE/2% MSCI EAFE Small Cap/5% MSCI Emerging Markets/8% Russell 2000 (lagged one quarter)/11% Barclays Capital Aggregate/4% Barclays Capital High Yield/10% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/10% NCREIF ODCE (lagged one quarter)/2% Bloomberg Commodities Index TR/5% Multi-Asset Class Custom Index**
- ***Interim SAA Policy:** 23% S&P 500/3% S&P 400/3% S&P 600/18% MSCI EAFE/2% MSCI EAFE Small Cap/5% MSCI Emerging Markets/7% Russell 2000 (lagged one quarter)/17% Barclays Capital Aggregate/5% Barclays Capital High Yield/4% S&P/LSTA Levered Loan Index + 250 basis points (lagged one quarter)/6% NCREIF ODCE (lagged one quarter)/2% Bloomberg Commodity Index/5% Multi-Asset Class Custom Index

Note: Interim SAA Policy includes proration of 1% Private Equity, 6% Private Debt, and 4% Real Estate, which are unfunded. Private Equity was prorated to domestic equity; Real Estate was prorated to domestic equity and fixed income; Private Debt was prorated to Core and High Yield Fixed Income. Recently approved Strategic Asset Allocation Policy effective April 1, 2015.

¹MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter.

Note: All MSCI indices changed from Gross to Net dividend withholding taxes effective 1/1/2014.

- **NEPC uses, as its data source, the plan's custodian bank or fund service company, and NEPC relies on those sources for security pricing, calculation of accruals, and all transactions, including income payments, splits, and distributions. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **Information in this report on market indices and security characteristics is received from sources external to NEPC. While efforts are made to ensure that this external data is accurate, NEPC cannot accept responsibility for errors that may occur.**

Agenda Item #6



ARIZONA STATE RETIREMENT SYSTEM

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Paul Matson
Director

MEMORANDUM

TO: The Arizona State Retirement System (ASRS) Investment Committee (IC)

FROM: Mr. Paul Matson, Director
Mr. Patrick Klein, Assistant Director, External Affairs Division

DATE: October 1, 2015

RE: **Agenda Item #6:** Presentation, Discussion, and Appropriate Action Regarding the ASRS Supplemental Retirement Savings Plan (SRSP)

Purpose

To present and discuss the status of the ASRS SRSP.

Recommendation

Informational only; no action required.

Background

The SRSP was originally created to serve as the savings vehicle for the Modified Deferred Retirement Option Plan (MDROP) enacted in 1999. The ASRS obtained Internal Revenue Service (IRS) approval for the plan in 2001. However, with increasing contribution rates, revised information about the likely cost of the DROP program, and unclear consequences of implementing the plan, the ASRS determined that the MDROP was not a sustainable plan feature and as such the agency should not move forward. The ASRS consequently initiated legislation to repeal authorization for the MDROP plan. As a result, the SRSP remained as an optional tax-deferred compensation vehicle for members to use to supplement retirement savings. Nationwide Retirement Solutions (Nationwide) was initially selected through an RFP process in November, 2006 and again in 2011. The SRSP is only offered voluntarily to non-state member-employers of the ASRS that then adopt the plan in which eligible employees may participate.

The SRSP is offered in addition to the ASRS Defined Benefit Plan. In 2015, participants may elect to defer up to 100% of pay or \$53,000, whichever is lower. In addition, the SRSP permits loans. Due to the distinctive features and benefits of the SRSP, the IRS requires restrictions that are unique from regular 457 and 403(b) tax-deferred compensation and tax-sheltered annuity plans respectively. These restrictions include: an irrevocable election to participate with a two-year window of opportunity upon eligibility; an irrevocable election to contribute a percentage of pay, a flat-dollar amount, or a scheduled contribution over time; and, a mandate that account balances be distributed upon retirement.

Governance: Internal Management Committee

Plan Type: 401(a)
Participation: Voluntary
of Employers: 26
of Participants: 163
Total Assets: \$7,716,041 (as of 6-30-15)
Administrator: Nationwide Retirement Solutions
of Investment Options: 18 including the Schwab self-directed option
Investment Option Types: Asset Allocation, International, Small Cap, Mid Cap, Large Cap, Balanced, Bonds, Short Term, Self-Directed Option, Global Real Estate Fund

Attachments:

- Investment Options Performance History for the Period Ending June 30, 2015
- Nationwide Administrators Report, 2nd Quarter 2015
- 401(a) Plan Review as of June 30, 2015



Arizona State Retirement System

Supplemental Retirement Savings Plan Investment Options

Performance History for Period Ending June 30, 2015

The following are the percentage changes in Net Assets (with capital gains and income dividends reinvested) without reduction for Plan Charges for the respective periods ended March 31, 2015. The results shown represent past performance and do not represent expected future performance or experience. Past performance does not guarantee future results. Investment return and principal value of an investment will fluctuate so that an investor's units or shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the data quoted.

Performance data current to the most recent month-end may be obtained by visiting www.azsrsp.com.

Please consider the fund's investment objectives, risks, charges, and expenses carefully before investing. The underlying fund prospectuses contain this and other information about the investment company. Prospectuses are available by calling 602-266-2733 or by visiting www.azsrsp.com. Read carefully before investing. Please see other important disclosures at the end of this report. Investment options are subject to change.

The Average Annual Returns indicated below are net of Gross Expense Ratios but not net of plan administrative fees (i.e., the returns do reflect Gross Expense Ratios but do not reflect the deduction of Plan Charges assessed to Plan Participants). The Plan charges the following administrative fees: (1) 0.30% for tier 1 funds, and (2) 0.20% for tier 2 funds. The administrative fee should be added to the fund's Gross Expense Ratio to determine the total cost for the fund. For example, a tier 1 fund with a Gross Expense Ratio of 0.70% would have a total cost of 1.00% (0.30% + 0.70% = 1.00%).

INVESTMENT TYPE

Fund Name (Tier)

• Index

Fund Name (Tier)	Morningstar® Category	Ticker	Gross Expense Ratio	Average Annual Return			Return Since Inception [†]	Inception Date
				1-year	5-year	10-year		
STABLE VALUE FUND								
Morley Stable Value Retirement Fund (2)	N/A	N/A	N/A	1.41%	1.72%	2.81%	N/A	12/31/93
• Barclays Capital 1-3 Year Government Index				0.91%	0.85%	2.60%		
BOND FUNDS								
Vanguard Total Bond Market Index Fund (1)*	Intermediate-Term Bond	VBMFX	0.20%	1.61%	3.12%	4.29%	6.24%	12/11/86
• Barclays Capital US Aggregate Float Adjusted Bond Index				1.78%	3.38%	N/A		
Metropolitan West Total Return Bond Fund M (2)	Intermediate-Term Bond	PTTAX	0.69%	1.67%	5.17%	6.19%	6.83%	01/13/97
• Barclays Capital US Aggregate Bond Index				1.86%	3.35%	4.44%		
ASSET ALLOCATION FUND: ACTIVE								
Ivy Asset Strategy Fund A (2)*	World Allocation	WASAX	0.96%	-4.47%	9.06%	10.15%	8.25%	07/10/00
• World Allocation [^]				-2.34%	8.00%	5.53%		
• S&P 500 TR USD				7.42%	17.34%	7.89%		
ASSET ALLOCATION FUNDS: RISK PROFILE								
Nationwide Investor Destinations Conservative Fund Svc (2)*	Conservative Allocation	NDCSX	0.88%	0.84%	4.18%	3.71%	3.64%	03/31/00
• Conservative Index (10% S&P 500+5% S&P 400+5% MSCI EAFE Index Net Dividends +40% BC Agg+40% 3Mo Tbill) [^]				-0.20%	7.00%	4.78%		
• Barclays Capital US Aggregate Bond Index				1.86%	3.35%	4.44%		
Nationwide Investor Destinations Moderate Fund Svc (2)*	Moderate Allocation	NSDMX	0.86%	0.94%	9.15%	5.40%	4.18%	03/31/00
• Moderate Index (30% S&P 500+10% S&P 400+5% Russell 2000+15% MSCI EAFE Index Net Dividends+25% BC Agg+15% 3Mo Tbill) [^]				2.06%	10.38%	5.98%		
• Russell 3000				7.29%	17.54%	8.15%		
Nationwide Investor Destinations Aggressive Fund Svc (2)*	Aggressive Allocation	NDASX	0.85%	1.75%	13.24%	6.41%	4.00%	03/31/00
• Aggressive Allocation [^]				1.69%	11.75%	6.00%		
• Russell 3000				7.29%	17.54%	8.15%		
LARGE CAP EQUITY FUNDS								
Vanguard 500 Index Fund (1)*	Large Cap Blend	VFINX	0.17%	7.28%	17.17%	7.77%	10.99%	08/31/76
Dreyfus Appreciation Fund (2)	Large Cap Blend	DGAGX	0.93%	0.67%	13.77%	6.5%	10.56%	01/01/84
• Standard & Poor's 500 Stock Index				7.42%	17.34%	7.89%		

Current Yield:

1.37%

INVESTMENT TYPE Fund Name (Tier) Index	Morningstar® Category	Ticker	Gross Expense Ratio	Average Annual Return			Return Since Inception [‡]	Inception Date
				1-year	5-year	10-year		
MID CAP EQUITY FUNDS								
Vanguard Mid Cap Index Fund - Investor Shares (1)* • CRSP US Mid Cap	Mid Cap Blend	VIMSX	0.23%	8.48% 8.68%	18.07% 18.51%	9.23% 9.41%	9.99%	05/21/98
Dreyfus Premier Structured Mid Cap Fund I (2) • Russell Mid Cap Index	Mid Cap Blend	DPSRX	1.16%	6.67% 6.63%	18.75% 18.23%	8.94% 9.40%	9.04%	06/29/01
SMALL CAP EQUITY FUNDS								
Vanguard Small Cap Index Fund (1)* • CRSP US Small Cap	Small Cap Blend	NAESX	0.23%	5.09% 5.21%	17.98% 18.56%	9.34% 9.98%	10.78%	10/03/60
JP Morgan Small Cap Equity Fund A (2) • Russell 2000	Small Cap Blend	VSEAX	1.38%	7.49% 6.49%	18.46% 17.08%	11.49% 8.40%	13.43%	12/20/94
INTERNATIONAL EQUITY FUNDS								
Vanguard Total International Stock Index Fund (1)* • FTSE Global All Cap ex USA	Foreign Large Blend	VGTSX	0.22%	-4.64% -4.49%	8.15% 8.28%	5.42% 6.21%	4.78%	04/29/96
American Funds EuroPacific Growth Fund R4 (2) • MSCI ACWI Ex USA	Foreign Large Growth	RREX	0.84%	0.63% -5.26%	9.74% 7.76%	7.33% 5.54%	8.23%	06/07/0
Lazard Emerging Markets Fund - Open Class (2) • MSCI EMF Index Net Dividends	Diversified Emerging	LZOEX	1.37%	-13.40% -5.12%	3.48% 3.68%	8.39% 8.11%	6.90%	01/08/97
REAL ESTATE FUND								
INVESCO Global Real Estate Fund A (2) • MSCI World Index	Specialty-Real Estate	AGREX	1.44%	0.17% 1.43%	11.07% 13.10%	5.55% 6.38%	5.89%	04/29/05
CHARLES SCHWAB SELF-DIRECTED BROKERAGE OPTION	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* Denotes passively managed fund

^ An additional Index has been provided for this fund that may be more representative of the underlying asset allocation than the index shown that is listed in the fund's prospectus. Market indices have been provided for comparison purposes only; they are unmanaged and no fees and expenses have been reflected here. Individuals cannot invest directly in an index.

‡ The return since inception dates shown are calculated from the inception of the oldest share class to the present. The number will differ from Morningstar, which lists a load adjusted return for the same period.

Bond funds: Bond funds have the same interest rate, inflation and credit risks that are associated with the underlying bonds owned by the fund.

International/emerging markets funds: Investing internationally involves risks not associated with investing solely in the U.S., such as currency fluctuation, political risk, differences in accounting and the limited availability of information.

Real estate funds: Real estate investing entails the risks of real estate business generally, including sensitivity to economic and business cycles, changing demographic patterns and government actions.

Asset Allocation funds: The Asset Allocation Funds are designed to provide diversification and asset allocation across several types of investments and asset classes, primarily by

investing in underlying funds. Therefore, in addition to the expenses of the funds, you are indirectly paying a proportionate share of the applicable fees and expenses of the underlying funds.

Small company funds: Stocks of small or emerging companies may have less liquidity than those of larger, established companies and may be subject to greater price volatility and risk than the overall stock market.

Gross expense ratios represent the fund's total operating expenses expressed as a percentage of the assets held in the fund. For more information about gross expense ratios, read the fund's prospectus.

Nationwide Retirement Solutions, Inc. and its affiliates (Nationwide) offer a variety of investment options to public sector retirement plans through variable annuity contracts, trust or custodial accounts. Nationwide may receive payments from mutual funds or their affiliates in connection with those investment options. For more detail about the payments Nationwide receives, please visit www.nrsforu.com.

Inception date is the date the underlying fund was established. Some mutual funds may impose a short term trade fee. Some funds may be subject to a trade restriction policy. Please read the underlying prospectus carefully.

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Investing involves market risk, including the possible loss of principal. Retirement Specialists are Registered Representatives of Nationwide Investment Services Corporation, member FINRA.

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Nationwide Administrators Report
2nd Quarter 2015

Nationwide Update

2nd Quarter 2015

SRSP Plan Review

Summary of the employers who have adopted the plan to date:

Current Employers	Adoption Date	Effective Date	Eligibility Age	Loans	Employer Matching Contributions	In-Service Withdrawals
Tourism and Sports Authority	6/15/2007	8/22/2007	None	Y	E-2	F-2
Arizona Prosecuting Attorney's Advisory Council	7/31/2007	7/1/2008	40	Y	E-1	F-2
San Carlos Irrigation Drain District	8/7/2007	8/7/2009	40	Y	E-2	F-2
City of Goodyear	10/22/2007	1/1/2008	30	Y	E-2	F-1 (No)
Southeastern Arizona Government Organization	10/27/2007	1/1/2008	21	Y	E-2	F-1 (No)
Pima County	11/6/2007	1/1/2008	40/30 PS	Y	No	F-2
Flagstaff Jr Academy	1/28/2008	2/1/2008	26	Y	E-2	F-2
Verde Valley Fire District	2/26/2008	3/1/2008	45	Y	E-1	F-1 (No)
Mohave County	4/7/2008	7/1/2008	Age at Hire	Y	E-1	F-2
Coconino County CCRASD #99	6/3/2008	8/1/2008	40	Y	E-1	F-2
Maricopa Water District	6/17/2008	1/1/2009	40	Y	E-1	F-1 (No)
East Valley Institute of Technology	6/25/2008	7/1/2008	40	Y	E-1	F-2
City of Surprise	6/26/2008	7/1/2008	30	Y	E-2	F-2
Maricopa County Special Health Care District	7/1/2008	1/1/2009	40	Y	No	F-2
City of Kingman	7/1/2008	7/1/2008	18	Y	E-2	F-1 (No)
Superstition Mountains Community Facilities Dist # 1	8/19/2008	9/1/2008	40	Y	E-2	F-2
Town of Buckeye	10/7/2008	10/22/2008	18	Y	E-1	F-1 (No)
Lake Havasu City	6/26/2009	7/1/2009	Age at Hire	Y	E-4	F-2
Northwest Fire District	7/27/2010	10/1/2010	40	Y	E-1	F-1 (No)
Avra Valley Fire District	5/25/2012	6/1/2012	40	Y	E-1	F-1 (No)
Arizona Counties Insurance Pool	11/13/2012	12/15/2012	33	Y	E-2	F-1 (No)
City of Tempe	11/13/2012	1/1/2013	40	y	E-1	F-1 (No)
Success School / AZ Charter Academy	6/10/2013	8/1/2013	40	Y	E-1	F-1 (No)
Ft Mojave Mesa Fire	7/30/2013	8/1/2013	40	Y	E-1	F-1 (No)
Chino Valley Fire District	9/19/2013	9/19/2013	30	N	E-1	F-1 (No)
Maricopa Assoc of Government	10/25/2013	11/22/2013	21	Y	E-1	F-1 (No)
City of El Mirage	10/2/2014	11/1/2014	45	N	E1	F1 (No)

E-1 Regardless of whether the Participant is making contributions pursuant to a Retirement Savings Agreement.

E-2 Only if the Participant is making, has made, or will make contributions during the Plan Year pursuant to a Retirement Savings Agreement.

E-4 Only if outlined in the participant employment contract.

F-1 Shall not be allowed.

F-2 Rollover Account contributions, vested Employer Matching Account contributions and after-tax contributions to the Retirement Savings Account may be withdrawn at any time after the Participant has made Retirement Savings Contributions to the Plan for at least 24 months.

