

# **PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM ANNUAL BOARD OF TRUSTEES MEETING**

**September 27 and 28, 2018**

## **AGENDA**

The Annual Meeting of the Board of Trustees of the Public Safety Personnel Retirement System (the "PSPRS" or "System") will be held in the main public conference room of the administrative offices of PSPRS, 3010 East Camelback Road, Suite 200, Phoenix, Arizona 85016, commencing at 9:00 a.m. on Thursday September 27, 2018 and continuing until on or before 6:00 p.m. that day or until such time as the Board of Trustees otherwise determines. The meeting will recommence at 9:00 a.m. on Friday, September 28, 2018, and will continue until on or before 3:00 p.m. or until the matters set forth in this agenda are otherwise addressed. Members of the Board of Trustees will attend either in person or by telephonic conference call. The Board of Trustees may vote to hold an executive session, which will not be open to the public, to discuss certain matters. The Board of Trustees reserves the right to consider agenda items out of their listed order.

This meeting is available to the public through "Go to Meeting" over the Internet or in person. The Keynote Luncheon is not available through "Go to Meeting". Please see [www.psprs.com](http://www.psprs.com) for the computer link to the meeting. All persons wishing to attend are invited.

1. Call to Order; Pledge of Allegiance; Roll Call; Opening remarks.

*Mr. Brian P. Tobin  
Chairman*

2. Call to the Public.

This is the time for the public to comment. Members of the Board of Trustees may not discuss items that are not specifically identified on the agenda, except to address criticism from the public. Therefore, pursuant to A.R.S. § 38-431.01(H), the Board of Trustees' reaction to any public comment is limited to addressing criticism or recommending that the Board of Trustees or Staff respond or study such comment or schedule the subject matter for further consideration at a later date after appropriate notice.

3. Appropriate **Action** for approval of the items on the Consent Agenda (documentation concerning the matters on the consent agenda may be reviewed at the PSPRS office). Any matter on the Consent Agenda will be removed from the Consent Agenda and discussed as a regular agenda item upon the request of any member of the Board of Trustees.
  - a. Acceptance of Elected Officials' Retirement Plan of survivor benefit of Georgia Brown.

- b. Acceptance of Elected Officials' Retirement Plan of termination of normal retirement benefit of Michael Brown.
- c. Acceptance of Elected Officials' Retirement Plan of termination of survivor benefit of Carol L. Dinneweth.
- d. Acceptance of Elected Officials' Retirement Plan of termination of survivor benefit of Nancy Harral.
- e. Acceptance of Elected Officials' Retirement Plan of normal retirement benefit of James K. Jones.
- f. Acceptance of Elected Officials' Retirement Plan of survivor benefit of Nancy L. Patania Brown.
- g. Acceptance of Elected Officials' Retirement Plan of termination of survivor benefit of Carma J. Scott.
- h. Acceptance of Elected Officials' Retirement Plan of termination of normal retirement benefit of Carol Springer.
- i. Approval of the Minutes of the August, 29, 2018 Meeting of the PSPRS Board of Trustees.

*Mr. Brian P. Tobin*

- 4. Review and discussion of staff operation reports.

*Mr. Dave DeJonge  
Deputy Administrator*

- a. Operations Report
- b. Presentation of Employer and Local Board Outreach Efforts.

*Don Mineer  
Local Board Relationship Manager  
Phil Coleman  
Employer Relationship Manager*

- 5. Review, discussion and possible **Action** on pending and passed legislative actions and potential legislative proposals.

*Jared A. Smout  
Administrator*

- 6. Written report by Investment Department Staff regarding Portfolio Risk as of July 31, 2018.

*Mr. Owen Zhao  
Portfolio Analyst - Risk*

7. Written report by Investment Department Staff regarding (i) the Month-End and Fiscal Year-to-Date performance for the PSPRS Trust as of July 31, 2018; and (ii) written report regarding the asset allocation and performance of the Public Safety Cancer Insurance Policy Program. Written report and discussion regarding the final net-of-fees investment returns for the PSPRS Trust as of June 30, 2018.

*Ms. Vaida Maleckaite  
Director of Investment Services*

8. Presentation and discussion regarding current Investment Staff research and submissions for publication.

*Mr. William Thatcher  
Lead Portfolio Manager*

9. Disclosure by Investment Department Staff of the following manager selection matters:

A. New and Potential Investments Considered this Period:

1. Disclosure of a potential investment of up to \$30 million direct and a reserve allocation of up to \$10 for purposes of co-investment with **Alcion Real Estate Partners IV**, in the Real Estate portfolio, subject to final Staff and legal due diligence.
2. Disclosure of a potential investment of up to \$40 million direct and a reserve allocation of up to \$40 for purposes of co-investment with **Iron Point Real Estate Partners IV**, in the Real Estate portfolio, subject to final Staff and legal due diligence.
3. Disclosure of a potential investment of up to \$60 million for purposes of direct investment with **Värde Asia Credit Fund Master, L.P.**, in the Private Credit portfolio, subject to final Staff and legal due diligence.
4. Disclosure of a potential investment of up to \$45 million for purposes of direct investment with **Castle Creek Capital Partners VII, L.P.**, in the Private Equity portfolio, subject to final Staff and legal due diligence.

B. Finalized and Executed Transactions During Prior Period:

1. **LittleJohn Fund VI**; Committed amount up to \$40 million; Date Closed: July 31, 2018. This investment is allocated to PSPRS Asset class: Private Equity.
2. **Baring Asia Real Estate Fund II**; Committed amount up to \$40 million; Date Closed: July 31, 2018. This investment is allocated to PSPRS Asset class: Real Estate.

3. **TSSP Opportunities Partners IV (A), LP**; Committed amount up to \$75 million; Date Closed: August 9, 2018. This investment is allocated to PSPRS Asset class: Private Credit.
4. **SIH Debt Opportunities Fund II, LP**; Committed amount up to \$60 million; Date Closed: August 9, 2018. This investment is allocated to PSPRS Asset class: Private Credit.
5. **Vivo Capital Fund IX, LP**; Committed amount up to \$50 million; Date Closed: August 20, 2018. This investment is allocated to PSPRS Asset class: Private Equity.
6. **OCP Asia Fund III, LP**; Committed amount up to \$50 million; Date Closed: August 24, 2018. This investment is allocated to PSPRS Asset class: Private Credit.
7. **Henderson Park Real Estate Fund I, LP**; Committed amount up to \$50 million; Date Closed: August 31, 2018. This investment is allocated to PSPRS Asset class: Real Estate.
10. Report by Chief Investment Officer and Risk Analyst.

*Mr. Mark Steed*  
*Chief Investment Officer*  
*Mr. Owen Zhao*
11. Investment Plan Update and Outlook.

*Mr. Allan Martin*  
*NEPC*
12. Keynote Luncheon Speaker.

*Jason Schechterle*
13. Annual report by Investment Department Staff and discussion regarding the Trust's Securities Lending Program as of June 30, 2018.

*Ms. Vaida Maleckaite*
14. Panel Discussion on Economics, Private Equity, Hedge Funds, Private Credit and Real Estate.

*Mr. James Ko*  
*Senior Portfolio Manager*  
*Mr. Ed Schwartz, ORG*  
*Mr. Jay Rose, StepStone*  
*Mr. Jon Claisse, Albourne*  
*Mr. Allan Martin, NEPC*



15. Discussion and appropriate **Action** regarding Board of Trustee member requests to participate in training, educational and due diligence opportunities.

*Mr. Brian P. Tobin*

16. Call to the Public.

*Mr. Brian P. Tobin*

**Agenda Items 17 through 24 may be discussed after the meeting reconvenes on September 28, 2018.**

17. Reconvene Meeting; Call to Order; Pledge of Allegiance; Roll Call; Chairman Remarks.

*Mr. Brian P. Tobin  
Chairman*

18. Training, Presentation and Discussion regarding Fiduciary Duty, Effective Governance, Decision Making Processes and Risk Management Practices.

*Jennifer Carlino, Esq.  
Chief Investment Counsel  
Tom Hickey, Esq., Foley Lardner  
Michael P. Calabrese, Foley Lardner  
Marc Lieberman, Esq., Kutak Rock*

19. DC Committee Update.

*Mr. Will Buividas  
Vice Chairman  
DC Committee Chairman*

20. Advisory Committee Update.

*Mr. Ken Strobeck  
Advisory Committee Chairman*

21. Round table discussion on Macro Economic Developments by certain investment partners.

*Mr. Bill Thatcher  
Mr. Oskar Lewnowski, Orion Resource Partners  
Mr. Seth Birnbaum, Bridgewater Associates  
Mr. Frank Kung, Vivo Capital*

22. Discussion and consultation with legal counsel and Staff and possible **Action** regarding proposed legislation, investment matters, ongoing, contemplated or threatened legal action involving the Trust and Plans, including vendor disputes, public record requests, personnel matters and actual or potential litigation and claims based on contract, tort or statute, including matters involving, judges Thompson and Hall. The Board may vote to discuss these matters in Executive Session pursuant to A.R.S. §§ 38-431.03(A)(1), (2), (3), (4) and (7) as set forth in item 23.

23. **At any time on either day the Board of Trustees may vote to go into Executive Session (which will not be open to the public) to discuss matters pursuant to A.R.S. §§ 38-431.03(A) (1), (2), (3), (4) and (7), as applicable, including to receive legal advice from the Board's attorneys on any matter listed on the agenda, including:**
- a. Discussion and consultation with legal counsel and Staff regarding matters arising from public record requests or subpoenas, and ongoing or threatened legal action or claims involving the Plans or Trust not otherwise referenced above in Item 13, including but not limited to those involving the status of lawsuits challenging provisions of SB1609, as authorized by A.R.S. §§ 38-431.03(A) (2), (3).
  - b. Update and discussion on personnel matters, as authorized by A.R.S § 38-431.03(A)(1).
24. Possible **Action** on future meeting dates. (*Next meeting currently scheduled for November 1, 2018.*)
25. Adjournment.

**A copy of the agenda background material that is provided to the Board of Trustees (with the exception of materials relating to possible executive sessions and/or materials exempt by law from public inspection) is available for public inspection at the PSPRS offices located at 3010 East Camelback Road, Suite, 200, Phoenix, Arizona. The agenda is subject to revision up to 24 hours prior to the meeting.**

**Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Chrystal Angotti, Sr. Executive Assistant or Rose Crutcher, Paralegal, at (602) 255-5575. Requests should be made as early as possible to arrange the accommodation.**

**PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM  
BOARD OF TRUSTEES MEETING**

**August 29, 2018**

**MINUTES**

Members Present: Mr. Brian P. Tobin, Chairman, Trustee  
Mr. William T. Buividas, Vice Chairman, Trustee  
Mr. William C. Davis, Trustee  
Mr. Edward J. McNeill, Trustee - Excused  
Mr. Harry A. Papp, Trustee – Teleconference  
Mr. Bryan Raines, Trustee  
Mr. Mike Scheidt, Trustee  
Mr. Dean Scheinert, Trustee  
Mr. Donald A. Smith, Jr. Trustee - Excused

Others Present: Mr. Jared Smout, Administrator  
Mr. Mark Steed, Interim CIO  
Mr. Dave DeJonge, Deputy Administrator  
Mr. Timothy Jackson, Compliance Officer  
Ms. Vaida Maleckaite, Director Investment Services  
Mr. Owen Zhao, Portfolio Analyst  
Ms. Patricia Shaner, Human Resources Director  
Mr. John Briney, Enterprise Systems Architect  
Mr. Christian Palmer, Communications Director  
Ms. Ivy Voss, Attorney  
Ms. Jennifer Carlino, Chief In-House Investment Counsel  
Mr. Kevin Chen, Portfolio Analyst  
Mr. Shan Chen, Lead Portfolio Manager  
Mr. William Thatcher, Portfolio Manager  
Mr. Jefferson Weston, Investment Analyst  
Mr. James Ko, Portfolio Manager  
Mr. Phil Coleman, Employer Relationship Manager  
Ms. Rose Crutcher, Investment Paralegal  
Ms. Chrystal Angotti, Senior Executive Assistant  
Mr. Paul Hemmes, Information Technology  
Mr. Allan Martin, NEPC  
Ms. Dianne McAllister, Public Policy Partners  
Mr. Doug Cole, HighGround  
Mr. Stan Hoover, PSPRS Retiree

1. Call to Order; Pledge of Allegiance; Roll Call; Opening remarks.

*Mr. Brian P. Tobin  
Chairman*

The meeting was called to order by Chairman Tobin at 12:31 p.m. The Pledge of Allegiance was recited and the roll was called.

2. Call to the Public.

This is the time for the public to comment. Members of the Board of Trustees may not discuss items that are not specifically identified on the agenda, except to address criticism from the public. Therefore, pursuant to A.R.S. § 38-431.01(H), the Board of Trustees' reaction to any public comment is limited to addressing criticism

or recommending that the Board of Trustees or Staff respond or study such comment or schedule the subject matter for further consideration at a later date after appropriate notice.

Tracy Forbes from Toys-R-Us shared her concerns regarding the bankruptcy the company is currently going through and the concerns with the investors of Vernado Realty Trust as well as creditors Highland Capital and Oak Tree Capital.

George Skinell from Toys-R-Us shared his concerns regarding the bankruptcy the company is currently going through and his concerns with the investors of Vernado Realty Trusts as well as creditors Highland Capital and Oak Tree Capital.

3. Appropriate **Action** for approval of the items on the Consent Agenda (documentation concerning the matters on the consent agenda may be reviewed at the PSPRS office). Any matter on the Consent Agenda will be removed from the Consent Agenda and discussed as a regular agenda item upon the request of any member of the Board of Trustees.
- a. Acceptance of Elected Officials' Retirement Plan of termination of normal retirement benefit of Ray F. Brown.
  - b. Acceptance of Elected Officials' Retirement Plan of early retirement benefit of Brenda E. Oldham.
  - c. Acceptance of Elected Officials' Retirement Plan of normal retirement benefit of Mark W. Woodson.
  - d. Acceptance of Transfer between State Retirement Systems of Justin Roederer.
  - e. Acceptance of Transfer between State Retirement Systems of Edward Munoz.
  - f. Acceptance of Transfer between State Retirement Systems of Daniel Beck.
  - g. Acceptance of Transfer between State Retirement Systems of Jess Payne.
  - h. Acceptance of Transfer between State Retirement Systems of Jared Ernest.
  - i. Acceptance of Transfer between State Retirement Systems of Daniel Rauch.
  - j. Acceptance of Transfer between State Retirement Systems of Karen Raitter.
  - k. Acceptance of Transfer between State Retirement Systems of Joshua Seigfried.
  - l. Acceptance of Transfer between State Retirement Systems of Kirk Pieper.
  - m. Acceptance of Transfer between State Retirement Systems of Erin Ballos.
  - n. Acceptance of Transfer between State Retirement Systems of Paul Blair.
  - o. Acceptance of Transfer between State Retirement Systems of Cheryl Perry.
  - p. Acceptance of Transfer between State Retirement Systems of Erica Cramer.
  - q. Acceptance of Transfer between State Retirement Systems of Eric Holmstedt.
  - r. Acceptance of Transfer between State Retirement Systems of Ryan Powell.
  - s. Acceptance of Transfer between State Retirement Systems of David Claridge.
  - t. Acceptance of Transfer between State Retirement Systems of Steve Boltz.
  - u. Acceptance of Transfer between State Retirement Systems of Juan Silva.
  - v. Acceptance of Transfer between State Retirement Systems of Michael Forbeck.
  - w. Acceptance of Transfer between State Retirement Systems of Jeremy Goad.
  - x. Acceptance of Transfer between State Retirement Systems of Richard Wood.
  - y. Acceptance of Transfer Between State Retirement Systems of Cleave Odegard.
  - z. Acceptance of Transfer Between State Retirement Systems of Tracy Norton
  - aa. Approval of the Minutes of the June 30, 2018 Meeting of the PSPRS Board of Trustees.

*Mr. Brian P. Tobin*

<b>MOTION:1-8/29/2018</b>	At 12:39 P.M.
<b>Motion:</b>	To approve the Consent Agenda as presented.
<b>Moved by:</b>	Mr. Davis
<b>Seconded by:</b>	Mr. Raines
<b>Discussion by:</b>	None.
<b>Voted In Favor:</b>	Mr. Tobin, Mr. Buividas, Mr. Papp, Mr. Scheidt, Mr. Scheinert
<b>Voted Against:</b>	None. Messrs. McNeill and Smith were excused/absent.
<b>Motion:</b>	Passes Unanimously.

**Report by Mr. William Buividas, Vice Chairman of the Investment Committee, regarding agenda items 4 through 9, which were discussed at the Investment Committee meeting held today, August 29, 2018, on or after 9:30 a.m., and possible Action on the Committee's recommendations to the Board regarding same.**

4. Written report by Compliance Officer regarding quarterly investment manager compliance as of June 30, 2018.

*Mr. Timothy Jackson  
Compliance Officer*

No discussion was held.

5. Presentation and written report by Investment Department Staff regarding Portfolio Risk as of May 31, 2018 and June 30, 2018.

*Mr. Owen Zhao  
Portfolio Analyst - Risk*

A presentation was provided regarding Portfolio Risk as of May 31, 2018 and June 30, 2018. This report included information as to volatility, monthly value at risk forecast and risk by asset class. Discussion was held regarding portfolio returns.

No discussion was held.

6. Presentation and written report by Investment Department Staff and discussion regarding (i) the Month-End and Fiscal Year-to-Date performance for the PSPRS Trust as of May 31, 2018 and June 30, 2018; and (ii) written report regarding the asset allocation and performance of the Firefighters and Peace Officers Cancer Insurance Program.

*Ms. Vaida Maleckaite  
Director of Investment Services*

A brief presentation was provided to the Board of Trustees regarding portfolio performance during this time period.

No discussion was held.

7. Presentation and discussion by NEPC representative(s) on the Fourth Fiscal Quarter (Second Calendar Quarter) investment performance and the 2017-2018 Fiscal Year investment performance for the Arizona PSPRS Trust.

*Mr. Allan Martin  
NEPC  
Mr. Mark Steed  
Interim Chief Investment Officer*

Discussion was held regarding the Trust's portfolio, and returns achieved.

8. Presentation and discussion by Investment Department Staff and Consultants regarding the annual Overview and Strategic Plan for GTS and Risk Parity.

*Mr. James Ko  
Portfolio Manager  
Mr. Lincoln Smith  
Albourne*

Discussion was held regarding the GTS and Risk Parity Portfolios.

9. Disclosure by Investment Department Staff of the following Manager Selection Matters:

A. New and Potential Investments Considered this Period:

1. Disclosure of a potential investment of up to \$60 million direct and a reserve allocation of up to \$15 million for purposes of co-investment with **Taiga Special Opportunities DAC**, in the Private Credit portfolio, subject to final Staff and legal due diligence.
2. Disclosure of a potential investment of up to \$40 million direct and a reserve allocation of up to \$20 million for purposes of co-investment with **LittleJohn Fund VI, L.P.**, in the Private Equity Portfolio, subject to final Staff and legal due diligence.
3. Disclosure of a potential investment of up to \$40 million direct and a reserve allocation of up to \$20 million for purposes of co-investment with **Baring Asia Real Estate Fund or its affiliates in the BPEA Real Estate Fund II, L.P.**, in the Real Estate portfolio, subject to final Staff and legal due diligence.
4. Disclosure of a potential investment of up to \$75 million direct and a reserve allocation of up to \$30 million for purposes of co-investment with **TSSP Opportunities Partners IV (A), L.P.**, in the Private Credit portfolio, subject to final Staff and legal due diligence.
5. Disclosure of a potential investment of up to \$60 million direct and a reserve allocation of up to \$30 million for purposes of co-investment with **SIH Debt Opportunities Fund II**, in the Private Credit portfolio, subject to final Staff and legal due diligence.
6. Disclosure of a potential investment of up to \$50 million direct and a reserve allocation of up to \$20 million for purposes of co-investment with **Vivo Capital Fund IX**, in the Private Equity portfolio, subject to final Staff and legal due diligence.
7. Disclosure of a potential investment of up to \$50 million for purposes of direct investment, and \$20 million for purposes of co-investment with **OCP Asia Fund III**, in the Private Credit portfolio, subject to final Staff and legal due diligence.
8. Disclosure of a potential investment of up to \$50 million direct and a reserve allocation of up to \$50 million for purposes of co-investment with **Henderson Park Real Estate Fund I**, in the Real Estate portfolio, subject to final Staff and legal due diligence.

B. Investments Completely Liquidated During Prior Period:

1. **Stepstone Endurance Fund**; Committed amount up to \$30 million; Date Closed: May 30, 2018. This investment is allocated to PSPRS Asset class: Private Equity.
2. **TowerBrook Investors V Fund**; Committed amount up to \$45 million for purposes of direct investment and a reserve of \$20 million for purposes of co-investment; Date Closed: June 21, 2018. This investment is allocated to PSPRS Asset class: Private Equity.

C. Finalized and Executed Transactions During Prior Period:

1. **ESG Credit Macro Event Fund (Emerging Sovereign Group).** This investment was allocated to PSPRS Asset Class: Private Credit.
2. **Valley Ventures III and Valley Ventures III Annex Fund.** These investments were allocated to the PSPRS Asset Class: Private Equity.

No discussion was held.

**Presentation by Mr. Mike Scheidt, Vice Chairman of the Operations, Governance Policy and Audit Committee, regarding agenda items 10 through 15, which were discussed at the Operations, Governance Policy and Audit Committee meeting held today, August 29, 2018, on or after 10:30 a.m., and possible Action on the Committee's recommendations to the Board regarding same.**

10. Review and discussion of staff operation reports.

*Mr. Dave DeJonge  
Deputy Administrator*

- a. Operations Update Report
- b. Year to Date Budget Report
- c. Local Board & Employer Outreach Report
- d. Local Board Rehearing Report
- e. Communication Efforts
- f. Law Firms' Billing for Legal Services

Discussion regarding the benefit revision called "*Enhanced Refund*". This is a benefit that Tier 1 members have. Members hired before July 20, 2011 (the effective date of S.B. 1609) who made contributions at rates higher than 7.65% (PS) or 7% (Elected Officials) were given refunds of those excess contributions in 2017 by their employers. There was a group of members, however, who terminated and received refunds of all their contributions from PSPRS during the 2011-2017 timeframe. Those refunds included the excess contributions. In some cases, those members had more than 5 years of credited service, so they received an "enhanced" refund that included their member contributions plus an additional percentage of their member contributions. For instance, a member who has 5-5.9 years of service receives a refund of their contributions plus 25% of their member contributions. A person who has 10+ years of service receives a refund of their contributions plus 100% of their contributions. Therefore, in retrospect, some of these previous members received more of the "enhanced" refund than they should have for those excess contributions made that were determined unconstitutional due to the *Hall* and *Parker* lawsuits.

First, PSPRS will contact affected employers to let them know of the overpayments and our intent to not collect the overpayments from members. Employers have the right to try to collect the overpayments from members, so we have created a report for each employer that includes the names and overpaid amounts for those members who were overpaid. Second, PSPRS will send a notice to each overpaid member to make them aware of the overpayment and the fact that the overpayment is not eligible to be rolled over. The notice will also let members know that PSPRS will not attempt to collect the overpayment, but employers may try to collect the overpayment. Employer notification will occur the last week in August. Member notification will occur a week later.

11. Review and discussion of system development progress.

*Mr. John Briney  
Enterprise Systems Architect*

No discussion was held.

12. Review, discussion and possible **Action** on the Strategic Plan.

*Mr. John Briney*

Discussion regarding the PSPRS FY19 Strategic Plan was held. There was recommendation from the Operations Committee to further define the vision of the plan. This will be done with the assistance of the strategic assessment that is planned to occur and was accepted for the current time.

<b>MOTION:2-8/29/2018</b>	At 1:58 P.M.
<b>Motion:</b>	To approve the recommended change of the Strategic Plan to change goal number 3 to goal number 1.
<b>Moved by:</b>	Mr. Scheidt
<b>Seconded by:</b>	Mr. Raines
<b>Discussion by:</b>	None.
<b>Voted In Favor:</b>	Mr. Tobin, Mr. Buividas, Mr. Papp, Mr. Scheidt, Mr. Scheinert
<b>Voted Against:</b>	None. Messrs. McNeill and Smith were excused/absent.
<b>Motion:</b>	Passes Unanimously.

13. Review, discussion and possible **Action** regarding the compliance program.

*Mr. Timothy Jackson*

A brief discussion was held regarding the compliance program regarding questions from the presentation that was given at the previous Board of Trustees meeting on June 27, 2018. Access to the Board was discussed from the compliance program, which PSPRS is looking at that more thoroughly. The direct line (or dash-line) in the compliance program means that the Compliance Officer serves in an advisory role to the Board and reports to the Administrator. This compliance program has general guidelines and topics that come up, PSPRS will address them case by case. EEOC Complaints are a dual responsibility between the PSPRS HR Director and the Attorney General's Office.

14. Review, discussion and possible **Action** regarding internal audits.

*Ms. Lisa Sweeting  
Internal Auditor*

No discussion was held.

15. Review, discussion and possible **Action** on pending and passed legislative actions and potential legislative proposals.

*Mr. Jared A. Smout*

Dianne McAlister and Doug Cole gave the members an update on the elections that occurred the night prior to the Board of Trustees meeting. All results for the elections are not in yet. Ballot initiatives have been for the most part been decided upon, except the "Dirty Money" initiative and the initiative to not tax services. With the passing of Senator John McCain, Governor Ducey will be appointing his replacement after his burial services. Discussion regarding the Admin Bill included a comment that language for this bill is currently being worked on.

16. Discussion and appropriate **Action** regarding Board of Trustee member requests to participate in training, education and due diligence opportunities.

*Mr. Brian P. Tobin*

No requests were discussed.

17. Discussion and consultation with legal counsel and Staff and possible **Action** regarding proposed legislation, real estate matters, investment matters, ongoing, contemplated or threatened legal action involving the Trust and Plans, including vendor disputes, public record requests, personnel matters and actual or potential litigation and claims based on contract, tort or statute, including matters involving judges Thompson and Hall. The Board may vote to discuss these matters in Executive Session pursuant to A.R.S. §§ 38-431.03(A) (1), (2), (3), (4) and (7) as set forth in item 18.



<b>MOTION:3-8/29/2018</b>	At 2:02 P.M.
<b>Motion:</b>	To recess Open Session and enter Executive Session regarding Agenda item 18.
<b>Moved by:</b>	Mr. Buividas
<b>Seconded by:</b>	Mr. Davis
<b>Discussion by:</b>	None.
<b>Voted In Favor:</b>	Mr. Tobin, Mr. Buividas, Mr. Papp, Mr. Scheidt, Mr. Scheinert
<b>Voted Against:</b>	None. Messrs. McNeill and Smith were excused/absent.
<b>Motion:</b>	Passes Unanimously.

18. **The Board of Trustees may vote to go into Executive Session (which will not be open to the public) to discuss matters pursuant to A.R.S. §§ 38-431.03(A) (1), (2), (3), (4) and (7), as applicable, including to receive legal advice from the Board's attorneys on any matter listed on the agenda, including:**
- a. Discussion and consultation with legal counsel and Staff regarding matters arising from public record requests or subpoenas, and ongoing or threatened legal action or claims involving the Plans or Trust not otherwise referenced above in Item 13, including but not limited to those involving the status of lawsuits challenging provisions of SB1609, as authorized by A.R.S. §§ 38-431.03 (A) (2), (3), (7).
  - b. Update and discussion on personnel matters, as authorized by A.R.S § 38-431.03 (A) (1).
19. Possible **Action** on future meeting dates (*Next meeting scheduled for September 27 & 28, 2018*).
- The Annual Board of Trustees meeting will be held on September 27 & 28, 2018.
20. Adjournment.
- The meeting was adjourned at 3:07 p.m.

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Brian P. Tobin, Trustee, Chairman

\_\_\_\_\_  
William T. Buividas, Trustee,  
Vice Chairman

\_\_\_\_\_  
William C. Davis, Trustee

\_\_\_\_\_  
EXCUSED

\_\_\_\_\_  
Edward J. McNeill, Trustee

\_\_\_\_\_  
Harry A. Papp, Trustee

\_\_\_\_\_  
Bryan Raines, Trustee

\_\_\_\_\_  
Mike Scheidt, Trustee

\_\_\_\_\_  
EXCUSED

\_\_\_\_\_  
Dean M. Scheinert, Trustee

\_\_\_\_\_  
Donald A. Smith, Jr., Trustee

September 27, 2018  
Operations Committee  
Monthly Operations Report



1. **Fiscal Year 2018 Statistics—Member Services**

The Member Services Division works directly with our members, local boards and employers. It has always been difficult to quantify the work being done in this division. While EPIC 2.0, our new software program, helps us track the work better than we ever could in the past, much of what we do is still manual and difficult to track. We will continue to work on that in fiscal year 2019. The work done in fiscal year 2018 includes the following:

- 23,650 phone calls were answered by the call center
- An additional 25,677 phone calls were sent directly to staff (bypassing the call center)
- We manually entered 4,349 insurance changes and 466 cancer claims
- We processed 499 new DROP members
- We processed roughly 1,000 new retirements
- We made 472 benefit adjustments/backouts
- We termed 431 benefit payments (due to deaths, children aging out, etc.)
- Altogether we created or modified roughly 2,500 records for benefit recipients
- We processed almost 1,200 new tier 3 Public Safety membership forms

2. **Software Development Update**

Staff is working on the following software development projects:

**Manual Contribution Adjustment Tool** – Development staff has completed this EPIC 2.0 enhancement which enables select staff to enter or adjust contributions that cannot be entered by employers using the PSPRS Portal.

**Retirement Estimator** – Development staff will soon begin adding functionality that will allow the City of Phoenix to prorate retirement estimates. This work should be completed by the end of the first week of October.

**Enhanced EPIC 2.0 Invoicing Module** – Requirements and specifications for this enhancement are being developed by accounting staff, the deputy administrator and the systems architect. This work should be complete by mid-October.

**City of Phoenix Health Insurance Premium Processing Enhancements** – We are currently working with the City of Phoenix to develop a file specification document to allow enhancements to retiree health insurance deductions. This should be finalized by September 21<sup>st</sup>. Development staff expects to complete the required development work by the end of October.

**Statutory Compensation and Contribution Limit Enforcement** – Development staff have created a new non-payment reason code (CL) that employers can use to notify PSPRS when a member has reached their compensation limit. We are currently creating proactive contribution limit notifications in the system to better serve employers. This work should be complete by the end of September.

**Enhancements to Demographic and Employee Lookup Modules** – The development manager and systems architect are working to design and implement employer-requested enhancements to the demographic and member lookup modules which include file uploads, validation and error handling along with advanced search capabilities. This work should be completed by mid-November, with a possible interim partial release in early October.

**EPIC2 Refunds Module Redesign** – Staff are developing requirements and specifications for a redesigned and enhanced Refunds Module. They expect to finish their initial design work mid to late October.

**3. Strategic Planning Update**

We issued an RFP in August to find a firm to conduct a strategic assessment of all key program areas and help us develop an integrated strategic/business plan. We received six responses to that RFP from the following firms:

- Grant Thornton
- Linea Solutions
- LRWL
- Mosaic Governance Advisors
- Orion Development Group
- Segal Consulting

Staff is in the process of reviewing the responses.

**4. Fiscal Year 2018 Statistics—Local Board & Employer Outreach**

One of our main goals in fiscal year 2018 was to improve our local board and employer outreach. We hired an employer relationship manager (Phil Coleman) and asked Don Mineer to offer additional training to our local boards. In Fiscal Year 2018 we moved beyond the walls of our building on Camelback to offer training in several locations spread throughout the State of Arizona. We provided training specifically to local boards in the following locations:

- Benson
- Flagstaff
- Globe
- Kingman
- Payson
- Show Low
- Sierra Vista
- St. Johns
- Tucson
- Yuma

While we were in the area, we also stopped by to visit with several local boards on an individual basis. Don also held a webinar that was available to all board members.