Nationwide Update

2nd Quarter 2015

SRSP Plan Review

Summary of employee activity:

Current Employers	# of Employees Meeting 20/20 Requirement	# of Enrollments 2nd Quarter 2015	# of Participants	Deferrals	Withdrawals/ Transfers Out/ Fees	Transfers In	Total Assets as of 6/30/2015
Tourism and Sports Authority	3	0	0	\$ -	\$ -	\$ -	\$ -
City of Goodyear	335	0	3	\$ 850.01	\$ -	\$ -	\$ 74,231.38
Southeastern Arizona Government Organization	6	0	0	\$ -	\$ -	\$ -	\$ -
Pima County	6,500	0	52	\$ 64,653.26	\$ 1,926.00	\$ -	\$ 1,925,741.40
Flagstaff Jr Academy	22	0	4	\$ 797.76	\$ -	\$ -	\$ 42,751.28
Verde Valley Fire District	4	0	1	\$ 3,880.80	\$ -	\$ -	\$ 130,027.51
Arizona Prosecuting Attorney's Advisory Council	4	0	1	\$ -	\$ -	\$ -	\$ 57,799.46
Mohave County	1,134	0	7	\$ 10,482.50	\$ -	\$ -	\$ 340,298.51
City of Surprise	700	0	20	\$ 26,740.77	\$ -	\$ -	\$ 428,843.71
City of Kingman	371	0	2	\$ 4,003.86	\$ -	\$ -	\$ 155,095.56
Coconino County RASD #99	16	0	0	\$ -	\$ -	\$ -	\$ -
Superstition Mountain Community Facilities District #1	28	0	0	\$ -	\$ -	\$ -	\$ -
Town of Buckeye	277	0	23	\$ 16,832.40	\$ -	\$ -	\$ 841,584.50
Maricopa Water District	19	0	0	\$ -	\$ -	\$ -	\$ -
Maricopa County Special Health Care District	2,302	0	34	\$ 103,079.82	\$ -	\$ -	\$ 2,982,368.06
Lake Havasu City	478	0	4	\$ 1,658.42	\$ -	\$ -	\$ 39,537.65
San Carlos Irrigation Drain District	2	0	0	\$ -	\$ -	\$ -	\$ -
Northwest Fire District	40	0	2	\$ -	\$ -	\$ -	\$ 11,345.22
Avra Valley Fire District	7	0	1	\$ 2,400.00	\$ -	\$ -	\$ 24,887.56
Arizona Counties Insurance Pool	9	0	4	\$ 27,300.00	\$ -	\$ -	\$ 92,541.47
City of Tempe	1,211	0	1	\$ 2,886.00	\$ 3,000.00	\$ -	\$ 2,474.72
Success School / AZ Charter Academy	47	0	2	\$ 20,435.10	\$ -	\$ -	\$ 31,638.76
Ft Mojave Mesa Fire	2	0	0	\$ -	\$ -	\$ -	\$ -
Chino Valley Fire District	47	0	1	\$ 4,227.85	\$ -	\$ -	\$ 35,970.58
Maricopa Assoc of Government	102	0	0	\$ -	\$ -	\$ -	\$ -
City of El Mirage	200	0	1	\$ 4,099.56	\$ -	\$ -	\$ 13,035.03
TOTAL	13,866	0	163	\$ 294,328.11	\$ 4,926.00	\$ -	\$ 7,230,172.36

Nationwide Update

2nd Quarter 2015

SRSP Plan Review

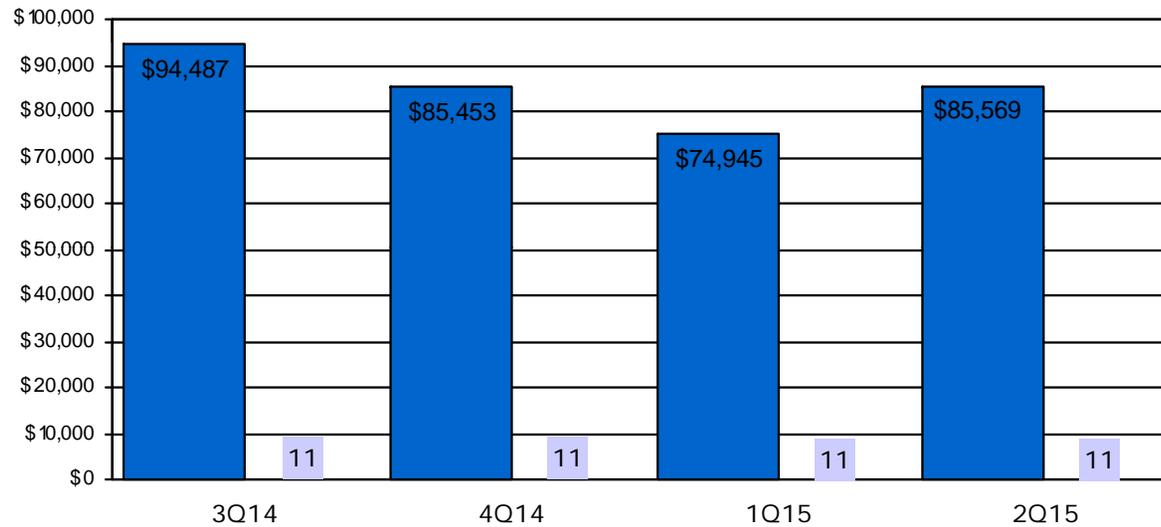
Key Features of the Plan:

- Enrollment Period = 2 years from start date of plan or hire date (whichever is later) and upon meeting age requirement of municipality.
- Financial hardship withdrawals are not available.
- Loans are available if adopted by the individual employer.
- Employee contribution amounts may not be changed.
- Rollovers are permitted into the SRSP Plan.
- Self Directed Brokerage Option (SDBO) is available.
- Fees
 - No annual fee.
 - Tiered asset fee of 0.30/0.20 charge on each investment option. Asset fee is applied monthly See investment options for details.
 - Underlying mutual fund fees.
- Vesting
 - Employee contributions are fully vested immediately.
 - Employer matching contributions, if any, are vested according to the following schedule.
 - Less than 1 year = 0%
 - 1 year but less than 2 years = 20%
 - 2 years but less than 3 years = 40%
 - 3 years but less than 4 years = 60%
 - 4 years but less than 5 years = 80%
 - Over 5 years = 100%

Nationwide Update

2nd Quarter 2015

Loan Statistics



	3Q14	4Q14	1Q15	2Q15
Total Balance of Loan Fund	\$94,487	\$85,453	\$74,945	\$85,569
Total Participants With Loan Balance	11	11	11	11
Total Loans Paid Off	1	1	0	2
\$ Amount of Loans Defaulted This Quarter	\$0	\$0	\$0	\$0
Total Loan Dollars This Quarter	\$20,250	\$9,600	\$0	\$26,050
Participants Taking New Loans	2	1	0	2



Gauging Success

PLAN REVIEW

Arizona State Retirement System Supplemental , AZ

As of June 30, 2015



WELCOME

Our goal is to help you objectively evaluate your plan's performance and how it performed against other plans like yours. Since Nationwide Retirement Solutions is one of the largest 457 providers in the industry we are in the unique position of being able to compare your plan to many others.

By comparing the current year information to previous years, you can see how your plan is performing, where your educational efforts are working, and what areas offer opportunities for additional improvement.

The "Peer Group" comparisons used in this report are based on NRS cases, within your state, with assets of:

\$5 million - \$20 million

Table of Contents

3	Executive Summary
4	Plan Participation
5	Plan Assets
6	Plan Contributions
7-8	Summary
9-20	Appendix

Retirement Specialists are registered representatives of Nationwide Investment Services Corporation, member FINRA. The information they provide is for educational purposes only and is not legal, tax or investment advice.

Nationwide, the Nationwide N and Eagle, and Nationwide is on your side are service marks of Nationwide Mutual Insurance Company.

Nationwide Retirement Solutions, Inc. and Nationwide Life Insurance Company (collectively "Nationwide") have endorsement relationships with the National Association of Counties, the International Association of Fire Fighters-Financial Corporation and the National Association of Police Organizations. More information about the endorsement relationships may be found online at www.nrsforu.com.

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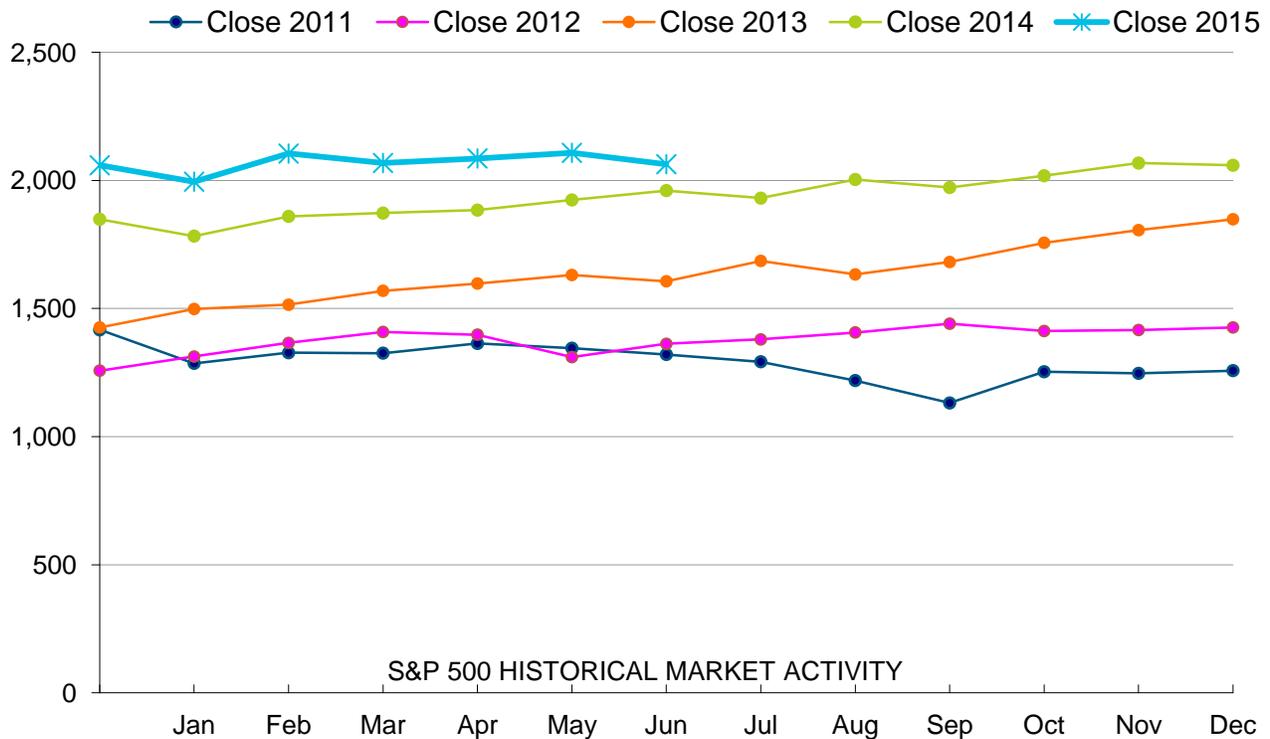
EXECUTIVE SUMMARY

Quick Plan Facts

	Actual as of 06/30/15	% Chng from 1 year ago
Total Participant Count	163	-10.4%
Total New Enrollments YTD Count	0	-100.0%
Total Plan Assets (millions)	\$7.72	12.7%
Total Deferrals YTD (thousands)	\$580.51	-9.9%
Total Rollovers-In YTD	\$445.25	NA

Market Activity

S&P 500 CHANGE YTD: 0.2%



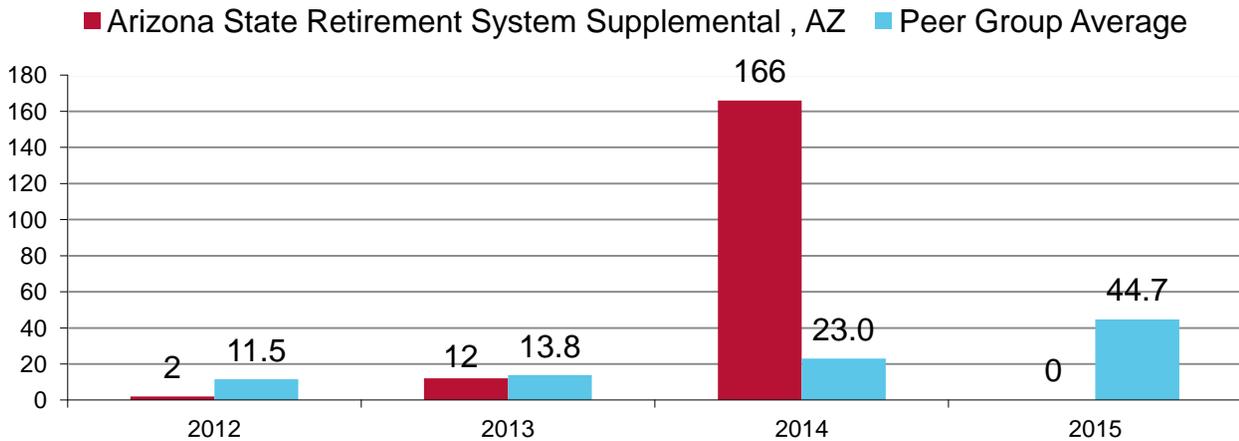
The 500 companies included in this index are selected by the S&P Index committee; a few of the mitigating factors are market size, industry representation and liquidity. This index is designed to be an overall indication of the United States stock market. The 500 securities represent approximately 75% of the total market value of all U.S. stocks.

PLAN PARTICIPATION

Participant Status	12/31/12	12/31/13	12/31/14	6/30/15	% Chng from 1 year ago
# of Participants Actively Deferring	111	113	111	105	-15.3%
# of Inactive Participants*	51	51	73	56	-3.4%
# of Participants in Payout	0	0	1	2	NA
Total Participants	162	164	185	163	-10.4%

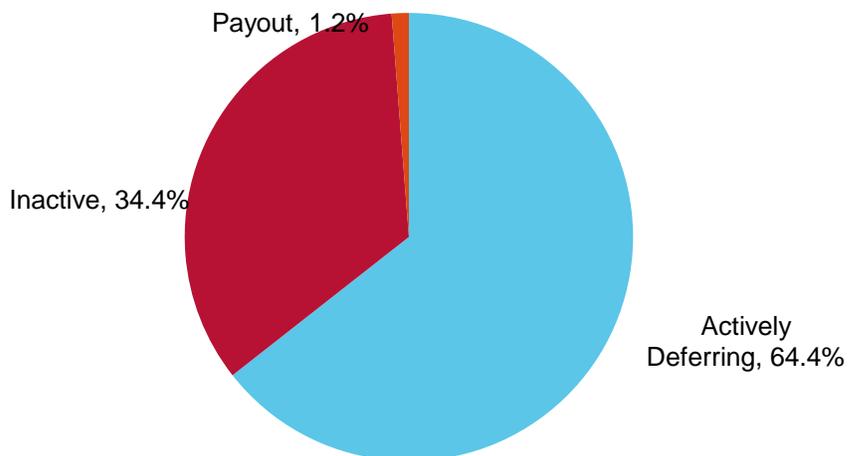
* Inactive participants are those with a balance, not deferring and not in payout

New Participant Count



2015 numbers are annualized

Total Participants as of 06/30/15

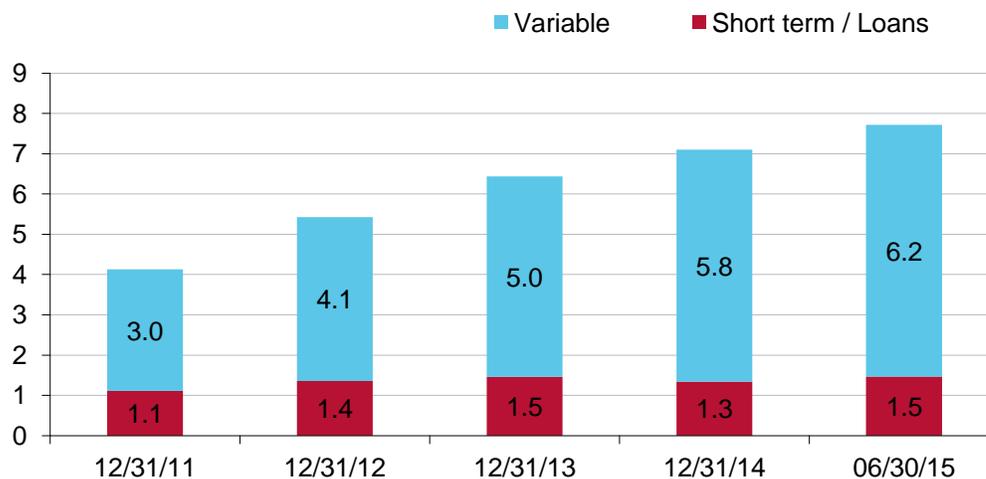


PLAN ASSETS

Total Plan Assets (Millions)

12/31/11	12/31/12	12/31/13	12/31/14	6/30/15	% Chng from 1 year ago
\$4.1	\$5.4	\$6.4	\$7.1	\$7.7	12.7%

Plan Assets Summary (Millions)



Plan Assets by Investment Class (Thousands)

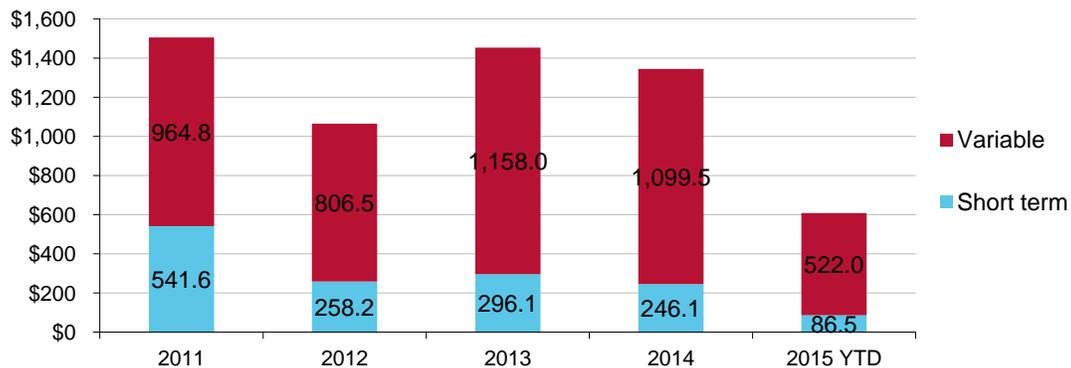
Investment Class	12/31/13	12/31/14	06/30/15	% of Total
Asset Allocation	\$1,396.94	\$1,460.77	\$1,615.39	20.9%
International	\$1,137.56	\$1,215.60	\$1,220.95	15.8%
Small Cap	\$481.32	\$591.02	\$638.60	8.3%
Mid Cap	\$439.89	\$651.76	\$586.79	7.6%
Large Cap	\$873.31	\$1,062.62	\$1,356.51	17.6%
Balanced	\$0.00	\$0.00	\$0.00	0.0%
Bonds	\$251.28	\$261.28	\$323.78	4.2%
Short term	\$1,371.96	\$1,258.22	\$1,383.80	17.9%
SDO	\$297.67	\$415.33	\$400.30	5.2%
Specialty	\$99.52	\$97.36	\$104.34	1.4%
Loan	\$88.31	\$85.45	\$85.57	1.1%
Total	\$6,437.75	\$7,099.42	\$7,716.04	100.0%

PLAN CONTRIBUTIONS

Total Contributions by Year (Thousands)

	2011	2012	2013	2014	2015 YTD	% Chng from 1 year ago
Deferrals	\$1,506.4	\$1,050.2	\$1,344.5	\$1,281.4	\$580.5	-9.9%
Rollovers-In	\$0.0	\$14.5	\$109.5	\$13.3	\$0.4	NA
Other	\$0.0	\$0.0	\$0.0	\$50.9	\$27.6	NA
Total	\$1,506.4	\$1,064.7	\$1,454.1	\$1,345.5	\$608.5	-5.6%

Plan Contributions Summary (Thousands)



Plan Contributions by Investment Class (Thousands)

Investment Class	2013	2014	2015 YTD	% Total
Asset Allocation	\$312.60	\$332.91	\$164.28	27.0%
International	\$276.12	\$217.80	\$91.02	15.0%
Small Cap	\$143.25	\$151.60	\$57.84	9.5%
Mid Cap	\$97.07	\$110.70	\$43.18	7.1%
Large Cap	\$217.26	\$217.68	\$129.19	21.2%
Balanced	\$0.00	\$0.00	\$0.00	0.0%
Bonds	\$86.77	\$52.97	\$26.75	4.4%
Short term	\$296.10	\$246.05	\$86.52	14.2%
SDO	\$0.00	\$0.00	\$0.00	0.0%
Specialty	\$24.89	\$15.83	\$9.73	1.6%
Loan	\$0.00	\$0.00	\$0.00	0.0%
Total	\$1,454.06	\$1,345.55	\$608.51	100.0%

IN SUMMARY

This report contains valuable information and insights about your plan. Now it is time to take action! Here are some suggestions to get you started:

1. Identify your top three areas of focus.
2. Consider which of the following suggestions would work best for your plan:

- Educational Workshops for your employees
- Additional 1-on-1 meetings with your Representative
- Benefit Fairs
- Open Enrollment
- Employer communication options
(e.g. emails, staff meetings...)
- Other _____

3. Discuss your plan with your Nationwide Representative.

We look forward to working with you to bring even greater value to your employees through deferred compensation.

YOUR PROVEN PARTNER

When you're one of the leaders in the industry, you're called to a higher standard. Nationwide's position as an industry leader stems from nearly 40 years in service to public sector retirement plan administrators like you.

Over the years, we have maintained our industry leadership position by being one of the top providers of record-keeping, sales and marketing services to public sector retirement plans in terms of number of clients served and range of assets under management. Here's why:

- Our average client tenure is 19 years
- We partner with more than 7 thousand clients * and have a 99% plan retention rate
- We provide education and service to 1.2 million participants *
- We manage \$62 billion in assets *
- We have been featured in the top 10 most trusted companies for privacy by TRUSTe and Ponemon Institute *for the past nine years.*
- We offer recordkeeping, administration and investment products for:
 - 457(b) Deferred compensation plans serving city, county, special district and state employees
 - 401(a) and grandfathered 401(k) Defined employer-contribution plans serving city, county, special district and state employees
 - PEHP® Tax-free investment plan for post-employment health care expenses

Most importantly, *we are proud to serve you and your plan* through our representatives in the field and in our home office.

What does all this mean to you? Our tenure, our legacy, our service and our people make us uniquely qualified to handle your retirement plan needs. This **Gauging Success** report is just one of the ways that we work with you to understand both your needs as an administrator and your employees' needs for planning for their retirement.

*As of 06/30/15

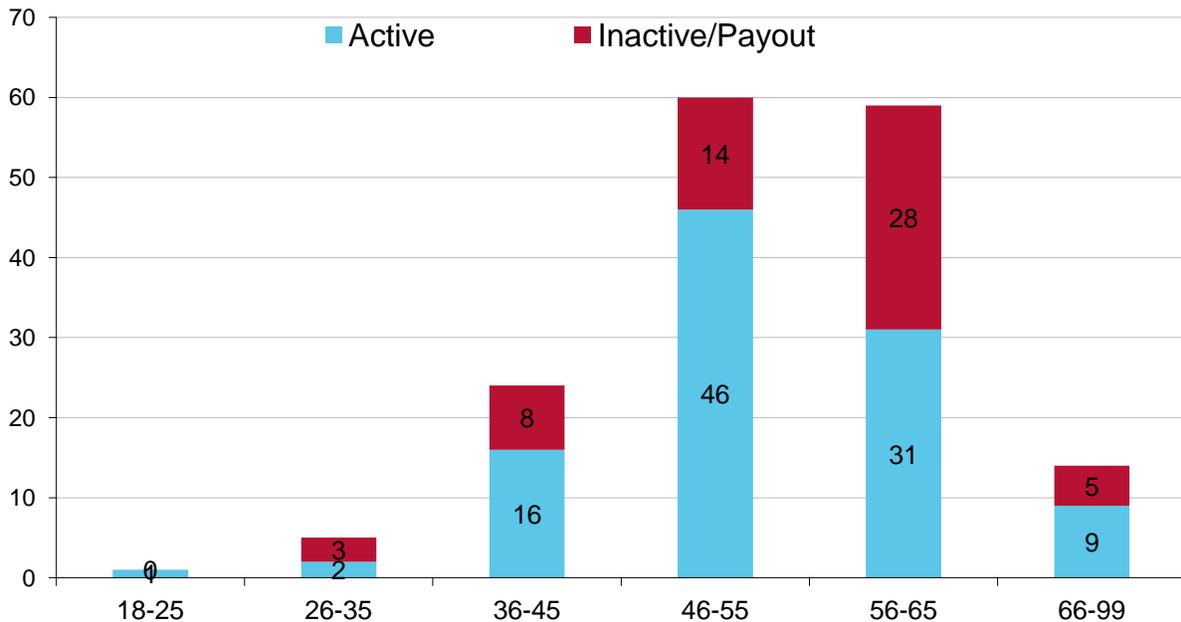
APPENDIX

PLAN PARTICIPATION

Participant Counts by Age as of 06/30/15

Age Group	Total Participant Count	Male Participant Count	Female Participant Count	Actively Def Participant Count	Inactive / Payout Count
18-25	1	1	0	1	0
26-35	5	4	1	2	3
36-45	24	22	2	16	8
46-55	60	32	28	46	14
56-65	59	28	31	31	28
66-99	14	11	3	9	5
Total	163	98	65	105	58

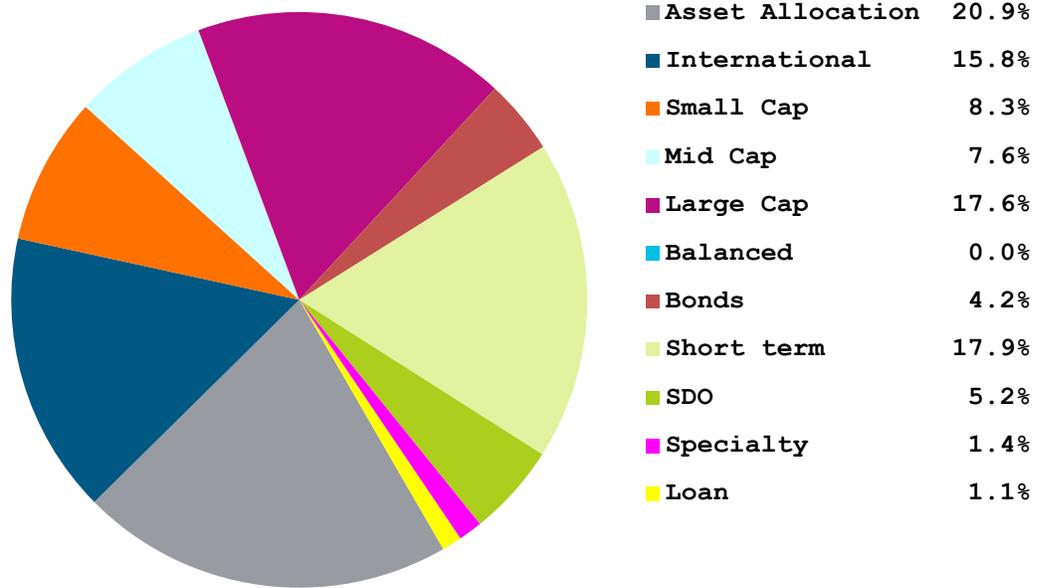
Participant Counts by Age as of 06/30/15



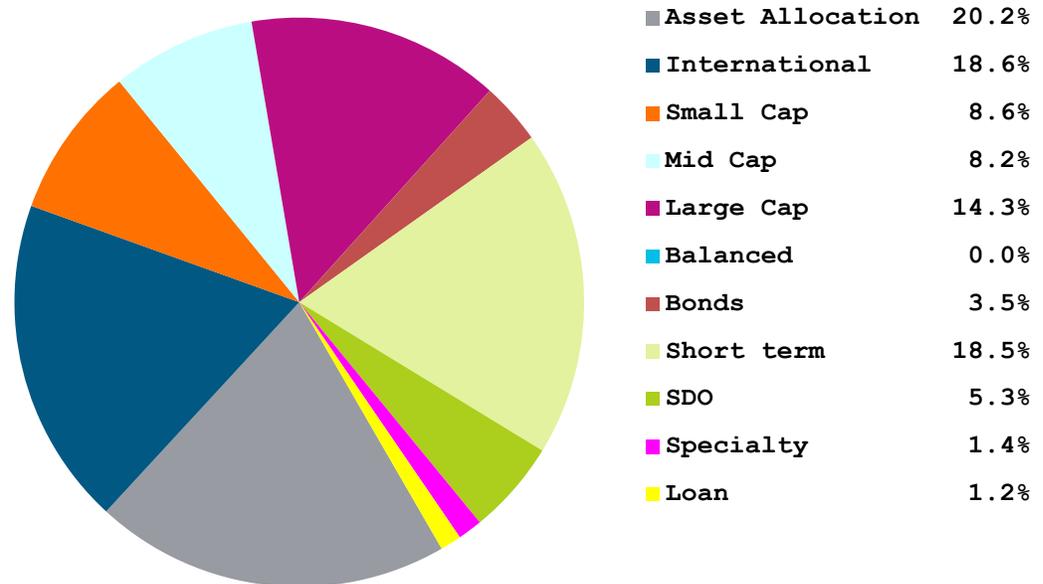
PLAN ASSETS

The use of asset allocation does not guarantee returns or insulate you from potential losses.

Arizona State Retirement System Supplemental , AZ Asset Allocation as of 06/30/15

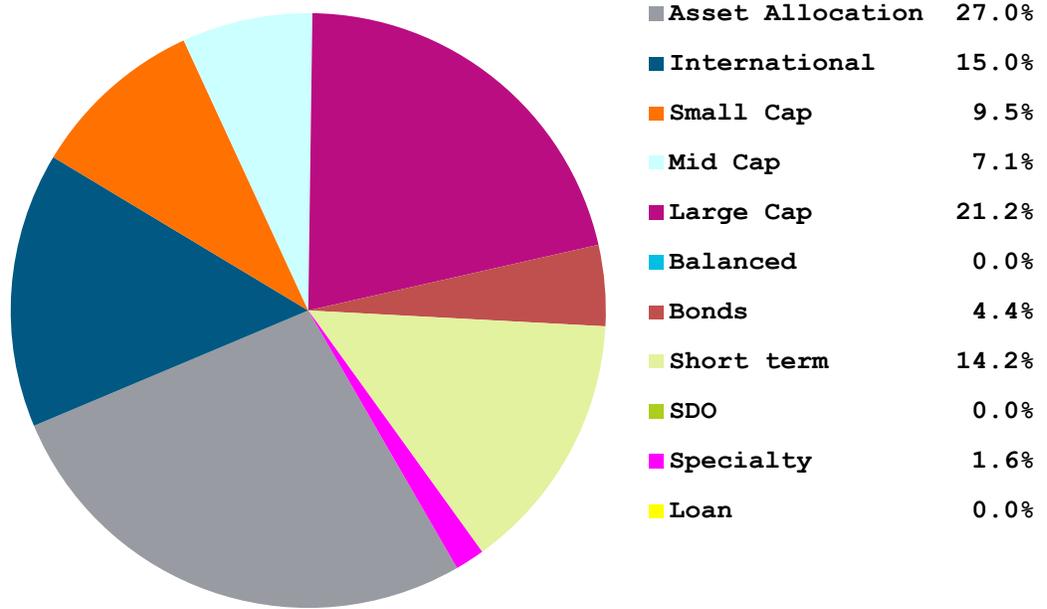


Arizona State Retirement System Supplemental , AZ Asset Allocation as of 06/30/14

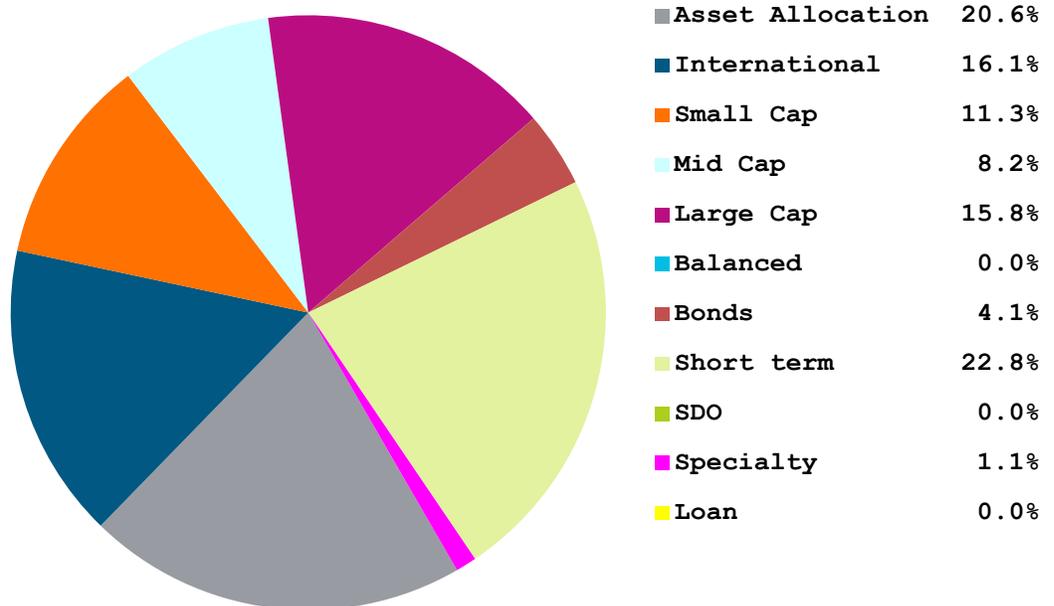


PLAN CONTRIBUTIONS

Arizona State Retirement System Supplemental , AZ Contribution Allocation 2015 YTD



Arizona State Retirement System Supplemental , AZ Contribution Allocation 2014 YTD



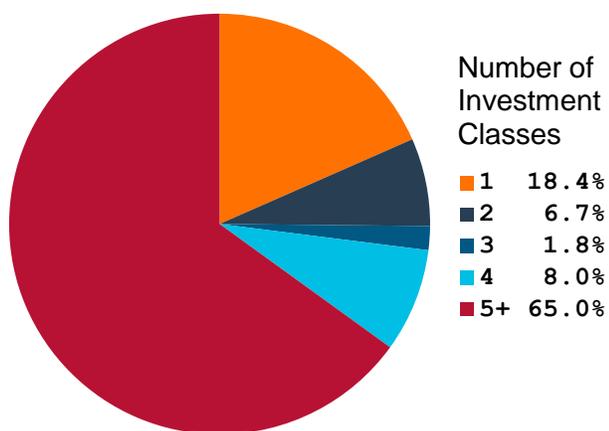
PEER COMPARISONS

Your Peer Group is NRS cases, within your state, with assets of \$5 million - \$20 million. The peer group consists of 20 NRS cases.

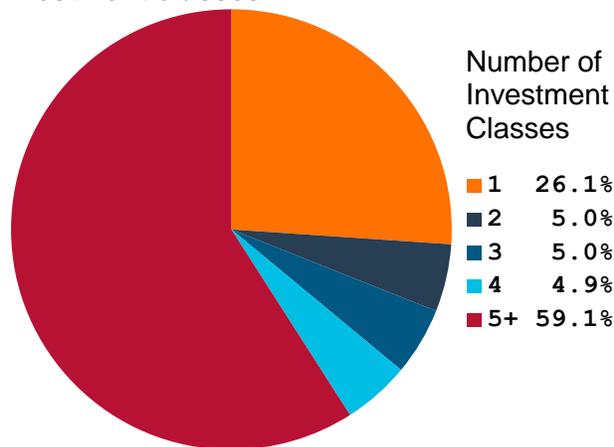
	Arizona State Retirement System Supplemental , AZ	Peer Group	Ibbotson Recommended
Average # of asset classes	4.0	3.4	5.0
Average annualized deferrals	\$9,124	\$4,001	
Average assets	\$47,338	\$33,595	

Asset Allocation Summary as of 06/30/15

percentage of participants by number of investment classes



Arizona State Retirement System Supplemental , AZ



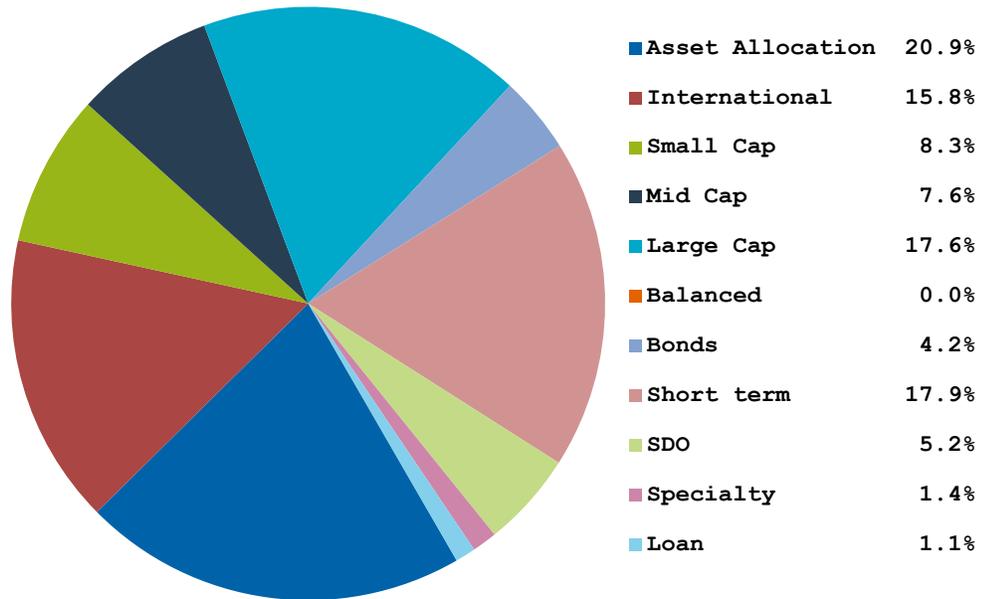
Peer Group

Average Account Balance and Annualized Deferrals by Age Group as of 06/30/15

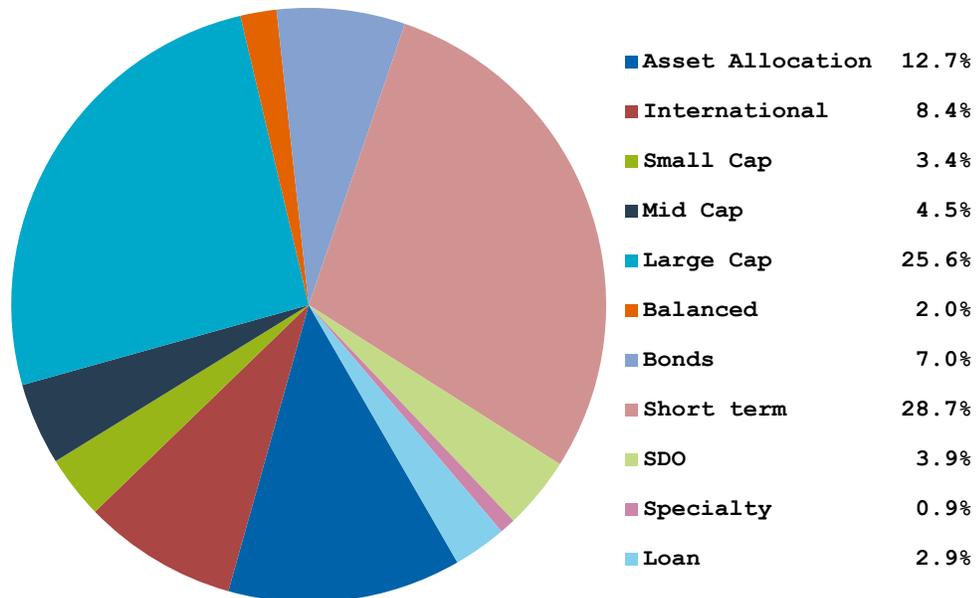
Age Group	Arizona State Retirement System Supplemental , AZ	Peer Group	Arizona State Retirement System Supplemental , AZ	Peer Group
	Account Balance		Annualized Deferrals	
18-25	\$166,498	\$6,639	\$18,000	\$2,367
26-35	\$10,661	\$13,990	\$1,201	\$2,869
36-45	\$14,627	\$25,315	\$4,611	\$3,196
46-55	\$43,873	\$34,292	\$8,010	\$4,054
56-65	\$49,246	\$52,139	\$9,583	\$5,913
66-99	\$114,810	\$43,759	\$22,034	\$8,021