We also provided training specific to employers. We concentrated on CORP reform this spring and early summer, so spent much of our time training counties. We held several meetings in Phoenix, either in our office or at Maricopa County's office, and held a webinar open to all employers. We went on the road and met in the following locations:

- Bisbee
- Flagstaff
- Florence
- Globe
- Kingman
- Nogales
- Parker
- Prescott
- Tucson
- Yuma

We ended up meeting with every county prior to the CORP reform effective date (July 1, 2018), and then followed up with phone calls after the effective date to receive feedback about how smoothly the transition was for employers.

During the year we also met with some of our largest employers to discuss various issues, including Phoenix, Maricopa County, Tucson, and the State of Arizona.

Finally, during the fiscal year we resurrected the Local Board Seminar, and opened it up to employers. Over 300 people registered for the Seminar, which was held at the Black Canyon Conference Center. Feedback from the Seminar was very positive.

Outreach will continue in fiscal year 2019. We will continue to conduct training events throughout the state, and we are developing plans to provide additional training online.

# Local Board & Employer Outreach

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*Don Mineer*

*Phil Coleman*



CELEBRATING 50 YEARS OF SERVICE TO THOSE WHO SERVE ARIZONA

# 2018 outreach efforts

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- 218 employer groups participated in training provided by PSPRS.
- 670 participants were trained by PSPRS staff.



# Visit each geographic area in the state and provided training

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- Benson
- Flagstaff
- Globe
- Kingman
- Payson
- Phoenix
- Show Low
- Sierra Vista
- St. Johns
- Tucson
- Yuma



# Topics Covered

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- Duties of the Local Board
- Responsibilities of the Local Board Secretary
- How to use the Local Board Portal
- How to process retirements
- Understanding the actuarial report





# Visit face to face in a training environment to answer question

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- Establishing the local board
- Helping local board become more compliant with the law
- How to process a disability application



# Annual conference

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- Set up an annual conference for employer groups to obtain training and get answers to questions
- Held in Phoenix
- 100 employer groups attended
- 297 participants
- Based on feedback we received it was a huge success



# Local board outreach via phone and email

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- Reviewing minutes of the local board
- Calling and emailing Local Boards who have not meet recently
- Setting up local boards that have not been functioning
- Established an Education and Training page on our website



# Statewide CORP reform training

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- Bisbee/Cochise
- Flagstaff/Coconino, Apache & Navajo
- Florence/Pinal & Graham
- Globe/Gila & Greenlee
- Kingman/Mohave
- Nogales/Santa Cruz
- Parker/La Paz
- Prescott/Yavapai
- Tucson/Pima
- Yuma/Yuma
- Phoenix/Maricopa/AOC & DOC



# Meet with every county

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- Prior to July 2018
- Multiple phone meetings with statewide AOC groups
- PSPRS initiated follow-up in late August with all counties



# CORP topics covered

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- Eligibility DCP/DB
- Membership application
- Contributions and vesting
- Disability and survivor benefits
- Employer contribution reporting



# Employer outreach

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- Contacted Finance Directors
- Contacted Human Resource Directors
- Provided Direction regarding HB 2097 (Employer Funding Policy)
- Proactive meeting Maricopa County regarding reporting and contribution matters
- Meeting with James Vincent Group
- Conversations with ASRS regarding additional outreach concepts



# Public Safety Financial/Galloway

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- Partnership with Galloway in educating members
- Participated with Galloway in educational meetings
- Constructive interaction assisting with educational materials
- Building a strong relationship with Galloway educators





# Things we have learned in 2018...

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- Based on the feedback we have received Employers and Local Boards are satisfied that we provide regional training.
- Employers and Local Boards are thankful that we respond quickly to their questions and concerns.



# PSPRS PROPOSED 2019 ADMINISTRATIVE BILL

## ARIZONA REVISED STATUTES TITLE 38 – PUBLIC OFFICERS AND EMPLOYEES

### CHAPTER 5 – SOCIAL SECURITY AND RETIREMENT

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#### ARTICLE 3 – ELECTED OFFICIALS' RETIREMENT PLAN

<b>ARS Section(s)</b>	38-804.01. Reinstatement of credited service; effect of prior law
<b>Reason for Change</b>	Benefits and duties on reemployment for EORP members are not dependent on the redeposit of contributions that were previously withdrawn.

An elected official who received a refund as provided in section 38-804, who is subsequently reemployed as an elected official and who **MAY HAVE REDEPOSITED** ~~redeposits~~ the amount withdrawn with interest as provided in section 38-804 or an elected official who redeems prior service pursuant to statute is subject to the benefits and duties in effect at the time of the elected official's most recent reemployment. This section does not apply if a court of competent jurisdiction orders reinstatement of benefits and duties under a prior law.

### ARTICLE 3.1 – ELECTED OFFICIALS’ DEFINED CONTRIBUTION RETIREMENT SYSTEM

<b>ARS Section(s)</b>	New Section. Credit for Military Service
<b>Reason for Change</b>	To be consistent with USERRA and Article 3 in regards to contributions during periods of military service.

- A. AN ACTIVE MEMBER OF THE DEFINED CONTRIBUTION SYSTEM WHO VOLUNTEERS OR IS ORDERED TO PERFORM MILITARY SERVICE MAY RECEIVE YEARS OF SERVICE FOR NOT MORE THAN SIXTY MONTHS OF MILITARY SERVICE AS PROVIDED BY THE UNIFORMED SERVICES EMPLOYMENT AND REEMPLOYMENT RIGHTS ACT OF 1994 (38 UNITED STATES CODE PART III, CHAPTER 43). THE MEMBER'S EMPLOYER SHALL MAKE EMPLOYER CONTRIBUTIONS AND THE MEMBER SHALL MAKE THE MEMBER CONTRIBUTIONS PURSUANT TO SUBSECTION B OF THIS SECTION IF THE MEMBER MEETS THE FOLLOWING REQUIREMENTS:
1. WAS AN ACTIVE MEMBER OF THE DEFINED CONTRIBUTION SYSTEM ON THE DAY BEFORE THE MEMBER BEGAN MILITARY SERVICE.
  2. ENTERED INTO AND SERVED IN THE ARMED FORCES OF THE UNITED STATES OR IS A MEMBER OF THE NATIONAL GUARD.
  3. COMPLIES WITH THE NOTICE AND RETURN TO WORK PROVISIONS OF 38 UNITED STATES CODE SECTION 4312.
- B. CONTRIBUTIONS MADE PURSUANT TO SUBSECTION A OF THIS SECTION SHALL BE FOR THE PERIOD OF TIME BEGINNING ON THE DATE THE MEMBER BEGAN MILITARY SERVICE AND ENDING ON THE LATER OF ONE OF THE FOLLOWING DATES:
1. THE DATE THE MEMBER IS SEPARATED FROM MILITARY SERVICE.
  2. THE DATE THE MEMBER IS RELEASED FROM SERVICE RELATED HOSPITALIZATION OR TWO YEARS AFTER INITIATION OF SERVICE RELATED HOSPITALIZATION, WHICHEVER DATE IS EARLIER.
  3. THE DATE THE MEMBER DIES AS A RESULT OF OR DURING MILITARY SERVICE.
- C. NOTWITHSTANDING ANY OTHER LAW, ON PAYMENT OF THE CONTRIBUTIONS MADE PURSUANT TO SUBSECTION B OF THIS SECTION, THE MEMBER SHALL BE CREDITED WITH SERVICE FOR VESTING PURPOSES FOR THE PERIOD OF MILITARY SERVICE OF NOT MORE THAN SIXTY MONTHS. THE MEMBER SHALL SUBMIT A COPY OF THE MILITARY DISCHARGE CERTIFICATE (DD-256A) AND A COPY OF THE MILITARY SERVICE RECORD (DD-214) OR ITS EQUIVALENT WITH THE MEMBER'S APPLICATION WHEN APPLYING FOR SERVICE CORRESPONDING TO THE PERIOD OF MILITARY SERVICE.
- D. THE EMPLOYER AND THE MEMBER SHALL MAKE CONTRIBUTIONS PURSUANT TO SUBSECTION A OF THIS SECTION AS FOLLOWS:
1. CONTRIBUTIONS SHALL BE BASED ON THE COMPENSATION THAT THE MEMBER WOULD HAVE RECEIVED BUT FOR THE PERIOD THAT THE MEMBER WAS ORDERED INTO ACTIVE MILITARY SERVICE.
  2. IF THE EMPLOYER CANNOT REASONABLY DETERMINE THE MEMBER'S RATE OF COMPENSATION FOR THE PERIOD THAT THE MEMBER WAS ORDERED INTO MILITARY SERVICE, CONTRIBUTIONS SHALL BE BASED ON THE MEMBER'S AVERAGE RATE OF COMPENSATION DURING THE TWELVE-MONTH PERIOD IMMEDIATELY PRECEDING THE PERIOD OF MILITARY SERVICE.
  3. IF A MEMBER HAS BEEN EMPLOYED LESS THAN TWELVE MONTHS BEFORE BEING ORDERED INTO MILITARY SERVICE, CONTRIBUTIONS SHALL BE BASED ON THE MEMBER'S COMPENSATION BEING EARNED IMMEDIATELY PRECEDING THE PERIOD OF MILITARY SERVICE.
  4. THE MEMBER HAS UP TO THREE TIMES THE LENGTH OF MILITARY SERVICE, NOT TO EXCEED SIXTY MONTHS, TO MAKE THE MEMBER CONTRIBUTIONS. ONCE THE MEMBER HAS MADE THE MEMBER CONTRIBUTIONS OR ON RECEIPT OF THE MEMBER'S DEATH CERTIFICATE, THE EMPLOYER SHALL MAKE THE EMPLOYER CONTRIBUTIONS IN A LUMP SUM. DEATH BENEFITS SHALL BE CALCULATED AS PRESCRIBED BY LAW.
  5. IF THE MEMBER'S EMPLOYER PAYS MILITARY DIFFERENTIAL WAGE PAY TO MEMBERS SERVING IN THE MILITARY, CONTRIBUTIONS SHALL BE PAID TO THE

DEFINED CONTRIBUTION SYSTEM PURSUANT TO SECTION 38-843 FOR ANY MILITARY DIFFERENTIAL WAGE PAY PAID TO THE MEMBER WHILE PERFORMING MILITARY SERVICE.

- E. IN COMPUTING THE LENGTH OF TOTAL SERVICE OF A MEMBER FOR THE PURPOSE OF DETERMINING VESTING IN ACCORDANCE WITH SECTION 38-38-954 OR DISABILITY IN ACCORDANCE WITH ARTICLE 3.2, THE PERIOD OF MILITARY SERVICE, AS PRESCRIBED BY THIS SECTION, SHALL BE INCLUDED.
- F. IF A MEMBER PERFORMS MILITARY SERVICE DUE TO A PRESIDENTIAL CALL-UP, NOT TO EXCEED FORTY-EIGHT MONTHS, THE EMPLOYER SHALL MAKE THE EMPLOYER AND MEMBER CONTRIBUTIONS COMPUTED PURSUANT TO SUBSECTION D OF THIS SECTION ON THE MEMBER'S RETURN AND IN COMPLIANCE WITH SUBSECTION A OF THIS SECTION.
- G. IN ADDITION TO, BUT NOT IN DUPLICATION OF, THE PROVISIONS OF SUBSECTION A OF THIS SECTION, BEGINNING DECEMBER 12, 1994 CONTRIBUTIONS, BENEFITS AND CREDITED SERVICE PROVIDED PURSUANT TO THIS SECTION SHALL BE PROVIDED PURSUANT TO SECTION 414(U) OF THE INTERNAL REVENUE CODE, AND THIS SECTION SHALL BE INTERPRETED IN A MANNER CONSISTENT WITH THAT INTERNAL REVENUE CODE SECTION.
- H. FOR PLAN YEARS BEGINNING AFTER DECEMBER 31, 2008, A MEMBER WHO DOES NOT CURRENTLY PERFORM SERVICES FOR AN EMPLOYER BY REASON OF QUALIFIED MILITARY SERVICE AS DEFINED IN SECTION 414(U)(5) OF THE INTERNAL REVENUE CODE IS NOT CONSIDERED HAVING A SEVERANCE FROM EMPLOYMENT DURING THAT QUALIFIED MILITARY SERVICE. ANY PAYMENTS BY THE EMPLOYER TO THE MEMBER DURING THE QUALIFIED MILITARY SERVICE SHALL BE CONSIDERED COMPENSATION TO THE EXTENT THOSE PAYMENTS DO NOT EXCEED THE AMOUNTS THE MEMBER WOULD HAVE RECEIVED IF THE MEMBER HAD CONTINUED TO PERFORM SERVICES FOR THE EMPLOYER RATHER THAN ENTERING QUALIFIED MILITARY SERVICE.
- I. FOR DEATHS OCCURRING FROM AND AFTER DECEMBER 31, 2006, IN THE CASE OF A MEMBER WHO DIES WHILE PERFORMING QUALIFIED MILITARY SERVICE AS DEFINED IN SECTION 414(U)(5) OF THE INTERNAL REVENUE CODE, THE SURVIVORS OF THE MEMBER ARE ENTITLED TO ANY BENEFITS, OTHER THAN BENEFIT ACCRUALS RELATING TO THE PERIOD OF QUALIFIED MILITARY SERVICE, PROVIDED UNDER THE DEFINED CONTRIBUTION SYSTEM AS THOUGH THE MEMBER RESUMED AND THEN TERMINATED EMPLOYMENT ON ACCOUNT OF DEATH.

<b>ARS Section(s)</b>	38-843.04. Compensation limitation; adjustments
<b>Reason for Change</b>	To clarify that the wage limits are based on a calendar year in order to be consistent across tiers and with social security.

- A. The annual compensation of each member taken into account for purposes of the system shall not exceed the following:
  - 1. Beginning January 1, 1996 through December 31, 2001, one hundred fifty thousand dollars.
  - 2. Except for members who are hired on or after July 1, 2017, beginning January 1, 2002, two hundred thousand dollars. The board shall adjust the two hundred thousand dollar annual compensation limit under this paragraph at the same time and in the same manner as adjusted by the United States Secretary of the Treasury under section 401(a)(17)(B) of the Internal Revenue Code. The adjustment under this paragraph for a calendar year applies to annual compensation for ~~THAT CALENDAR YEAR the plan year that begins with or within the calendar year.~~
  - 3. For members who are hired on or after July 1, 2017, one hundred ten thousand dollars. The board shall adjust the one hundred ten thousand dollar annual compensation limit under this paragraph as prescribed in subsection C of this section. Notwithstanding the adjustments made under subsection C of this section, the limit under this paragraph, as adjusted by the board, may not exceed the maximum compensation limit of section 401(a)(17) of the Internal Revenue Code, as adjusted by the United States Secretary of the Treasury.
- B. If compensation under the system is determined on a period of time that contains fewer than twelve calendar months, the compensation limit for that period of time is equal to the dollar limit for the calendar year during which the period of time begins, multiplied by the fraction in which the numerator is

the number of full months in that period of time and the denominator is twelve.

- C. Beginning in fiscal year 2020-2021, and every third fiscal year thereafter, the board shall adjust the annual compensation limit specified in subsection a, paragraph 3 of this section by the average change in the public safety wage index as determined in this subsection. The board shall annually publish the public safety wage index in January **AND THE ADJUSTMENT UNDER THIS PARAGRAPH FOR A CALENDAR YEAR APPLIES TO ANNUAL COMPENSATION FOR THAT CALENDAR YEAR BEGINNING THAT JANUARY**. To determine the public safety wage index:
  - 1. Employers represented in the public safety wage index shall provide the board pay scales for the month of July for the enforcement classifications of public safety officers annually in July.
  - 2. The board shall determine the weighted average of the change in the top of the pay scale for public safety officers of the employers represented in the public safety wage index. The average change shall be weighted by measuring each employer's total number of members divided by the total number of members of all employers represented in the public safety wage index.
- D. The board shall establish a public safety wage index that is composed of a group of employers that represent geographic diversity across this state and that represent:
  - 1. Seven large employers, each of which has one thousand or more total system members, composed of one state law enforcement agency, one county law enforcement agency, three municipal law enforcement agencies and two municipal fire agencies.
  - 2. Nine midsize employers, each of which has more than two hundred but less than one thousand total system members, composed of one state law enforcement agency, two county law enforcement agencies, four municipal law enforcement agencies, one municipal fire agency and one fire district.
  - 3. Ten small employers, each of which has two hundred or less total system members, composed of three municipal law enforcement agencies, four municipal fire agencies and three fire districts.
- E. The board may not change the employers represented in the public safety wage index more frequently than every ten years, unless required to maintain the composition of employers as prescribed in subsection d of this section.
- F. For the purposes of this section, "public safety officers" means the classification of police officers, sheriff's deputies, firefighters or wildlife managers or their equivalent enforcement classifications.

## ARTICLE 4 – PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM

<b>ARS Section(s)</b>	38-849. Limitations on receiving pension; violation; classification; reemployment after severance; reinstatement of service credits; reemployment of retired member or member with a disability; definition
<b>Reason for Change</b>	Clarifying return to work rules as it relates to ADA accommodations. Section 38-844 requires a member to terminate by reason of disability in order to qualify for a disability which contradicts with subsection E, paragraph 2, sub item c if someone accepts a reassignment without terminating.

- A. If a member is convicted of, or discharged because of, theft, embezzlement, fraud or misappropriation of an employer's property or property under the control of the employer, the member shall be subject to restitution and fines imposed by a court of competent jurisdiction. The court may order the restitution or fines to be paid from any payments otherwise payable to the member from the retirement system.
- B. A person who knowingly makes any false statement or who falsifies or permits to be falsified any record of the system with an intent to defraud the system is guilty of a class 5 felony. If any change or error in the records results in any member or beneficiary receiving from the system more or less than the member or beneficiary would have been entitled to receive had the records been correct, the local board shall correct such error, and as far as practicable shall adjust the payments in such manner that the actuarial equivalent of the benefit to which such member or beneficiary was correctly entitled shall be paid. If a member is convicted of a crime specified in this subsection, section 13-713 applies.
- C. If a member who received a severance refund on termination of employment pursuant to section 38-846.02 becomes reemployed with the same employer within two years after the former member's termination date, the member may have forfeited credited service attributable to service rendered during a prior period of service as an employee restored on satisfaction of each of the following conditions:
  1. The member files with the system a written application for reinstatement of forfeited credited service within ninety days after again becoming an employee.
  2. The retirement fund is paid the total amount previously withdrawn pursuant to section 38-846.02 plus compound interest from the date of withdrawal to the date of repayment. Interest shall be computed at the rate of nine percent for each year compounded each year from the date of withdrawal to the date of repayment. Forfeited credited service shall not be restored until complete payment is received by the fund.
  3. The required payment is completed within one year after returning to employee status.
- D. If a member who received a severance refund on termination of employment, as provided in section 38-846.02, is subsequently reemployed by an employer, the member's prior service credits shall be cancelled and service shall be credited only from the date the member's most recent reemployment period commenced. However, a present active member of the system who forfeited credited service, received a severance refund pursuant to section 38-846.02 and becomes reemployed with the same employer two years or more after the member's termination date or becomes reemployed with another employer may elect to redeem any part of that forfeited credited service by paying into the system any amounts required pursuant to this subsection. A present active member who elects to redeem any part of forfeited credited service for which the member is deemed eligible by the board shall pay into the system the amounts previously paid or transferred to the member as a severance refund plus an amount, computed by the system's actuary that is necessary to equal the increase in the actuarial present value of projected benefits resulting from the redemption calculated using the actuarial methods and assumptions prescribed by the system's actuary. On satisfaction of this obligation the member's prior service credits shall be reinstated.
- E. If a retired member becomes reemployed in any capacity by the employer from which the member retired before one year from the date of retirement or in the same position at any time following retirement:
  1. The following apply:
    - (a) Within ten days after the retired member is reemployed, the local board shall advise the system in writing of the retired member's reemployment.

- (b) The system shall not make pension payments to the retired member during the period of reemployment.
  - (c) Employee contributions shall not be made on the retired member's account, nor shall any service be credited during the period of reemployment. On subsequent termination of employment by the retired member, the retired member is entitled to receive a pension based on the member's service and compensation before the date of the member's reemployment. The employer shall pay the alternate contribution rate pursuant to section 38-843.05.
- 2. Paragraph 1, subdivisions (a) and (b) of this subsection do not apply if any of the following occur:
  - (a) The retired member becomes reemployed after sixty consecutive days from the member's retirement date as a result of participating in an open competitive new hire process for an entry level, nonsupervisory position, except if the retired member is hired for the same position.
  - (b) The retired member is hired as a fire inspector or arson investigator.
  - (c) **NOTWITHSTANDING SECTION 38-844** the retired member **WHO IS RECEIVING AN ACCIDENTAL DISABILITY, ORDINARY DISABILITY, CATASTROPHIC DISABILITY OR TEMPORARY DISABILITY PENSION BENEFIT WHO** accepts a job reassignment as an accommodation in accordance with the Americans with disabilities act of 1990 due to a disability that is directly related to the retired member being awarded an accidental disability, ordinary disability, catastrophic disability or temporary disability benefit.
- F. If a retired member is assigned voluntary duties acting as a limited authority peace officer, pursuant to the Arizona peace officer standards and training board rules, employee contributions shall not be made on the retired member's account, and any service shall not be credited during the period of reemployment. The employer shall not pay the alternate contribution rate pursuant to section 38-843.05.
- G. If after one year from the date of retirement a retired member becomes reemployed by the employer from which the member retired in a position other than the same position from which the member retired, employee contributions shall not be made on the retired member's account, and any service shall not be credited during the period of reemployment. The employer shall pay the alternate contribution rate pursuant to section 38-843.05.
- H. At any time following retirement, if the retired member becomes employed by an employer, other than the employer from which the member retired, in a position ordinarily filled by an employee of an eligible group, employee contributions shall not be made on the retired member's account, and any service shall not be credited during the period of reemployment. The employer shall pay the alternate contribution rate pursuant to section 38-843.05.
- I. If a member who retired under an accidental or ordinary disability becomes reemployed as an employee of an eligible group, section 38-844 applies and a determination shall be made by the local board as to whether subsection E, F, G or H of this section applies.
- J. The local board shall review all reemployment determinations and voluntary assignments as described in subsection F of this section. If the local board or the system is not provided the necessary information required by the system to make a reemployment determination, the local board and the system shall suspend pension payments until information is received and a determination is made regarding whether the reemployment meets the requirements of subsection E, F, G, H or I of this section.
- K. A person who defrauds the system or who takes, converts, steals or embezzles monies owned by or from the system and who fails or refuses to return the monies to the system on the board's written request is subject to civil suit by the system in the superior court in Maricopa county. On entry of an order finding the person has defrauded the system or taken, converted, stolen or embezzled monies owned by or from the system, the court shall enter an order against that person and for the system awarding the system all of its costs and expenses of any kind, including attorney fees, that were necessary to successfully prosecute the action. The court shall also grant the system a judicial lien on all of the nonexempt property of the person against whom judgment is entered pursuant to this subsection in an amount equal to all amounts awarded to the system, plus interest at the rate prescribed by section 44-1201, until all amounts owed are paid to the system.
- L. Notwithstanding any other provision of this article, the board may offset against any benefits

otherwise payable by the system to an active or retired member or survivor any court ordered amounts awarded to the board and system and assessed against the member or survivor.

M. Notwithstanding any other provision of this article, a member who retires having met all of the qualifications for retirement and who subsequently becomes an elected official, by election or appointment, is not considered reemployed by the same employer.

N. For the purposes of this section, "same position" means a position in which the member performs substantially similar duties that were performed and exercises substantially similar authority that was exercised by the retired member before retirement.



## ARTICLE 4.1 – PUBLIC SAFETY PERSONNEL DEFINED CONTRIBUTION RETIREMENT PLAN

<b>ARS Section(s)</b>	New Section. Credit for Military Service
<b>Reason for Change</b>	To be consistent with USERRA and Article 4 in regards to contributions during periods of military service.

- A. AN ACTIVE MEMBER OF THE DEFINED CONTRIBUTION PLAN WHO VOLUNTEERS OR IS ORDERED TO PERFORM MILITARY SERVICE MAY RECEIVE YEARS OF SERVICE FOR NOT MORE THAN SIXTY MONTHS OF MILITARY SERVICE AS PROVIDED BY THE UNIFORMED SERVICES EMPLOYMENT AND REEMPLOYMENT RIGHTS ACT OF 1994 (38 UNITED STATES CODE PART III, CHAPTER 43). THE MEMBER'S EMPLOYER SHALL MAKE EMPLOYER CONTRIBUTIONS AND THE MEMBER SHALL MAKE THE MEMBER CONTRIBUTIONS PURSUANT TO SUBSECTION B OF THIS SECTION IF THE MEMBER MEETS THE FOLLOWING REQUIREMENTS:
1. WAS AN ACTIVE MEMBER OF THE DEFINED CONTRIBUTION PLAN ON THE DAY BEFORE THE MEMBER BEGAN MILITARY SERVICE.
  2. ENTERED INTO AND SERVED IN THE ARMED FORCES OF THE UNITED STATES OR IS A MEMBER OF THE NATIONAL GUARD.
  3. COMPLIES WITH THE NOTICE AND RETURN TO WORK PROVISIONS OF 38 UNITED STATES CODE SECTION 4312.
- B. CONTRIBUTIONS MADE PURSUANT TO SUBSECTION A OF THIS SECTION SHALL BE FOR THE PERIOD OF TIME BEGINNING ON THE DATE THE MEMBER BEGAN MILITARY SERVICE AND ENDING ON THE LATER OF ONE OF THE FOLLOWING DATES:
1. THE DATE THE MEMBER IS SEPARATED FROM MILITARY SERVICE.
  2. THE DATE THE MEMBER IS RELEASED FROM SERVICE RELATED HOSPITALIZATION OR TWO YEARS AFTER INITIATION OF SERVICE RELATED HOSPITALIZATION, WHICHEVER DATE IS EARLIER.
  3. THE DATE THE MEMBER DIES AS A RESULT OF OR DURING MILITARY SERVICE.
- C. NOTWITHSTANDING ANY OTHER LAW, ON PAYMENT OF THE CONTRIBUTIONS MADE PURSUANT TO SUBSECTION B OF THIS SECTION, THE MEMBER SHALL BE CREDITED WITH SERVICE FOR VESTING PURPOSES FOR THE PERIOD OF MILITARY SERVICE OF NOT MORE THAN SIXTY MONTHS. THE MEMBER SHALL SUBMIT A COPY OF THE MILITARY DISCHARGE CERTIFICATE (DD-256A) AND A COPY OF THE MILITARY SERVICE RECORD (DD-214) OR ITS EQUIVALENT WITH THE MEMBER'S APPLICATION WHEN APPLYING FOR SERVICE CORRESPONDING TO THE PERIOD OF MILITARY SERVICE.
- D. THE EMPLOYER AND THE MEMBER SHALL MAKE CONTRIBUTIONS PURSUANT TO SUBSECTION A OF THIS SECTION AS FOLLOWS:
1. CONTRIBUTIONS SHALL BE BASED ON THE COMPENSATION THAT THE MEMBER WOULD HAVE RECEIVED BUT FOR THE PERIOD THAT THE MEMBER WAS ORDERED INTO ACTIVE MILITARY SERVICE.
  2. IF THE EMPLOYER CANNOT REASONABLY DETERMINE THE MEMBER'S RATE OF COMPENSATION FOR THE PERIOD THAT THE MEMBER WAS ORDERED INTO MILITARY SERVICE, CONTRIBUTIONS SHALL BE BASED ON THE MEMBER'S AVERAGE RATE OF COMPENSATION DURING THE TWELVE-MONTH PERIOD IMMEDIATELY PRECEDING THE PERIOD OF MILITARY SERVICE.
  3. IF A MEMBER HAS BEEN EMPLOYED LESS THAN TWELVE MONTHS BEFORE BEING ORDERED INTO MILITARY SERVICE, CONTRIBUTIONS SHALL BE BASED ON THE MEMBER'S COMPENSATION BEING EARNED IMMEDIATELY PRECEDING THE PERIOD OF MILITARY SERVICE.
  4. THE MEMBER HAS UP TO THREE TIMES THE LENGTH OF MILITARY SERVICE, NOT TO EXCEED SIXTY MONTHS, TO MAKE THE MEMBER CONTRIBUTIONS. ONCE THE MEMBER HAS MADE THE MEMBER CONTRIBUTIONS OR ON RECEIPT OF THE MEMBER'S DEATH CERTIFICATE, THE EMPLOYER SHALL MAKE THE EMPLOYER CONTRIBUTIONS IN A LUMP SUM. DEATH BENEFITS SHALL BE CALCULATED AS PRESCRIBED BY LAW.
  5. IF THE MEMBER'S EMPLOYER PAYS MILITARY DIFFERENTIAL WAGE PAY TO MEMBERS SERVING IN THE MILITARY, CONTRIBUTIONS SHALL BE PAID TO THE

DEFINED CONTRIBUTION PLAN PURSUANT TO SECTION 38-843 FOR ANY MILITARY DIFFERENTIAL WAGE PAY PAID TO THE MEMBER WHILE PERFORMING MILITARY SERVICE.

- E. IN COMPUTING THE LENGTH OF TOTAL SERVICE OF A MEMBER FOR THE PURPOSE OF DETERMINING VESTING IN ACCORDANCE WITH SECTION 38-867 OR DISABILITY IN ACCORDANCE WITH TITLE 4.2, THE PERIOD OF MILITARY SERVICE, AS PRESCRIBED BY THIS SECTION, SHALL BE INCLUDED.
- F. IF A MEMBER PERFORMS MILITARY SERVICE DUE TO A PRESIDENTIAL CALL-UP, NOT TO EXCEED FORTY-EIGHT MONTHS, THE EMPLOYER SHALL MAKE THE EMPLOYER AND MEMBER CONTRIBUTIONS COMPUTED PURSUANT TO SUBSECTION D OF THIS SECTION ON THE MEMBER'S RETURN AND IN COMPLIANCE WITH SUBSECTION A OF THIS SECTION.
- G. IN ADDITION TO, BUT NOT IN DUPLICATION OF, THE PROVISIONS OF SUBSECTION A OF THIS SECTION, BEGINNING DECEMBER 12, 1994 CONTRIBUTIONS, BENEFITS AND CREDITED SERVICE PROVIDED PURSUANT TO THIS SECTION SHALL BE PROVIDED PURSUANT TO SECTION 414(U) OF THE INTERNAL REVENUE CODE, AND THIS SECTION SHALL BE INTERPRETED IN A MANNER CONSISTENT WITH THAT INTERNAL REVENUE CODE SECTION.
- H. FOR PLAN YEARS BEGINNING AFTER DECEMBER 31, 2008, A MEMBER WHO DOES NOT CURRENTLY PERFORM SERVICES FOR AN EMPLOYER BY REASON OF QUALIFIED MILITARY SERVICE AS DEFINED IN SECTION 414(U)(5) OF THE INTERNAL REVENUE CODE IS NOT CONSIDERED HAVING A SEVERANCE FROM EMPLOYMENT DURING THAT QUALIFIED MILITARY SERVICE. ANY PAYMENTS BY THE EMPLOYER TO THE MEMBER DURING THE QUALIFIED MILITARY SERVICE SHALL BE CONSIDERED COMPENSATION TO THE EXTENT THOSE PAYMENTS DO NOT EXCEED THE AMOUNTS THE MEMBER WOULD HAVE RECEIVED IF THE MEMBER HAD CONTINUED TO PERFORM SERVICES FOR THE EMPLOYER RATHER THAN ENTERING QUALIFIED MILITARY SERVICE.
- I. FOR DEATHS OCCURRING FROM AND AFTER DECEMBER 31, 2006, IN THE CASE OF A MEMBER WHO DIES WHILE PERFORMING QUALIFIED MILITARY SERVICE AS DEFINED IN SECTION 414(U)(5) OF THE INTERNAL REVENUE CODE, THE SURVIVORS OF THE MEMBER ARE ENTITLED TO ANY BENEFITS, OTHER THAN BENEFIT ACCRUALS RELATING TO THE PERIOD OF QUALIFIED MILITARY SERVICE, PROVIDED UNDER THE DEFINED CONTRIBUTION PLAN AS THOUGH THE MEMBER RESUMED AND THEN TERMINATED EMPLOYMENT ON ACCOUNT OF DEATH.