PEER COMPARISONS

Arizona State Retirement System Supplemental , AZ Asset Allocation as of 06/30/15

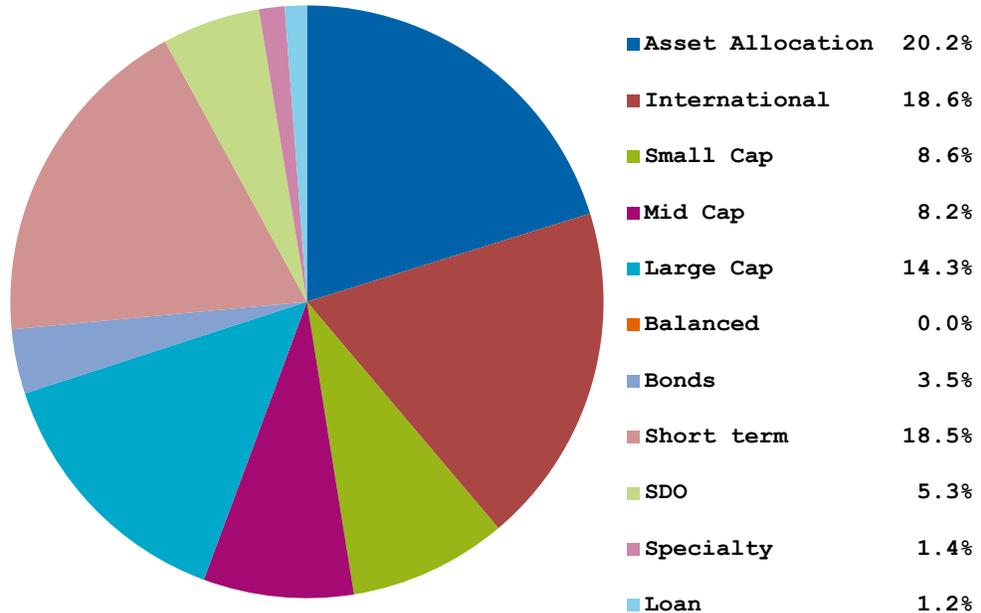


Peer Group Asset Allocation as of 06/30/15

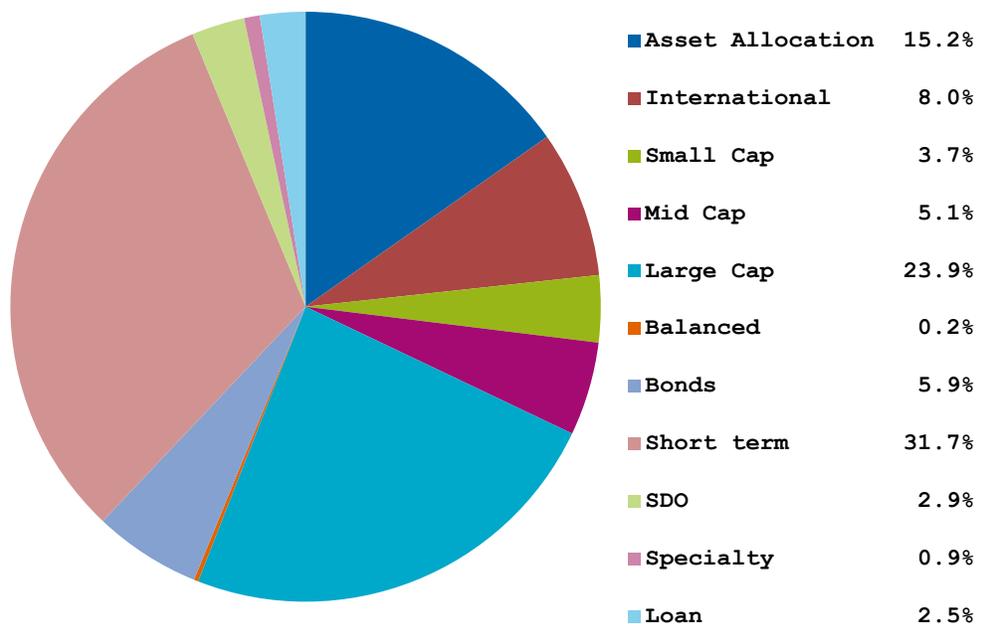


PEER COMPARISONS

Arizona State Retirement System Supplemental , AZ Asset Allocation as of 06/30/14

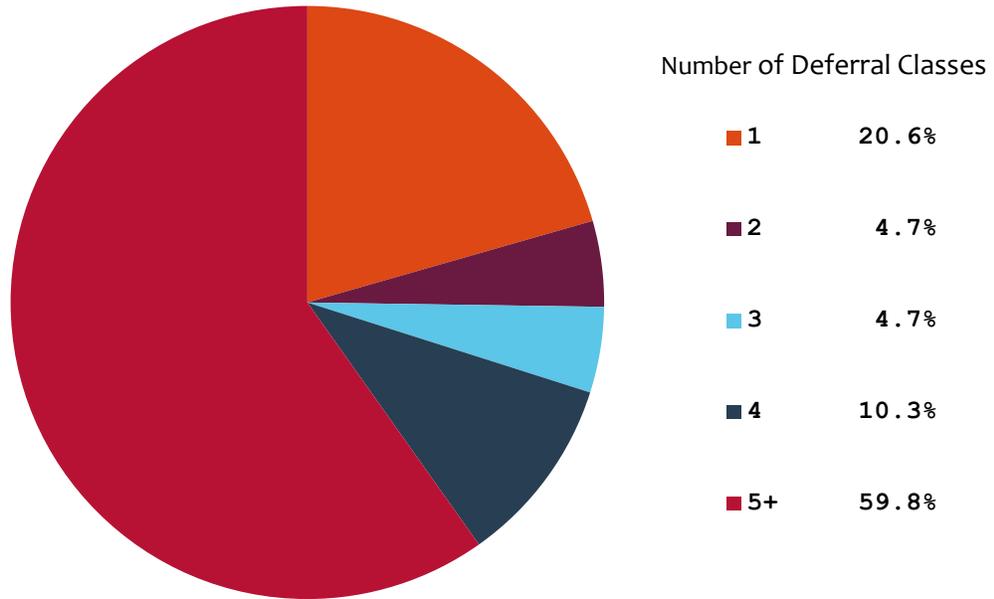


Peer Group Asset Allocation as of 06/30/14

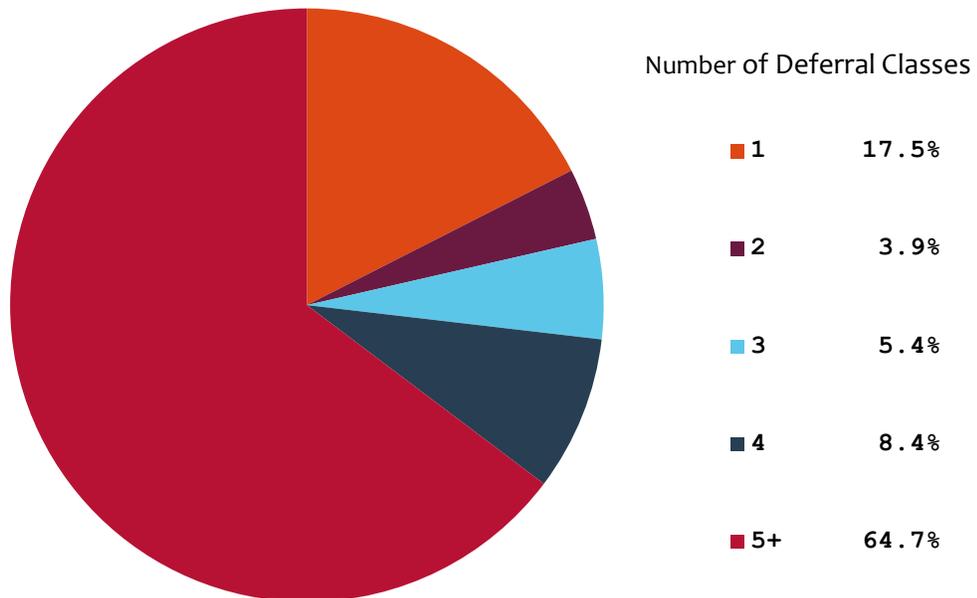


PEER COMPARISONS

Deferral allocation summary: percentage of participants by number of deferral investment classes
Arizona State Retirement System Supplemental , AZ 2015 YTD

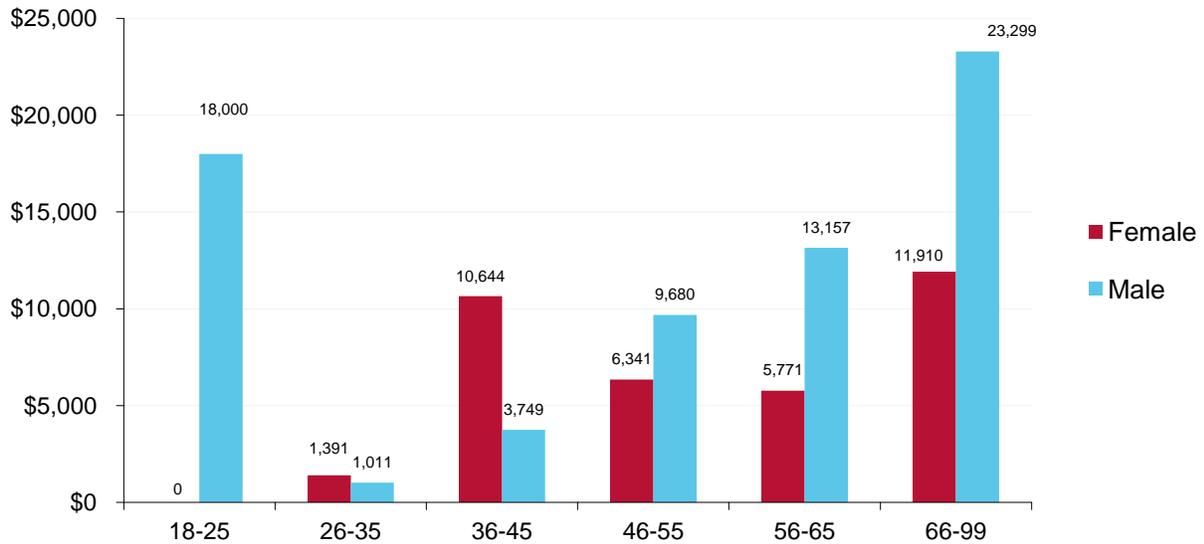


Peer Group 2015 YTD

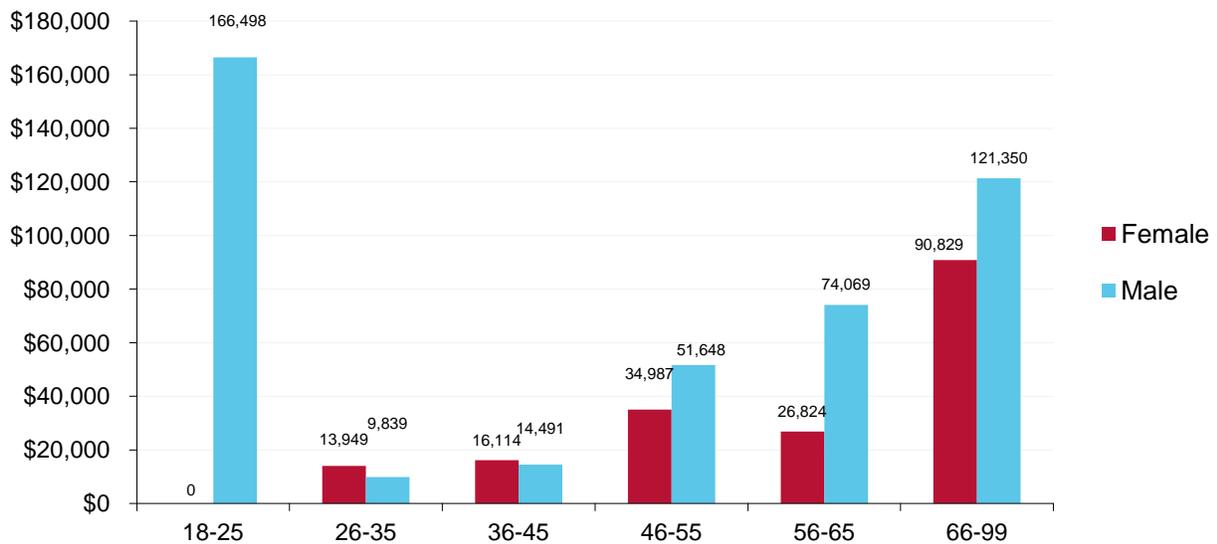


PARTICIPANT DEMOGRAPHICS

Male/Female Average Deferrals by Age

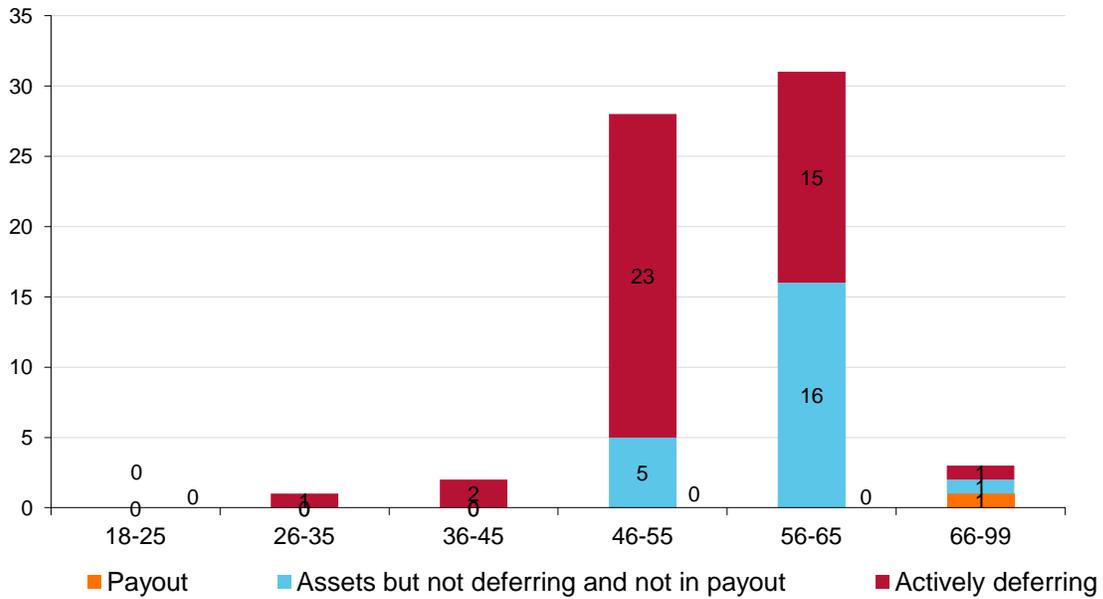


Male/Female Average Account Balance by Age as of 06/30/15

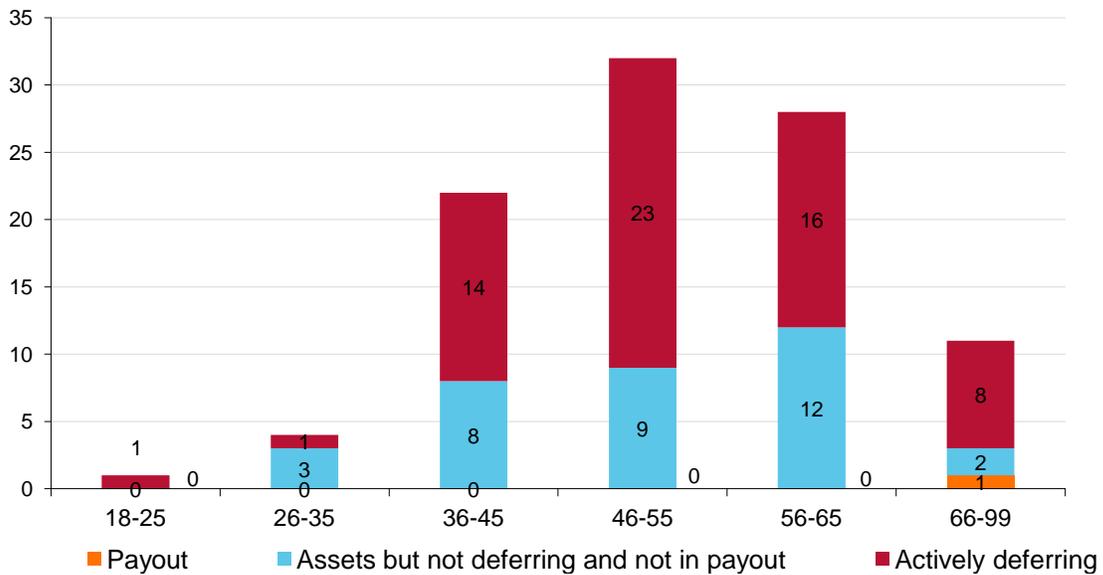


PARTICIPANT DEMOGRAPHICS

Female Participant Count by Age and Status as of 06/30/15



Male Participant Count by Age and Status as of 06/30/15



PLAN ASSETS

as of 06/30/15

Fund	Asset Value	% of Assets	Count / % of Participants	
Asset Allocation				
Ivy Asset Strategy Fund - Class A	203,712.40	2.6%	11	6.7%
Nationwide Investor Destinations Aggressive Fund: Service Class	464,465.27	6.0%	33	20.2%
Nationwide Investor Destinations Conservative Fund: Service Class	303,177.79	3.9%	18	11.0%
Nationwide Investor Destinations Moderate Fund: Service Class	644,038.83	8.3%	41	25.2%
<u>Sub-Total Asset Allocation</u>	1,615,394.29	20.9%		
Bonds				
Metropolitan West Total Return Bond Fund - Class M	145,284.05	1.9%	24	14.7%
Vanguard(R) Total Bond Market Index Fund - Investor Shares	178,498.89	2.3%	25	15.3%
<u>Sub-Total Bonds</u>	323,782.94	4.2%		
International				
EuroPacific Growth Fund(R) - Class R4	262,189.16	3.4%	26	16.0%
Lazard Emerging Markets Equity Portfolio - Open Shares	253,112.51	3.3%	39	23.9%
Vanguard(R) Total International Stock Index Fund	705,652.39	9.1%	30	18.4%
<u>Sub-Total International</u>	1,220,954.06	15.8%		
Large Cap				
Dreyfus Appreciation Fund, Inc.	242,943.16	3.1%	22	13.5%
Vanguard 500 Index Fund - Investor Shares	1,113,570.77	14.4%	47	28.8%
<u>Sub-Total Large Cap</u>	1,356,513.93	17.6%		
Loan				
Loan Outstanding Principal Balance	85,569.15	1.1%	11	6.7%
<u>Sub-Total Loan</u>	85,569.15	1.1%		
Mid Cap				
Dreyfus Structured Midcap Fund - Class I	129,683.79	1.7%	17	10.4%
Vanguard(R) Mid-Cap Index Fund - Investor Shares	457,105.74	5.9%	36	22.1%
<u>Sub-Total Mid Cap</u>	586,789.53	7.6%		

Please consider the funds' investment objectives, risks, and charges and expenses carefully before investing. The prospectus contains this and other important information about the investment company. Read the prospectus carefully before investing. Prospectuses may be obtained from your plan's website or by calling your plan's toll-free customer service phone number.