## **PROPOSED STATUTES CREATING 457(B) PLAN**

The proposed statutes below would create a deferred compensation plan, as described in Section 457(b) of the Internal Revenue Code, in which all employees of employers who participate in retirement plans administered by PSPRS (including PSPRS, EORP, CORP, EODCRS, PSPDCRP, the Supplemental DC plan, and the Term-Limited DC plan) could participate.

### **ARTICLE 5.1**

#### **DEFERRED COMPENSATION PLAN ADMINISTERED BY THE PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM**

##### **SECTION 38-875: DEFINITIONS**

IN THIS ARTICLE, UNLESS THE CONTEXT OTHERWISE REQUIRES:

- A. "BOARD" MEANS THE BOARD OF TRUSTEES OF THE PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM ESTABLISHED BY SECTION 38-848.
- B. "DEFERRED COMPENSATION PLAN" MEANS AN ELIGIBLE DEFERRED COMPENSATION PLAN AS DEFINED IN SECTION 457(B) OF THE INTERNAL REVENUE CODE.
- C. "EMPLOYER" MEANS ANY ENTITY WHICH PARTICIPATES AS AN EMPLOYER IN A RETIREMENT PLAN THAT IS ADMINISTERED BY THE BOARD.
- D. "PARTICIPANT" MEANS ANY INDIVIDUAL WHO IS EMPLOYED BY AN EMPLOYER.

##### **SECTION 38-876: ESTABLISHMENT AND ADMINISTRATION OF DEFERRED COMPENSATION PLAN**

- A. THE BOARD SHALL ESTABLISH, DESIGN AND ADMINISTER A DEFERRED COMPENSATION PLAN IN WHICH PARTICIPANTS DESCRIBED IN SECTION 38-875 MAY PARTICIPATE.
- B. THE BOARD, IN THE ADMINISTRATION, MANAGEMENT, AND OPERATION OF THE DEFERRED COMPENSATION PLAN, MAY:
  - 1. EMPLOY SERVICES AS IT DEEMS NECESSARY, INCLUDING LEGAL SERVICES, FOR THE OPERATION AND ADMINISTRATION OF THE DEFERRED COMPENSATION PLAN.
  - 2. ADMINISTER THE DEFERRED COMPENSATION PLAN THROUGH CONTRACTS WITH MULTIPLE VENDORS.
  - 3. PERFORM ALL ACTS, WHETHER OR NOT EXPRESSLY AUTHORIZED, THAT IT DEEMS NECESSARY AND PROPER FOR THE OPERATION AND PROTECTION OF THE DEFERRED COMPENSATION PLAN.

##### **SECTION 38-877: VOLUNTARY PARTICIPATION; AUTHORIZATION**

- A. PARTICIPANTS DESCRIBED IN SECTION 38-875 MAY PARTICIPATE IN THE DEFERRED COMPENSATION PLAN.
- B. PARTICIPANTS IN THE DEFERRED COMPENSATION PLAN SHALL AUTHORIZE THEIR EMPLOYERS IN WRITING TO MAKE REDUCTIONS OR DEDUCTIONS IN THEIR REMUNERATION AS PROVIDED IN AN EXECUTED DEFERRED COMPENSATION AGREEMENT.

##### **SECTION 38-878: PAYROLL SALARY DEDUCTIONS; EMPLOYER CONTRIBUTIONS**

- A. EACH EMPLOYER SHALL INITIATE PAYROLL SALARY REDUCTIONS OR DEDUCTIONS FOR THE DEFERRED COMPENSATION PLAN AS DIRECTED BY THEIR EMPLOYEES WHO ARE PARTICIPATING IN SUCH PLAN.
- B. IN ADDITION, AN EMPLOYER MAY MAKE SUCH CONTRIBUTIONS TO THE DEFERRED COMPENSATION PLAN AS SELECTED BY SUCH EMPLOYER AND PERMITTED BY LAW.

##### **SECTION 38-879: EFFECT OF PARTICIPATION**

- A. ANY BENEFITS PROVIDED PURSUANT TO THE PROVISIONS OF THIS ARTICLE SHALL BE IN ADDITION TO ANY OTHER BENEFITS PROVIDED FOR SUCH PARTICIPANTS AND SHALL BE SUPPLEMENTAL TO THE PROVISIONS OF ANY OTHER RETIREMENT PLAN UNDER WHICH SUCH PARTICIPANTS PARTICIPATE.
- B. ANY INCOME DEFERRED UNDER THE DEFERRED COMPENSATION PLAN SHALL BE INCLUDED AS REGULAR COMPENSATION FOR THE PURPOSE OF COMPUTING THE RETIREMENT AND PENSION BENEFITS EARNED BY AN EMPLOYEE PARTICIPATING IN THE DEFERRED COMPENSATION PLAN AND IN ANY OTHER PLAN MAINTAINED BY SUCH EMPLOYEE'S EMPLOYER, UNLESS SPECIFICALLY EXCLUDED UNDER SUCH OTHER PLAN OR THE STATE LAWS GOVERNING SUCH OTHER PLAN.

## ARTICLE 6 – CORRECTIONS OFFICER RETIREMENT PLAN

<b>ARS Section(s)</b>	38-881.01. Employees hired on or after July 1, 2018; defined contribution plan; benefit election; disability
<b>Reason for Change</b>	1. Creating a 90-day waiting period for new hires allows for more efficient and thorough education and communication for decision-making. 2. Allowing for more flexibility in the method of delivery for training.

- A. Except as provided in subsection B of this section, an employee who is hired on or after July 1, 2018, who is a member as defined in section 38-881, paragraph 27, subdivision (a) and who was not an active, an inactive or a retired member of the plan or a member of the plan with a disability on June 30, 2018 shall participate in the public safety personnel defined contribution retirement plan established pursuant to article 4.1 of this chapter, **THE EMPLOYEE'S PARTICIPATION IN THE PUBLIC SAFETY PERSONNEL DEFINED CONTRIBUTION RETIREMENT PLAN ESTABLISHED PURSUANT TO ARTICLE 4.1 OF THIS CHAPTER BEGINS NINETY DAYS AFTER THE DATE THE EMPLOYEE IS HIRED.**
- B. An employee who is hired on or after July 1, 2018, who is in a designated position as defined in section 38-881, paragraph 13, subdivision (g) and who was not an active, an inactive or a retired member of the plan or a member of the plan with a disability on June 30, 2018 is eligible to participate in the corrections officer retirement plan or the public safety personnel defined contribution retirement plan established pursuant to article 4.1 of this chapter, depending on the employee's election under this section. During the first sixty days of an employee's employment and before the employee makes a decision regarding the individual's retirement plan, the board shall provide each probation and surveillance officer who is hired on or after July 1, 2018 ~~live~~ **INTERACTIVE**, objective educational training, counseling and participant-specific plan information about both the corrections officer retirement plan and the public safety personnel defined contribution retirement plan options. The employee's participation in either the plan or the public safety personnel defined contribution retirement plan established pursuant to article 4.1 of this chapter begins ninety days after the date the employee is hired. Unless the elections made under this section are made before the ninetieth day after the date of employment, the employee is automatically enrolled in the plan for the remainder of the employee's employment with any employer under the plan. Any election made under this section is irrevocable and is the employee's election for the remainder of the employee's employment with any employer under the plan, regardless of whether the employee's employment is continuous. The employee may make one of the following irrevocable elections:
1. To participate solely in the corrections officer retirement plan.
  2. To participate solely in the public safety personnel defined contribution retirement plan established pursuant to article 4.1 of this chapter.
- C. If an employee specified in subsection B of this section in the employee's first ninety days of employment is determined to be eligible for an accidental disability pension pursuant to section 38-886, the employee shall be automatically enrolled in the corrections officer retirement plan for the remainder of the employee's employment with any employer under the plan commencing on the employee's date of disability and shall receive an accidental disability pension as prescribed in this article.

<b>ARS Section(s)</b>	38-884.01. Reinstatement of credited service; effect of prior law
<b>Reason for Change</b>	Benefits and duties on reemployment for CORP members are not dependent on the redeposit of contributions that were previously withdrawn.

- A. A member who received a severance refund on termination of employment as provided in section 38-884, who is subsequently reemployed by an employer ~~and~~ who **MAY HAVE REDEPOSITED redeposits** the amount withdrawn with interest as provided in section 38-884 or a member who redeems prior service pursuant to statute is subject to the benefits and duties in effect at the
- B. A member who transfers credited service from one employer to another employer pursuant to section 38-908 retains the benefits and duties in effect at the time of the member's transfer.

- A. A member who received a severance refund on termination of employment as provided in section 38-884, who is subsequently reemployed by an employer and who **MAY HAVE REDEPOSITED** ~~redeposits~~ the amount withdrawn with interest as provided in section 38-884 or a member who redeems prior service pursuant to statute is subject to the benefits and duties in effect at the ~~time of the member's most recent reemployment. This subsection does not apply if a court of competent jurisdiction orders reinstatement of benefits and duties under a prior law~~ **FOLLOWING TIMES FOR THE SPECIFIED SITUATIONS:**
1. **AT THE TIME OF THE MEMBER'S REEMPLOYMENT IF THE MEMBER IS REEMPLOYED BY AN EMPLOYER OTHER THAN THE SAME EMPLOYER.**
  2. **AT THE TIME OF THE MEMBER'S REEMPLOYMENT IF THE MEMBER IS REEMPLOYED BY THE SAME EMPLOYER AT LEAST NINETY DAYS AFTER THE DATE OF TERMINATION.**
  3. **AT THE TIME OF THE MEMBER'S MOST RECENT TERMINATION IF THE MEMBER IS REEMPLOYED BY THE SAME EMPLOYER IN ANY CAPACITY WITHIN NINETY DAYS AFTER THE DATE OF TERMINATION.**
- B. **SUBSECTION A OF THIS SECTION DOES NOT APPLY IF A COURT OF COMPETENT JURISDICTION ORDERS REINSTATEMENT OF BENEFITS AND DUTIES UNDER A PRIOR LAW.**
- C. **IF A MEMBER WAS INITIALLY EMPLOYED ON OR AFTER JULY 1, 2018, REGARDLESS OF WHETHER THE MEMBER RECEIVED A SEVERANCE REFUND OR REDEPOSITS THE AMOUNT WITHDRAWN WITH INTEREST, THE MEMBER SHALL RETURN TO THE PLAN AS IRREVOCABLY ELECTED PURSUANT TO SECTION 38-881.01.**
- D. ~~B.~~ A member who transfers credited service from one employer to another employer pursuant to section 38-908 retains the benefits and duties in effect at the time of the member's transfer.

<b>ARS Section(s)</b>	38-895.01. Compensation limitation; adjustments; definition
<b>Reason for Change</b>	To clarify that the wage limits are based on a calendar year in order to be consistent across tiers and with social security.

- A. The annual compensation of each member taken into account for purposes of the plan shall not exceed the following:
1. Beginning January 1, 1996 through December 31, 2001, one hundred fifty thousand dollars.
  2. Except for members hired on or after July 1, 2018, beginning January 1, 2002, two hundred thousand dollars. The board shall adjust the two hundred thousand dollar annual compensation limit under this paragraph at the same time and in the same manner as adjusted by the United States Secretary of the Treasury under section 401(a)(17)(b) of the Internal Revenue Code. The adjustment under this paragraph for a calendar year applies to annual compensation for **THAT CALENDAR YEAR** ~~the plan year that begins with or within the calendar year.~~
  3. For members who are hired on or after July 1, 2018, seventy thousand dollars. The board shall adjust the seventy thousand dollar annual compensation limit under this paragraph as prescribed in subsection C of this section. Notwithstanding the adjustments made under subsection C of this section, the limit under this paragraph, as adjusted by the board, may not exceed the maximum compensation limit of section 401(a)(17) of the Internal Revenue Code, as adjusted by the United States Secretary of the Treasury.
- B. If compensation under the plan is determined on a period of time that contains fewer than twelve calendar months, the compensation limit for that period of time is equal to the dollar limit for the calendar year during which the period of time begins, multiplied by the fraction in which the numerator is the number of full months in that period of time and the denominator is twelve.
- C. Beginning in fiscal year 2021-2022, and every third fiscal year thereafter, the board shall adjust the annual compensation limit specified in subsection A, paragraph 3 of this section by the average change in the probation wage index as determined pursuant to this subsection. The board shall annually publish the probation wage index in January **AND THE ADJUSTMENT UNDER THIS PARAGRAPH FOR A CALENDAR YEAR APPLIES TO ANNUAL COMPENSATION FOR THAT CALENDAR YEAR BEGINNING THAT JANUARY.** To determine the probation wage index:

1. The administrative office of the courts shall provide to the board pay scales for the month of July for the classifications of probation officers, by county, annually in July.
  2. The board shall determine the weighted average of the change in the top of the pay scale for probation officers. The average change shall be weighted by measuring each county's total number of members divided by the total number of members of all counties represented in the probation wage index.
- D. The board shall establish a probation wage index that reflects the calculation made pursuant to subsection C of this section.
- E. For the purposes of this section, "probation officers" means the classifications of probation officers or surveillance officers or their equivalent classifications.

# PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM

PSPRS   CORP   EORP   EODCRS

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## PSPRS Trust Risk Report



Serving Those Who Serve Others



# Agenda - PSPRS Trust Portfolio Risk as of July 31, 2018

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## Current Realized and Forecasted Levels of PSPRS Trust Portfolio Risk

Slide 3

- Volatility and Value at Risk (VAR)

Slide 3

- Comparison with Historical Levels

Slide 4

- Risk Contributions of all Asset Classes to Total Portfolio Risk

Slide 5

- Exposure to Major Market Factors on both Asset-Class and Global Trust Levels

Slides 6-7

- Stress Test Results

Slide 8

- Upside and Downside Returns

Slide 9

- Conclusions

Slide 10



# Current Status

Based on Current Holdings 07/31/18

PSPRS Trust 07/31/2018	Portfolio Weight	Historic Volatility* (12m Std. Dev.)	Monthly Volatility (Forecast)	Monthly VAR Forecast (95% Confidence)
US Equity	16.2%	2.3%	3.3%	-5.1%
Private Equity	12.8%	1.4%	4.3%	-7.0%
Int'l Equity	14.8%	2.6%	4.0%	-5.4%
Real Estate	8.3%	1.1%	3.3%	-6.5%
Risk Parity	4.1%	1.6%	2.8%	-3.7%
Real Assets	8.7%	1.3%	2.1%	-2.6%
GTS**	10.8%	1.1%	2.0%	-2.2%
Fixed Income	5.0%	0.6%	1.0%	-0.9%
Private Credit	15.3%	0.5%	2.2%	-2.9%
PSPRS Trust	96.0%	0.9%***	2.0%	-2.5%

\* For comparison, the monthly volatility of the S&P 500 over the past ten years has been 4.3% per month, or 15.0% per year.

\* All risk values reported as monthly risk based on the past year of returns.

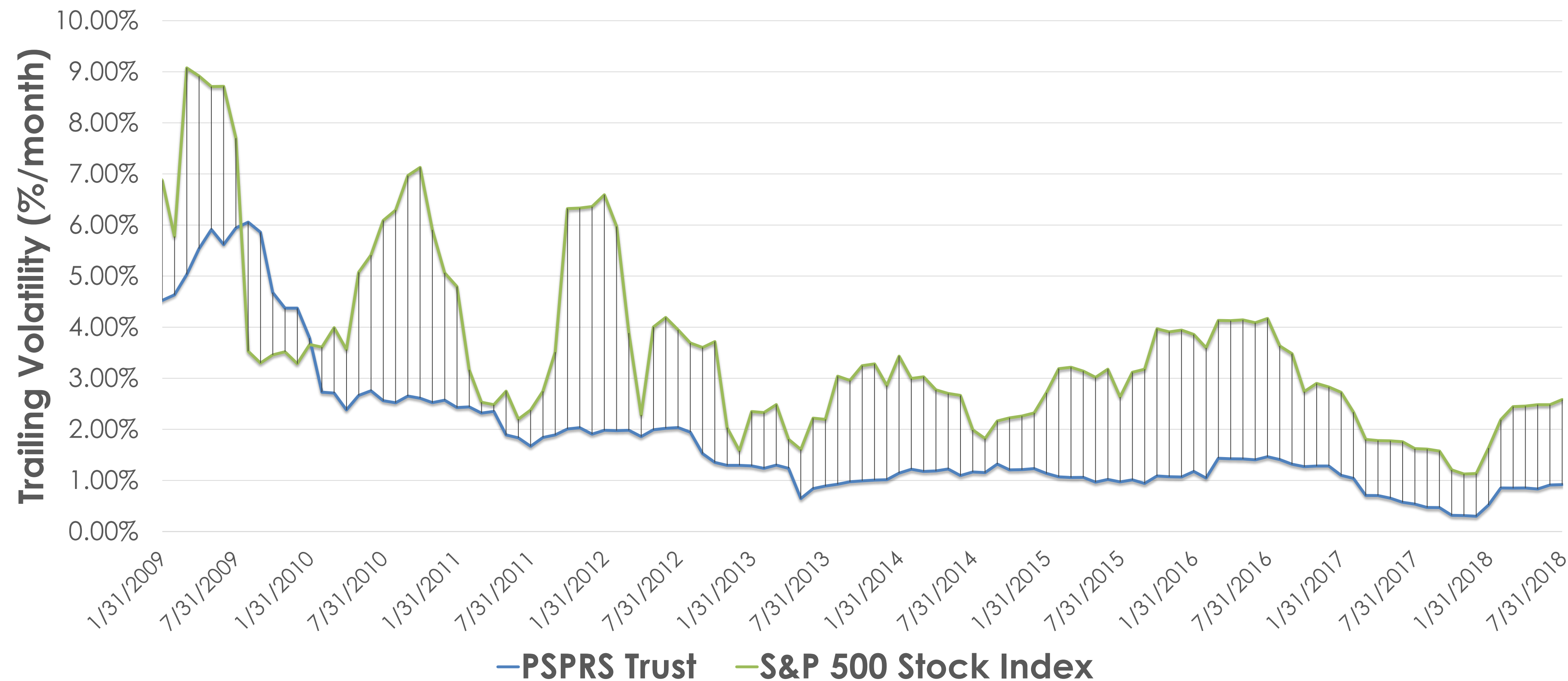
\*\* GTS monthly performance (8/31/2016 – 7/31/2017) was derived from Absolute Return and GTAA.

\*\*\* For comparison, a volatility of 1.0% per month, corresponds to 3.5% per year.

**The historic volatility and forecasted VAR for the most of the asset classes were slightly lower compared to last month.**

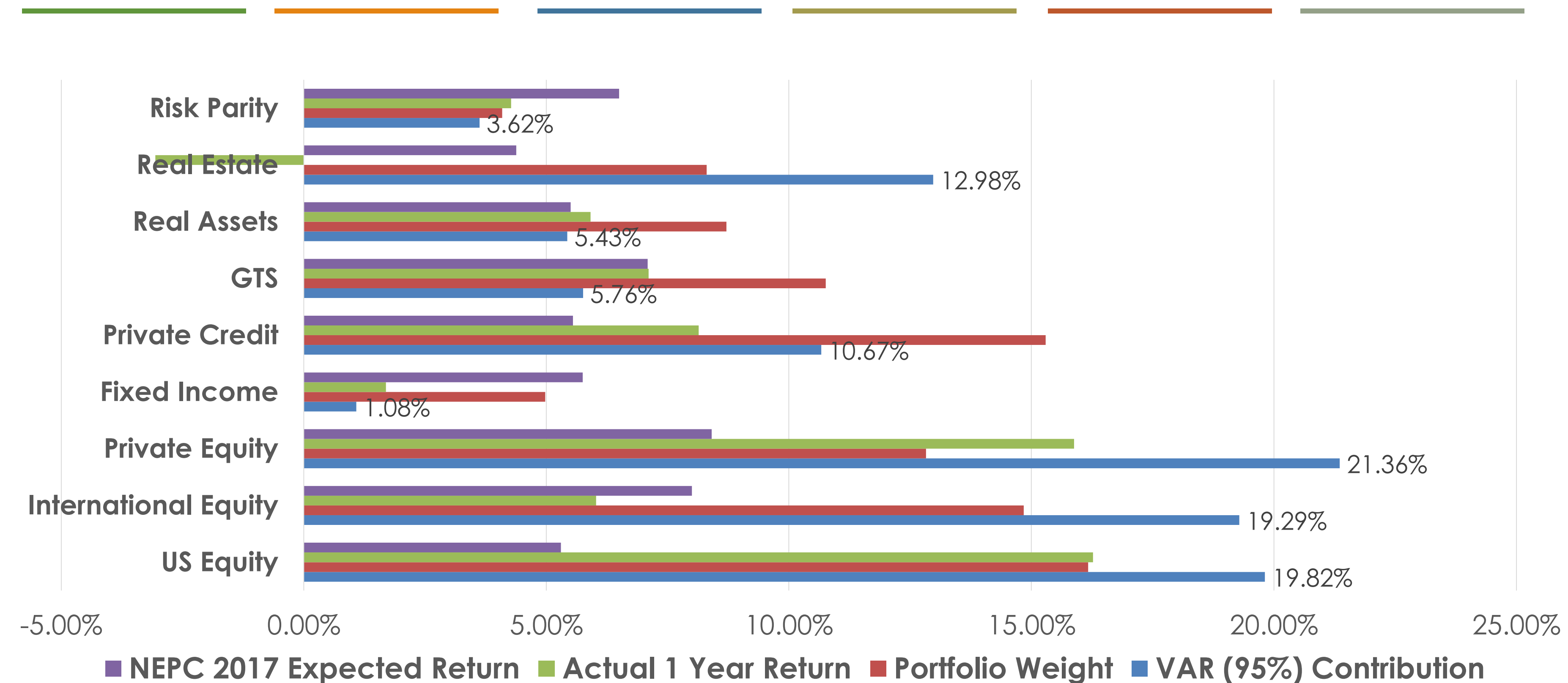
\* Definition of 95% monthly VAR (used here): The maximum amount that could be lost over any one month period, with 95% confidence (in other words, with the exception of one month in 20, in which that maximum amount would be exceeded).

# Volatility Comparison – 12 Month Trailing Volatility



PSPRS Trust global portfolio was 65% less volatile than the market.

# Risk Decomposition by Asset Class (Measured as “VAR”)



## Relative Shifting in Marginal VAR Contributions:

- Risk Parity: increased by 0.85%;
- Real Assets: increased by 0.75%;
- Real Estate: Decreased by 1.21%;
- Private Equity: decreased by 0.83%.

# Notable Drivers of Asset Class Risk

PSPRS Portfolio	Portfolio Weight	Primary Driver	Secondary Driver	Fraction Explained
US Equity	16.2%	Russell 2000 (small caps)	Change in VIX	88%
Private Equity	12.8%	Russell 2000 (small caps)	Change in VIX	73%
International Equity	14.8%	Russell 2000 (small caps)	Change in VIX	60%
Real Estate	8.3%	Credit Spread (BAA-AAA)	Russell 2000 (small caps)	59%
Risk Parity	4.1%	--	--	-
Real Assets	8.7%	Russell 2000 (small caps)	Oil	42%
GTS	10.8%	--	--	-
Fixed Income	5.0%	Oil	Change in US 10Y Note	32%
Private Credit	15.3%	Russell 2000 (small caps)	Change in US 1M T-Bill	48%

\* \*Values in yellow/red indicate an inverse relation.

\* We note the significant conclusion that our inability to model GTS and Risk Parity portfolios - using fundamental market or economic factors - is an indication of successful design and implementation of these investment portfolios.

All the risk drivers remained consistent with last month.

# Notable Drivers of Portfolio Risk

- As with past months, risk modeling indicates that the PSPRS global portfolio is subject – in part – to two main drivers (explaining 92% of variance, or market risk):
  - Russell 2000 Total Return
  - Treasury Spread 10Y-3M
- We report the (all other things being equal) results of stress tests on these drivers in order to gauge our exposure to them.

Market Factor Change	Portfolio Return
Russell 2000 Total Return-3 std	-6.2%
Russell 2000 Total Return-2 std	-4.2%
Russell 2000 Total Return-1 std	-2.3%
Russell 2000 Total Return+1 std	3.6%
Russell 2000 Total Return+2 std	5.6%
Russell 2000 Total Return+3 std	7.5%

Market Factor Change	Portfolio Return
Treasury Spread 10Y-3M-3 std	2.1%
Treasury Spread 10Y-3M-2 std	2.0%
Treasury Spread 10Y-3M-1 std	1.9%
Treasury Spread 10Y-3M+1 std	1.5%
Treasury Spread 10Y-3M+2 std	1.4%
Treasury Spread 10Y-3M+3 std	1.3%

Stress testing portfolio risk drivers showed a positive performance asymmetry.

# Historical Worst-Case Scenarios

**Stress Testing:** The style analysis model of our current holdings can be subjected to stress scenarios.

Events	Today's Portfolio	PSPRS Trust Actual
WTC Attacks - Sept. 11	-4.2%	-11.7%
Stock Market Crash 2002	-1.6%	-21.1%
August Crisis 2007	1.8%	1.6%
January Crisis 2008	-1.8%	-2.7%
Credit Crunch 2008 (Aug to Nov)	-11.6%	-23.1%
Crisis 2009 (Jan-Feb)	-4.3%	-12.9%
Flash Crash 2010	-2.2%	-3.7%
Brexit (2016)	0.6%	-0.3%

Today's portfolio continued to outperform the Actual in the historical stress scenarios.

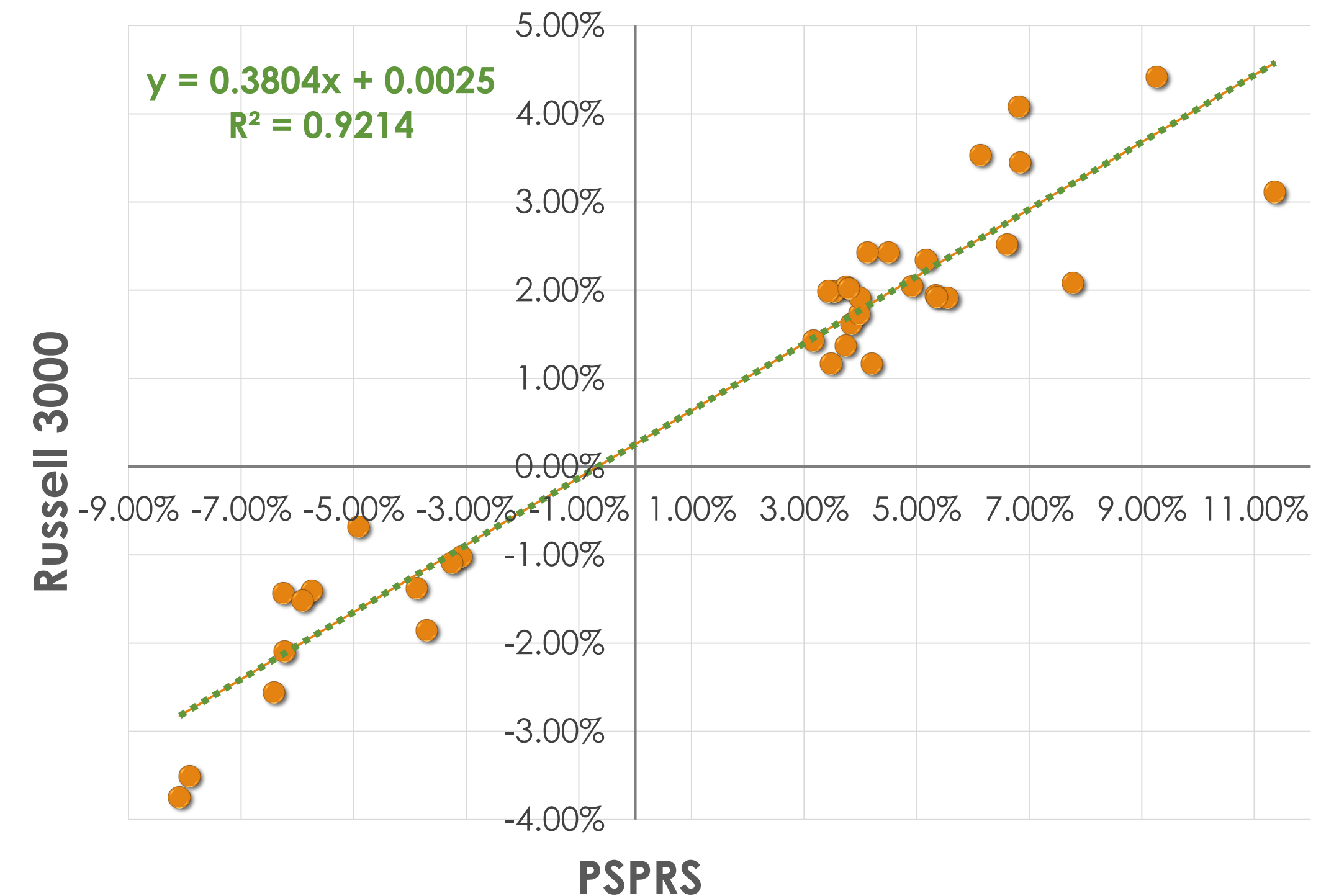


# Upside and Downside Returns

## Actual Portfolio Returns During Market Upside and Downside

Upside			In 6-month	
Period	Russell 3000	PSPRS Actual	Russell 3000	PSPRS Actual
10/31/2011	11.4%	3.1%	4%	1%
9/30/2010	9.3%	4.4%	21%	11%
10/31/2015	7.8%	2.1%	1%	2%
3/31/2016	6.9%	3.4%	4%	4%
7/31/2010	6.8%	4.1%	26%	11%

Downside			In 6-month	
Period	Russell 3000	PSPRS Actual	Russell 3000	PSPRS Actual
5/31/2010	-8.1%	-3.7%	16%	11%
9/30/2011	-7.9%	-3.5%	24%	7%
5/31/2012	-6.4%	-2.6%	9%	7%
8/31/2015	-6.2%	-1.4%	3%	2%
8/31/2011	-6.2%	-2.1%	15%	4%



- Upside participation: 44%
- Downside mitigation: 69% (31% participation)

# Conclusions



- Overall, the Trust had a stable risk profile in July. While the historic volatility and forecasted monthly VAR for the total portfolio remained the same, several asset classes experienced minor decreases. In addition, the diversified Trust portfolio was 65% less volatile compared to the S&P 500 on the trailing basis.
- In terms of the asset class and total portfolio risk drivers, no changes were observed this month. Nevertheless, the Trust portfolio continued to show a positive performance asymmetry from stress testing the risk factors separately, which was also supported by the worst-case scenario tests and the market upside and downside analysis.
- In addition to the PSPRS Trust being:
  - Top decile on risk-terms since 2009.
  - Top quartile in efficiency (Sharpe Ratio) terms since 2010.