The use of diversification and asset allocation as part of an overall investment strategy does not assure a profit or protect against loss in a declining market.

Asset allocation funds are designed to provide diversification and asset allocation across several types of investments and asset classes, primarily by investing in underlying funds. Therefore, in addition to the expenses of the asset allocation fund itself, you are indirectly paying a proportionate share of the applicable fees and expenses of the underlying funds.

PLAN ASSETS

as of 06/30/15

Fund	Asset Value	% of Assets	Count / % of Participants	
SDO				
Schwab Personal Choice Retirement Account	400,299.49	5.2%	4	2.5%
<u>Sub-Total SDO</u>	400,299.49	5.2%		
Short Term Investments				
Morley Stable Value Fund II	1,383,800.09	17.9%	33	20.2%
<u>Sub-Total Short Term Investments</u>	1,383,800.09	17.9%		
Small Cap				
JPMorgan Small Cap Equity Fund - Class A	216,492.18	2.8%	31	19.0%
Vanguard(R) Small-Cap Index Fund - Investor Shares	422,103.36	5.5%	31	19.0%
<u>Sub-Total Small Cap</u>	638,595.54	8.3%		
Specialty				
Invesco Global Real Estate Fund - Class A	104,341.98	1.4%	22	13.5%
<u>Sub-Total Specialty</u>	104,341.98	1.4%		
Total	7,716,041.00			

Please consider the funds' investment objectives, risks, and charges and expenses carefully before investing. The prospectus contains this and other important information about the investment company. Read the prospectus carefully before investing.

The use of diversification and asset allocation as part of an overall investment strategy does not assure a profit or protect against loss in a declining market.

Asset allocation funds are designed to provide diversification and asset allocation across several types of investments and asset classes, primarily by investing in underlying funds. Therefore, in addition to the expenses of the asset allocation fund itself, you are indirectly paying a proportionate share of the applicable fees and expenses of the underlying funds.

Agenda Item #7



ARIZONA STATE RETIREMENT SYSTEM

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Paul Matson
Director

MEMORANDUM

TO: The Arizona State Retirement System (ASRS) Investment Committee (IC)

FROM: Mr. Paul Matson, Director
Mr. Patrick Klein, Assistant Director, External Affairs Division

DATE: October 1, 2015

RE: **Agenda Item #7:** Presentation, Discussion, and Appropriate Action Regarding the ASRS Supplemental Salary Deferral Plan (SSDP)

Purpose

To present and discuss the status of the ASRS SSDP.

Recommendation

Informational only; no action required.

Background

In 2009, the Legislature permitted the Arizona State Retirement System (ASRS) to establish a supplemental salary deferral plan offering both 403(b) and 457 plans, as a supplement to the ASRS Defined Benefit (DB) Plan, for public employees other than State employees, as a means to save additional tax-deferred compensation for retirement.

Senate Bill (SB) 1196 allowed the ASRS to:

- employ services for the operation and administration of the plan;
- administer the plan through contracts with vendors;
- perform all acts necessary for the operation and protection of the plan; and,
- enter into intergovernmental agreements.

SB 1196 further clarified that the plan is in addition to the DB Plan provided by the ASRS and:

- allows any employee of a participating employer to join the plan;
- provides that employee participation allows the employer to make payroll deductions;
- clarifies that compensation deferred under the plan is compensation for the purposes of ASRS retirement benefits;
- states the employee contributions and earnings are immediately vested and employer contributions, if any, are vested according to the plan; and,
- provides an immunity clause for the State, the ASRS Board, and the ASRS.

The plan is qualified under Sections 403(b) and 457 of the Internal Revenue Code.

In 2015, participants may elect to defer up to \$18,000 and, for those age 50 and older, an additional \$6,000. Unlike the ASRS SRSP 401(a) plan, there are no restrictions as to participation, amount contributed (except for the maximums mentioned), or how often the contribution amount may change.

Of Special Note: The SSDP administrator's services agreement currently with TIAA-CREF has been awarded to Nationwide Retirement Solutions through an RFP process that occurred earlier this year.

TIAA-CREF, Nationwide, and ASRS staff are preparing for a transition of administrative services which will occur in December, 2015. Member's account balances will be transferred and mapped to similar investment options currently offered through the ASRS Supplemental Retirement Savings Plan (SRSP). Communications to employers and enrolled participants have been on-going since the announcement of the contract award in early summer.

Governance:	Internal Management Committee
Plan Type:	403(b) and 457
Participation:	Voluntary
# of Employers:	97
# of Participants:	649
Total Assets:	\$14,979,024 (as of 6-30-15)
Administrator:	TIAA-CREF
# of Investment Options:	25*
Investment Option Types:	Asset Allocation, International, Small Cap, Mid Cap, Large Cap, Balanced, Bonds, Short Term, Self-Directed Option, Global Real Estate Fund

*The CREF Money Market is not an investment option but is used to receive participant loan repayments only.

Attachments:

- Investment Options Performance Summary as of June 30, 2015
- List of Participating Employers and in which plans enrolled (i.e., 403(b) or 457) as of June 30, 2015
- TIAA-CREF Retirement Plan Review as of June 30, 2015

Performance Summary

As of 06/30/2015



Financial Services

For Institutional Investor Use Only. Not For Use With Or Distribution To The Public.

Arizona State Retirement System



Financial Services

TIAA-CREF Asset Management provides investment advice and portfolio management services to the TIAA-CREF group of companies through the following entities: Teachers Advisors, Inc., TIAA-CREF Investment Management, LLC, and Teachers Insurance and Annuity Association of America® (TIAA®). Teachers Advisors, Inc., is a registered investment advisor and wholly owned subsidiary of Teachers Insurance and Annuity Association of America (TIAA). The information presented herein is confidential and proprietary to TIAA-CREF Asset Management®. TIAA-CREF Individual & Institutional Services, LLC, Teachers Personal Investors Services, Inc., and Nuveen Securities, LLC, Members FINRA and SIPC, distribute securities products. This material is approved for a private presentation by authorized individuals only and, accordingly, this material is not to be reproduced in whole or in part or used for any purpose except as authorized by TIAA-CREF Asset Management. This material is to be treated as strictly confidential and not disclosed directly or indirectly to any party other than the recipient. This material is not approved for public use or distribution. *You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877 518-9161, or go to www.tiaa-cref.org for a current prospectus that contains this and other information. Please read the prospectus carefully before investing.*

TIAA-CREF products may be subject to market and other risk factors. See the applicable product literature, or visit tiaa-cref.org for details.

Morningstar Disclosures

Category: The Morningstar Category classifies a fund based on its investment style as measured by underlying portfolio holdings (portfolio statistics and compositions over the past three years). If the fund is new and has no portfolio, Morningstar estimates where it will fall before assigning a more permanent category. When necessary, Morningstar may change a category assignment based on current information.

Percentile Ranks: The ranking is based on the fund's total-return percentile rank relative to all funds that have the same category for the same time period. The highest (or most favorable) percentile rank is 1%, and the lowest (or least favorable) percentile rank is 100%. Morningstar total return includes both income and capital gains or losses.

Ratings: The Overall Morningstar Rating is based on risk-adjusted return, and is a weighted average of the applicable 3-, 5-, and 10-year Ratings. To determine a fund's star rating for a given time period (three, five, or 10 years), the fund's risk-adjusted return (including the effects of sales charges, loads and redemption fees) is plotted on a bell curve. The top 10% of funds in each category receive 5 stars, the next 22.5% receive 4 stars, the next 35% earn 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. Morningstar Rating™ is for individual share classes only. Other classes may have different performance characteristics.

C24780

Ratings and Ranks Annuities: Morningstar, Inc. rates and ranks U.S. variable annuities' underlying funds within their open-end mutual funds universe and includes the effect of fees and expenses charged by U.S. variable annuities in their comparisons.

A Note About Risk

Equity mutual funds and variable annuity accounts generally carry a higher degree of risk than fixed income funds and accounts. This risk is heightened for funds and accounts that invest in small and mid-cap stocks and foreign securities.

Equity mutual funds and variable annuity accounts that invest in foreign securities may be subject to foreign investment risk, which is the risk that securities of foreign issuers may lose value because of erratic market conditions, economic and political instability or fluctuations in currency exchange rates. These risks may be magnified in emerging markets, where investments may be less liquid than those issued in more developed countries. Foreign investors in these markets may be subject to special restrictions which could have an adverse impact on performance.

Fixed income mutual funds and variable annuity accounts are not guaranteed and are subject to interest rate, inflation and credit risks. Funds and accounts that invest in non-investment grade securities (i.e. high-yield) present special risks, including significantly higher interest rate and credit risk.

Mutual funds and variable annuity accounts that invest in real estate securities are subject to various risks, including fluctuation in property values, higher expenses or lower income than expected, and potential environmental problems and liability.

Target-date mutual funds share the risks associated with the types of securities held by each of the underlying funds in which they invest. As with all mutual funds, the principal value isn't guaranteed. Also, please note that the target date is an approximate date when investors may begin withdrawing from the fund. Target-date mutual funds are actively managed, so their asset allocations are subject to change and may vary from those shown. After the target date has been reached, some of these funds may be merged into a fund with a more stable asset allocation. In addition, target-date mutual funds are subject to the risk that they may be unable to invest according to their target allocations due to changes in the value of their underlying investments.

Guaranteed investments offer a guaranteed rate of return but such guarantees are subject to the claims-paying ability of the issuing insurance company.

More detailed information on risks applicable to a particular investment option can be found in the prospectus or other product literature.



Financial Services

Data Sources

Unless otherwise noted, nonproprietary fund data and performance, performance data for benchmarks presented with nonproprietary funds, Morningstar category performance, fund and benchmark risk statistics (excluding tracking error and information ratio), peer group, ratings and rankings data is provided by Morningstar, Inc. © 2014 Morningstar, Inc. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information. Neither TIAA nor its affiliates has independently verified the accuracy or completeness of this information.

All other data provided by Teachers Insurance and Annuity Association of America - College Retirement Equities Fund (TIAA-CREF). Benchmark performance shown across proprietary and nonproprietary funds/accounts is provided by TIAA-CREF with the exception of Since Inception periods calculated using a nonproprietary fund's inception date. TIAA-CREF reserves the rights to all proprietary data herein, and is not responsible for any damages or losses arising from any use of this information.

Investment Performance

The performance data quoted represents past performance, and is no guarantee of future results. Your returns and the principal value of your investment will fluctuate so that your accumulation units or shares, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the performance quoted. For current performance information, including performance to the most recent month-end, please visit tiaa-cref.org or call 800 842-2252. Performance may reflect waivers or reimbursements of certain expenses. Absent these waivers or reimbursement arrangements, performance results would have been lower. Since Inception performance shown is cumulative when there is less than one year of performance history.

PERFORMANCE SUMMARY

Included Plans

06/30/2015

403(b) TDA

ARIZONA WESTERN COLLEGE 403(B) PLAN

ASRS TEMP

BALL CHARTER SCHOOL (DOBSON) 403(B) PLAN

BALL CHARTER SCHOOLS (HEARN) 403(B) PLAN

BISBEE UNIFIED SCHOOL DISTRICT 403(B) PLAN

BLACKWATER COMMUNITY SCHOOL 403(B) PLAN

BLUE RIDGE USD 403(B) PLAN

BOWIE UNIFIED SCHOOL DISTRICT 403(B) PLAN

BUCKEYE ELEMENTARY SCHOOL DISTRICT 403(B) PLAN

CAMP VERDE 403(B) PLAN

CARTWRIGHT SCHOOL DISTRICT #83 403(B) PLAN

CAVE CREEK UNIFIED SCHOOL DISTRICT 403(B) PLAN

CAVIAT SCHOOL DISTRICT 403(B) PLAN

CHINO VALLEY UNIFIED SCHOOL DISTRICT #51 403(B) PLAN

COLORADO RIVER UNION HIGH SCHOOL DISTRICT 2 403(B) PLAN

COOLIDGE UNIFIED SCHOOL DISTRICT #21 403(B) PLAN

CRANE ELEMENTARY SCHOOL DISTRICT NO 13 403(B) PLAN

ELOY ELEMENTARY SCHOOL DISTRICT 403(B) PLAN

FLAGSTAFF ARTS AND LEADERSHIP ACADEMY 403(B) PLAN

FLAGSTAFF UNIFIED SCHOOL DISTRICT 403(B) PLAN

FLORENCE UNIFIED SCHOOL DISTRICT 403(B) PLAN

FLOWING WELLS SCHOOLS 403(B)

HACKBERRY ELEMENTARY SCHOOL DISTRICT.#3 403(B) PLAN

Included Plans

06/30/2015

403(b) TDA (continued)

HIGLEY UNIFIED SCHOOL DISTRICT 403(B) PLAN

KINGMAN ACADEMY OF LEARNING 403(B) PLAN

KINGMAN UNIFIED SCHOOL DISTRICT 403(B) PLAN

MADISON SCHOOL DISTRICT #38 403 (B) PLAN

MAINE CONSOLIDATED SCHOOL DISTRICT 403(B) PLAN

MARICOPA COMMUNITY COLLEGES 403(B) PLAN

MARICOPA COUNTY REGIONAL SCHOOL DISTRICT 403(B) PLAN

MARICOPA USD 403(B) PLAN

MINGUS UNION HIGH SCHOOL DISTRICT 403(B) PLAN

MOHAVE COMMUNITY COLLEGE 403(B)

NACO ELEMENTARY SCHOOL DISTRICT #23 403(B) PLAN

NAVAJO CCCD DBA NORTHLAND PIONEER COLLEGE 403(B)

NAVAJO COUNTY SCHOOLS 403(B) PLAN

NOGALES UNIFIED SCHOOL DISTRICT# 1 403(B) PLAN

PAINTED ROCK ACADEMY 403(B) PLAN

PIMA UNITED SCHOOL DISTRICT 403(B) PLAN

RIVERSIDE SCHOOL DISTRICT NO.2 403(B) PLAN

SCOTTSDALE UNIFIED SCHOOL DISTRICT 403B PLAN

SEDONA OAK CREEK JOINT UNIFIED SCHOOL DISTRICT 403(B) PLAN

SHOW LOW UNIFIED SCHOOL DISTRICT 403(B) PLAN

SKYVIEW SCHOOL INC 403(B) PLAN

SNOWFLAKE UNIFIED SCHOOL DISTRICT #5 403(B) PLAN

SOMERTON SCHOOL DISTRICT 403(B) PLAN

Included Plans

06/30/2015

403(b) TDA (continued)

ST DAVID SCHOOL 403(B) PLAN
ST. JOHNS UNIFIED SCHOOL DISTRICT 403(B) PLAN
SUNNYSIDE UNIFIED SCHOOL DIST 12 403(B) PLAN
SUPERIOR UNIFIED SCHOOL DISTRICT 403(B) PLAN
THE ACADEMY OF TUCSON 403(B) PLAN
TOPOCK ELEMENTARY SCHOOL #12 403(B) PLAN
TUCSON COUNTRY DAY SCHOOL 403(B)
VALLEY ACADEMY 403(B) PLAN
YAVAPAI COLLEGE 403B

457(b)

APACHE COUNTY 457(B) PLAN
ARIZONA HEALTH FACILITIES AUTHORITY 457(B)
ARIZONA WESTERN COLLEGE 457(B) PLAN
BALL CHARTER SCHOOL (DOBSON) 457(B) PLAN
BALL CHARTER SCHOOLS (HEARN) 457(B) PLAN
BISBEE UNIFIED SCHOOL DISTRICT 457(B) PLAN
BLACKWATER COMMUNITY SCHOOL 457(B)
BLUE RIDGE USD 457(B) PLAN
BOWIE UNIFIED SCHOOL DISTRICT 457(B) PLAN
BUCKEYE ELEMENTARY SCHOOL DISTRICT 457(B) PLAN
CAMP VERDE 457(B) PLAN
CARTWRIGHT SCHOOL DISTRICT #83 457(B) PLAN
CAVE CREEK UNIFIED SCHOOL DISTRICT 457(B) PLAN
CAVIAT SCHOOL DISTRICT 457(B) PLAN

Included Plans

06/30/2015

457(b) (continued)

CENTRAL ARIZONA ASSOCIATION OF GOVERNMENTS 457B

CHINO VALLEY UNIFIED SCHOOL DISTRICT #51 457(B) PLAN

CITY OF BENSON 457(B) PLAN

CITY OF COTTONWOOD 457(B) PLAN

CITY OF DOUGLAS 457(B) PLAN

CITY OF GLOBE 457(B) PLAN

CITY OF HOLBROOK 457(B) PLAN

CITY OF MARICOPA 457(B) PLAN

CITY OF PAGE 457(B) PLAN

CITY OF PAGE/PAGE UTILITY ENTERPRISES 457(B) PLAN

CITY OF SAFFORD 457(B) PLAN

CITY OF SAN LUIS 457(B) PLAN

CITY OF SEDONA 457(B) PLAN

CITY OF SOMERTON 457(B) PLAN

CITY OF WILCOX 457(B)