# Contact Us

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## Arizona PSPRS Trust - Performance as of 7/31/2018 (Gross of Fees)

Description	Asset Allocation		7/1/2017		Performance %							
	Market Values (\$)	%	Target (%)	Range (%)	Month Ending	3 Month Ending	Fiscal YTD	Calendar YTD	1 Year	3 Years	5 Years	10 Years
<b>Arizona PSPRS Trust - Total Fund</b>	<b>\$10,146,841,418</b>	<b>100.00%</b>			<b>1.03%</b>	<b>1.19%</b>	<b>1.03%</b>	<b>3.30%</b>	<b>7.97%</b>	<b>7.32%</b>	<b>7.56%</b>	<b>5.98%</b>
<i>Target Fund Benchmark*</i>					<b>1.56%</b>	<b>2.14%</b>	<b>1.56%</b>	<b>2.92%</b>	<b>7.81%</b>	<b>7.14%</b>	<b>7.10%</b>	<b>5.57%</b>
Total Equity	\$3,146,831,660	31.01%	<b>30%</b>	19-41%	2.77%	2.71%	2.77%	3.04%	11.34%	9.00%	8.84%	7.30%
<i>Target Equity Benchmark*</i>					2.89%	2.78%	2.89%	2.83%	11.45%	9.32%	9.47%	7.49%
U.S. Equity	\$1,640,799,353	16.17%	<b>16%</b>	10-22%	3.25%	6.70%	3.25%	6.62%	16.27%	11.50%	11.60%	<b>N/A</b>
<i>Russell 3000</i>					3.32%	6.93%	3.32%	6.64%	16.39%	12.18%	12.83%	10.68%
Non-U.S. Equity	\$1,506,032,307	14.84%	<b>14%</b>	9-19%	2.21%	-1.56%	2.21%	-0.84%	6.03%	6.08%	5.62%	<b>N/A</b>
<i>MSCI ACWI Ex-US Net</i>					2.39%	-1.85%	2.39%	-1.46%	5.94%	6.00%	5.59%	3.16%
Private Equity	\$1,301,626,929	12.83%	<b>12%</b>	7-17%	-0.50%	3.56%	-0.50%	8.80%	15.88%	13.89%	16.67%	13.19%
<i>Russell 3000 + 100 bps</i>					3.39%	7.17%	3.39%	7.23%	17.39%	13.18%	13.83%	12.02%
Fixed Income	\$504,954,897	4.98%	<b>5%</b>	2-9%	0.60%	-0.37%	0.60%	0.20%	1.69%	3.35%	3.79%	4.37%
<i>Fixed Income Blended Benchmark*</i>					-0.05%	-1.25%	-0.05%	-1.51%	-0.37%	2.49%	1.23%	3.08%
Private Credit	\$1,551,927,035	15.29%	<b>16%</b>	10-20%	0.90%	1.95%	0.90%	4.28%	8.14%	7.37%	7.77%	7.75%
<i>50% BofA ML US High Yield BB-B Constr./ 50% CSFB Fixed Income Arbitrage</i>					0.75%	0.48%	0.75%	1.26%	2.70%	4.77%	4.57%	6.01%
Global Trading Strategies	\$1,091,934,675	10.76%	<b>12%</b>	7-17%	-0.18%	0.72%	-0.18%	3.29%	7.11%	3.43%	4.98%	<b>N/A</b>
<i>3-Month LIBOR + 300 bps</i>					0.43%	1.31%	0.43%	2.98%	4.81%	4.11%	3.77%	3.71%
Real Assets	\$884,009,714	8.71%	<b>9%</b>	6-14%	0.95%	0.90%	0.95%	5.15%	5.91%	7.90%	5.28%	<b>N/A</b>
<i>CPI + 200 bps</i>					0.39%	1.27%	0.39%	2.79%	4.89%	3.83%	3.54%	N/A
Real Estate	\$842,812,247	8.31%	<b>10%</b>	6-14%	0.31%	-5.84%	0.31%	-2.24%	-3.06%	2.19%	2.11%	-0.13%
<i>NCREIF NPI **</i>					0.60%	1.81%	0.60%	4.16%	7.23%	8.10%	9.72%	6.29%
Risk Parity	\$414,936,740	4.09%	<b>4%</b>	2-6%	0.07%	-0.88%	0.07%	-1.07%	4.27%	3.67%	3.88%	<b>N/A</b>
<i>60% Bloomberg BC Global Aggregate/ 30% MSCI AC World Net/ 10% Bloomberg Commodity TR</i>					0.59%	-0.47%	0.59%	-0.36%	3.25%	4.10%	2.78%	2.86%
Short Term Investments <sup>†</sup>	\$407,807,521	4.02%	<b>2%</b>	0-5%	0.20%	1.12%	0.20%	2.24%	3.14%	2.47%	2.11%	1.66%
<i>BofA ML 3-Month T-Bill</i>					0.16%	0.48%	0.16%	0.97%	1.43%	0.73%	0.45%	0.35%

\* Please see Page 2 for additional notes regarding the benchmarks and effective dates.

\*\* The NCREIF NPI index return is published on a quarterly basis approximately six weeks after the end of the quarter and will be updated as soon as it is available. The monthly returns shown above are based on geometric smoothing of the quarterly data.

<sup>†</sup> - The returns for Short Term Investments account for both the interest on cash holdings and the revenue from securities lending.

**Target Fund Benchmarks/ Effective Dates:**

July 1, 2017 to Present: 16% Russell 3000, 14% MSCI World Ex-US Net, 12% Russell 3000 + 100 bps, 5% Fixed Income Blended Benchmark, 16% Private Credit (fka Credit Opportunities) Benchmark, 12% 3-Month LIBOR + 300 bps, 9% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2016 to June 30, 2017: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 5% Fixed Income Blended Benchmark, 15% Credit Opportunities Benchmark, 5% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2015 - June 30, 2016: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 7% Fixed Income Blended Benchmark, 13% Credit Opportunities Benchmark, 5% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2014 - June 30, 2015: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 7% Fixed Income Blended Benchmark, 13% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 11% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2013 - June 30, 2014: 17% Russell 3000, 14% MSCI ACWI Ex-US Net, 10% Russell 3000 + 100 bps, 8% Fixed Income Blended Benchmark, 12% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 11% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2012 - June 30, 2013: 18% Russell 3000, 14% MSCI World Ex-US Net, 9% Russell 3000 + 100 bps, 12% Fixed Income Blended Benchmark, 12% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 8% 3-Month LIBOR + 300 bps, 7% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2010 - June 30, 2012: 20% Russell 3000, 15% MSCI World Ex-US Net, 8% 3-Month LIBOR + 300 bps, 20% Fixed Income Blended Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 9% BofA ML US High Yield BB-B Constrained, 8% Russell 3000 + 100 bps, 6% CPI + 200 bps, 8% NCREIF NPI and 2% BofA ML 3-Month T-Bill.

April 1, 2009 - June 30, 2010: 30% Russell 3000, 20% MSCI World Ex-US Net, 20% Fixed Income Blended Benchmark, 8% NCREIF NPI, 8% Russell 3000 + 100 bps, 8% BofA ML US High Yield BB-B Constrained, 5% CPI + 200 bps and 1% BofA ML 3-Month T-Bill.

July 1, 2007 - March 31, 2009: 46% Wilshire 5000, 21% MSCI World Ex-US Net, 20% Fixed Income Blended Benchmark, 6% NCREIF NPI, 6% Wilshire 5000 + 300 bps and 1% BofA ML 3-Month T-Bill.

**Target Total Equity Benchmarks/ Effective Dates:**

July 1, 2014 to Present: 53.33% Russell 3000 and 46.67% MSCI World Ex-US Net.

July 1, 2013 to June 30, 2014: 54.84% Russell 3000 and 45.16% MSCI ACWI Ex-US Net.

July 1, 2012 - June 30, 2013: 56.25% Russell 3000 and 43.75% MSCI World Ex-US Net.

July 1, 2010 - June 30, 2012: 57.14% Russell 3000 and 42.86% MSCI World Ex-US Net.

April 1, 2009 - June 30, 2010: 60% Russell 3000 and 40% MSCI World Ex-US Net.

July 1, 2007 - March 31, 2009: 67.69% Wilshire 5000 and 32.31% MSCI World Ex-US Net.

**Target Fixed Income Benchmarks/ Effective Dates:**

July 1, 2018 to Present: 20% Bloomberg Barclays Global Aggregate *ex*-US and 80% Bloomberg Barclays U.S. Aggregate.

July 1, 2012 - June 30, 2018 - 100% Bloomberg Barclays Global Aggregate.

April 1, 2009 - June 30, 2012: 100% Bloomberg Barclays U.S. Aggregate.

July 1, 2002 - March 31, 2009 - 100% Bloomberg Barclays U.S. Government/Credit Composite.

## Public Safety Cancer Insurance Policy (CIP) Program - Performance as of 7/31/2018 (Net of Fees)

Description	Asset Allocation		Target (%)	Performance %							
	Market Values (\$)	%		Month Ending	3 Month Ending	Fiscal YTD	Calendar YTD	1 Year	3 Years	5 Years	10 Years
<b>CIP - Total Fund</b>	<b>\$26,037,287</b>	<b>100.00%</b>		<b>1.53%</b>	<b>1.78%</b>	<b>1.53%</b>	<b>1.44%</b>	<b>6.65%</b>	<b>6.45%</b>	<b>6.71%</b>	<b>6.61%</b>
<i>Target Fund Benchmark*</i>				<b>1.26%</b>	<b>0.57%</b>	<b>1.26%</b>	<b>0.56%</b>	<b>5.38%</b>	<b>5.82%</b>	<b>5.34%</b>	<b>5.35%</b>
U.S. Equity	\$6,920,068	26.58%	<b>25%</b>	3.32%	6.88%	3.32%	6.76%	16.63%	12.33%	12.80%	10.14%
<i>Russell 3000</i>				3.32%	6.93%	3.32%	6.64%	16.39%	12.18%	12.83%	10.68%
Non-U.S. Equity	\$6,497,550	24.95%	<b>25%</b>	2.63%	-1.18%	2.63%	-0.86%	6.20%	6.40%	5.88%	<b>N/A</b>
<i>MSCI ACWI Ex-US Net</i>				2.39%	-1.85%	2.39%	-1.46%	5.94%	6.00%	5.59%	3.16%
Fixed Income	\$8,044,118	30.89%	<b>30%</b>	0.05%	0.56%	0.05%	-0.37%	0.84%	2.13%	2.54%	3.84%
<i>Fixed Income Blended Benchmark - CIP**</i>				-0.05%	-1.25%	-0.05%	-1.51%	-0.37%	2.49%	0.88%	3.03%
Inflation-Linked Securities	\$2,620,859	10.07%	<b>10%</b>	-0.53%	0.44%	-0.53%	-0.68%	0.90%	1.49%	<b>N/A</b>	<b>N/A</b>
<i>Bloomberg Barclays U.S. TIPS Index</i>				-0.48%	0.34%	-0.48%	-0.51%	1.17%	1.69%	1.43%	3.04%
Commodities	\$835,282	3.21%	<b>5%</b>	1.72%	3.19%	1.72%	0.56%	5.97%	10.69%	<b>N/A</b>	<b>N/A</b>
<i>SPDR® Gold Trust Index (GLD)</i>				-2.24%	-6.90%	-2.24%	-6.19%	-3.94%	3.40%	-1.95%	2.56%
Short Term Investments <sup>†</sup>	\$1,119,410	4.30%	<b>5%</b>	0.19%	0.69%	0.19%	2.79%	6.69%	4.51%	4.48%	2.77%
<i>BofA ML 3-Month T-Bill</i>				0.16%	0.48%	0.16%	0.97%	1.43%	0.73%	0.45%	0.35%

<sup>†</sup> - The returns for Short Term Investments account for both the interest on cash holdings and the revenue from securities lending.

**\* Target Fund Benchmarks/ Effective Dates:**

July 1, 2014 to Present: 25% Russell 3000, 25% MSCI ACWI Ex-US Net, 30% Fixed Income Blended Benchmark - CIP, 10% Barclays U.S. TIPS, 5% GLD Index Return, 5% BofA ML 3-Month T-Bill.

July 1, 2009 - June 30, 2014: 30% Russell 3000, 30% MSCI ACWI Ex-US Net, 35% Fixed Income Blended Benchmark - CIP, 5% BofA ML 3-Month T-Bill.

July 1, 2002 - June 30, 2009: 60% Russell 3000, 35% Fixed Income Blended Benchmark - CIP, 5% BofA ML 3-Month T-Bill.

**\*\* Target Fixed Income Benchmarks/ Effective Dates:**

July 1, 2018 to Present: 20% Bloomberg Barclays Global Aggregate *ex-US* and 80% Bloomberg Barclays U.S. Aggregate.

July 1, 2014 - June 30, 2018 - 100% Bloomberg Barclays Global Aggregate.

July 1, 2002 - June 30, 2014: 100% Bloomberg Barclays U.S. Aggregate.

## Arizona PSPRS Trust - Performance as of 6/30/2018 (Net of Fees)

Description	Asset Allocation		7/1/2017		Performance %							
	Market Values (\$)	%	Target (%)	Range (%)	Month Ending	3 Month Ending	Fiscal YTD	Calendar YTD	1 Year	3 Years	5 Years	10 Years
<b>Arizona PSPRS Trust - Total Fund</b>	<b>\$9,780,945,306</b>	<b>100.00%</b>			<b>-0.70%</b>	<b>0.53%</b>	<b>7.07%</b>	<b>1.92%</b>	<b>7.07%</b>	<b>6.41%</b>	<b>7.18%</b>	<b>5.48%</b>
<i>Target Fund Benchmark *</i>					<b>0.07%</b>	<b>1.04%</b>	<b>7.74%</b>	<b>1.34%</b>	<b>7.74%</b>	<b>6.79%</b>	<b>7.32%</b>	<b>5.28%</b>
Total Equity	\$3,018,581,006	30.86%	<b>30%</b>	19-41%	-0.45%	0.86%	10.90%	0.19%	10.90%	7.94%	9.04%	7.04%
<i>Target Equity Benchmark *</i>					-0.53%	0.84%	11.28%	-0.06%	11.28%	8.56%	9.91%	7.00%
U.S. Equity	\$1,613,409,032	16.50%	<b>16%</b>	10-22%	0.58%	3.67%	14.32%	3.21%	14.32%	10.40%	11.75%	<b>N/A</b>
<i>Russell 3000</i>					0.65%	3.89%	14.78%	3.22%	14.78%	11.58%	13.29%	10.23%
Non-U.S. Equity	\$1,405,171,974	14.37%	<b>14%</b>	9-19%	-1.62%	-2.19%	7.14%	-3.08%	7.14%	5.07%	5.86%	<b>N/A</b>
<i>MSCI ACWI Ex-US Net</i>					-1.88%	-2.61%	7.28%	-3.77%	7.28%	5.07%	5.99%	2.54%
Private Equity	\$1,311,718,197	13.41%	<b>12%</b>	7-17%	0.44%	4.54%	12.90%	8.34%	12.90%	12.58%	15.27%	11.36%
<i>Russell 3000 + 100 bps</i>					0.72%	4.20%	15.78%	3.71%	15.78%	12.59%	14.30%	11.57%
Fixed Income	\$502,246,706	5.13%	<b>5%</b>	2-9%	0.13%	-0.97%	1.80%	-0.43%	1.80%	3.31%	3.64%	4.16%
<i>Bloomberg BC Global Aggregate</i>					-0.44%	-2.78%	1.36%	-1.46%	1.36%	2.58%	1.50%	2.58%
Private Credit	\$1,553,289,959	15.88%	<b>16%</b>	10-20%	0.09%	1.47%	6.55%	3.00%	6.55%	6.46%	7.07%	6.37%
<i>50% BofA ML US High Yield BB-B Cnstr/ 50% CSFB Fixed Inc Arb</i>					0.20%	0.19%	2.91%	0.50%	2.91%	4.51%	4.64%	5.84%
Global Trading Strategies	\$1,093,905,513	11.18%	<b>12%</b>	7-17%	0.75%	0.55%	7.54%	3.25%	7.54%	3.36%	4.71%	<b>N/A</b>
<i>3-Month LIBOR + 300 bps</i>					0.43%	1.31%	4.72%	2.53%	4.72%	4.06%	3.73%	3.71%
Real Assets	\$773,127,236	7.90%	<b>9%</b>	6-14%	-0.22%	-0.22%	3.85%	3.48%	3.85%	5.73%	4.26%	<b>N/A</b>
<i>CPI + 200 bps</i>					0.50%	1.13%	4.80%	2.39%	4.80%	3.82%	3.54%	N/A
Real Estate	\$838,491,293	8.57%	<b>10%</b>	6-14%	-7.37%	-6.35%	-4.07%	-2.95%	-4.07%	1.30%	1.37%	-1.11%
<i>NCREIF NPI **</i>					0.60%	1.81%	7.19%	3.54%	7.19%	8.25%	9.77%	6.22%
Risk Parity	\$414,746,618	4.24%	<b>4%</b>	2-6%	-1.31%	-0.22%	5.38%	-1.17%	5.38%	3.33%	4.07%	<b>N/A</b>
<i>60% Barclays BC Global Aggregate/ 30% MSCI AC World Net/ 10% Bloomberg Commodity Index TR</i>					-0.78%	-1.46%	4.77%	-0.95%	4.77%	3.67%	3.13%	2.60%
Short Term Investments <sup>I</sup>	\$274,838,776	2.81%	<b>2%</b>	0-5%	0.57%	1.25%	3.00%	2.01%	3.00%	2.39%	2.01%	1.59%
<i>BofA ML 3-Month T-Bill</i>					0.17%	0.45%	1.36%	0.81%	1.36%	0.68%	0.42%	0.35%

\* Please see Page 2 for additional notes regarding the blended benchmarks and effective dates.

\*\* The NCREIF NPI index return is published on a quarterly basis approximately six weeks after the end of the quarter and will be updated as soon as it is available. The monthly returns shown above are based on geometric smoothing of the quarterly data.

I - The returns for Short Term Investments account for both the interest on cash holdings and the revenue from securities lending.

**Target Fund Benchmarks/ Effective Dates:**

July 1, 2017 to June 30, 2018: 16% Russell 3000, 14% MSCI World Ex-US Net, 12% Russell 3000 + 100 bps, 5% BC Global Aggregate, 16% Private Credit (fka Credit Opportunities) Benchmark, 12% 3-Month LIBOR + 300 bps, 9% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2016 to June 30, 2017: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 5% BC Global Aggregate, 15% Credit Opportunities Benchmark, 5% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2015 - June 30, 2016: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 7% BC Global Aggregate, 13% Credit Opportunities Benchmark, 5% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2014 - June 30, 2015: 16% Russell 3000, 14% MSCI World Ex-US Net, 11% Russell 3000 + 100 bps, 7% BC Global Aggregate, 13% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 11% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2013 - June 30, 2014: 17% Russell 3000, 14% MSCI ACWI Ex-US Net, 10% Russell 3000 + 100 bps, 8% BC Global Aggregate, 12% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 10% 3-Month LIBOR + 300 bps, 8% CPI + 200 bps, 11% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2012 - June 30, 2013: 18% Russell 3000, 14% MSCI World Ex-US Net, 9% Russell 3000 + 100 bps, 12% BC Global Aggregate, 12% Credit Opportunities Benchmark, 4% BofA ML 3-Month T-Bill + 200 bps, 8% 3-Month LIBOR + 300 bps, 7% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.

July 1, 2010 - June 30, 2012: 20% Russell 3000, 15% MSCI World Ex-US Net, 8% 3-Month LIBOR + 300 bps, 20% BC US Aggregate, 4% BofA ML 3-Month T-Bill + 200 bps, 9% BofA ML US High Yield BB-B Constrained, 8% Russell 3000 + 100 bps, 6% CPI + 200 bps, 8% NCREIF NPI and 2% BofA ML 3-Month T-Bill.

April 1, 2009 - June 30, 2010: 30% Russell 3000, 20% MSCI World Ex-US Net, 20% BC US Aggregate, 8% NCREIF NPI, 8% Russell 3000 + 100 bps, 8% BofA ML US High Yield BB-B Constrained, 5% CPI + 200 bps and 1% BofA ML 3-Month T-Bill.

July 1, 2007 - March 31, 2009: 46% Wilshire 5000, 21% MSCI World Ex-US Net, 20% BC Gov/Cred, 6% NCREIF NPI, 6% Wilshire 5000 +300 bps and 1% BofA ML 3-Month T-Bill.

July 1, 2006 - June 30, 2007: 50% S&P 500, 10% S&P 400, 5% S&P 600, 20% BC Gov/Cred, 10% Expected Annual Return for Real Estate of 8.00% and 5% BofA ML 3-Month T-Bill.

July 1, 2002 - June 30, 2006: 45% S&P 500, 45% BC Gov/Cred and 10% BofA 3-Month T-Bill.

**Target Total Equity Benchmarks/ Effective Dates:**

July 1, 2014 to Present: 53.33% Russell 3000 and 46.67% MSCI World Ex-US Net.

July 1, 2013 to June 30, 2014: 54.84% Russell 3000 and 45.16% MSCI ACWI Ex-US Net.

July 1, 2012 - June 30, 2013: 56.25% Russell 3000 and 43.75% MSCI World Ex-US Net.

July 1, 2010 - June 30, 2012: 57.14% Russell 3000 and 42.86% MSCI World Ex-US Net.

April 1, 2009 - June 30, 2010: 60% Russell 3000 and 40% MSCI World Ex-US Net.

July 1, 2007 - March 31, 2009: 67.69% Wilshire 5000 and 32.31% MSCI World Ex-US Net.

July 1, 2006 - June 30, 2007: 76.92% S&P 500, 15.39% S&P 400 and 7.69% S&P 600.

July 1, 2002 - June 30, 2006: 100% S&P 500.

## Arizona PSPRS Trust - Historical Calendar Year Performance (Net of Fees)

Calendar Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
<b>Arizona PSPRS Trust - Total Fund</b>	<b>10.71%</b>	<b>7.97%</b>	<b>2.13%</b>	<b>5.77%</b>	<b>12.72%</b>	<b>8.91%</b>	<b>0.56%</b>	<b>9.93%</b>	<b>18.55%</b>	<b>-26.78%</b>
<i>Target Fund Benchmark</i>	<i>12.92%</i>	<i>7.73%</i>	<i>1.01%</i>	<i>5.36%</i>	<i>12.85%</i>	<i>11.11%</i>	<i>2.26%</i>	<i>9.55%</i>	<i>19.49%</i>	<i>-29.57%</i>

# ARIZONA PSPRS Trust - Final NOF Investment Returns as of 6/30/2018

		Performance % (NET OF FEES)							
	Total Market Value	Month Ending	3 Month Ending	Fiscal YTD	Calendar YTD	1 Year	3 Years	5 Years	10 Years
Arizona PSPRS Trust - Total Fund	\$9,780,945,306	-0.70%	0.53%	7.07%	1.92%	7.07%	6.41%	7.18%	5.48%
Target Fund Benchmark*		0.07%	1.04%	7.74%	1.34%	7.74%	6.79%	7.32%	5.28%

	Historical Calendar Year Returns (NET OF FEES)									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Arizona PSPRS Trust - Total Fund	10.71%	7.97%	2.13%	5.77%	12.72%	8.91%	0.56%	9.93%	18.55%	-26.78%
Target Fund Benchmark*	12.92%	7.73%	1.01%	5.36%	12.85%	11.11%	2.26%	9.55%	19.49%	-29.57%

\* AZ PSPRS Trust Total Fund Custom Benchmark (current): 16% Russell 3000, 14% MSCI World Ex-US Net, 12% Russell 3000 + 100 bps, 5% BC Global Aggregate, 16% Private Credit (fka Credit Opportunities) Benchmark, 12% 3-Month LIBOR + 300 bps, 9% CPI + 200 bps, 10% NCREIF NPI, 4% Risk Parity Benchmark and 2% BofA ML 3-Month T-Bill.



# When Indexing Works and When It Doesn't in US Equities: *The Purity Hypothesis*

Bill Thatcher, CFA, CAIA  
Portfolio Manager, Arizona PSPRS Trust



# ***Publications and Press***

Bill Thatcher. “When Indexing Works and When It Doesn’t in US Equities: The Purity Hypothesis.” *The Journal of Investing*. Fall 2009, pp. 8-11.

Karen Hube. “When Indexing Really Shines.” *The Wall Street Journal*. November 2, 2009.

Bill Thatcher. “When Indexing Works and When It Doesn’t in US Equities: An Update of the Purity Hypothesis.” *The Journal of Index Investing*. Winter 2012, pp. 18-26.

Forthcoming: Bill Thatcher. “When Indexing Wins and When It Doesn’t in US Equities: Updating and Extending the Purity Hypothesis.” *The Journal of Index Investing*. Winter, 2018.



# ***How The Purity Hypothesis Works***

	VALUE	CORE	GROWTH
LARGE			
MID			
SMALL			



# How The Purity Hypothesis Works

	VALUE	CORE	GROWTH
LARGE			<b>BEST PERFORMING STYLE CATEGORY INDEXING WINS</b>
MID			
SMALL	<b>WORST PERFORMING STYLE CATEGORY ACTIVE MGT. WINS</b>		



*Active managers often invest outside their style box*

# ***Evidence for The Purity Hypothesis***

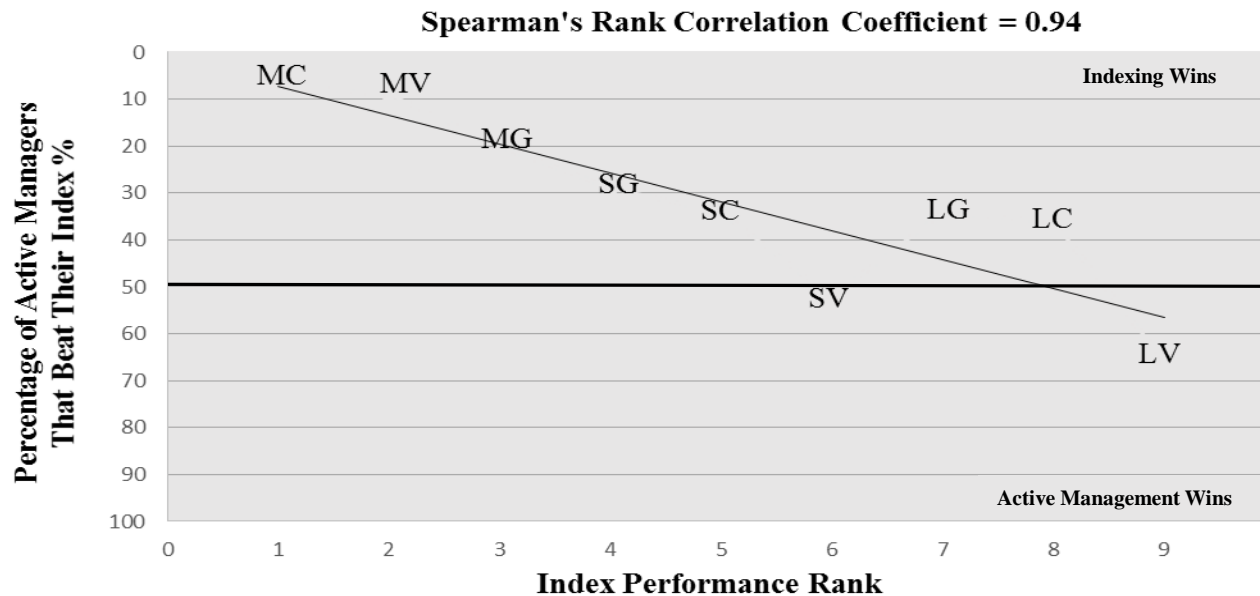
## **Index Versus Active Performance Analysis Russell Domestic Equity Indexes Ranked by Performance Against Corresponding Active Managers 15 Years Ended 2017**

Index	Annualized Performance %	Index Performance Rank	Percentage of Active Managers That Beat Their Index %	Style Category Abbreviation
Russell Midcap	12.07	1	7	MC - Mid Core
Russell Midcap Value	11.97	2	9	MV - Mid Value
Russell Midcap Growth	11.96	3	20	MG - Mid Growth
Russell 2000 Growth	11.57	4	29	SG - Small Growth
Russell 2000	11.17	5	34	SC - Small Core
Russell 2000 Value	10.66	6	52	SV - Small Value
Russell Top 200 Growth	10.41	7	34	LG - Large Growth
Russell Top 200	9.50	8	36	LC - Large Core
Russell Top 200 Value	8.54	9	66	LV - Large Value



**Index Versus Active Performance Analysis**  
**Russell Domestic Equity Indexes Ranked by Performance Against Corresponding Active Managers**  
**15 Years Ended 2017**

Index	Annualized Performance %	Index Performance Rank	Percentage of Active Managers That Beat Their Index %	Style Category Abbreviation
Russell Midcap	12.07	1	7	MC - Mid Core
Russell Midcap Value	11.97	2	9	MV - Mid Value
Russell Midcap Growth	11.96	3	20	MG - Mid Growth
Russell 2000 Growth	11.57	4	29	SG - Small Growth
Russell 2000	11.17	5	34	SC - Small Core
Russell 2000 Value	10.66	6	52	SV - Small Value
Russell Top 200 Growth	10.41	7	34	LG - Large Growth
Russell Top 200	9.50	8	36	LC - Large Core
Russell Top 200 Value	8.54	9	66	LV - Large Value



# Evidence for The Purity Hypothesis

	VALUE	CORE	GROWTH	
LARGE	<b>WORST PERFORMING STYLE CATEGORY ACTIVE MGT. WINS</b>			<b>Large value active managers invested in some stocks outside their style box and tended to outperform the benchmark because these stocks were in better performing style categories.</b>
MID		<b>BEST PERFORMING STYLE CATEGORY INDEXING WINS</b>		
SMALL				

**Mid core active managers invested  
in some stocks outside their style box  
and tended to underperform the  
benchmark because these stocks  
were in worse performing style  
categories.**



# ***Evidence for The Purity Hypothesis***

## **When Large US Value > Large US Growth:**

1. Large value active managers underperform the large value index
2. Large growth active managers outperform the large growth index

## **When Large US Growth > Large US Value:**

1. Large growth active managers underperform the large growth index
2. Large value active managers outperform the large value index





# ***Evidence for The Purity Hypothesis***

**Average Monthly Active Equity Manager Excess Return for Large Value,  
Large Core and Large Growth Styles, 1979-2017**

	<b>Large Value</b>	<b>Large Core</b>	<b>Large Growth</b>
During Value Outperformance	-0.4%	-0.1%	0.2%
During Growth Outperformance	0.2%	-0.2%	-0.3%



# *How to Use The Purity Hypothesis*

1. Index the US equity category you think will outperform
2. Go active in the US equity category you think will underperform
3. Outperforming active managers in the best performing US equity style categories may deserve a second look
4. Outperforming active managers in the worst performing US equity style categories may not deserve a second look



# MANAGER SELECTION MATTERS



September 27, 2018 Board of Trustees Annual Meeting



**Alcion Real Estate Partners IV**; PSPRS Asset Class: Real Estate; Considering an investment of up to \$30 million direct and a reserve allocation of up to \$10 million for purposes of co-investment. The fund invests in opportunistic real estate in the United States.

**Iron Point Real Estate Partners IV**; PSPRS Asset Class: Real Estate; Considering an investment of up to \$40 million direct with a reserve allocation of up to \$40 million for purposes of co-investment. This is a re-up for a fund that focuses on value add and opportunistic real estate within the United States.

**Värde Asia Credit Fund Master, L.P.**; PSPRS Asset Class: Private Credit; Considering an investment of up to \$60 million for purposes of direct investment. The fund pursues special situations in Asia corporate credit.

**Castle Creek Capital Partners VII**; PSPRS Asset Class: Private Equity; Considering an investment of up to \$45 million for purposes of direct investment. This is a re-up for a low middle fund, specialized in community banking.

**CONFIDENTIAL**

# PSPRS Annual Meeting 2018

## Qualitative and quantitative Methods and applications

Investment Staff

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# (Mental) Software vs. Hardware

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- Objective analysis of relevant facts
- Software: processing, managing cognitive biases in all forms – today's topic
- Hardware: focusing on the right information – partly for another day



# Primary tools

---

## Intuition/Experience

- Includes formal logic and informal “gut” responses
- Association between ideas
- Objective and subjective
- Informed by cues, experience and feedback
- Often happens automatically

## Quantitative Models

- Formal linear and non-linear approaches
- Objective and subjective
- Requires attention and formal training
- Deliberate interest in cause/effect
- Slow

We can never be perfectly objective, all decisions have an element of subjectivity



# Intuition

Both qualitative and quantitative methods have inadequacies. Using one approach exclusively will likely result in suboptimal outcomes.

## Advantages of using intuition

- Hey, its gotten us this far – evolutionary adaptation
- Can be utilized quickly – jumping to conclusions is an efficient way to make decisions if those decisions are likely correct and the cost of being wrong is acceptable



# Intuition

However, in our quest to discover root causes (if we can explain it, we can control it) our instincts can be “fooled by randomness”.

Imagine everyone in the Rose Bowl (UCLA Stadium) stands up and flips a fair coin. Those that flip “heads” stay standing, while those that flip “tails” sit down

- About 88 of the 90,000 attendees will still be standing after 10 tosses
- Those standing flipped 10 heads in a row but are they expert coin flippers or the products of luck?
- After six more tosses (16 total) one person will likely be standing. Will we attribute the result to luck or something else?





# Common Cognitive Biases

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- Social proof – If everyone is doing it then it must be a good idea

Reality: There's no pride in being the last lemming off the cliff

- Availability bias – The only things that matter are the things I can think of.

Reality: Lots of things you can't think of will likely kill you

- Universal balancing force – Eventually I'll roll a six

Reality: No, you won't. The odds of rolling a six remain the same, regardless of what happened the previous roll

- Base rate neglect – This time its different

Reality: Nothing is completely unique



# Traditional Models

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- Data modeling assumes that the data are generated and can be explained by a given stochastic model.

Dependent variables = function (independent variables, unknown parameters)

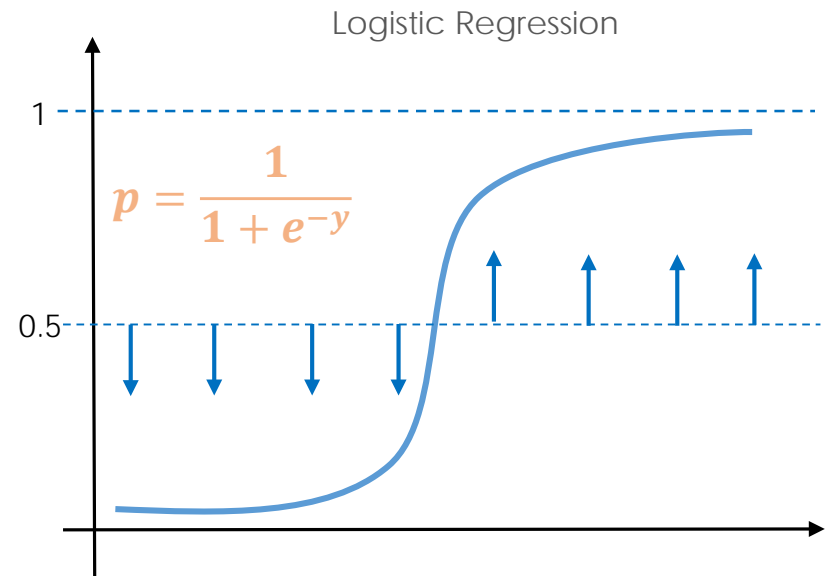
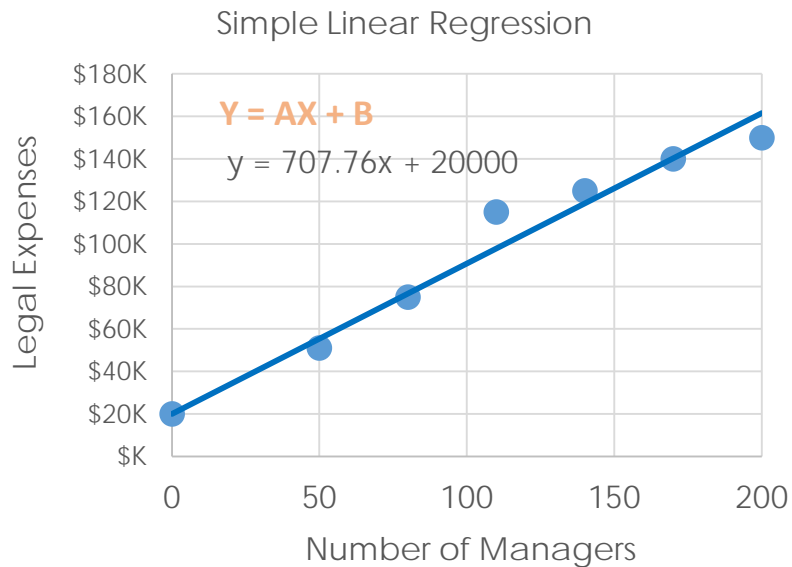
- Goodness-of-fit tests are applied to validate models.
- Examples include: linear regression, multiple linear regression, logistic regression, K-Nearest neighbors etc.
- Bias: often we prefer a wrong map to no map at all

## Advantages

- Models can identify hidden cause/effect relationships
- Identify relative importance of each variable

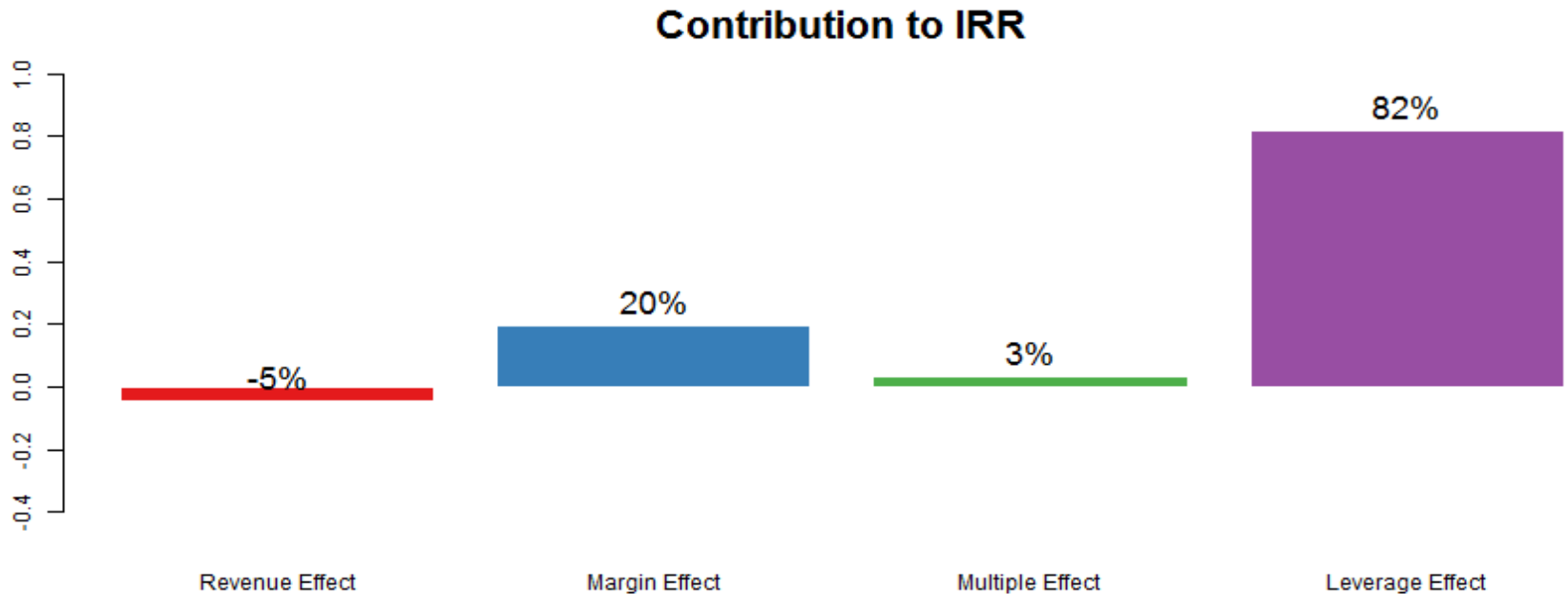


# Examples



# Examples – Due Diligence

- Areas of application:
  - Quantitative investment due diligence
  - Risk analysis
  - Performance evaluation



# Machine Learning (Algorithmic)

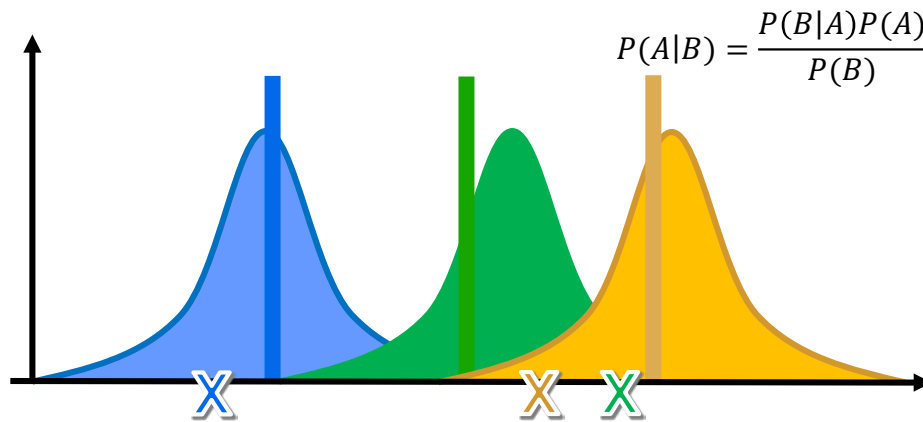
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- Algorithmic analysis is often considered as a black box because unlike data models, algorithmic models do not provide coefficients that quantify the effect of different components.
- The approach is to find an algorithm to predict dependent variables.
- Predictive accuracy is used to validate models.
- Examples include: neural networks, random forest, support vector machine, Apriori etc.

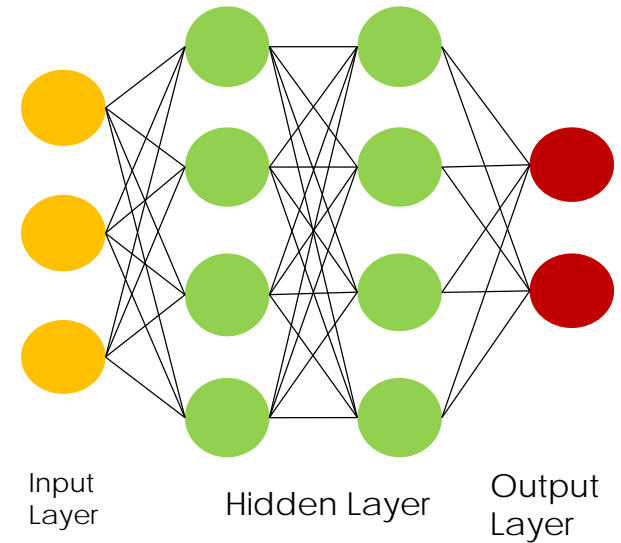


# Examples

Thompson Sampling



Neural Network  
Feed Forward



# Combining approaches

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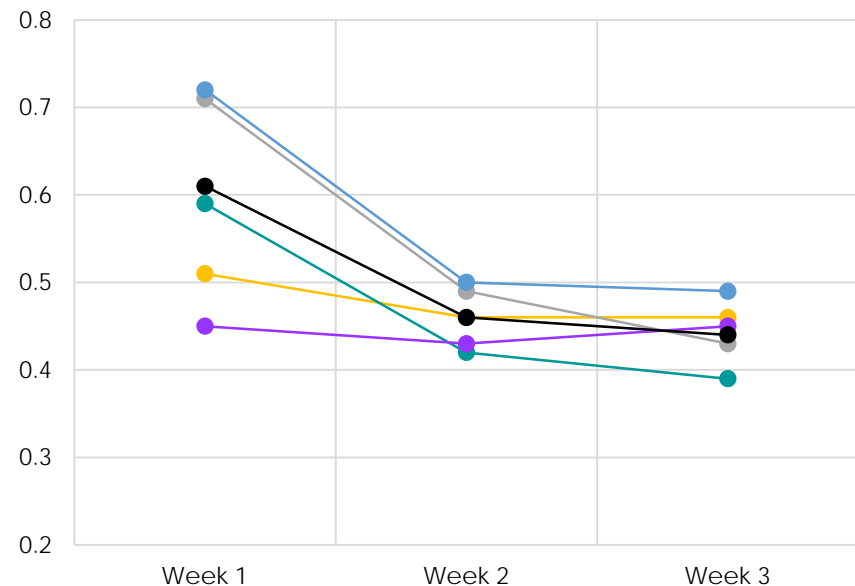
- Nuance is key: People make models better and models make people better
- Exercise in uncertainty and changing one's mind
  - What usually happens? This is the default.
  - Does the data indicate that expecting the default is a stupid idea?
- Can use models or intuition to answer questions above...



# Accountability

- Brier scores are a convenient way to track forecasts
  - Specific outcome
  - Confidence (50% - 100%)
  - Scored against actual outcome
  - 0 is perfect (100% confident and 100% correct). The worst score is 2 (100% confident and 100% wrong).
- Agnostic as to method
  - Forecaster could use intuition or complicated model
- Meritocracy. Lowest score wins, regardless of title or pay
- Participants make more circumspect claims; imminent falsification looms large
- Public (or team) accountability carries reputational costs
- Objective scoring should “depolarize” the discussion
- Strong incentive to question each other and second-guess
- “Good market intuitions” isn’t vague but based on objective performance measures

Brier Scores by Week





# Conclusion

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1. Objectivity will likely lead to better outcomes
2. Outcomes are influence by luck and must be scrutinized
3. But we need to strike the right balance between looking for errors and hindsight bias
4. Group decisions are better if participants can speak freely and feel comfortable
5. Distinguish between degrees of doubt. Few things are certain or impossible and “maybe” isn’t helpful. We need more than three settings. Nuance matters.
6. Learn by doing but don’t just go through the motions.





# INVESTMENT PLAN UPDATE AND OUTLOOK

## ARIZONA PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM



September 27, 2018

Allan Martin, NEPC, Partner

Don Stracke, NEPC, Sr. Consultant



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# AGENDA

- 1. A Brief Review of PSPRS Investment History**
- 2. Why we invest the way we do**
- 3. Current Market Environment/Positioning**
- 4. How did we do?**
- 5. Appendix**

# **A BRIEF REVIEW OF PSPRS INVESTMENT HISTORY**

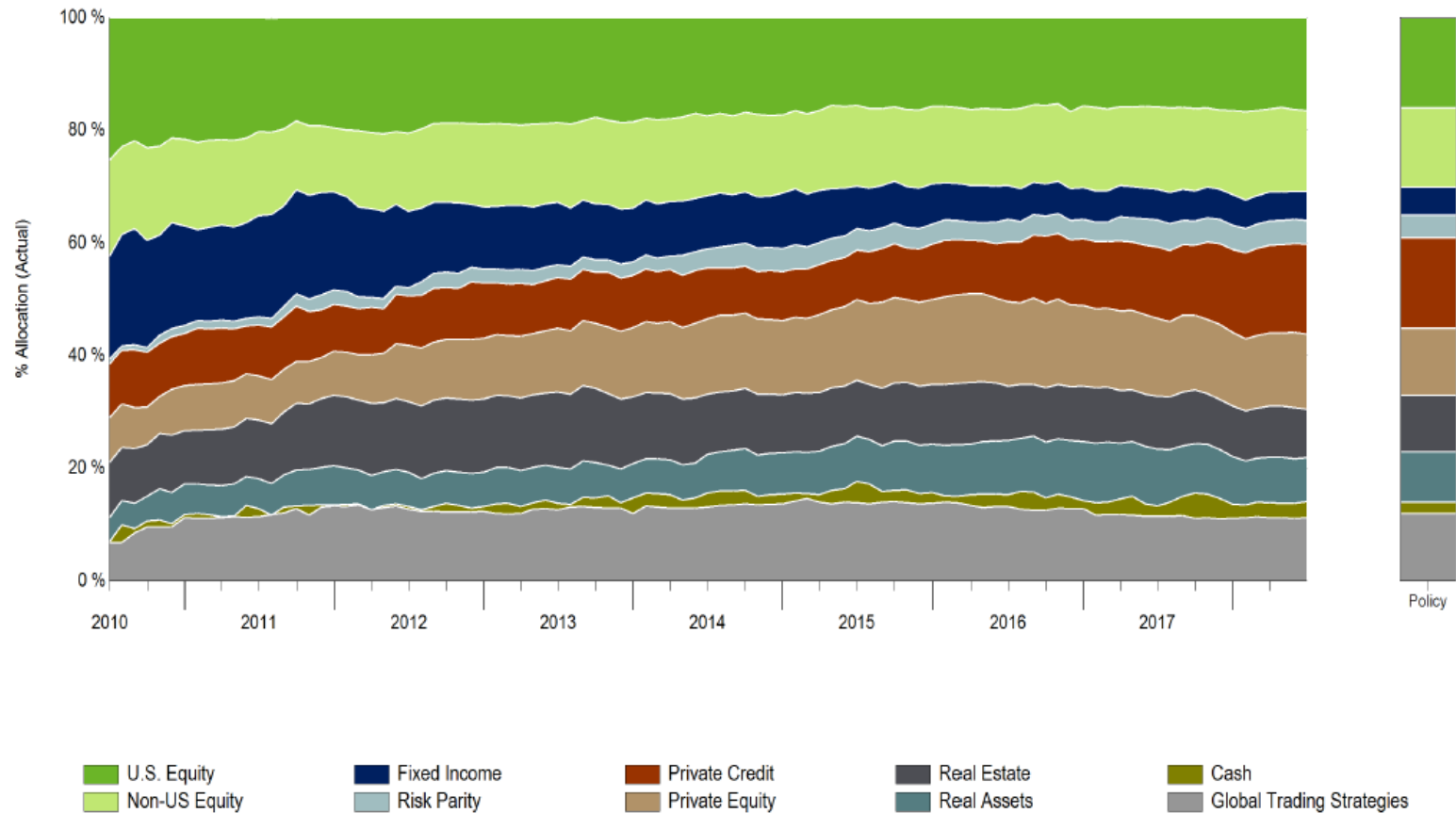
# PSPRS INVESTMENT HISTORY

- **2003**
  - Primarily managed in-house
    - Relatively poor performance
- **2003-2007**
  - Period of substantial diversification
    - Realign staff to focus on build-out of Private Markets allocations; Indexation of Public Market assets
- **2008-2010**
  - Period of high volatility
    - Recognition of impact of PBI; Further derisking of asset allocation
- **2010-present**
  - Delegation of manager selection to staff/consultant oversight
  - Reduce legacy Real Estate portfolio
  - Build out allocations to PE, PD, Real Assets

# PSPRS ASSET ALLOCATION HISTORY

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Domestic Equity	25%	20%	21%	19%	17%	16%	16%	16%	16%
Non-US Equity	17%	15%	14%	14%	14%	14%	14%	15%	14%
Private Equity	8%	8%	10%	11%	13%	14%	15%	14%	13%
<b>Total Equity</b>	<b>50%</b>	<b>43%</b>	<b>44%</b>	<b>44%</b>	<b>45%</b>	<b>44%</b>	<b>45%</b>	<b>44%</b>	<b>44%</b>
Fixed Income	18%	18%	14%	11%	9%	8%	6%	5%	5%
Private Credit	10%	9%	9%	9%	9%	9%	11%	13%	16%
<b>Total Debt</b>	<b>28%</b>	<b>27%</b>	<b>22%</b>	<b>20%</b>	<b>19%</b>	<b>16%</b>	<b>17%</b>	<b>18%</b>	<b>21%</b>
Real Estate	10%	10%	13%	13%	11%	10%	10%	9%	9%
Real Assets	4%	5%	6%	6%	7%	8%	10%	10%	8%
<b>Total Real Assets</b>	<b>14%</b>	<b>16%</b>	<b>19%</b>	<b>20%</b>	<b>18%</b>	<b>18%</b>	<b>19%</b>	<b>19%</b>	<b>16%</b>
Risk Parity	1%	1%	1%	2%	3%	4%	4%	5%	4%
Global Trading Strategies	7%	11%	13%	13%	13%	14%	13%	11%	11%
Cash	0%	1%	0%	1%	3%	4%	2%	2%	3%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# TOTAL FUND ASSET ALLOCATION HISTORY



# WHY WE INVEST THE WAY WE DO



# EXECUTIVE SUMMARY – KEY FINDINGS

- **The Plans are 45% funded on an aggregate basis as of June 30, 2017 and are expected to increase over time**
- **Employer plan contributions are currently 49% of payroll, on average, for FYE 2019 and are expected to increase over the next 10 years**
- **Current Target allocation is expected to produce an average return of 8.2% over the next 30 years**
  - Exceeds the expected return on assets (EROA) of 7.4%
  - However, due to current market headwinds, the 5-7 year return expectation is just 7.1%
- **Current long-term asset allocation policy target is a well diversified portfolio that strives for return without taking undue risk**
  - Capital markets backdrop continues to support a well diversified, globally balanced approach
- **This allocation and liability analysis investigates important decisions for improving plan financial outcomes for the plans**
  - Goal is to increase expected return without adding uncompensated risk
  - With elimination of PBI, examine impact of increasing volatility of plan
  - Increase Private Equity and International Equity to increase return potential
  - Reduce Large Cap Equity and Real Estate to reduce market risk
  - Shift Real Assets from public to private holdings
  - Increase percentage of Real Estate allocation to Non-Core

# THESIS

- ✓ Fundamental belief in the importance of diversification
- ✓ A belief that more reliable out-performance is obtainable in private markets
- ✓ Reduce dependency on public equity for performance
- ✓ Lower expected return environment-which continues
- ✓ A secular reversal in interest rates

# **CURRENT MARKET ENVIRONMENT/ POSITIONING**

# CURRENT INVESTMENT ENVIRONMENT

- **Economic cycles do not die of old age**
  - The US economy is in an extended expansionary cycle despite being nine years removed from the last recession
  - Fiscal stimulus, health of US consumers, and ongoing recovery of the housing market continue to drive economic growth
- **US financial conditions remain loose and support steady economic gains**
  - An acceleration in inflation leading to Fed tightening has historically been a catalyst to end economic expansions
  - US recession concerns are muted as strong global economic conditions and growth rates reinforce an expansion of the US economy
  - Reversal in these easy conditions may be fueled from a misstep by the Fed, strong dollar, and/or increased volatility in the Chinese yuan
- **Global economic conditions have improved in a synchronized fashion**
  - Positive growth rates harmonized across the globe are relatively rare
  - The synchronized resurgence is vulnerable to disruptive global risk factors, such as US dollar strength, dislocation in China's credit expansion, and restrictive US trade policy
- **Federal Reserve Gradualism**
  - Expected path of Fed policy through 2020 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling is material
  - Inflation expected to shift marginally higher in the coming years

# CURRENT INVESTMENT ENVIRONMENT

- **China Transitions**

- China's economic transition is pivoting from production and investment focused to a service and consumption based economy
- Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers
- Any disruption to these transitions will have global repercussions due to China's role in the global economy

- **China's government is negotiating a balance of tightening credit expansion and support for economic growth**

- Continued credit expansion and real estate development risk inflating asset price bubbles and pose a systemic risk
- Markets have responded positively to the PBOC's management as capital outflow pressure has eased but currency devaluation remains a tail risk

- **Globalization Backlash**

- Uneven economic growth and wage gains have fueled political discontent in the developed world
- Globalization Backlash is likely a long term trend as populist movements destabilize the political order while the shift away from political orthodoxy heightens tail risks
- US-China trade tensions are a full expression of our backlash theme
- Levying of tariffs are a dangerous game as both the US and China look to negotiate an end to the tensions but must demonstrate strength for a domestic audience

# ASSET ALLOCATION ALTERNATIVES

	Current Target	Standard 70/30
<b>Cash</b>	<b>2%</b>	<b>0%</b>
Large Cap Equities	14%	45%
Small/Mid Cap Equities	2%	12.5%
Int'l Equities (Unhedged)	7%	12.5%
Emerging Int'l Equities	7%	0%
Private Equity	12%	0%
<b>Total Equity</b>	<b>42%</b>	<b>70%</b>
Core Bonds	2%	25%
EMD (Local Currency)	2%	0%
Absolute Return Fixed Income	1%	0%
Private Credit	16%	0%
<b>Total Fixed Income</b>	<b>21%</b>	<b>25%</b>
Private Real Assets	5%	0%
Real Assets (Liquid)	4%	0%
Core Real Estate	5%	5%
Non-Core Real Estate	5%	0%
<b>Total Real Assets</b>	<b>19%</b>	<b>5%</b>
Global Tactical Asset Allocation	8%	0%
Risk Parity	4%	0%
Hedge Funds	4%	0%
<b>Total Multi Asset</b>	<b>16%</b>	<b>0%</b>

<b>Expected Return 5-7 yrs</b>	<b>7.1%</b>	<b>5.5%</b>
<b>Expected Return 30 yrs</b>	<b>8.2%</b>	<b>7.1%</b>
<b>Standard Deviation</b>	<b>10.7%</b>	<b>11.7%</b>
<b>Sharpe Ratio (5-7 years)</b>	<b>0.48</b>	<b>0.30</b>
<b>Sharpe Ratio (30 years)</b>	<b>0.51</b>	<b>0.37</b>

- Our goal is to increase return/risk slightly without adding public equities
- A simple 70%/30% allocation is presented for comparison purposes

# HOW DID WE DO?

# TOTAL FUND PERFORMANCE – NET OF FEES

	Market Value(\$)	3 Mo(%)	Rank	YTD(%)	Rank	1 Yr(%)	Rank	3 Yrs(%)	Rank	5 Yrs(%)	Rank	7 Yrs(%)	Rank	10 Yrs(%)	Rank
Arizona PSPRS Trust	9,780,945,306	0.5	54	1.9	12	7.1	80	6.4	58	7.2	73	6.6	75	5.4	83
PSPRS ex-Workout Real Estate Portfolio		1.2	22	2.7	5	8.4	33	7.1	29	8.2	33	7.4	42	--	--
Policy Index		1.0	34	1.3	28	7.7	63	6.8	46	7.3	62	7.1	53	5.3	86
60% MSCI ACWI (Net) / 40% CITI WGBI		-1.0	99	-0.6	98	7.2	79	6.2	76	6.2	96	5.1	99	4.6	98
InvestorForce Public DB > \$1B Net Median		0.6		0.6		8		6.7		7.5		7.1		6.1	

\*Performance returns are reported net of manager fees.

\*Fiscal year ends June 30.

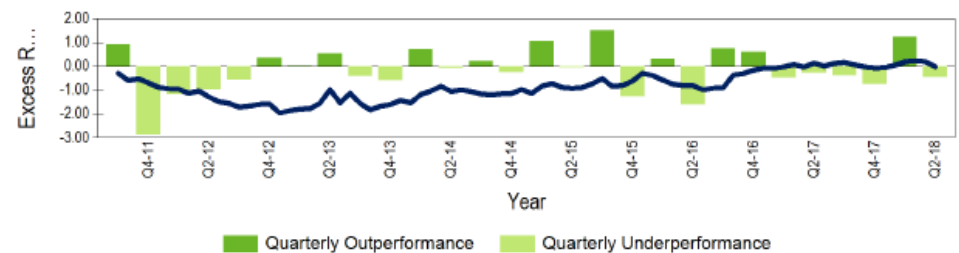
- The Fund's performance over the five-year period was 7.2%, ranking in the third quartile of a peer universe. However, the Fund's risk-adjusted returns ranks very highly over this period. The Fund's Sharpe and Sortino Ratios rank in the 3rd and 1st percentiles, respectively over this period.

- Over the past three years, the Fund returned 6.4% per annum, ranking in the third quartile of a peer universe. The Fund's Sharpe and Sortino Ratios rank highly during this period as well, ranking in the 4th and 1st percentiles, respectively over this period again.

- Over the last year, the Fund did not quite achieve it's primary objective of surpassing the 7.4% assumed rate, returning 7.1%. The Fund's assets totaled \$9.8 billion, an increase of approximately \$500 million from a year ago. This was due to the net investment gain of approximately \$657 million over that time.

\*Policy Index: 16%(Russell 3000), 14%(MSCI World Ex-US Net), 12%(Russell 3000 + 1%), 5%(BC Global Aggregate), 16%(50%ML US HY BB-B Constrained/50% CS Fixed Income Arbitrage Index), 12%(3-Month LIBOR + 3%), 9%(CPI + 2%), 10%(NCREIF NPI), 4%(60% BC Global Agg/30% MSCI All World/10% DJ-UBS Commodity), 2%(ML Treasury 91 Day).