CITY OF WILLIAMS 457(B) PLAN

CITY OF WINSLOW 457(B) PLAN

COCHISE COUNTY 457 (B)

COCONINO COUNTY 457(B) PLAN

COLORADO RIVER UNION HIGH SCHOOL DISTRICT 2 457(B) PLAN

COOLIDGE UNIFIED SCHOOL DISTRICT #21 457(B) PLAN

CRANE ELEMENTARY SCHOOL DISTRICT NO 13 457(B) PLAN

ELOY ELEMENTARY SCHOOL DISTRICT 457(B) PLAN

Included Plans

06/30/2015

457(b) (continued)

FLAGSTAFF ARTS AND LEADERSHIP ACADEMY 457(B) PLAN

FLAGSTAFF UNIFIED SCHOOL DISTRICT 457(B) PLAN

FLORENCE UNIFIED SCHOOL DISTRICT 457(B) PLAN

FLOWING WELLS SCHOOLS 457(B)

GRAHAM COUNTY 457(B) PLAN

GREEN VALLEY WATER DISTRICT 457(B) PLAN

HACKBERRY ELEMENTARY SCHOOL DISTRICT.#3 457(B) PLAN

HIGLEY UNIFIED SCHOOL DISTRICT 457(B) PLAN

KINGMAN UNIFIED SCHOOL DISTRICT 457(B) PLAN

LAKE HAVASU CITY 457(B) PLAN

LEAGUE OF ARIZONA CITIES AND TOWNS 457B

MADISON SCHOOL DISTRICT #38 457 (B) PLAN

MAINE CONSOLIDATED SCHOOL DISTRICT 457(B) PLAN

MARICOPA ASSOCIATION OF GOVERNMENTS

MARICOPA COUNTY REGIONAL SCHOOL DISTRICT 457(B) PLAN

MARICOPA USD 457(B) PLAN

MINGUS UNION HIGH SCHOOL DISTRICT 457(B) PLAN

MOHAVE COUNTY EMPLOYEE BENEFIT TRUST 457(B)

NACO ELEMENTARY SCHOOL DISTRICT #23 457(B) PLAN

NAIPTA 457(B) PLAN

NAVAJO CCCD DBA NORTHLAND PIONEER COLLEGE 457(B)

NAVAJO COUNTY SCHOOLS 457(B) PLAN

NOGALES UNIFIED SCHOOL DISTRICT# 1 457(B) PLAN

Included Plans

06/30/2015

457(b) (continued)

NORTHERN ARIZONA COUNCIL OF GOVERNMENTS

PAINTED ROCK ACADEMY 457(B) PLAN

PIMA COUNTY COMMUNITY COLLEGE DISTRICT 457(B) PLAN

PIMA UNITED SCHOOL DISTRICT 457(B) PLAN

RIVERSIDE SCHOOL DISTRICT NO.2 457(B) PLAN

SANTA CRUZ COUNTY 457(B) PLAN

SEDONA OAK CREEK JOINT UNIFIED SCHOOL DISTRICT 457(B) PLAN

SHOW LOW UNIFIED SCHOOL DISTRICT 457(B) PLAN

SKYVIEW SCHOOL INC. 457(B) PLAN

SNOWFLAKE UNIFIED SCHOOL DISTRICT #5 457(B) PLAN

SOMERTON SCHOOL DISTRICT 457(B) PLAN

ST DAVID SCHOOL 457(B) PLAN

ST. JOHNS UNIFIED SCHOOL DISTRICT 457(B) PLAN

SUNNYSIDE UNIFIED SCHOOL DIST 12 457(B) PLAN

SUPERIOR UNIFIED SCHOOL DISTRICT 457(B) PLAN

SUPERSTITION MOUNTAINS COMMUNITY FACILITIES DISTRICT NO. 1. 457B

TOPOCK ELEMENTARY SCHOOL #12 457(B) PLAN

TOWN OF CAMP VERDE 457B PLAN

TOWN OF CAVE CREEK 457(B) PLAN

TOWN OF CLARKDALE 457(B) PLAN

TOWN OF FLORENCE 457(B)

TOWN OF GUADALUPE 457(B) PLAN

TOWN OF PINETOP - LAKESIDE 457B PLAN

Included Plans

06/30/2015

457(b) (continued)

TOWN OF QUEEN CREEK 457(B) PLAN

TOWN OF THATCHER 457(B) PLAN

TOWN OF WICKENBURG 457(B) PLAN

TRI-CITY FIRE DISTRICT 457(B) PLAN

TUCSON COUNTRY DAY SCHOOL 457(B) PLAN

VALLEY ACADEMY 457(B) PLAN

YAVAPAI COLLEGE 457B

YUMA COUNTY 457(B) PLAN

Arizona State Retirement System

As of 06/30/2015

Fixed Income	Cumulative Total Return (%)		Average Annual Total Return								Current Rates		Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI	Rate	Guar. Min.	Annuity
													Rate	
Guaranteed														
TIAA Traditional Annuity Retirement Choice Plus Annuity (RCP) ^{1,2,13}	0.85	1.72	3.57	--	3.58	--	3.52	--	--	--	3.81	3.50	1.00*	06/01/2006

*The Guaranteed Minimum Rate is applicable to contributions and transfers from March 1 through the last date of February.

Fixed Income	Current Yield ⁺⁺⁺	Cumulative Total Ret. (%)		Average Annual Total Return								Expenses		Inception Date		
		7-Day	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Net Expense Ratio %	Linked/Hypo ⁺⁺	Share Class
Money Market																
CREF Money Market Account R1 (QCMMRX) ^{3,7,8,11,12}	0.00	0.00	0.00	0.00	--	0.00	--	0.00	--	1.37	--	3.50	0.64	--	04/01/1988	
iMoneyNet Money Fund Averages—All Taxable Excess Return (Fund – BM)	0.02	0.00	0.01	0.02	--	0.02	--	0.02	--	1.30	--	3.24	--	--	--	
Morningstar Money Market-Taxable - Median Excess Return (Fund – Median)	-0.02	0.00	-0.01	-0.02	--	-0.02	--	-0.02	--	0.07	--	0.26	--	--	--	
Morningstar Money Market-Taxable - Median Excess Return (Fund – Median)	--	0.00	0.00	0.01	--	0.01	--	0.01	--	1.31	--	--	--	--	--	
Vanguard Prime Money Market Fund Investor (VMMXX) ^{4,5,6,9}	--	0.00	0.00	-0.01	--	-0.01	--	-0.01	--	0.06	--	--	--	--	--	
Vanguard Prime Money Market Fund Investor (VMMXX) ^{4,5,6,9}	0.02	0.00	0.01	0.01	--	0.02	--	0.03	--	1.51	--	5.30	0.16	--	06/04/1975	
U.S. Treasury T-Bill Auction 3-Month Average Excess Return (Fund – BM)	--	0.00	0.01	0.02	--	0.05	--	0.06	--	1.36	--	5.15	--	--	--	
Morningstar Money Market-Taxable - Median Excess Return (Fund – Median)	--	0.00	0.00	-0.01	--	-0.03	--	-0.03	--	0.15	--	0.15	--	--	--	
Morningstar Money Market-Taxable - Median Excess Return (Fund – Median)	--	0.00	0.00	0.01	--	0.01	--	0.01	--	1.31	--	--	--	--	--	
Morningstar Money Market-Taxable - Median Excess Return (Fund – Median)	--	0.00	0.01	0.00	--	0.01	--	0.02	--	0.20	--	--	--	--	--	

+Since Inception reflects performance from commencement of operations through current quarter-end. Overall shows the Overall Rating, which is a weighted average of applicable 3-, 5- and 10-year ratings based on risk-adjusted return.

++Indicates the inception date of either the oldest class of a fund/account or the underlying fund when hypothetical (pre-dated) performance is shown. Please refer to the disclosures page for more information.

+++The current yield more closely reflects the earnings of this investment choice.



Financial Services

Quartile Ranks 1Q 2Q 3Q 4Q

	Cumulative Total Return (%)		Average Annual Total Return									Risk Statistics (3 Years)				Expenses	Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Fixed Income																		
Inflation-Linked Bond																		
BlackRock Inflation Protected Bond Fund A (BPRAX) ⁵	-1.21	0.19	-3.01	66	-1.19	46	2.55	43	4.03	9	4.59	4.98	-0.23	0.48	-0.89	0.76	--	06/28/2004
Barclays U.S. Treasury Inflation Protected Securities (TIPS) Index (Series-L)	-1.06	0.34	-1.73	--	-0.76	--	3.29	--	4.13	--	4.70	5.22	-0.13	--	--	--	--	--
Excess Return (Fund – BM)	-0.15	-0.15	-1.28	--	-0.43	--	-0.74	--	-0.10	--	-0.11	--	--	--	--	--	--	--
Morningstar Inflation-Protected Bond - Median	-1.14	0.19	-2.57	--	-1.21	--	2.47	--	3.43	--	--	5.06	-0.23	0.96	-0.54	--	--	--
Excess Return (Fund – Median)	-0.07	0.00	-0.44	--	0.02	--	0.08	--	0.60	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	230	--	198	--	176	--	97	--	198	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	**	--	**	--	***	--	***	--	--	--	--	--	--	--
Intermediate Core Bond																		
Metropolitan West Total Return Bond Fund M (MWTRX) ⁵	-1.49	-0.17	1.67	25	3.94	7	5.17	7	6.19	2	6.83	3.05	1.27	1.28	1.65	0.68	--	03/31/1997
Barclays U.S. Aggregate Bond Index	-1.68	-0.10	1.86	--	1.83	--	3.35	--	4.44	--	5.65	2.95	0.61	--	--	--	--	--
Excess Return (Fund – BM)	0.19	-0.07	-0.19	--	2.11	--	1.82	--	1.75	--	1.18	--	--	--	--	--	--	--
Morningstar Intermediate-Term Bond - Median	-1.65	-0.02	1.21	--	2.25	--	3.76	--	4.36	--	--	3.05	0.73	0.96	0.46	--	--	--
Excess Return (Fund – Median)	0.16	-0.15	0.46	--	1.69	--	1.41	--	1.83	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1043	--	935	--	811	--	593	--	935	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	*****	--	*****	--	*****	--	*****	--	--	--	--	--	--	--
Vanguard Total Bond Market Index Fund Admiral (VBTLX) ⁵	-1.79	-0.17	1.73	22	1.70	71	3.24	70	4.40	46	4.48	3.03	0.56	0.27	-0.48	0.07	--	11/12/2001
Barclays U.S. Aggregate Bond Index	-1.68	-0.10	1.86	--	1.83	--	3.35	--	4.44	--	4.64	2.95	0.61	--	--	--	--	--
Excess Return (Fund – BM)	-0.11	-0.07	-0.13	--	-0.13	--	-0.11	--	-0.04	--	-0.16	--	--	--	--	--	--	--
Morningstar Intermediate-Term Bond - Median	-1.65	-0.02	1.21	--	2.25	--	3.76	--	4.36	--	--	3.05	0.73	0.96	0.46	--	--	--
Excess Return (Fund – Median)	-0.14	-0.15	0.52	--	-0.55	--	-0.52	--	0.04	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1043	--	935	--	811	--	593	--	935	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	***	--	***	--	--	--	--	--	--	--

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++Indicates the inception date of either the oldest class of a fund/account or the underlying fund when hypothetical (pre-dated) performance is shown. Please refer to the disclosures page for more information.

	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses		Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Fixed Income																		
Intermediate Core Bond Plus																		
PIMCO Total Return Fund A (PTTAX) ⁵	-1.93	0.15	0.90	64	2.05	57	3.62	53	5.27	12	6.16	3.73	0.55	1.37	0.16	0.85	--	01/13/1997
Barclays U.S. Aggregate Bond Index	-1.68	-0.10	1.86	--	1.83	--	3.35	--	4.44	--	5.59	2.95	0.61	--	--	--	--	--
Excess Return (Fund – BM)	-0.25	0.25	-0.96	--	0.22	--	0.27	--	0.83	--	0.57	--	--	--	--	--	--	--
Morningstar Intermediate-Term Bond - Median	-1.65	-0.02	1.21	--	2.25	--	3.76	--	4.36	--	--	3.05	0.73	0.96	0.46	--	--	--
Excess Return (Fund – Median)	-0.28	0.17	-0.31	--	-0.20	--	-0.14	--	0.91	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1043	--	935	--	811	--	593	--	935	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	**	--	**	--	****	--	***	--	--	--	--	--	--	--
International/Global Bond																		
Templeton Global Bond Fund A (TPINX) ⁵	-0.33	-0.25	-1.93	27	4.21	10	4.94	15	7.76	1	7.84	4.82	0.87	5.62	1.44	0.90	--	09/18/1986
Citigroup World Government Bond Index	-1.54	-5.83	-13.49	--	-3.88	--	0.33	--	2.63	--	6.24	5.80	-0.66	--	--	--	--	--
Excess Return (Fund – BM)	1.21	5.58	11.56	--	8.09	--	4.61	--	5.13	--	1.60	--	--	--	--	--	--	--
Morningstar World Bond - Median	-2.02	-2.52	-5.50	--	0.80	--	2.71	--	3.99	--	--	4.69	0.17	4.48	1.11	--	--	--
Excess Return (Fund – Median)	1.69	2.27	3.57	--	3.41	--	2.23	--	3.77	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	379	--	308	--	237	--	137	--	308	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	****	--	***	--	*****	--	****	--	--	--	--	--	--	--

	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses		Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Multiple Assets/Other																		
Conservative Allocation																		
Manning & Napier Pro-Blend Conservative Term Series S (EXDAX) ⁵	-0.78	0.03	-1.25	79	5.33	68	6.12	74	5.42	28	5.93	3.92	1.33	2.42	-2.33	0.89	--	11/01/1995
60%S&P500/40% BarCapAgg	-0.51	0.79	5.28	--	10.98	--	11.76	--	6.79	--	--	--	--	--	--	--	--	--
Excess Return (Fund – BM)	-0.27	-0.76	-6.53	--	-5.65	--	-5.64	--	-1.37	--	--	--	--	--	--	--	--	--
Morningstar Conservative Allocation - Median	-0.81	0.79	0.59	--	6.15	--	7.13	--	5.00	--	--	4.27	1.46	1.50	0.00	--	--	--
Excess Return (Fund – Median)	0.03	-0.76	-1.84	--	-0.82	--	-1.01	--	0.42	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	805	--	676	--	549	--	307	--	676	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	****	--	****	--	--	--	--	--	--	--

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Multiple Assets/Other	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses	Inception Date		
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Moderate Allocation																		
CREF Social Choice Account R1 (QCSCRX) ^{11,12}	-1.14	0.66	1.78	64	9.98	54	10.11	59	6.01	49	8.46	5.39	1.84	0.70	-0.56	0.65	--	03/01/1990
CREF Social Choice Account Composite Benchmark Excess Return (Fund – BM)	-0.53	1.52	3.54	--	10.42	--	10.83	--	6.28	--	8.59	5.30	1.96	--	--	--	--	--
Morningstar Moderate Allocation - Median Excess Return (Fund – Median)	-0.47	1.40	2.48	--	10.22	--	10.53	--	6.09	--	--	5.81	1.69	2.29	-0.64	--	--	--
Number of Funds in Peer Group	--	--	917	--	815	--	703	--	472	--	815	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	***	--	***	--	--	--	--	--	--	--
Manning & Napier Pro-Blend Extended Term Series S (MNBA)⁵																		
60%S&P500/40% BarCapAgg Excess Return (Fund – BM)	-0.51	0.79	5.28	--	10.98	--	11.76	--	6.79	--	--	--	--	--	--	--	--	--
Morningstar Moderate Allocation - Median Excess Return (Fund – Median)	-0.47	1.40	2.48	--	10.22	--	10.53	--	6.09	--	--	5.81	1.69	2.29	-0.64	--	--	--
Number of Funds in Peer Group	--	--	917	--	815	--	703	--	472	--	815	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	***	--	***	--	--	--	--	--	--	--
Aggressive Allocation																		
Manning & Napier Pro-Blend Maximum Term Series S (EXHAX) ⁵	0.10	0.63	-2.04	91	13.66	17	12.24	35	6.92	18	9.20	9.21	1.44	5.16	0.52	1.07	--	11/01/1995
60%S&P500/40% BarCapAgg Excess Return (Fund – BM)	-0.51	0.79	5.28	--	10.98	--	11.76	--	6.79	--	--	--	--	--	--	--	--	--
Morningstar Aggressive Allocation - Median Excess Return (Fund – Median)	-0.19	2.05	2.09	--	12.04	--	11.91	--	6.16	--	--	7.25	1.60	1.98	-0.69	--	--	--
Number of Funds in Peer Group	--	--	455	--	389	--	328	--	225	--	389	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	****	--	***	--	***	--	***	--	--	--	--	--	--	--

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Multiple Assets/Other	Cumulative Total Return (%)		Average Annual Total Return									Risk Statistics (3 Years)				Expenses	Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
World Allocation																		
Ivy Asset Strategy Fund A (WASAX) ⁵	-1.51	0.04	-4.47	82	9.82	18	9.06	34	10.15	3	8.25	8.87	1.10	4.73	-0.94	0.96	--	07/10/2000
MSCI World Index (NR USD)	0.31	2.63	1.43	--	14.27	--	13.10	--	6.38	--	--	8.71	1.58	--	--	--	--	--
Excess Return (Fund – BM)	-1.82	-2.59	-5.90	--	-4.45	--	-4.04	--	3.77	--	--	--	--	--	--	--	--	--
Morningstar World Allocation - Median	-0.58	1.24	-1.61	--	8.02	--	8.41	--	5.33	--	--	6.61	1.17	2.46	-0.29	--	--	--
Excess Return (Fund – Median)	-0.93	-1.20	-2.86	--	1.80	--	0.65	--	4.82	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	554	--	465	--	344	--	177	--	465	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	**	--	*****	--	****	--	--	--	--	--	--	--
Real Estate																		
Voya Global Real Estate Fund A (IGLAX) ⁵	-7.27	-3.71	-1.93	86	7.91	81	10.81	62	5.73	19	10.35	11.85	0.70	1.72	-1.43	1.26	--	11/05/2001
S&P Developed Property Index	-6.10	-1.63	0.87	--	10.37	--	13.06	--	6.32	--	--	11.38	0.92	--	--	--	--	--
Excess Return (Fund – BM)	-1.17	-2.08	-2.80	--	-2.46	--	-2.25	--	-0.59	--	--	--	--	--	--	--	--	--
Morningstar Global Real Estate - Median	-5.84	-1.89	0.34	--	9.10	--	11.14	--	4.94	--	--	11.32	0.82	4.03	-0.05	--	--	--
Excess Return (Fund – Median)	-1.43	-1.82	-2.27	--	-1.19	--	-0.33	--	0.79	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	222	--	187	--	154	--	48	--	187	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	*	--	**	--	***	--	**	--	--	--	--	--	--	--