## 5 Year Rolling Annualized Excess Performance



## 3 Years Ending June 30, 2018

	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Arizona PSPRS Trust	3.7%	1	1.5	4	3.5	1
Policy Index	4.8%	7	1.3	17	2.2	5
InvestorForce Public DB > \$1B Net Median	5.7%	--	1.0	--	1.5	--

## 5 Years Ending June 30, 2018

	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Arizona PSPRS Trust	3.7%	1	1.8	3	3.9	1
Policy Index	4.7%	7	1.5	19	3.0	4
InvestorForce Public DB > \$1B Net Median	5.7%	--	1.2	--	2.1	--

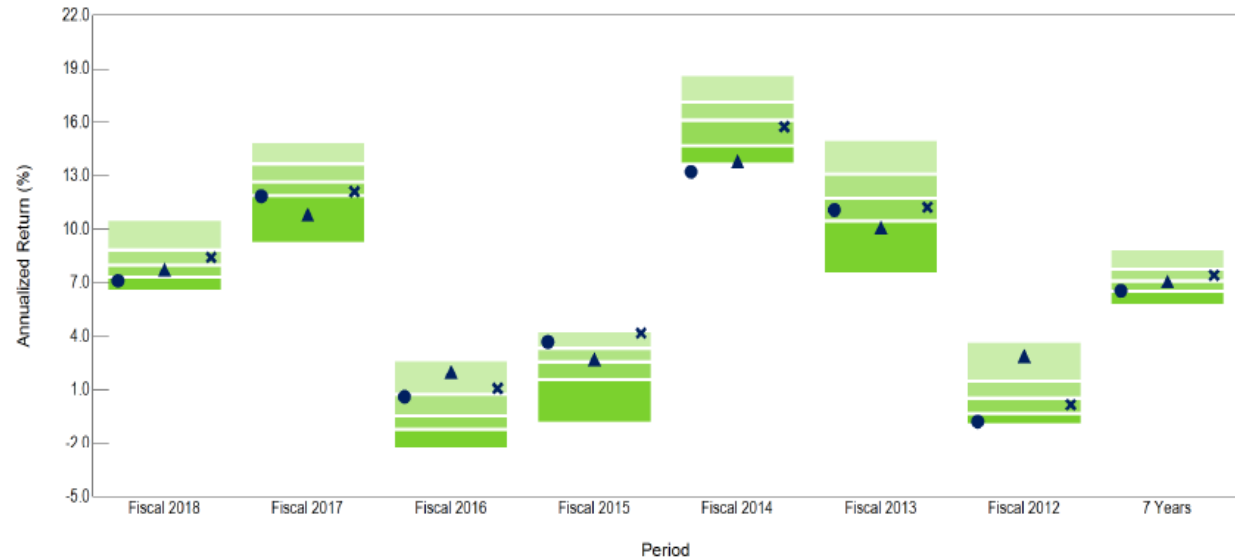
## 7 Years Ending June 30, 2018

	Anlzd Std Dev	Rank	Sharpe Ratio	Rank	Sortino Ratio	Rank
Arizona PSPRS Trust	4.3%	1	1.5	2	2.2	1
Policy Index	5.4%	2	1.3	11	2.0	2
InvestorForce Public DB > \$1B Net Median	6.7%	--	1.0	--	1.4	--



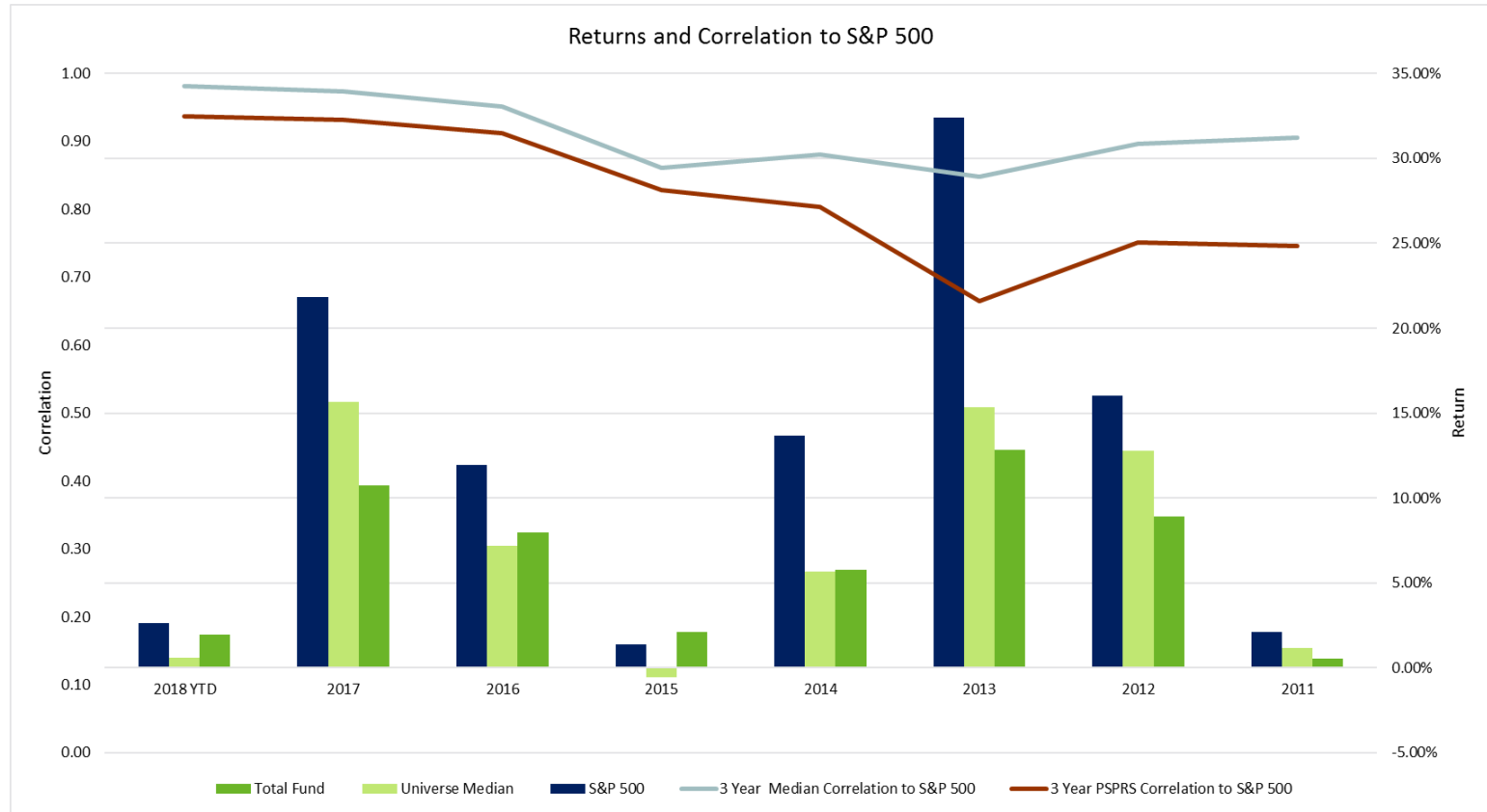
# TOTAL FUND PERFORMANCE SUMMARY VS. PEER UNIVERSE

Arizona PSPRS Trust vs. InvestorForce Public DB > \$1B Net



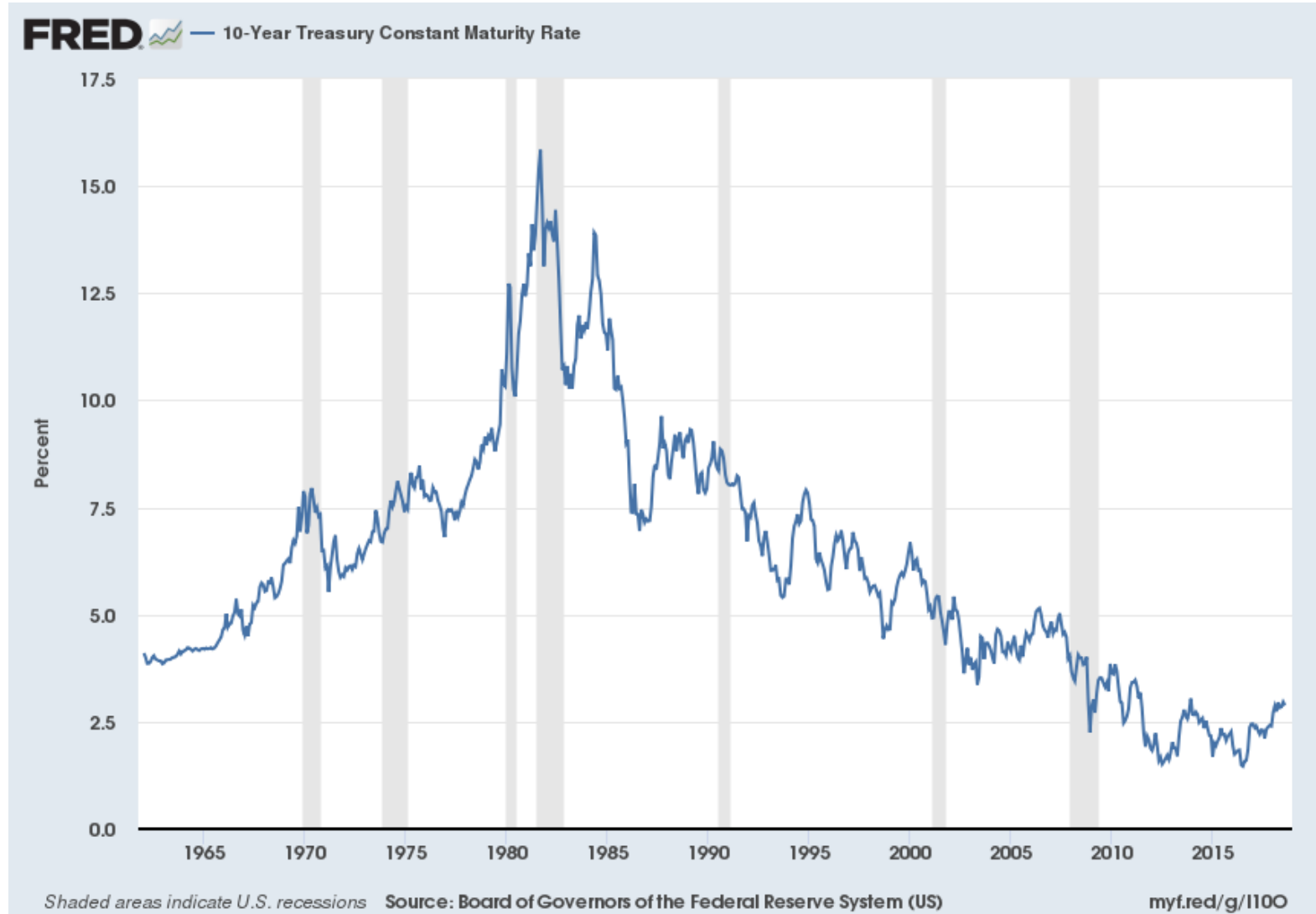
	Return (Rank)							
5th Percentile	10.5	14.9	2.7	4.3	18.7	15.0	3.7	8.9
25th Percentile	8.8	13.7	0.8	3.3	17.2	13.1	1.5	7.8
Median	8.0	12.7	-0.5	2.6	16.1	11.8	0.5	7.1
75th Percentile	7.3	11.9	-1.2	1.6	14.7	10.5	-0.3	6.5
95th Percentile	6.5	9.2	-2.4	-0.9	13.6	7.5	-0.9	5.7
# of Portfolios	51	65	55	53	43	56	41	50
● Arizona PSPRS Trust	7.1 (80)	11.9 (76)	0.6 (31)	3.7 (19)	13.2 (99)	11.1 (66)	-0.8 (94)	6.6 (75)
▲ Policy Index	7.7 (63)	10.8 (88)	2.0 (9)	2.7 (49)	13.8 (90)	10.1 (77)	2.9 (7)	7.1 (53)
✕ PSPRS ex-Workout Real Estate Portfolio	8.4 (33)	12.1 (66)	1.1 (19)	4.2 (8)	15.7 (58)	11.2 (60)	0.2 (73)	7.4 (42)

# PERFORMANCE SUMMARY

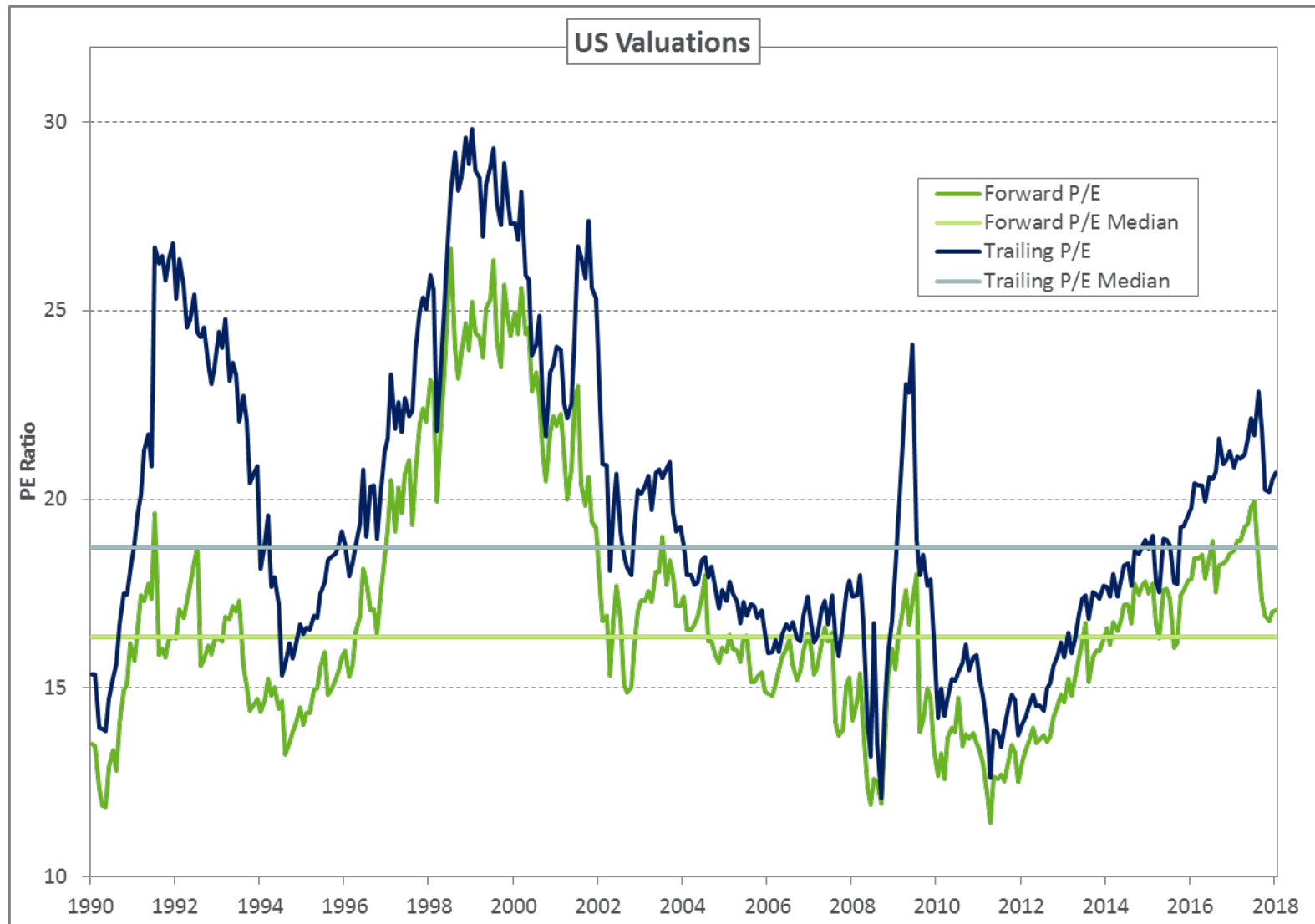


# APPENDIX

# HISTORIC RATES



# U.S. EQUITY VALUATIONS



# KEY MARKET THEMES

**Extended US Economic Cycle**

**Synchronized Economic Resurgence**

**Federal Reserve Gradualism**

**China Transitions**

**Globalization Backlash**

# KEY MARKET THEMES

## Extended US Economic Cycle

### Economic cycles do not die of old age

The US economy is in an extended expansionary cycle despite being eight years removed from the last recession

Financial health of US consumers and ongoing recovery of the housing market continue to drive economic growth

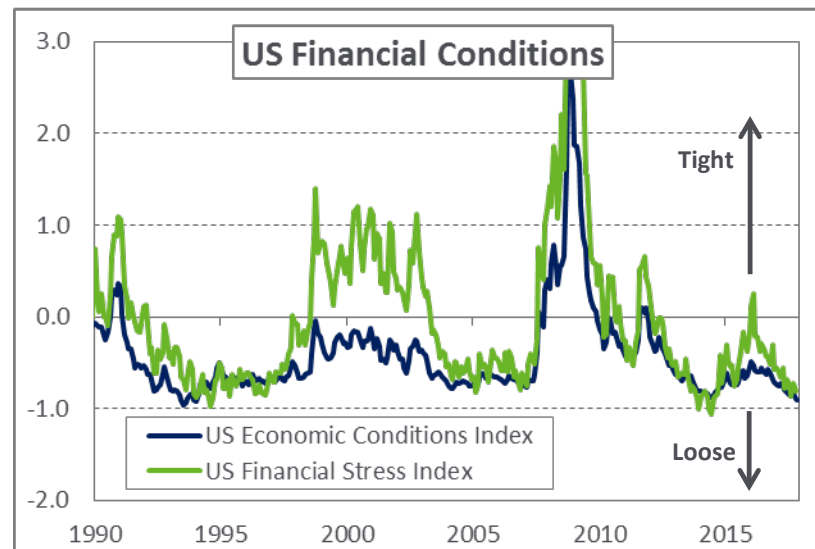
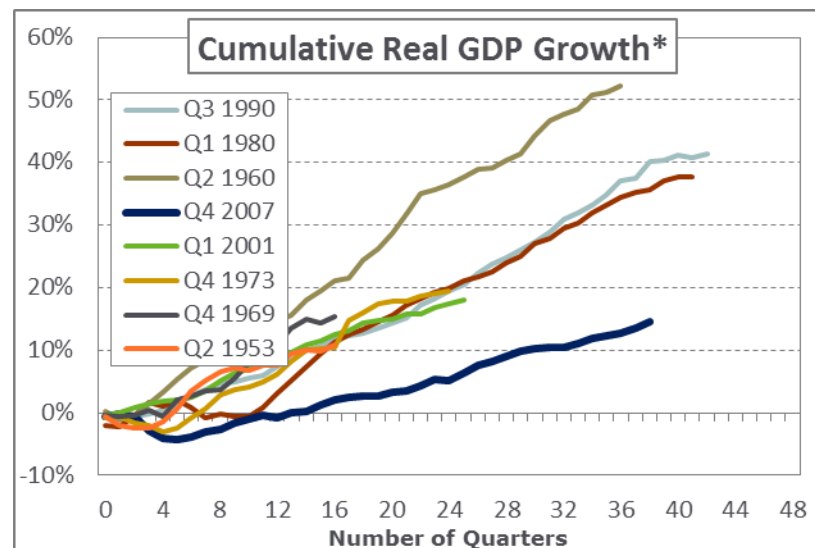
A prolonged US economic expansion can support a continued rally for US equities despite elevated valuation levels

### US financial conditions remain loose and support steady economic gains

Low inflation provides a foundation for positive economic conditions and reinforces the Fed's gradual monetary policy approach

Moderating US dollar strength is another form of easy financial conditions, benefiting global trade flows and credit creation

Reversal in these easy conditions may be fueled by actions outside the US, such as a misstep by global central banks and/or increased volatility in the Chinese yuan



Source: (Top) Bloomberg, \*Cumulative GDP growth from prior cycle peak

Source: (Bottom) Federal Reserve Bank of Chicago and Kansas City

# KEY MARKET THEMES

## Extended US Economic Cycle

### Excess capacity remains in the system and provides fuel for the expansion

Labor market gains have been robust but slack remains as many have not returned to the workforce

Muted wage gains and low inflation metrics are reflective of the excess capacity remaining in the US economy

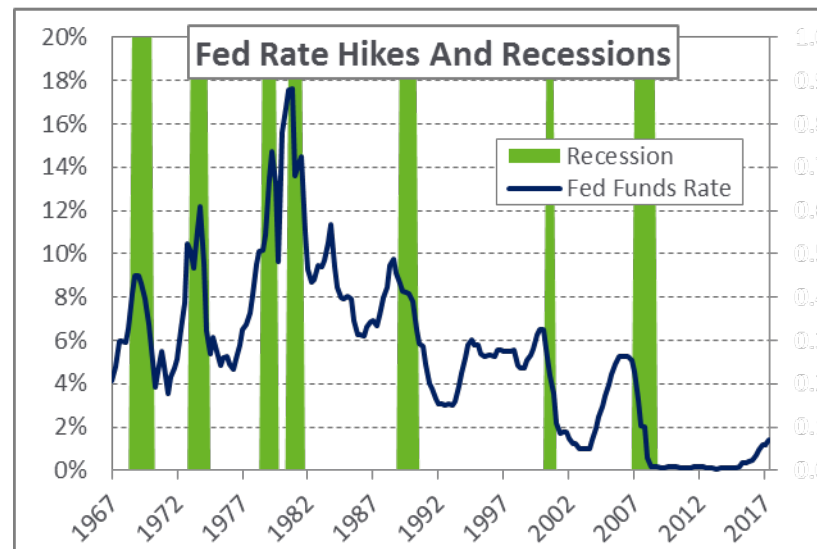
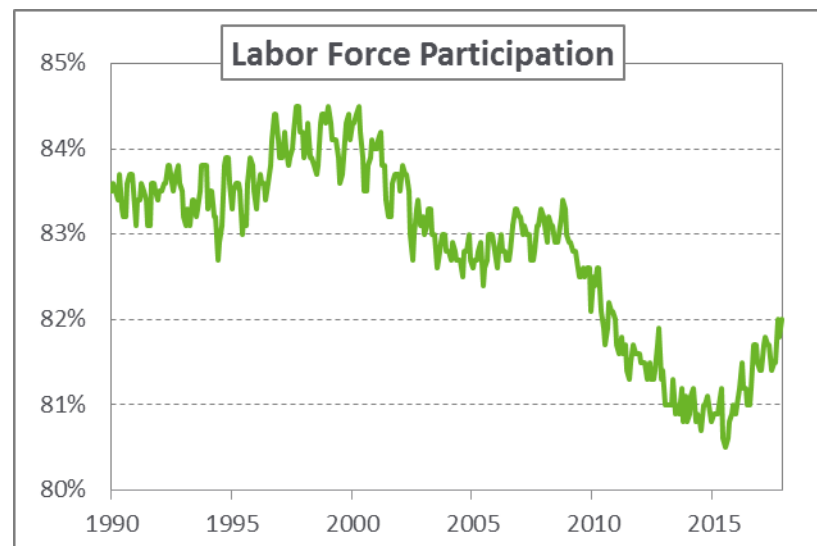
Tax cuts and fiscal stimulus can potentially remove spare economic capacity and be a catalyst for an uptick in inflation measures

### US recession concerns are muted

An acceleration in inflation leading to a tightening of financial conditions has historically been a catalyst to end economic expansions

However, improved US household balance sheets have room to expand and support further consumer spending gains

Improving global economic conditions reinforce an expansion of the US economy as global growth factors synchronize



Source: (Top) Federal Reserve Bank of St. Louis

Source: (Bottom) Federal Reserve, NEPC



# KEY MARKET THEMES

## Synchronized Economic Resurgence

### Global economic conditions are improving in a synchronized fashion

Coordinated global growth factors reinforce economic gains across the globe and are distinct from the extension of the US economic cycle

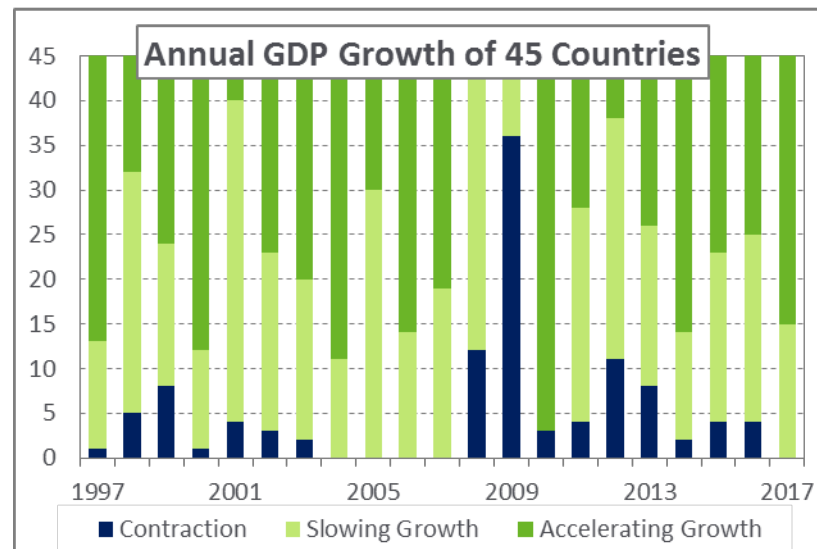
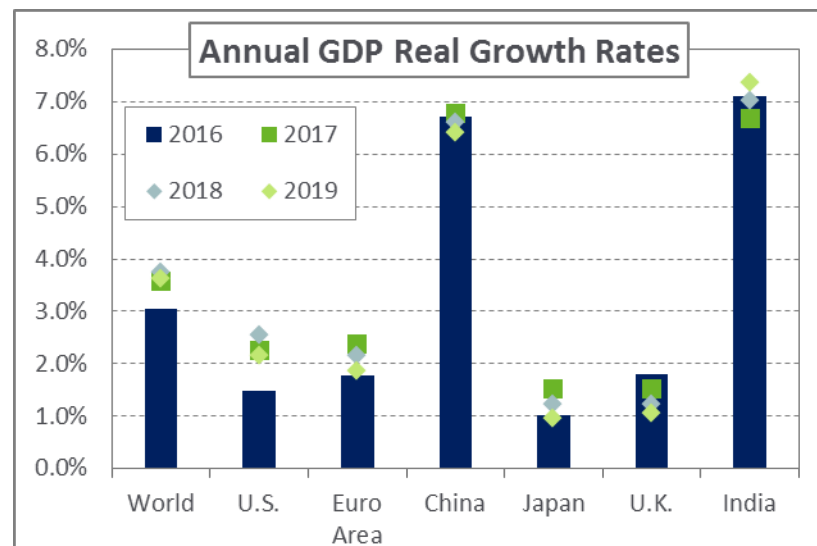
Non-US corporate revenues and equities are best positioned to benefit from a widespread boost in global economic conditions

### Positive growth rates harmonized across the globe are relatively rare

Conditions are the result of Europe, Japan, and large parts of the emerging world transitioning out of economic malaise

Persistence of the theme over several years would provide a substantial benefit to equity markets globally – specifically in Europe and Japan

Historically, periods of synchronized growth have been derailed by higher inflation levels and central banks tightening policy



Source: (Top) OECD

Source: (Bottom) OECD

# KEY MARKET THEMES

## Synchronized Economic Resurgence

### Erosion of excess economic capacity is a catalyst to boost economic gains

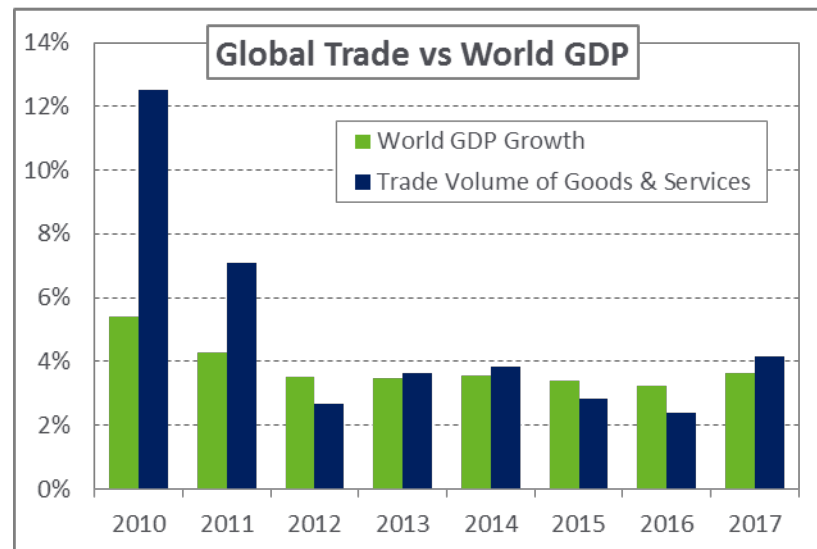
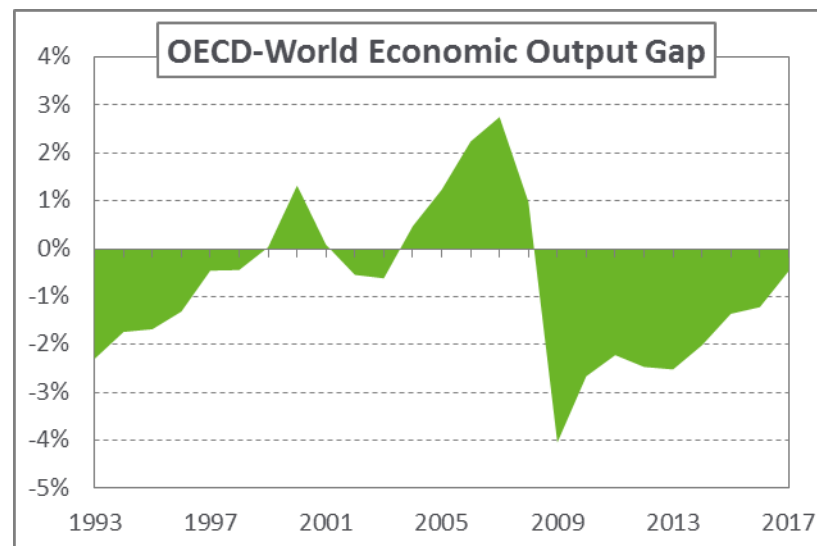
Despite recent labor market improvements, potential for labor reform in Europe and improved workforce participation in Japan offer multi-year benefits to economic growth

Material decline in emerging market inflation provides a cushion for real interest rates to fall and fuel an expansion of economic activity

### Economic resurgence is delicate and can be disrupted by lingering global risk factors

US dollar strength, dislocation in China's credit expansion, and restrictive US trade policy pose the greatest threats

The foundation of synchronized economic resurgence is the continuation of positive trends associated with the other key market themes



Source: (Top) OECD  
Source: (Bottom) IMF

# KEY MARKET THEMES

## Federal Reserve Gradualism

### The Federal Reserve is expected to slowly increase interest rates

Expected path of Fed policy through 2020 matters more than timing of the next hike as the disconnect between market expectations and Fed signaling has grown

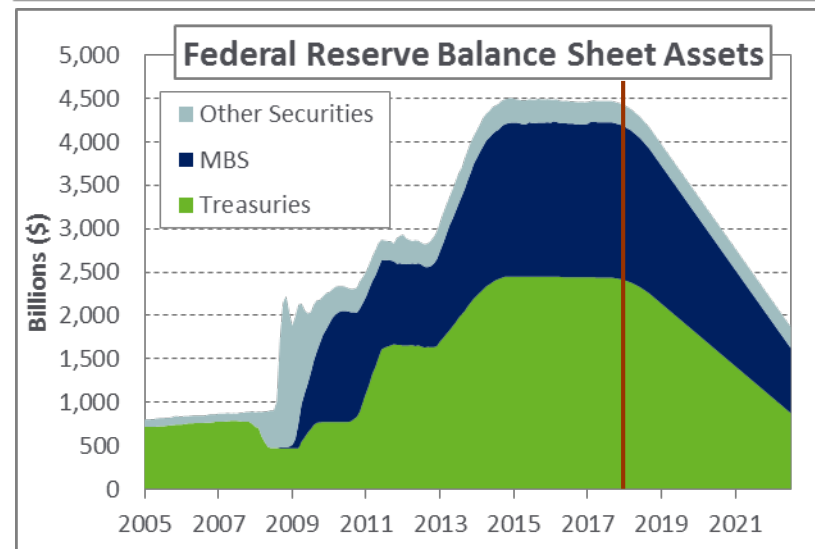
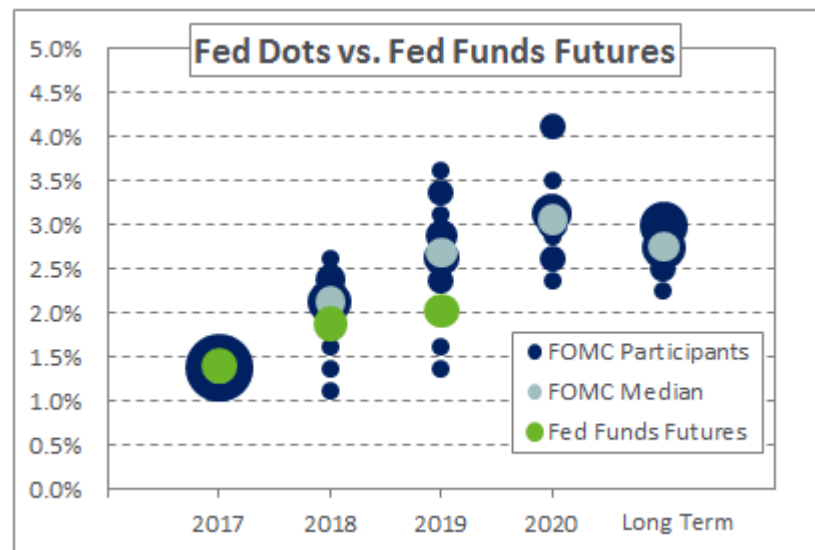
A relatively accommodative Fed is likely to continue, unless there is a dramatic acceleration in inflation

### The Fed's balance sheet normalization is a low grade tightening of monetary policy but its impact is untested

Fed is expected to be careful and data dependent yet balance sheet disbursement into a strong economy will likely have tightening effects – in the same way balance sheet expansion had easing effects

The balance sheet will gradually shrink over time assuming conditions remain supportive

The gradual progression of balance sheet reduction combined with the accommodative policies of global central banks supports easy global financial conditions



Source: (Top) Bloomberg, NEPC  
Source: (Bottom) Bloomberg, NEPC

# KEY MARKET THEMES

## Federal Reserve Gradualism

**Gradualism is the policy of choice globally as the major central banks manage unprecedented initiatives**

ECB's QE program is expanding but at a slower rate

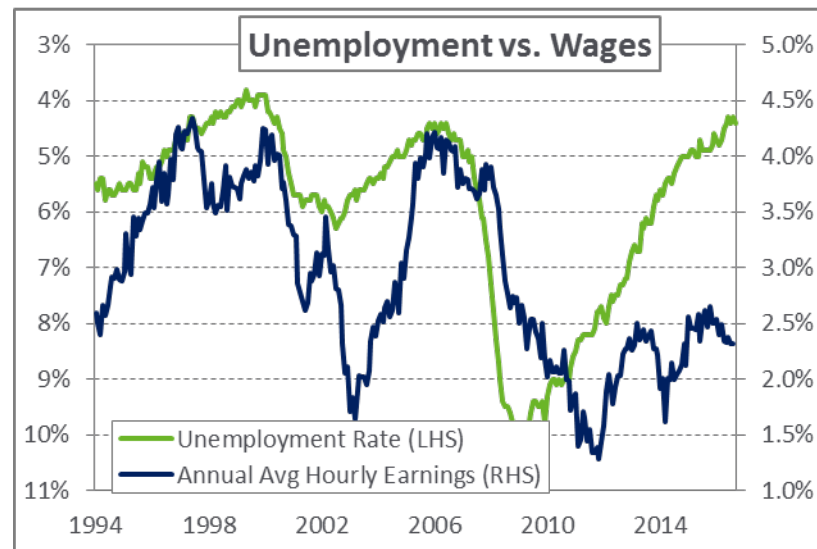
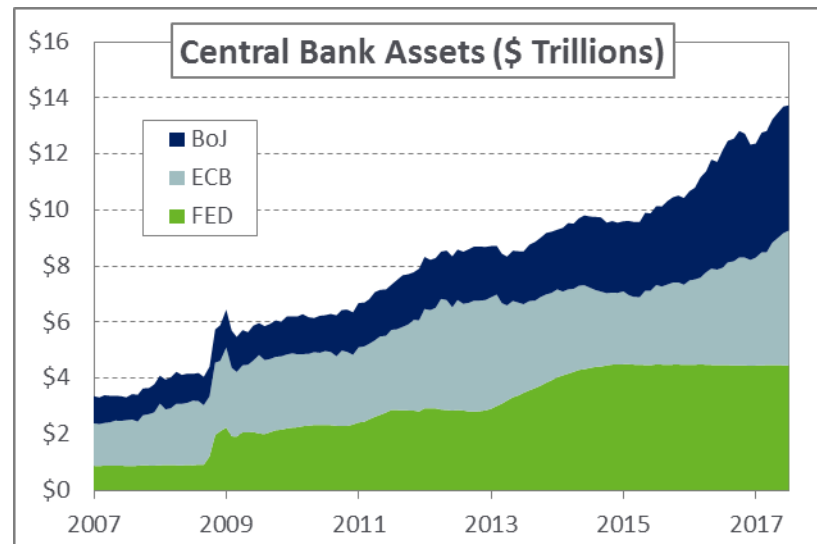
However, the reinvestment of balance sheet holdings is likely to continue for an extended period of time

Bank of Japan's QE yield-curve control program has rapidly slowed bond purchases but solidified steepness in the yield curve

**Inflation expected to shift marginally higher in the coming years**

Improvements in wage growth and aggregate economic activity support modest upticks in inflation but still within the Fed's tolerance bands to gradually raise rates

Fed has stated a willingness to let the economy "run hot" and accept some inflation to repair the deflationary effects of the past decade



Source: (Top) Bloomberg, NEPC  
Source: (Bottom): Bloomberg, FRED

# KEY MARKET THEMES

## China Transitions

### China is the global growth engine but faces fundamental transitions

China's economic transition is pivoting from production and investment focused to a service and consumption based economy

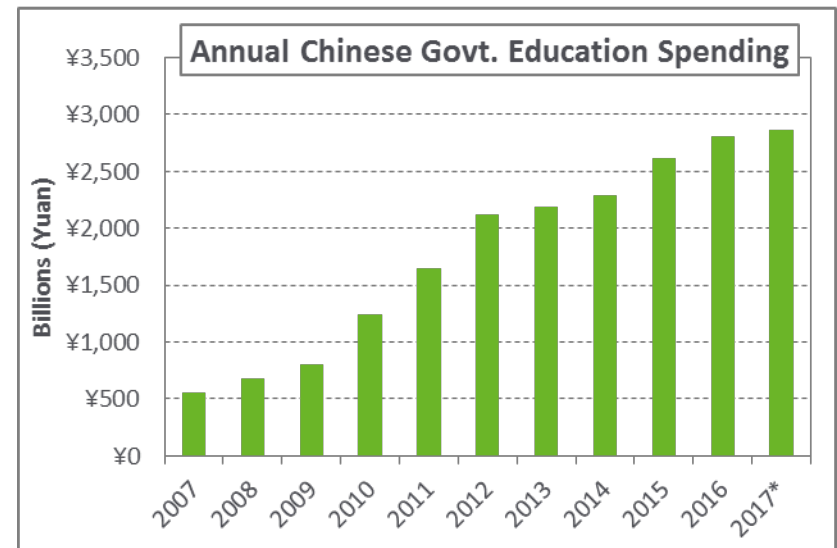
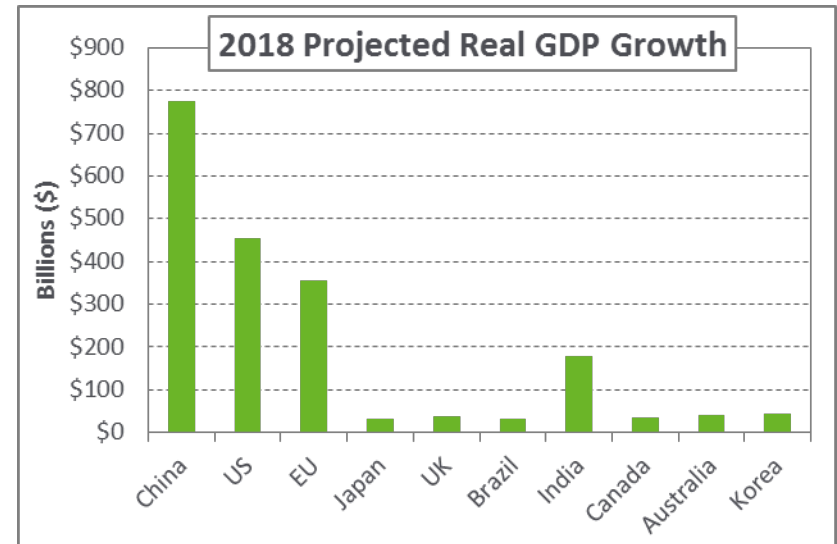
Fixed investment is required to sustain the production based economy and support employment as the rural population moves to urban centers

Any disruption to these transitions will have global repercussions due to China's role in the global economy

### China must manage competing social goals in attempting to sustain growth

Engineering an orderly transition to a consumer-led economy requires supporting employment outside the major cities and improving quality of life metrics such as air quality in the urban centers

Future growth in a services based economy requires advancement in productivity, technology, and a more skilled labor force



Source: (Top) Bloomberg

Source: (Bottom) Bloomberg, \*Includes estimate for Nov/Dec 2017

# KEY MARKET THEMES

## Globalization Backlash

### Uneven economic growth and wage gains have fueled political discontent in the developed world

Election results in France have assuaged fears of political gridlock in the EU

Italian election in first half of 2018 is another potential flashpoint on globalization

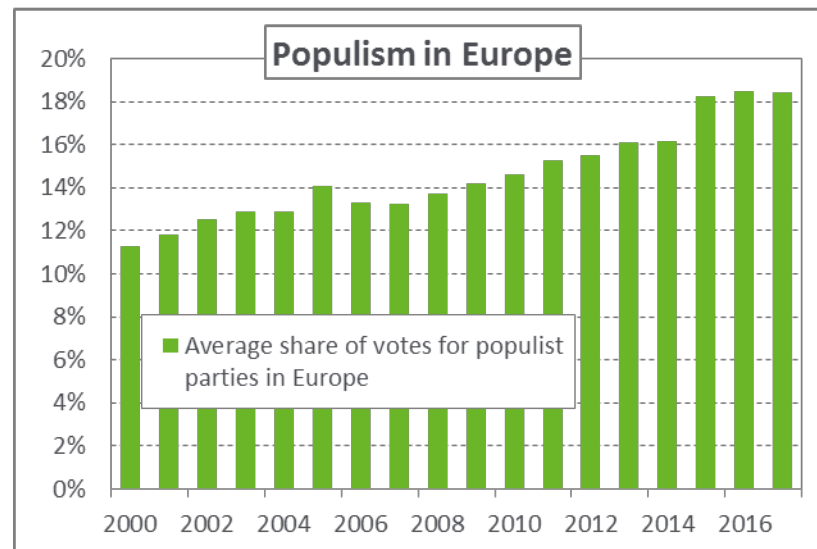
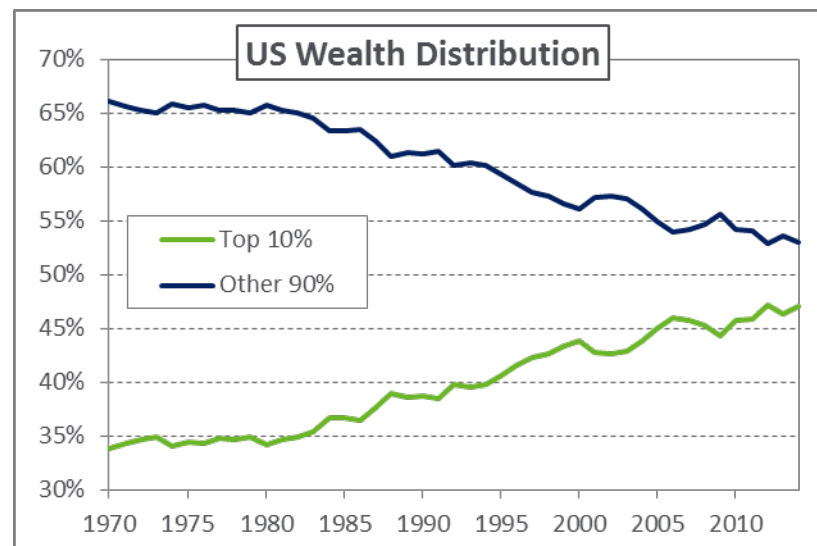
Anti-establishment political bias is likely a long term trend and potentially leads to higher levels of currency volatility over time

### For many nations, a turn inward is associated with globalization fatigue

Often fuels greater expression of nationalism and increased geopolitical risks as multilateral relationships are reassessed

Populist movements destabilize the political order and shifts away from political orthodoxy heighten tail risks

However, equity markets often overreact to geopolitical concerns and sell-offs can be a buying opportunity for investors



Source: (Top) World Wealth & Income Database

Source: (Bottom) World Bank

# KEY MARKET THEMES

## Globalization Backlash

### Major shifts in US trade policy did not materialize in 2017

However, a more aggressive protectionist policy would represent a material risk to global markets and the world economy

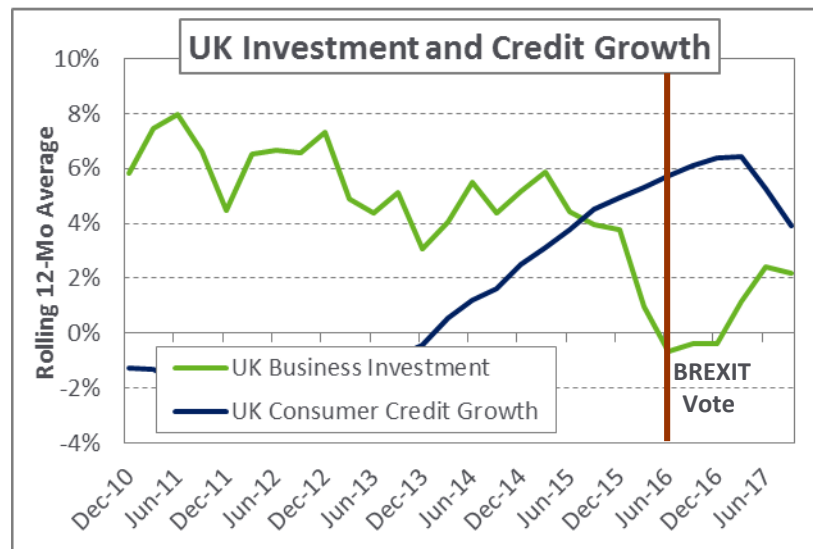
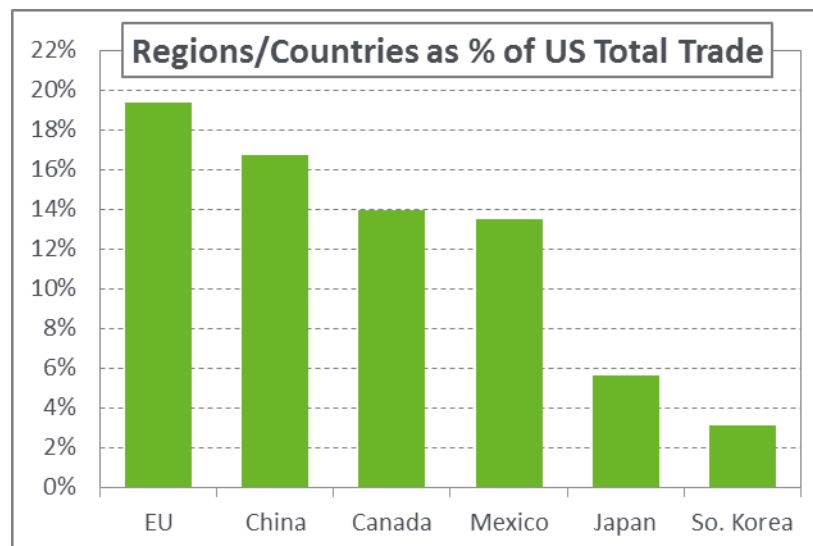
Markets have taken to interpreting the US administration's rhetoric with a grain of salt but ongoing NAFTA negotiations are a concern

### The UK serves as a live case study for the effects of globalization backlash

While it is early in the process, economic metrics across the country have turned lower in the 18 months since UK voted to leave the European Union

Expected disruption to financial regulations, customs controls, and business confidence in the UK are proving to be a cautionary tale for a turn away from globalization

However, the economic unease of voters remain and popularity of anti-establishment political parties poses a risk to the global economic order



Source: (Top) Federal Reserve Bank of St. Louis

Source: (Bottom) Bloomberg

# 2018 ASSET CLASS ASSUMPTIONS

**NEPC asset class assumptions offer both an intermediate (5-7 years) and long term (30 years) forecast horizon**

November 30<sup>th</sup> market data is used for inputs to the asset class models

**The 5-7 year return expectations for US credit and equity asset classes are broadly lower due to continued increases in valuation levels**

Credit-based asset class expectations have declined considerably from prior year, with credit spreads moving below long-term medians across most sectors

**The outlook for non-US equities remains attractive over 5-7 years supported by improvement in corporate earnings and economic growth**

**We anticipate US inflation will gradually move higher and average 2.5%**

**We continue to refine and enhance our process where appropriate**

The asset class assumption for Real Estate has been split into Core and Non-Core to offer a distinction between the volatility and return profile

Core has a greater income orientation with broad exposure to commercial real estate beta and Non-Core is oriented to capital appreciation with increased use of leverage



# INFLATION OVERVIEW

## **Inflation is an integral component of our asset allocation assumptions**

Represents an essential building block for developing asset class returns

## **Inflation building blocks are model driven and informed by multiple sources for both the US and global asset classes**

Includes forecasts from international organizations (e.g. IMF), local consumer and producer price indices, break-even inflation expectations, and global interest rate curves

## **US inflation is based upon the TIPS breakeven inflation curve adjusted for expectations of economic activity, employment, and capacity levels**

## **Global inflation expectations are informed by consensus forecasts across countries along with implied inputs from global bond curves**

The 30 year global inflation forecast assumes purchase power parity holds across the globe and country specific inflation levels converge to a terminal value

Region	5-7 Year Inflation Assumption	30-Year Inflation Assumption
United States	2.50%	2.75%
Global	3.00%	3.25%

# 2018 5-7 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	2018	2017	2018-2017
Cash	2.00%	1.75%	+0.25%
Treasuries	2.25%	2.00%	+0.25%
IG Corp Credit	3.50%	3.75%	-0.25%
MBS	2.50%	2.25%	+0.25%
Core Bonds*	2.75%	2.65%	+0.10%
TIPS	3.25%	3.00%	+0.25%
High-Yield Bonds	3.75%	4.75%	-1.00%
Bank Loans	4.50%	5.25%	-0.75%
Non-US Bonds (Unhedged)	0.50%	1.00%	-0.50%
Non-US Bonds (Hedged)	0.73%	1.09%	-0.36%
EMD External	4.25%	4.75%	-0.50%
EMD Local Currency	6.00%	6.75%	-0.75%
Large Cap Equities	5.25%	5.75%	-0.50%
Small/Mid Cap Equities	5.75%	6.00%	-0.25%
Int'l Equities (Unhedged)	7.50%	7.25%	+0.25%
Int'l Equities (Hedged)	7.82%	7.57%	+0.25%
Emerging Int'l Equities	9.00%	9.50%	-0.50%
Private Equity	8.00%	8.25%	-0.25%
Private Debt	6.50%	7.25%	-0.75%
Core Real Estate	5.75%	6.00%	-0.25%
Commodities	4.75%	4.75%	-
Global Trading Strategies**	5.83%	5.95%	-0.12%

\* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

\*\* Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

# 2018 30 YEAR RETURN FORECASTS

Geometric Expected Return			
Asset Class	2018	2017	2018-2017
Cash	2.75%	3.00%	-0.25%
Treasuries	3.25%	3.50%	-0.25%
IG Corp Credit	4.75%	5.00%	-0.25%
MBS	3.25%	3.50%	-0.25%
Core Bonds*	3.75%	4.00%	-0.25%
TIPS	3.75%	3.75%	-
High-Yield Bonds	5.50%	5.75%	-0.25%
Bank Loans	5.50%	6.00%	-0.50%
Non-US Bonds (Unhedged)	2.50%	2.75%	-0.25%
Non-US Bonds (Hedged)	2.77%	2.87%	-0.10%
EMD External	5.00%	5.75%	-0.75%
EMD Local Currency	6.50%	6.50%	-
Large Cap Equities	7.50%	7.50%	-
Small/Mid Cap Equities	7.75%	7.75%	-
Int'l Equities (Unhedged)	7.75%	7.75%	-
Int'l Equities (Hedged)	8.14%	8.14%	-
Emerging Int'l Equities	9.25%	9.50%	-0.25%
Private Equity	9.50%	9.50%	-
Private Debt	7.50%	8.00%	-0.50%
Core Real Estate	6.50%	6.50%	-
Commodities	5.50%	5.50%	-
Global Trading Startegies**	6.34%	6.47%	-0.13%

\* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

\*\* Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

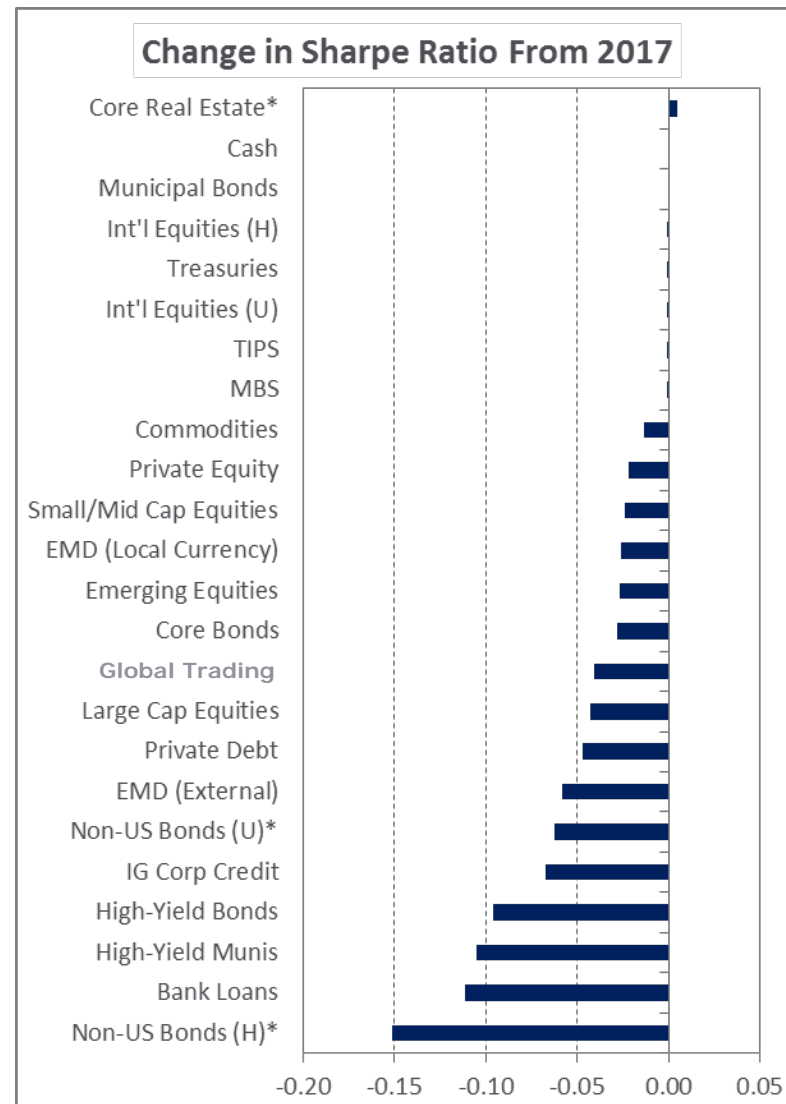
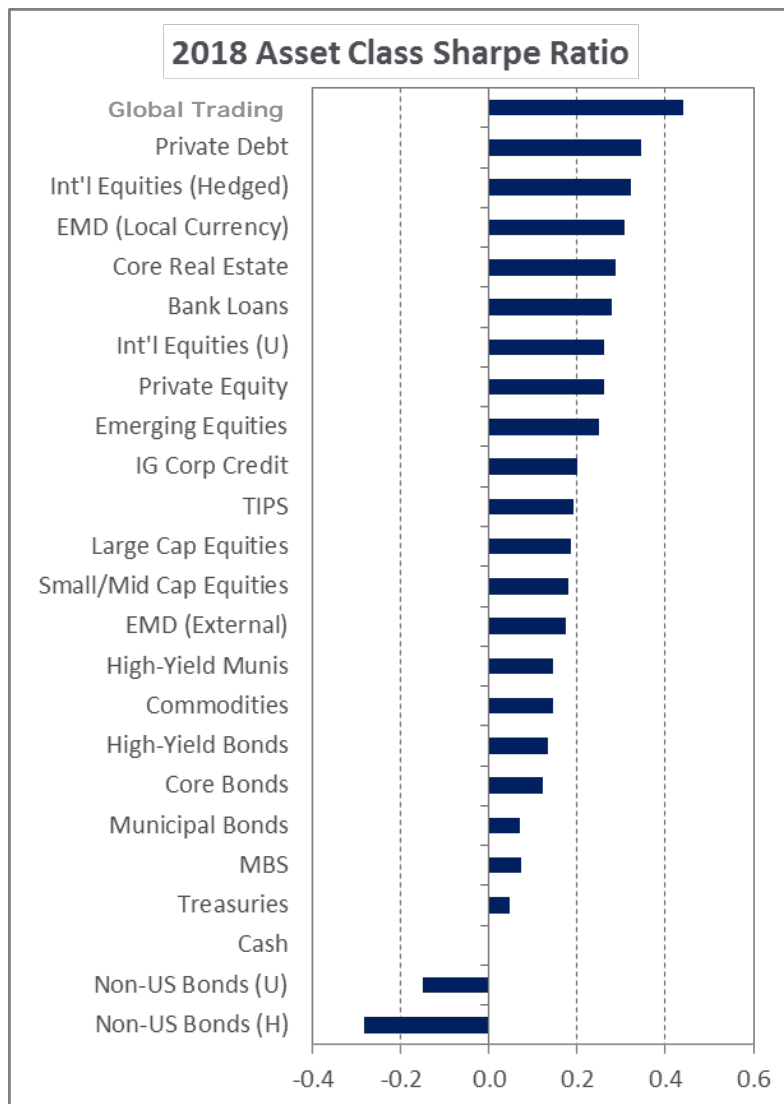
# 2018 VOLATILITY FORECASTS

Volatility		
Asset Class	Capital Market Volatility	Accounting Volatility
Cash	1.00%	1.00%
Treasuries	5.50%	5.50%
IG Corp Credit	7.50%	7.50%
MBS	7.00%	6.50%
Core Bonds*	5.99%	5.85%
TIPS	6.50%	6.00%
High-Yield Bonds	13.00%	9.00%
Bank Loans	9.00%	5.50%
Non-US Bonds (Unhedged)	10.00%	10.00%
Non-US Bonds (Hedged)	4.50%	3.50%
EMD External	13.00%	13.50%
EMD Local Currency	13.00%	13.00%
Large Cap Equities	17.50%	16.00%
Small/Mid Cap Equities	21.00%	20.50%
Int'l Equities (Unhedged)	21.00%	18.50%
Int'l Equities (Hedged)	18.00%	15.50%
Emerging Int'l Equities	28.00%	25.00%
Private Equity	23.00%	12.50%
Private Debt	13.00%	8.50%
Core Real Estate	13.00%	6.00%
Commodities	19.00%	17.00%
Global Trading Strategies**	9.07%	7.21%

\* Core Bonds assumption based on market weighted blend of components of Aggregate Index (Treasuries, IG Corp Credit, and MBS).

\*\* Hedge Funds is a calculated blend of 40% Equity, 40% Credit, 20% Macro-related strategies.

# RELATIVE ASSET CLASS ATTRACTIVENESS



Source: NEPC

\*Impacted by methodology changes for Core Real Estate (reduction in volatility) and Non-US Bonds (formerly was Global Bonds)

# 2018 CORRELATIONS

Asset Class	Cash	US Lev	Tsy	IG	MBS	TIPS	HY	Non-US Bonds (U)	Non-US Bonds (H)	EMD (Ext)	EMD (Loc)	Large Cap	SMID	Int'l (U)	Int'l (H)	EME	PE	PD	PRA - Egy/Met	PRA: Infra/Land	Core RE	Commodities
Cash	1.00	0.90	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.20	0.00	-0.05	0.15	0.10	0.10
US Lev	0.90	1.00	0.20	0.10	0.25	0.35	-0.05	0.10	0.15	0.05	0.05	-0.10	-0.15	-0.10	-0.10	-0.10	-0.25	0.00	-0.05	0.15	0.10	0.10
Treasuries	0.20	0.20	1.00	0.65	0.85	0.65	0.10	0.45	0.70	0.20	0.10	-0.10	-0.15	-0.10	-0.10	-0.20	-0.15	-0.35	-0.20	-0.05	0.10	-0.10
IG	0.10	0.10	0.65	1.00	0.75	0.65	0.55	0.45	0.60	0.60	0.50	0.25	0.25	0.30	0.30	0.35	0.30	0.15	0.20	0.10	0.15	0.15
MBS	0.25	0.25	0.85	0.75	1.00	0.65	0.30	0.45	0.60	0.35	0.25	0.10	0.10	0.05	0.05	-0.10	0.10	-0.15	-0.05	-0.05	0.05	0.00
TIPS	0.35	0.35	0.65	0.65	0.65	1.00	0.20	0.40	0.65	0.30	0.25	-0.10	-0.10	-0.05	-0.05	-0.10	-0.10	-0.10	-0.05	0.05	0.10	0.30
HY	-0.05	-0.05	0.10	0.55	0.30	0.20	1.00	0.10	0.20	0.70	0.55	0.65	0.70	0.65	0.65	0.70	0.60	0.65	0.50	0.40	0.35	0.20
Non-US Bonds (U)	0.10	0.10	0.45	0.45	0.45	0.40	0.10	1.00	0.40	0.30	0.35	0.00	-0.05	0.35	0.05	0.25	-0.15	-0.10	-0.10	0.05	0.15	0.10
Non-US Bonds (H)	0.15	0.15	0.70	0.60	0.60	0.65	0.20	0.40	1.00	0.30	0.20	-0.10	-0.15	-0.10	-0.10	-0.20	-0.20	-0.10	-0.15	0.00	0.05	-0.10
EMD (Ext)	0.05	0.05	0.20	0.60	0.35	0.30	0.70	0.30	0.30	1.00	0.75	0.55	0.55	0.60	0.60	0.70	0.35	0.50	0.40	0.35	0.25	0.35
EMD (Local)	0.05	0.05	0.10	0.50	0.25	0.25	0.55	0.35	0.20	0.75	1.00	0.60	0.50	0.70	0.65	0.80	0.40	0.60	0.40	0.40	0.40	0.50
Large Cap	-0.10	-0.10	-0.10	0.25	0.10	-0.10	0.65	0.00	-0.10	0.55	0.60	1.00	0.90	0.70	0.75	0.65	0.70	0.60	0.65	0.50	0.40	0.30
SMID Cap	-0.15	-0.15	-0.15	0.25	0.10	-0.10	0.70	-0.05	-0.15	0.55	0.50	0.90	1.00	0.65	0.70	0.65	0.75	0.65	0.70	0.50	0.40	0.30
Int'l Eqty (U)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.35	-0.10	0.60	0.70	0.70	0.65	1.00	0.85	0.70	0.60	0.75	0.55	0.45	0.35	0.40
Int'l Eqty (H)	-0.10	-0.10	-0.10	0.30	0.05	-0.05	0.65	0.05	-0.10	0.60	0.65	0.75	0.70	0.85	1.00	0.70	0.65	0.75	0.60	0.45	0.40	0.30
EM	-0.10	-0.10	-0.20	0.35	-0.10	-0.10	0.70	0.25	-0.20	0.70	0.80	0.65	0.65	0.70	0.70	1.00	0.45	0.80	0.50	0.40	0.30	0.55
PE	-0.20	-0.25	-0.15	0.30	0.10	-0.10	0.60	-0.15	-0.20	0.35	0.40	0.70	0.75	0.60	0.65	0.45	1.00	0.65	0.85	0.60	0.50	0.25
PD	0.00	0.00	-0.35	0.15	-0.15	-0.10	0.65	-0.10	-0.10	0.50	0.60	0.60	0.65	0.75	0.75	0.80	0.65	1.00	0.65	0.50	0.40	0.30
PRA - Egy/Met	-0.05	-0.05	-0.20	0.20	-0.05	-0.05	0.50	-0.10	-0.15	0.40	0.40	0.65	0.70	0.55	0.60	0.50	0.85	0.65	1.00	0.75	0.45	0.35
PRA - Infra/Land	0.15	0.15	-0.05	0.10	-0.05	0.05	0.40	0.05	0.00	0.35	0.40	0.50	0.50	0.45	0.45	0.40	0.60	0.50	0.75	1.00	0.70	0.40
Core RE	0.10	0.10	0.10	0.15	0.05	0.10	0.35	0.15	0.05	0.25	0.40	0.40	0.40	0.35	0.40	0.30	0.50	0.40	0.45	0.70	1.00	0.30
Commodities	0.10	0.10	-0.10	0.15	0.00	0.30	0.20	0.10	-0.10	0.35	0.50	0.30	0.30	0.40	0.30	0.55	0.25	0.30	0.35	0.40	0.30	1.00

# ARIZONA PSPRS - Securities Lending Program Summary (Q2 2018/FYE)

## Arizona PSPRS Trust – Performance Summary (FY 2018)

Average Size of Lending Pool:	Average Net Monthly Earnings:	Average Return on:	
<b>\$2,885,511,715</b>	<b>\$385,436</b>		
		<u>Avail. Assets</u>	<u>Loaned Assets</u>
Average Utilization Ratio:		<b>16.03</b>	<b>78.47</b>
<b>20.44%</b>		bps	bps

## Arizona PSPRS Trust – Reinvestment Portfolio Summary (FY 2018)

	<u>6/30/2018</u>	<u>3/31/2018</u>	<u>12/31/2017</u>	<u>9/30/2017</u>
Yield (360 Basis):	2.27	1.94	1.62	1.43
Total Cost (Amount Invested, in millions):	\$576.1	\$604.6	\$503.6	\$426.4
Daily Liquidity (%):	25.57	23.75	4.78	1.40
Weighted Average (Days to Reset):	17	17	20	24
Days to Maturity (Average):	101	81	126	112
Floating Rate Notes – %:	69.07	70.10	83.44	83.05
Repo - %:	27.74	17.47	11.55	16.98
Credit Quality – Lowest Rated (grade):	A/ A-1	A/ A-1	A/ A-1	A/ A-1
Lowest Rated (%):	50.13	61.76	59.09	58.42
Rating Changes/ Period:	none	none	none	none
Exposure by Industry – Highest %				
Banks (U.S. and Foreign):	65.64	76.11	82.25	76.77
Non-Cash Collateral (US Govt Debt) – Total, in millions:	\$8.9	\$19.6	\$38.0	\$5.4

# Investment Consultant Panel



**Moderated by James Ko**  
**Portfolio Manager, Arizona PSPRS Trust**

Allan Martin, NEPC

Partner

Jay Rose, StepStone Global

Partner

Edward Schwartz, ORG Real Property

Principal

Lincoln Smith, Albourne

Consultant





## Marc R. Lieberman

Partner, Certified Real Estate Specialist (Arizona)  
Chair, Institutional Investments Group  
Admitted in Arizona, Colorado, Texas

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Marc Lieberman serves as Chair of the Kutak Rock Institutional Investments Group, which negotiates private equity, hedge fund and commingled fund investments for institutions throughout the United States. In the past five years, the Institutional Investment Group has documented more than \$5 billion in alternative investments for banks, insurance companies, pension plans, sovereign wealth funds and other institutional investors. A Board Certified Specialist in Real Estate Law, Mr. Lieberman has also documented over \$1.5 billion in direct real estate investments. He is equally skilled at litigation, having obtained one of the largest defense verdicts in the United States in 2017, defeating a \$200 million claim and securing a \$4.9 million defense verdict after a 27 day trial. A former Chair of the Appellate Practice Section of the Arizona Bar, Mr. Lieberman has successfully argued dozens of appeals, two of which were televised. Mr. Lieberman has particular experience representing public pension systems, having represented several Arizona systems for more than 30 years in connection with both their operations and investment matters. Several previous administrators of the PSPRS have characterized him as “the most knowledgeable public pension lawyer in the State of Arizona.” Mr. Lieberman has served as Chair of the Editorial Board of Arizona Attorney Magazine and a member of the Arizona Commission on Judicial Performance Review—he currently serves as a member of the Arizona Supreme Court Committee on Character and Fitness, which is charged with evaluating the fitness of all applicants to the Arizona Bar. He has published two books and numerous articles, most dealing with fiduciary and investment matters, and regularly lectures on investment and fiduciary issues to industry groups. He is proud to have married his beautiful wife Cindy more than 31 years ago, and even prouder she hasn’t yet stabbed him in his sleep.