Equities	Cumulative Total Return (%)		Average Annual Total Return									Risk Statistics (3 Years)				Expenses	Inception Date	
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Large Cap Blend																		
CREF Stock Account R1 (QCSTRX) ^{10,11,12}	0.69	3.38	3.90	73	15.20	76	14.45	78	7.03	60	9.89	8.63	1.76	0.61	-0.23	0.69	--	07/31/1952
CREF Composite Benchmark	0.43	2.77	3.55	--	15.37	--	14.66	--	7.17	--	--	8.52	1.80	--	--	--	--	--
Excess Return (Fund – BM)	0.26	0.61	0.35	--	-0.17	--	-0.21	--	-0.14	--	--	--	--	--	--	--	--	--
Morningstar Large Blend - Median	0.11	1.14	6.24	--	16.80	--	16.15	--	7.36	--	--	8.85	1.81	2.18	-0.61	--	--	--
Excess Return (Fund – Median)	0.58	2.24	-2.34	--	-1.60	--	-1.70	--	-0.33	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1611	--	1380	--	1225	--	854	--	1380	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	**	--	***	--	***	--	--	--	--	--	--	--

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	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses	Inception Date		
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Equities																		
Large Cap Blend																		
TIAA-CREF S&P 500 Index Fund Retirement (TRSPX)	0.22	1.09	7.06	33	16.92	46	16.95	29	7.55	37	9.05	8.52	1.98	0.09	--	0.31	--	10/01/2002
S&P 500 Index	0.28	1.23	7.42	--	17.31	--	17.34	--	7.89	--	9.43	8.55	1.91	--	--	--	--	--
Excess Return (Fund – BM)	-0.06	-0.14	-0.36	--	-0.39	--	-0.39	--	-0.34	--	-0.38	--	--	--	--	--	--	--
Morningstar Large Blend - Median	0.11	1.14	6.24	--	16.80	--	16.15	--	7.36	--	--	8.85	1.81	2.18	-0.61	--	--	--
Excess Return (Fund – Median)	0.11	-0.05	0.82	--	0.12	--	0.80	--	0.19	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1611	--	1380	--	1225	--	854	--	1380	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	****	--	***	--	***	--	--	--	--	--	--	--
Large Cap Growth																		
TIAA-CREF Growth & Income Fund Retirement (TRGIX) ¹⁶	1.53	4.44	8.65	59	18.07	41	17.96	32	9.77	16	5.27	9.19	1.96	2.44	0.29	0.67	07/01/1999	10/01/2002
S&P 500 Index	0.28	1.23	7.42	--	17.31	--	17.34	--	7.89	--	4.50	8.55	1.91	--	--	--	--	--
Excess Return (Fund – BM)	1.25	3.21	1.23	--	0.76	--	0.62	--	1.88	--	0.77	--	--	--	--	--	--	--
Morningstar Large Growth - Median	0.55	3.80	9.57	--	17.69	--	17.15	--	8.21	--	--	9.61	1.72	3.39	-0.09	--	--	--
Excess Return (Fund – Median)	0.98	0.64	-0.92	--	0.38	--	0.81	--	1.56	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1697	--	1533	--	1317	--	918	--	1533	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	****	--	*****	--	****	--	--	--	--	--	--	--
World Stock																		
American Funds Capital World Growth and Income Fund R4 (RWIEX) ⁵	0.25	2.92	0.84	53	14.08	42	12.57	49	7.77	29	9.70	8.30	1.63	2.30	-0.08	0.79	--	06/27/2002
MSCI World Index (NR USD)	0.31	2.63	1.43	--	14.27	--	13.10	--	6.38	--	--	8.71	1.58	--	--	--	--	--
Excess Return (Fund – BM)	-0.06	0.29	-0.59	--	-0.19	--	-0.53	--	1.39	--	--	--	--	--	--	--	--	--
Morningstar World Stock - Median	0.41	3.49	1.12	--	13.58	--	12.47	--	6.65	--	--	9.25	1.42	3.76	0.16	--	--	--
Excess Return (Fund – Median)	-0.16	-0.57	-0.28	--	0.50	--	0.10	--	1.12	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	1216	--	988	--	744	--	388	--	988	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	****	--	****	--	--	--	--	--	--	--

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Equities	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses	Inception Date		
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Mid Cap Blend																		
Invesco Mid Cap Core Equity Fund A (GTAGX) ⁵	1.37	3.70	0.59	77	14.12	85	11.26	92	7.10	72	10.78	8.46	1.60	3.20	-1.61	1.20	--	06/09/1987
Russell Midcap Index	-1.54	2.35	6.63	--	19.26	--	18.23	--	9.40	--	11.42	9.35	1.94	--	--	--	--	--
Excess Return (Fund – BM)	2.91	1.35	-6.04	--	-5.14	--	-6.97	--	-2.30	--	-0.64	--	--	--	--	--	--	--
Morningstar Mid-Cap Blend - Median	-0.81	2.84	5.42	--	18.04	--	16.60	--	8.40	--	--	10.24	1.67	3.43	-0.44	--	--	--
Excess Return (Fund – Median)	2.18	0.86	-4.83	--	-3.92	--	-5.34	--	-1.30	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	396	--	347	--	289	--	184	--	347	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	*	--	*	--	***	--	**	--	--	--	--	--	--	--
Vanguard Mid-Cap Index Fund Admiral (VIMAX)⁵	-1.18	3.05	8.63	9	19.68	17	18.24	15	9.37	19	10.30	9.34	1.98	0.90	0.47	0.09	--	11/12/2001
Russell Midcap Index	-1.54	2.35	6.63	--	19.26	--	18.23	--	9.40	--	10.45	9.35	1.94	--	--	--	--	--
Excess Return (Fund – BM)	0.36	0.70	2.00	--	0.42	--	0.01	--	-0.03	--	-0.15	--	--	--	--	--	--	--
Morningstar Mid-Cap Blend - Median	-0.81	2.84	5.42	--	18.04	--	16.60	--	8.40	--	--	10.24	1.67	3.43	-0.44	--	--	--
Excess Return (Fund – Median)	-0.37	0.21	3.21	--	1.64	--	1.64	--	0.97	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	396	--	347	--	289	--	184	--	347	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	****	--	*****	--	****	--	****	--	--	--	--	--	--	--
Small Cap Blend																		
TIAA-CREF Small-Cap Blend Index Fund Retirement (TRBIX)	0.46	4.79	6.55	31	17.78	41	16.96	38	8.23	42	11.30	12.43	1.43	0.13	--	0.38	--	10/01/2002
Russell 2000 Index	0.42	4.75	6.49	--	17.81	--	17.08	--	8.40	--	11.55	12.50	1.38	--	--	--	--	--
Excess Return (Fund – BM)	0.04	0.04	0.06	--	-0.03	--	-0.12	--	-0.17	--	-0.25	--	--	--	--	--	--	--
Morningstar Small Blend - Median	0.09	3.86	5.09	--	17.48	--	16.55	--	8.01	--	--	11.94	1.41	3.47	-0.14	--	--	--
Excess Return (Fund – Median)	0.37	0.93	1.46	--	0.30	--	0.41	--	0.22	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	775	--	636	--	575	--	377	--	636	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	***	--	***	--	***	--	***	--	--	--	--	--	--	--

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Equities	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)				Expenses	Inception Date		
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Small Cap Growth																		
Royce Pennsylvania Mutual Fund Service (RYPFX) ^{5,14}	-1.22	-0.15	-2.97	97	13.55	93	13.07	95	--	--	7.19	12.00	1.12	5.42	-1.21	1.24	--	11/08/2005
Russell 2000 Growth Index	1.98	8.74	12.34	--	20.11	--	19.33	--	--	--	9.75	13.19	1.46	--	--	--	--	--
Excess Return (Fund – BM)	-3.20	-8.89	-15.31	--	-6.56	--	-6.26	--	--	--	-2.56	--	--	--	--	--	--	--
Morningstar Small Growth - Median	1.87	7.61	9.60	--	18.09	--	17.73	--	--	--	--	12.80	1.37	4.52	-0.47	--	--	--
Excess Return (Fund – Median)	-3.09	-7.76	-12.57	--	-4.54	--	-4.66	--	--	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	733	--	667	--	588	--	--	--	667	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	**	--	*	--	--	--	*	--	--	--	--	--	--	--
International - Foreign Large Blend																		
American Funds EuroPacific Growth Fund R4 (REREX) ⁵	1.02	6.98	0.63	33	12.32	31	9.74	50	7.33	16	8.23	9.21	1.31	2.59	0.08	0.84	--	06/07/2002
MSCI EAFE Growth NR USD	1.01	6.91	-1.33	--	12.11	--	10.09	--	5.80	--	--	9.76	1.22	--	--	--	--	--
Excess Return (Fund – BM)	0.01	0.07	1.96	--	0.21	--	-0.35	--	1.53	--	--	--	--	--	--	--	--	--
Morningstar Foreign Large Growth - Median	0.97	6.59	-1.19	--	11.50	--	9.86	--	6.22	--	--	9.92	1.14	3.51	0.39	--	--	--
Excess Return (Fund – Median)	0.05	0.39	1.82	--	0.82	--	-0.12	--	1.11	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	340	--	296	--	273	--	174	--	296	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	****	--	***	--	*****	--	****	--	--	--	--	--	--	--
TIAA-CREF International Equity Index Fund Retirement (TRIX)	1.01	6.40	-4.22	63	11.75	31	9.67	33	5.02	52	8.40	10.76	1.09	1.64	--	0.31	--	10/01/2002
MSCI EAFE Index	0.62	5.52	-4.22	--	11.97	--	9.54	--	5.12	--	8.67	10.52	1.13	--	--	--	--	--
Excess Return (Fund – BM)	0.39	0.88	0.00	--	-0.22	--	0.13	--	-0.10	--	-0.27	--	--	--	--	--	--	--
Morningstar Foreign Large Blend - Median	0.96	6.03	-3.52	--	10.84	--	9.19	--	5.08	--	--	10.34	1.06	3.54	0.42	--	--	--
Excess Return (Fund – Median)	0.05	0.37	-0.70	--	0.91	--	0.48	--	-0.06	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	781	--	668	--	584	--	331	--	668	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	****	--	***	--	***	--	***	--	--	--	--	--	--	--

+Since Inception reflects performance from commencement of operations through current quarter-end. Overall shows the Overall Rating, which is a weighted average of applicable 3-, 5- and 10-year ratings based on risk-adjusted return.

++Indicates the inception date of either the oldest class of a fund/account or the underlying fund when hypothetical (pre-dated) performance is shown. Please refer to the disclosures page for more information.

Equities	Cumulative Total Return (%)		Average Annual Total Return								Risk Statistics (3 Years)			Expenses	Inception Date			
	3Mo	YTD	1 Yr	% Rank	3 Yr	% Rank	5 Yr	% Rank	10 Yr	% Rank	SI/ Overall*	Std Dev	Sharpe Ratio	Tracking Error	Information Ratio	Net Expense Ratio %	Linked/Hypo**	Share Class
Emerging Markets																		
Lazard Emerging Markets Equity Portfolio Open (LZOEX) ^{5,15}	0.81	-1.19	-13.40	94	1.76	72	3.48	52	8.39	21	6.90	14.49	0.19	4.46	-0.44	1.37	--	01/08/1997
MSCI Emerging Markets Index	0.69	2.95	-5.12	--	3.71	--	3.68	--	8.11	--	--	12.46	0.29	--	--	--	--	--
Excess Return (Fund – BM)	0.12	-4.14	-8.28	--	-1.95	--	-0.20	--	0.28	--	--	--	--	--	--	--	--	--
Morningstar Diversified Emerging Mkts - Median	0.58	1.44	-6.86	--	3.12	--	3.64	--	7.45	--	--	12.28	0.31	4.44	-0.14	--	--	--
Excess Return (Fund – Median)	0.23	-2.63	-6.54	--	-1.36	--	-0.16	--	0.94	--	--	--	--	--	--	--	--	--
Number of Funds in Peer Group	--	--	814	--	549	--	351	--	167	--	549	--	--	--	--	--	--	--
Morningstar Rating	--	--	--	--	**	--	***	--	****	--	***	--	--	--	--	--	--	--

+Since Inception reflects performance from commencement of operations through current quarter-end. Overall shows the Overall Rating, which is a weighted average of applicable 3-, 5- and 10-year ratings based on risk-adjusted return.

++Indicates the inception date of either the oldest class of a fund/account or the underlying fund when hypothetical (pre-dated) performance is shown. Please refer to the disclosures page for more information.

- ¹ The Current Rates, Minimum Guaranteed Rates and Fees (if applicable) shown for guaranteed annuities are the rates in effect as of the first day of the month following quarter end. Depending upon the contract, these may apply to new money only or to both new money and existing accumulations. See your annuity contract or certificate for details.
- ² The TIAA Traditional Annuity guarantees principal and a specified interest rate (based on TIAA's claims paying ability). It also offers the potential for greater growth through additional amounts, which may be declared on a year-by-year basis by the TIAA Board of Trustees. These additional amounts, when declared, remain in effect for the "declaration year" which begins each March 1. Additional amounts are not guaranteed. For more up to date information please visit your employer's microsite or tiaa-cref.org. TIAA Traditional is a guaranteed insurance contract and not an investment for federal securities law purposes.
- ³ The 7-day money market yield listed more closely reflects the current earnings of the money market annuity account than does the total return.
- ⁴ The 7-day money market yield listed more closely reflects the current earnings of the money market mutual fund(s) than does the total return.
- ⁵ Accumulations in funds not managed by TIAA-CREF may be subject to administrative charges. These charges are subject to change. Please review current documents related to your plan.
- ⁶ **An investment in the fund is neither insured nor guaranteed by the Federal Deposit Insurance Corporation or any other U.S. government agency. The fund will attempt to maintain a stable net asset value of \$1.00 per share, but it is possible to lose money by investing in the fund.**
- ⁷ **An investment in the CREF Money Market Account is not a deposit of any bank and is neither insured nor guaranteed by the Federal Deposit Insurance Corporation or any other U.S. government agency.**
- ⁸ Beginning July 16, 2009, part or all of the 12b-1 distribution expenses and/or administrative expenses attributable to the CREF Money Market Account are being voluntarily waived. Without these waivers, the 7-day current and effective annualized yields and total returns would have been lower. These waivers may be discontinued at any time without notice. Amounts waived on or after October 1, 2010 are subject to possible recovery by TIAA under certain conditions. Please see the prospectus for additional information.
- ⁹ iMoneyNet reports yields as of the last Tuesday of the month. Yields for the iMoneyNet Money Fund Report Averages-All Taxable and the fund(s) that track this industry average are calculated based on this date.
- ¹⁰ The "inception date" of the CREF Stock Account, July 31, 1952, is the date as of which the first unit value was determined for the Account. The Account did, however, commence some operations on July 1, 1952.
- ¹¹ The Account's total annual expense deduction appears in the Account's prospectus, and may be different than that shown herein due to rounding. Please refer to the prospectus for further details.
- ¹² As of April 24, 2015, additional classes are available with different eligibility requirements. Please visit the account's prospectus at tiaa-cref.org for more information.
- ¹³ TIAA accumulations are credited with interest based on when contributions and transfers are received, and your performance will reflect your pattern of contributions. The returns shown in the table reasonably represent what an individual making level monthly premiums would have historically earned over the time periods. Returns for different time periods are calculated in two steps: monthly performance returns are calculated from an accumulation created by a series of level monthly premiums over the prior 10 years (or the inception date of the product if later), and those monthly returns are linked together to determine historical performance for each of the return periods shown.
- ¹⁴ Shares held less than 180 calendar days may be subject to a 1.00% redemption fee. Please see the prospectus for details. The fund performance shown does not reflect the deduction of this fee. Had the fee been deducted, returns would have been lower.
- ¹⁵ Shares held less than 30 calendar days may be subject to a 1.00% redemption fee. Please see the prospectus for details. The fund performance shown does not reflect the deduction of this fee. Had the fee been deducted, returns would have been lower.
- ¹⁶ The fund's Institutional Class began operations on 07/01/1999. Performance shown for the Since Inception period and prior to the inception of the Retirement Class is based on the performance of the fund's Institutional Class. Performance has not been restated to reflect the higher expenses of the Retirement Class. If the expense differential had been reflected, performance for these periods would have been lower.

You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877 518-9161 for a paper copy of the prospectus that contains this and other information. Please read the prospectus carefully before investing. To view the prospectuses online, go to www.tiaa-cref.org/PRO and enter your Plan ID.

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TIAA-CREF is providing educational services concerning plan menu construction and the plan sponsor's fiduciary duties under its plan. It is not providing investment advice and is not a plan fiduciary with respect to the education and information presented herein. Note also that TIAA cannot and does not provide legal advice and that we recommend that you seek such advice from your own legal advisors.

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C16763

(6/14)

Plan Review Arizona State Retirement System

Optimizing plan effectiveness to
drive better outcomes



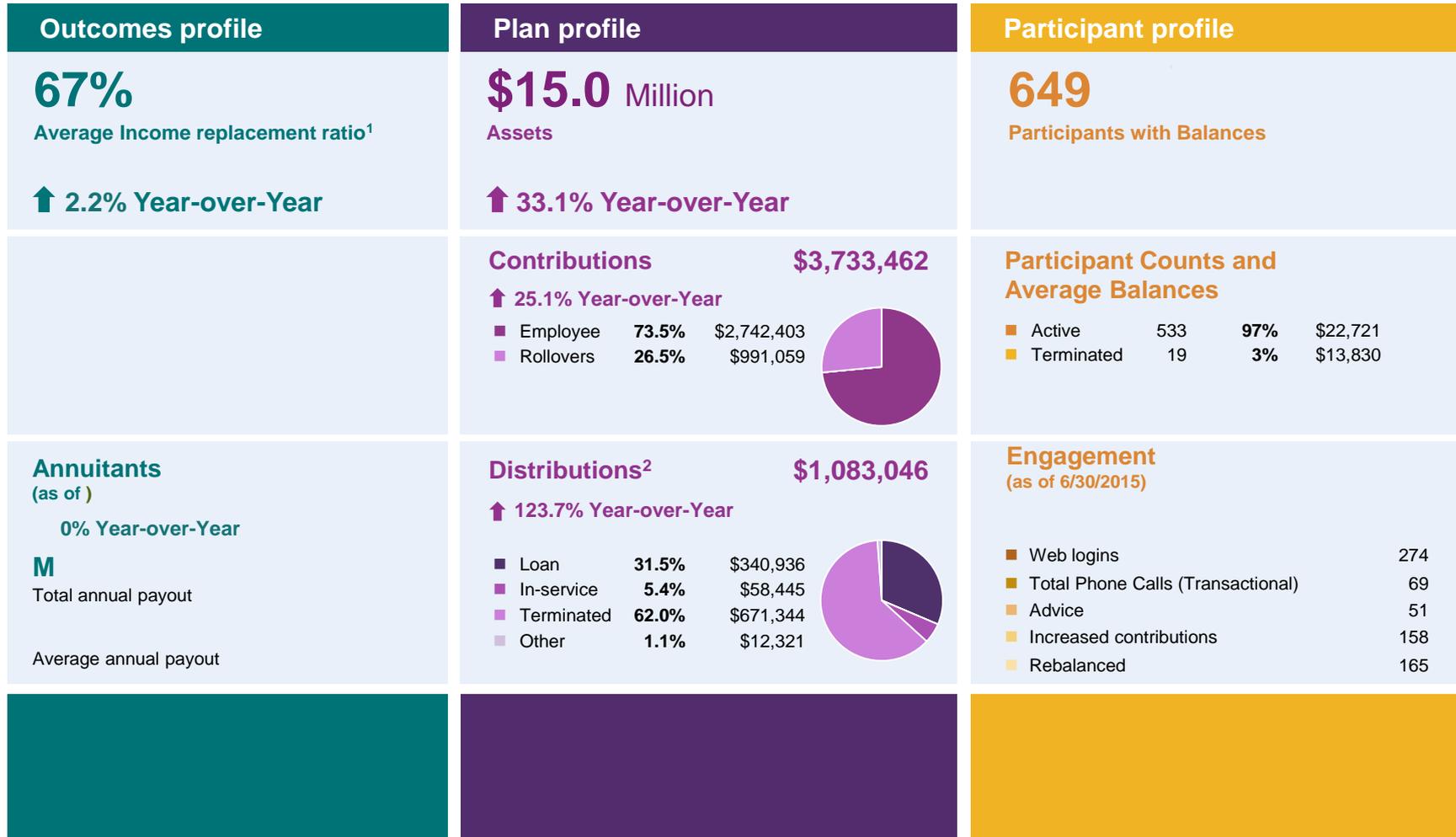
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As of June 30, 2015

Executive Summary

Snapshot¹



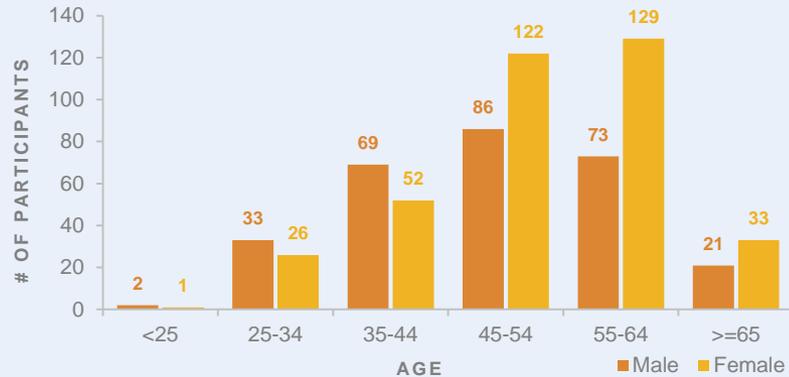
This report is as of the period ending 06/30/2015 and reflects the trailing 12 months of activity unless otherwise noted. The report includes all TIAA-CREF plans except 457(f), 457(b) Private, Nonqualified Deferred Compensation, and Retirement Healthcare plans. This report excludes details on non-participant accounts but includes the balances.

1. Refer to Retirement Income Replacement Ratio Calculation in the appendix. 2. Certain Distributions (e.g. QDRO, Disability or Age 70.5 Minimum Distribution) may be categorized under In-Service, Terminated or Other. Please see the Glossary for additional information.

Employee Summary

Gender and Age Summary¹

Demographics By Age and Gender



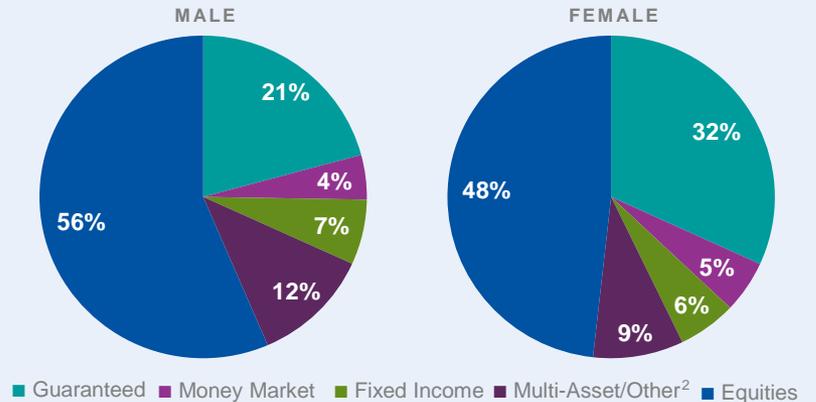
Average Account Balance By Age and Gender



Contribution Amounts by Gender



Diversification by Gender



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1. Data reflected is for all participant statuses. Does not include 2 participants with no age or gender on file. 2. Multi-Asset/Other includes Lifecycle, Real Estate, and Brokerage 3. Contribution data reflects the trailing 12 months of data.

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Assets & Contributions by Asset Class Year-over-Year

\$14,979,024

Total Assets

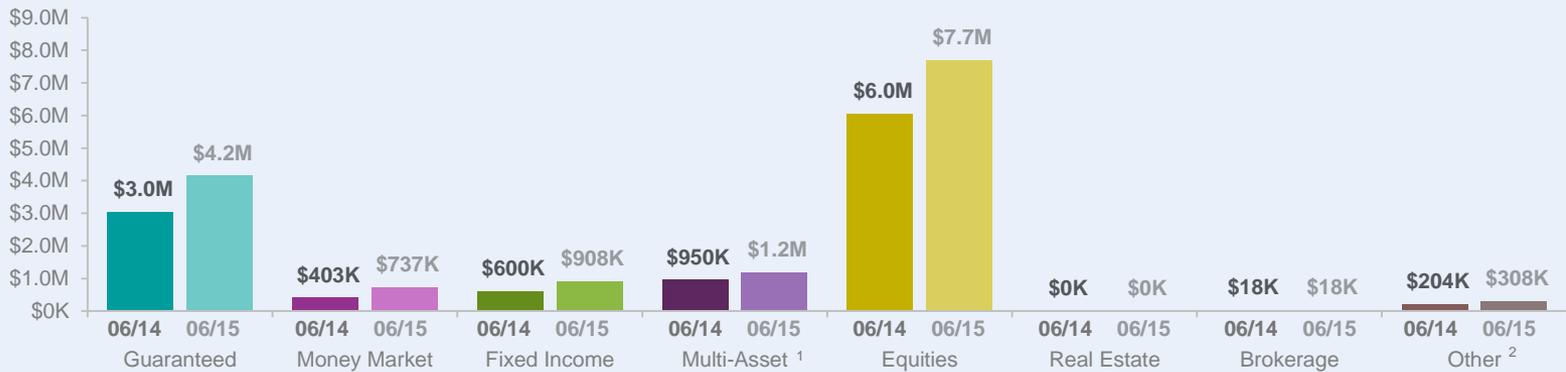
\$3,733,462

Total Contributions

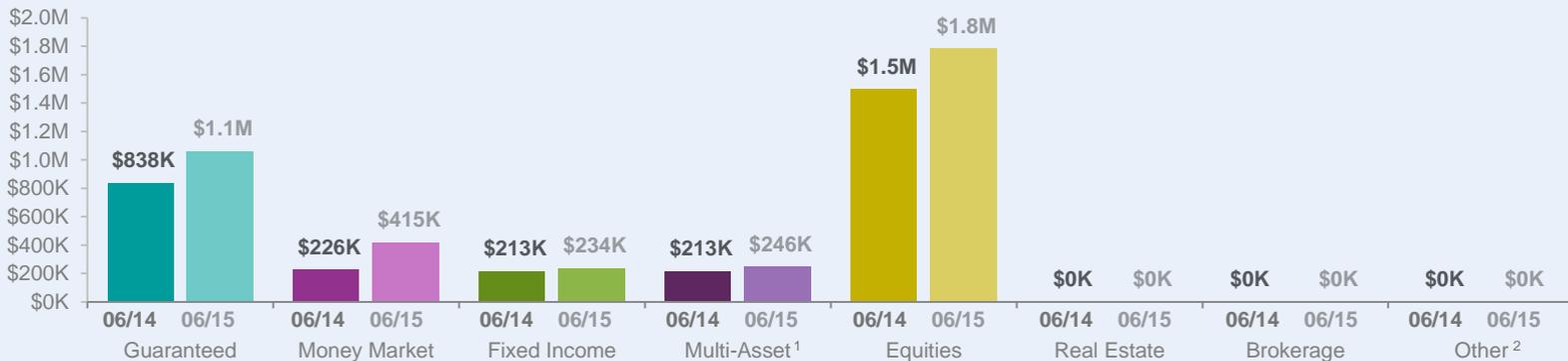
\$23,045

Average Account Balance

Assets



Contributions



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1. Multi-Asset includes Lifecycle funds. 2. Other includes uncategorized assets.

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Assets & Contributions by Investment Option Category

	Total Number of Participants Invested	Contribution Amount	Contribution Percentage of Total	Asset Amount	Asset Percentage of Total
Total		\$3,733,462		\$14,979,024	
GUARANTEED					
TIAA Traditional Annuity	339	\$1,057,603	28.33%	\$4,139,268	27.63%
Guaranteed Total		\$1,057,603	28.33%	\$4,139,268	27.63%
MONEY MARKET					
CREF Money Market Account R1	20	\$0	0.00%	\$121,057	0.81%
Vanguard Prime Money Market Fund Investor	124	\$414,897	11.11%	\$616,091	4.11%
Money Market Total		\$414,897	11.11%	\$737,148	4.92%
FIXED INCOME					
BlackRock Inflation Protected Bond Fund A	28	\$35,018	0.94%	\$96,503	0.64%
Metropolitan West Total Return Bond Fund M	43	\$27,449	0.74%	\$206,485	1.38%
PIMCO Total Return Fund A	0	\$8,785	0.24%	\$0	0.00%
Templeton Global Bond Fund A	50	\$45,595	1.22%	\$171,825	1.15%
Vanguard Total Bond Market Index Fund Admiral	83	\$84,287	2.26%	\$432,976	2.89%
Vanguard Ttl Bd Mkt Idx Sig	0	\$33,119	0.89%	\$0	0.00%
Fixed Income Total		\$234,254	6.27%	\$907,790	6.06%

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1. Other includes uncategorized assets.

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Assets & Contributions by Investment Option Category

	Total Number of Participants Invested	Contribution Amount	Contribution Percentage of Total	Asset Amount	Asset Percentage of Total
MULTI-ASSET					
CREF Social Choice Account	0	\$84,153	2.25%	\$0	0.00%
CREF Social Choice Account R1	65	\$47,289	1.27%	\$475,104	3.17%
Manning & Napier Pro-Blend Conservative Term Series S	24	\$18,016	0.48%	\$173,912	1.16%
Manning & Napier Pro-Blend Extended Term Series S	65	\$96,295	2.58%	\$523,535	3.50%
Multi-Asset Total		\$245,753	6.58%	\$1,172,552	7.83%
EQUITIES					
American Funds Capital World Growth and Income Fund R4	51	\$56,769	1.52%	\$296,659	1.98%
American Funds EuroPacific Growth Fund R4	33	\$24,135	0.65%	\$132,550	0.88%
CREF Stock Account	0	\$243,700	6.53%	\$0	0.00%
CREF Stock Account R1	159	\$93,666	2.51%	\$1,067,301	7.13%
Invesco Mid Cap Core Equity Fund A	20	\$8,504	0.23%	\$48,715	0.33%

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1. Other includes uncategorized assets.

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Assets & Contributions by Investment Option Category

	Total Number of Participants Invested	Contribution Amount	Contribution Percentage of Total	Asset Amount	Asset Percentage of Total
EQUITIES (Continued)					
Ivy Asset Strategy Fund A	19	\$20,350	0.55%	\$40,426	0.27%
Lazard Emerging Markets Equity Portfolio Open	59	\$33,352	0.89%	\$96,688	0.65%
Manning & Napier Pro-Blend Maximum Term Series S	105	\$276,153	7.40%	\$1,332,485	8.90%
Royce Pennsylvania Mutual Fund Service	20	\$16,287	0.44%	\$42,771	0.29%
TIAA-CREF Growth & Income Fund Retirement	73	\$88,710	2.38%	\$380,208	2.54%
TIAA-CREF International Equity Index Fund Retirement	143	\$182,208	4.88%	\$796,173	5.32%
TIAA-CREF S&P 500 Index Fund Retirement	172	\$298,525	8.00%	\$1,139,326	7.61%
TIAA-CREF Small-Cap Blend Index Fund Retirement	135	\$151,370	4.05%	\$795,353	5.31%
Vanguard Mid-Cap Idx Sig	0	\$65,040	1.74%	\$0	0.00%

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1. Other includes uncategorized assets.

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Assets & Contributions by Investment Option Category

	Total Number of Participants Invested	Contribution Amount	Contribution Percentage of Total	Asset Amount	Asset Percentage of Total
EQUITIES (Continued)					
Vanguard Mid-Cap Index Fund Admiral	156	\$174,460	4.67%	\$1,357,457	9.06%
Voya Global Real Estate Fund A	76	\$47,727	1.28%	\$157,870	1.05%
Equities Total		\$1,780,956	47.70%	\$7,683,982	51.30%
BROKERAGE					
Self Directed Brokerage Account	1	\$0	0.00%	\$17,854	0.12%
Brokerage Total		\$0	0.00%	\$17,854	0.12%
OTHER¹					
Deemed Loan	2	\$0	0.00%	\$38,330	0.26%
Loan Fund	28	\$0	0.00%	\$269,414	1.80%
Plan Loan Default Fund	2	\$0	0.00%	\$12,686	0.08%
Other Total		\$0	0.00%	\$320,430	2.14%

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1. Other includes uncategorized assets.

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Arizona State Retirement System

Investment Beliefs

FRAME OF REFERENCE

The following *Investment Beliefs* have been established to ensure the development of congruent and synergistic investment strategies, and to ensure the effective and efficient allocation of resources. These *Investment Beliefs* determine the general paradigm within which investment strategies are developed, investment ideas are reviewed, and investment decisions are implemented.

Modifications to these *Investment Beliefs* will occur if experiential, academic, conceptual, and/or practical perspectives suggest that a superior belief system exists.

INVESTMENT BELIEFS

1. Asset Class Decisions are Key

In general, decisions with respect to which asset classes and sub-asset classes to invest in, and the allocations to these asset classes and sub-asset classes, have a greater impact on total fund investment returns than decisions in which specific securities to invest.

2. Theories and Concepts Must be Sound

Over longer periods of time, investment outcomes (e.g. rates of return, volatility) conform to logical theories and concepts. Significant deviations (e.g. internet bubble, pre-subprime erosion of risk premiums) from theoretically and conceptually sound investment constructs are usually not sustainable and are typically self-reverting.

3. House Capital Market Views Are Imperative

The development and articulation of sound *House Views* (e.g. views on interest rates, corporate spreads, asset valuations) will ensure consistency among investment decisions, clarity of investment direction, baselines for debates, and conformity of understanding.

4. Investment Strategies Must be Forward Looking

Investment strategies will be developed based on forward-looking insights, rather than simply on successful strategies of the past.

Asset class valuations and security valuations are significantly affected by endogenous outcomes (e.g. earnings, GDP growth rates, competitive barriers) that are probabilistic, and these outcomes are typically well analyzed by the investment industry.

Asset class valuations and security valuations are also significantly affected by random outcomes (e.g. natural disasters, certain supply & demand shocks) that are virtually unpredictable, and these outcomes are typically not analyzed directly by the investment industry.

Asset class valuations and security valuations are also significantly affected by exogenous outcomes (e.g. foreign policies, global cultural interactions) that can possibly be modeled, and these outcomes are typically not analyzed by the investment industry.

5. Public Markets are Generally Informationally Efficient

Asset Class Valuations

Asset class valuations (e.g. stock market levels versus interest rate levels) are often in equilibrium with one another, but anomalous situations do occur which result in disequilibria between asset class valuations. These disequilibria offer valuable investment opportunities which we will pro-actively seek and capitalize on.

Security Valuations

Security valuations (e.g. IBM versus Cisco) are often in equilibrium with one another, but private markets and anomalous public market situations do occur which result in disequilibria between security valuations. These disequilibria offer valuable investment opportunities which we will pro-actively seek and capitalize on.

The extent of informational efficiency varies across asset classes.

Private markets offer significant opportunities for asset mispricing and manager excellence which we will pro-actively seek and capitalize on.

6. Market Frictions are Highly Relevant

Market frictions (e.g. management fees, carried interest, revenue sharing, expenses, costs, transaction spreads, market impacts, taxes, commissions) can be significantly detrimental to investment performance and as a result transactions will be initiated only to the extent there is a strong level of conviction that they will result in increased investment returns or decreased risks net of all market frictions.

7. Internal Investment Professionals are the Foundation of a Successful Investment Program

In-house investment management capability engaged in direct portfolio management results in superior investment decision-making.

In-house investment management pro-actively monitors capital markets in order to determine mispricing opportunities & allocate capital and will successfully increase risk adjusted returns.

In-house investment professionals are more closely aligned with, and have a better understanding of, the purpose and risk & reward tolerance of the ASRS than external parties.

In-house investment professionals will impact direct investment negotiations, better align economic interests, and influence investment industry conditions (e.g. private deal structures, fee levels, introduction of innovative products & strategies).

8. External Investment Management is Beneficial

External investment organizations can often offer greater expertise, resources, and/or flexibility than internal personnel for various investment strategies.

9. Investment Consultants

Investment consultants will be effectively utilized in the following four general categories, and utilization of consultants will be focused on situations where there is a demonstrable need in at least one of the four areas:

- Independence: When oversight or controls should be enhanced
- Perspective: When internal perspectives are not broad enough
- Special Skills: When internal skills are not deep enough
- Resource Allocation: When internal resources are not broad enough

10. Trustee Expertise

Trustees often have expertise in various areas of investment management, and this expertise should be utilized while ensuring separation between Board oversight and staff management.