# Oskar Lewnowski

## CHIEF INVESTMENT OFFICER

Oskar Lewnowski is the founder and Chief Investment Officer of Orion Resource Partners. Prior to Orion, Mr. Lewnowski was a founding partner of the Red Kite Group and the Chief Investment Officer of the mine finance business. Before this, Mr. Lewnowski was a Director for Corporate Development at Varomet Ltd, a metals processor and merchant firm in excess of \$1 billion in revenues formed to purchase certain of Enron's metals and mining assets. While at Varomet, he was responsible for seven acquisitions and divestitures totaling over \$130 million and business operations (offtake agreements, mining and processing) with annual revenues exceeding \$1 billion. He was also responsible for structuring metal offtake agreements and other physical market transactions. Before this, Mr. Lewnowski was a Vice President for Credit Suisse First Boston in London, where he was responsible for preparing growth companies for public distribution of their securities. Until 1993, he held various positions in trading as well as mergers and acquisitions at Deutsche Bank both in New York and Frankfurt culminating in his founding membership of the Deutsche Capital Markets Division. Lewnowski earned a BS/BA in Business Administration from Georgetown University and an MBA from the Leonard Stern School of Business (New York University).



# Frank Kung, Ph.D., M.B.A.

## MANAGING PARTNER

Dr. Kung is a founding member of Vivo Capital, LLC (formerly BioAsia Investments), a healthcare/biotechnology venture capital management firm in Palo Alto, California.

Dr. Kung started his career in the biotechnology industry in 1979 when he joined Cetus Corporation. He later co-founded Cetus Immune Corporation in 1981, which was acquired by its parent company in 1983. In 1984 he co-founded Genelabs Technologies, Inc. (NASDAQ: GNLB) where he served as Chairman and CEO until 1995. During his tenure in Genelabs, he brought the company public in 1991, and built it to a 175 employee international biotech company with operations in the United States, Belgium, Singapore, Switzerland and Taiwan.

Dr. Kung received his B.S. in chemistry from the National Tsing Hua University in Taiwan, his Ph.D. in molecular biology and M.B.A. from the University of California, Berkeley. He received the Best Use of Technology Award from the Governor of California, the Entrepreneur of the Year Awards from Ernst and Young, and the Asian Business League. He also served on the board of directors of the Emerging Company Governing Body of the Biotechnology Industry Organization (BIO); Mt. Jade Science and Technology Association, West Coast; and the Asian American Manufacturing Association. He was appointed by the U.S. Secretary of Health and Human Services as a voting member of the National Biotechnology Policy Board. Dr. Kung currently serves on the board of directors of a number of emerging healthcare and biotechnology companies.

# TRUSTEE CORE DUTIES

What you must do, and why

Marc Lieberman, Kutak Rock LLP

Tom Hickey, Foley & Lardner LLP

Michael Calabrese, Foley & Lardner LLP

## FUNDAMENTAL RESPONSIBILITIES OF A TRUSTEE

1. Act in the best interests of members

6. Deal fairly with members

2. Use prudent judgment

7. Act consistent with your mission

3. Act diligently and competently

8. Monitor staff and providers

4. Maintain your independence and objectivity

9. Maintain confidentiality, when appropriate

5. Comply with the law

10. Strive for transparency

- ▶ All of 10 of these responsibilities are derived from just three fundamental principles to which all Trustees must adhere:
  - ▶ The Duty of Due Care
  - ▶ The Duty of Loyalty and
  - ▶ The Duty of Obedience (i.e., to comply with law and policy)



THE FUNDAMENTAL DUTIES OF DUE CARE,  
LOYALTY AND OBEDIENCE CONTROL  
EVERYTHING YOU DO

- ▶ The **Duty of Due Care** means, generally, that you must act with the care, skill and **prudence** exercised by similar fiduciaries—
  - ▶ Our **Enabling Legislation** is a bit confused about the **prudence aspect**– one provision says that in making investments, you must exercise the judgment and care that “persons of **ordinary prudence**, discretion and intelligence exercise in management of their own affairs” (38-848(F)).
  - ▶ Another, more recent statute(38-848.04(A)(3)), drops the reference to “ordinary” and merely says you must discharge your duties with the care, skill and caution... that a **prudent person** acting in a like capacity” would use.

YOU SHOULD EXERCISE A HEIGHTENED  
DEGREE OF PRUDENCE IN MANAGING THE  
SYSTEM’S AFFAIRS– MORE THAN JUST  
ORDINARY PRUDENCE



- ▶ The **Duty of Loyalty** is an easier concept to grasp: simply, that you owe your fealty to the System's members and beneficiaries, and no one else
- ▶ Likewise, the **Duty of Obedience, or to obey the law**, is easily understood, although as we will see later, it's often the hardest with which to comply because the law doesn't specifically address every circumstance falling before you.

THE DUTIES OF DUE CARE, LOYALTY AND  
OBEDIENCE ARE ALL MEASURED ACCORDING TO  
THE FACTS KNOWN TO YOU **AT THE TIME YOU  
MADE A DECISION**, NOT BY HINDSIGHT



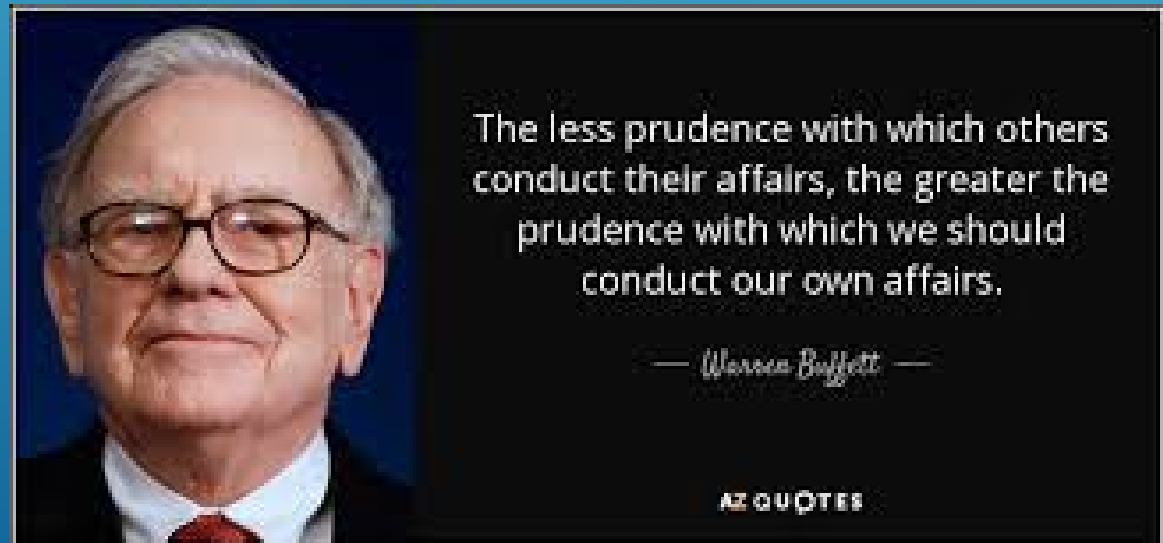
- ▶ Let's now examine in more details the 10 specific responsibilities of a Trustee arising from the fundamental duties of Due Care, Loyalty and Obedience---
- ▶ As we explain each of these responsibilities, we'll try to flesh them out with examples experienced by boards similar to the System or with examples this board has actually experienced.



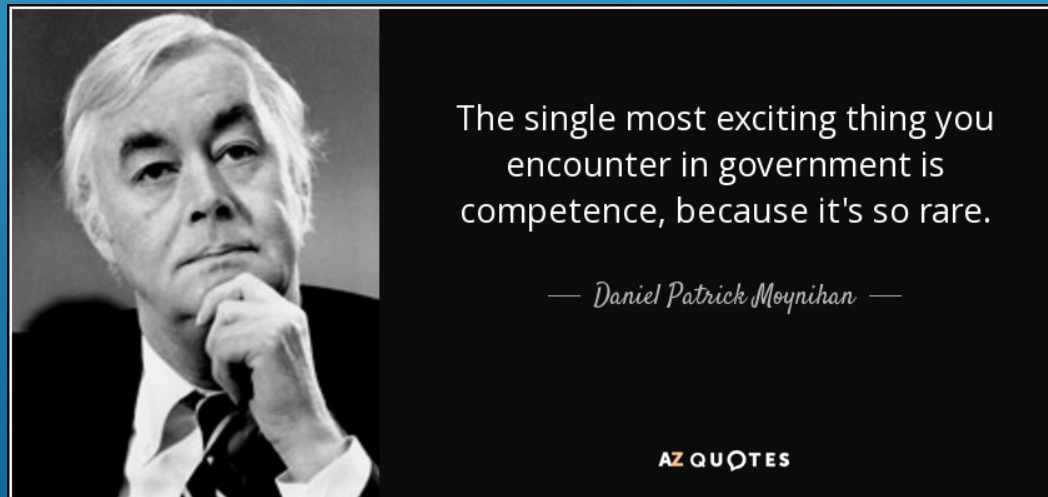
- ▶ **Acting in the Best Interest of the Members**– what does that **really** mean?  
It means you must resolve all conflicts in favor of the members and their beneficiaries, to the exclusion of all others
  - ▶ Thus, in conflicts between Members and their Employers: **the interests of members must prevail.**
  - ▶ In conflicts between Active Members and Retired Members: **you must use your best efforts to deal fairly with each class, but ultimately, do what's in the best interests of the System as a whole.**
  - ▶ In conflicts between the System and those appointing the System's Trustees: **you must do what serves the members' interests, even if it means you anger the appointing power.**
  - ▶ Conflicts between Staff and the System: **whose interests must prevail?**

**THE CONTROLLING PRINCIPLE:** ALL ACTIONS  
MUST BE FOR THE EXCLUSIVE BENEFIT OF THE  
MEMBERS AND THEIR BENEFICIARIES, WHATEVER  
THE CONSEQUENCES

- ▶ **Exercising Prudent Judgment:** What does that mean?
  - ▶ **Is it prudent to undertake tasks you're not qualified to do?** Delegation is critical when expertise is lacking.
  - ▶ **Is it prudent to eschew critical advice before risks become manifest?** Early reliance upon professional advice can avert disaster.
  - ▶ **Is it prudent to ignore industry trends?** A healthy fund stays abreast of the latest trends and developments, knowing nothing remains static.
  - ▶ **Is it prudent to presume things are well because no one has complained otherwise?** What you don't know may hurt you. **Inquire.**



- ▶ **Acting Diligently and Competently:** What's that mean?
  - ▶ **KNOWLEDGE:** You must become knowledgeable about the System you govern, learning as much as you can about the System's terms and policies, as well as its staff, vendors and consultants, and importantly, its various constituencies
  - ▶ **ENGAGE:** You must become sufficiently conversant with the issues facing the System that you can constructively participate in efforts to improve it
  - ▶ **CONTINUED EDUCATION:** You must never presume you know everything there is to know in your role as trustee– you should regularly engage in educational opportunities to hone your expertise
  - ▶ **GUIDANCE:** When faced with issues outside your experience, seek appropriate assistance, whether internal or external.



- ▶ **Maintaining Independence:** Avoiding competing interests

- ▶ Your loyalty is to the System and its members: You must:

- ▶ Avoid the appearance of impropriety by serving other interests

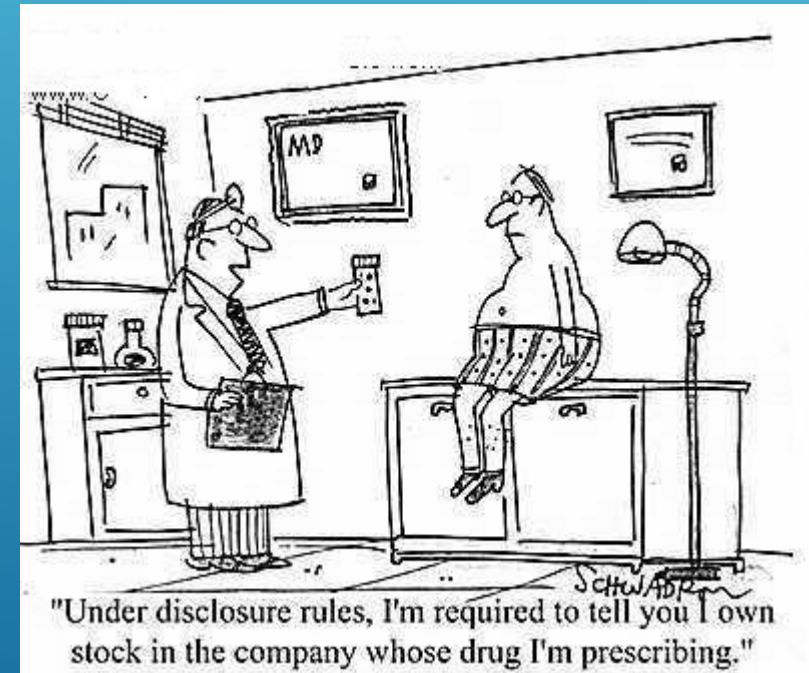
- Refuse Gifts

- Avoid personal relationships impairing your independence

- Disclose actual or apparent conflicts

- Implement and abide by policies addressing conflicts

WOULD OTHERS MIND IF  
THEY KNEW I WAS DOING THIS?



▶ **Complying with the law:**

- ▶ When faced with legal uncertainties, seek legal assistance
- ▶ Ensure updated and diligent compliance procedures
- ▶ Encourage reporting of suspected illegal activities and irregularities

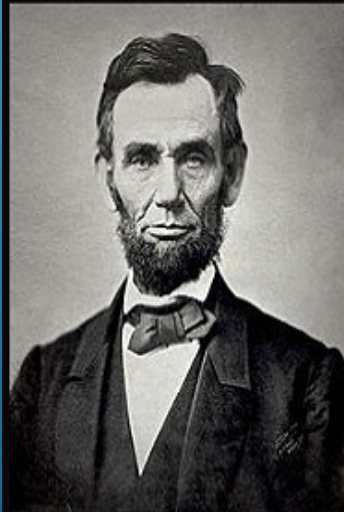
*“If you think  
compliance is  
expensive, try  
non-compliance.”*

**Paul McNulty**  
Former US Deputy  
Attorney General



## ► Dealing Fairly Among Competing Participants

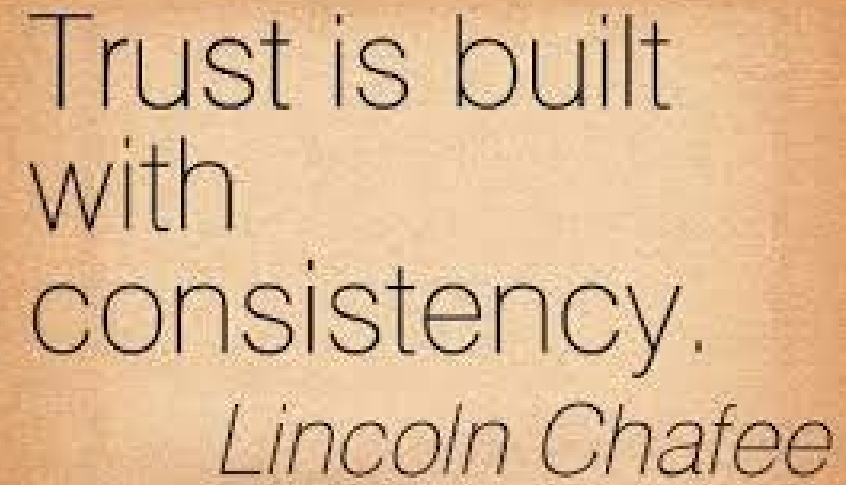
- Must be no preferential treatment among persons of a particular class– impartiality must be your keystone
- But balancing the interests of all members and beneficiaries is often difficult—
  - Can you seek to increase member contributions to protect the System?
  - Can you restrict COLAs (which will adversely affect retirees) to protect the long term health of the System and the interests of current members?



These men ask for just the same thing, fairness, and fairness only. This, so far as in my power, they, and all others, shall have.

(Abraham Lincoln)

- ▶ **Acting Consistently With Your Mission:** Why is that important?
  - ▶ Taking inconsistent action invites claims of favoritism
  - ▶ Taking inconsistent action suggests incompetence
  - ▶ Taking inconsistent action invites challenge



Trust is built  
with  
consistency.  
*Lincoln Chafee*

meethille.com



- ▶ **Monitoring the effectiveness of staff and service providers, as well as System programs**
  - ▶ The wisdom of this is self-evident, but too many trustees fail to take an active role in evaluating staff, service providers and programs–
  - ▶ The best way to ensure the System's optimum operation is to **constantly evaluate the** effectiveness of those who operate it and the programs they implement–
    - ▶ Thus, in **Tibble v. Edison**, the US Supreme Court held that separate and apart from a trustee's duty to exercise prudence in selecting an investment, the trustee has a continuing duty to evaluate the continued reasonableness of the investment– perhaps it is no longer suitable for the plan's objectives, or has proven unprofitable, or overly expensive, and should be redeemed or replaced.

Even worthwhile endeavors need evaluation in order to determine if they have become distractions from the best goals.

— *Quentin L. Cook* —

AZ QUOTES

## ▶ The Tension Between Confidentiality and Transparency

- ▶ As public officers, we are duty bound to do much of our work in the public eye-- but there are important exceptions, which must be honored:
  - ▶ Much of our investment analysis must be kept secret
  - ▶ Legal advice is protected from disclosure
  - ▶ Executive Session Meetings must be kept confidential
  - ▶ Confidential member information must be preserved



► **Speaking with one voice:**

- Obviously, when we make a public statement, it must be true, full and fair
- But as members of a board of trustees, individual trustees cannot speak for the System or the board unless the board has determined otherwise— this is a legal requirement, but makes sense nonetheless



In foreign policy, there are times when speaking with one voice - and it doesn't have to be mine - allows us to engage better on issues, and enables us to do things more effectively.

(Catherine Ashton)

- ▶ How can we be assured of proper fiduciary performance?
  - ▶ Adopt periodic reviews of staff, advisers, consultants, vendors, policies and procedures
  - ▶ Mandate disclosure of financial and conflicting interests
  - ▶ Conduct regular audits of plan operations
  - ▶ Conduct thorough background checks on all who contract with System, including investment managers
  - ▶ Undertake regular continuing education and training (like this!)
  - ▶ Never shy away from asking questions of staff, consultants or advisors





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# TRUSTEE ETHICAL DUTIES

**PRESENTED BY:**

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**MICHAEL CALABRESE, FOLEY & LARDNER LLP**

# WHY CARE ABOUT ETHICS?

- We already know that as trustees, you have a duty of due care, loyalty and of obedience– and **arising from your duty of loyalty, as well as obedience, is the obligation to act ethically.**
  - Your ethical conduct will engender like conduct in the System's staff, consultants and advisors, and deter wrongful behavior
  - Your ethical conduct will increase staff morale, heighten confidence by the members, employers and taxpayers that the System is being responsibly managed, and provide a coherent framework for navigating difficult issues
  - Your ethical conduct will assure the System complies with all requirements





# WHAT ETHICAL QUALITIES DO WE WANT TO PROMOTE?

- By exhibiting sterling character and competent performance, a trustee encourages those working for him to exhibit many salutary qualities, such as:
  - Honesty, integrity, courage, fairness, respect, compassion, goodwill, loyalty, professionalism, diligence, prudence, excellence, teamwork, reliability and humility

And exhibiting these good qualities reduces the likelihood of serious harm to the organization in the form of:

- Legal exposure
- Reputational damage
- Low morale
- Poor performance and
- Unlawful behavior





# WHAT ACTS PRECIPITATE BREACHES OF ETHICS?

There are several types of acts which often precipitate ethical lapses:

**Self-dealing, including the receipt of gifts and conflicts of interest**

**Misappropriation of property or personnel**

**Failure of diligence in selecting assets, to diversify assets and to monitor assets and personnel**

**Misrepresentation or omissions of fact**

**Misuse of confidential information**

We will now explore some of these in greater detail, perhaps challenging you to find the answer in situations which may not seem altogether clear.



Determining the bounds of ethical behavior really comes down to this—

If your duty is to do what's best for the System's members, ask yourself this:

**Is what I'm doing the right thing for the members?**

**Do I want to hide what I'm doing from others?**

**Would others be upset if they knew what I was doing?**

**Does my conduct comport with the concepts of honesty & fairness?**

If you are uncomfortable with your answers to these questions, you should not undertake the action contemplated.

# SELF-DEALING



# SELF DEALING

We already know that all of your actions as a trustee are to be for the benefit of the members, and certainly not to benefit yourself.

- **But what if you are also a member of the System;** can you, in your role as a trustee, champion legislation which benefits you personally?
- **Suppose you serve as both a trustee of the System and a CFO of a participating employer;** can you, in your role as a trustee, support legislation which reduces employer contribution expense?
  - **Answer: You cannot take official action for the System which benefits you, related parties or your business UNLESS SUCH BENEFIT IS NO GREATER THAN THAT WHICH ACCRUES TO A LARGE CLASS, SUCH AS ACROSS THE BOARD EMPLOYER CONTRIBUTION INCREASES OR MEMBER BENEFIT INCREASES**

# CONFLICTING OUTSIDE INTERESTS

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*"Try this—I just bought a hundred shares."*

# CONFLICTING OUTSIDE INTERESTS

- While trustees cannot take official action, in their capacity as trustees, in contravention of their duties to the System's members, does their loyalty to the members extend **beyond** their official actions as trustees?

Examples:

- Can a trustee borrow from the System's custodial bank or investment manager?
- Can a trustee hire a vendor, adviser or consultant already retained by the System?
- Can a trustee buy property from a joint venture in which the System owns an interest?

**Answer: In the event a trustee has a financial interest in activities outside of the System which may conflict with the System's interests or appear to affect the trustee's loyalty to the System, he may not contract with System investment managers or advisors UNLESS those persons are normally engaged in such contracts for the public generally and the terms of their contracts with the trustee are market.**

# NEPOTISIM



"We were very impressed by your resume.  
Especially the part where you mention that your grandfather is our CEO."

# NEPOTISM

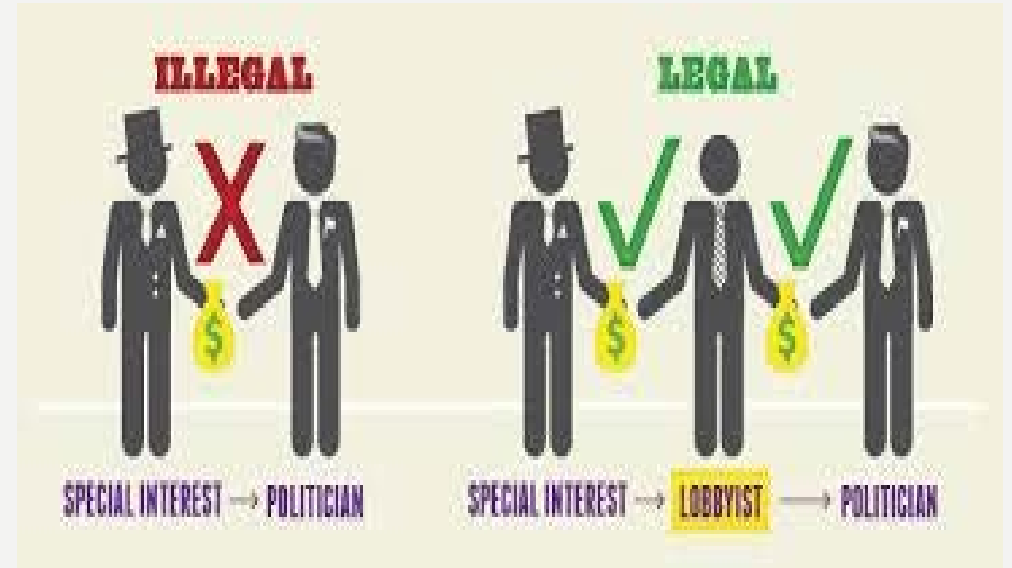
- Not surprisingly, your duties of loyalty to the System preclude you from urging the System from hiring your relatives.

**What if your relative was already working for the System at the time you were appointed**— must your relative be terminated or must you forgo your position as trustee?

- **Generally, such pre-existing employment does not disqualify you from serving as a trustee, nor does it require your relative to quit employment with the System, although you must take special care to ensure that your relative is not afforded any special favor because of your position as trustee.**



# HIRING PRACTICES

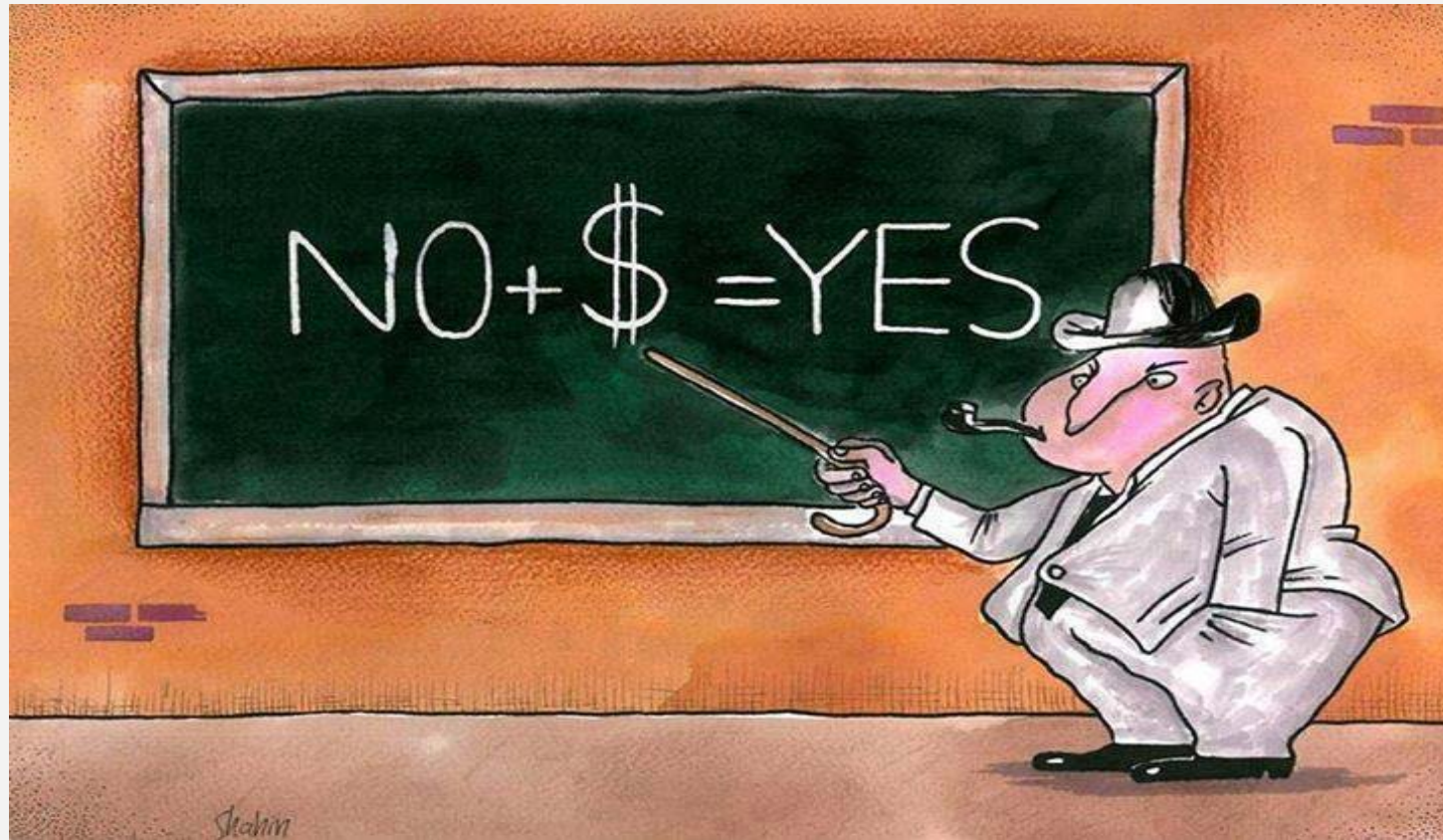


Not surprisingly, trustees (like staff) must refrain from receiving anything of value in exchange for retaining consultants, advisors, investment managers, staff or vendors for the System—

- Thus, a trustee cannot arrange for an investment manager to be retained by the System in exchange for the manager hiring the trustee, his relatives or any of their businesses, or paying any of them a kickback.
- Nor can a trustee do any of those things thru a middle-man or agent

**Thus, it was clearly not OK for CalPERS to pay \$14 million to its former board chair, who acted as a middle man for investment funds retained by CalPERS, in exchange for the former board chair's kickback of thousands of dollars in gifts to CalPERS' CEO.**

# GIFTS



# GIFTS

- **Both the law and our current ethics policy says you should refrain from accepting gifts which are actually or apparently designed to improperly influence your decisions as trustees—**
- While this doesn't mean you are precluded from having a meal purchased for you on occasion by someone who is doing business with the system—
- You must refrain from accepting gifts which are **obviously** intended to influence the decisions you would otherwise make but for the gift.

Example:      **You are considering a particular investment for the System– the manager of the investment offers you a “free” two-week cruise to Tahiti if you make the investment. Is this a prohibited gift? (Query: Is the cruise obviously intended to influence the decision you would otherwise make but for the cruise?)**

**Would your answer be the same if the manager did not condition the cruise on your making the investment but instead, just attending a half day seminar on the cruise about the investment?**

# ARIZONA LAW PROHIBITING GIFTS: ARS § 38-504(C)

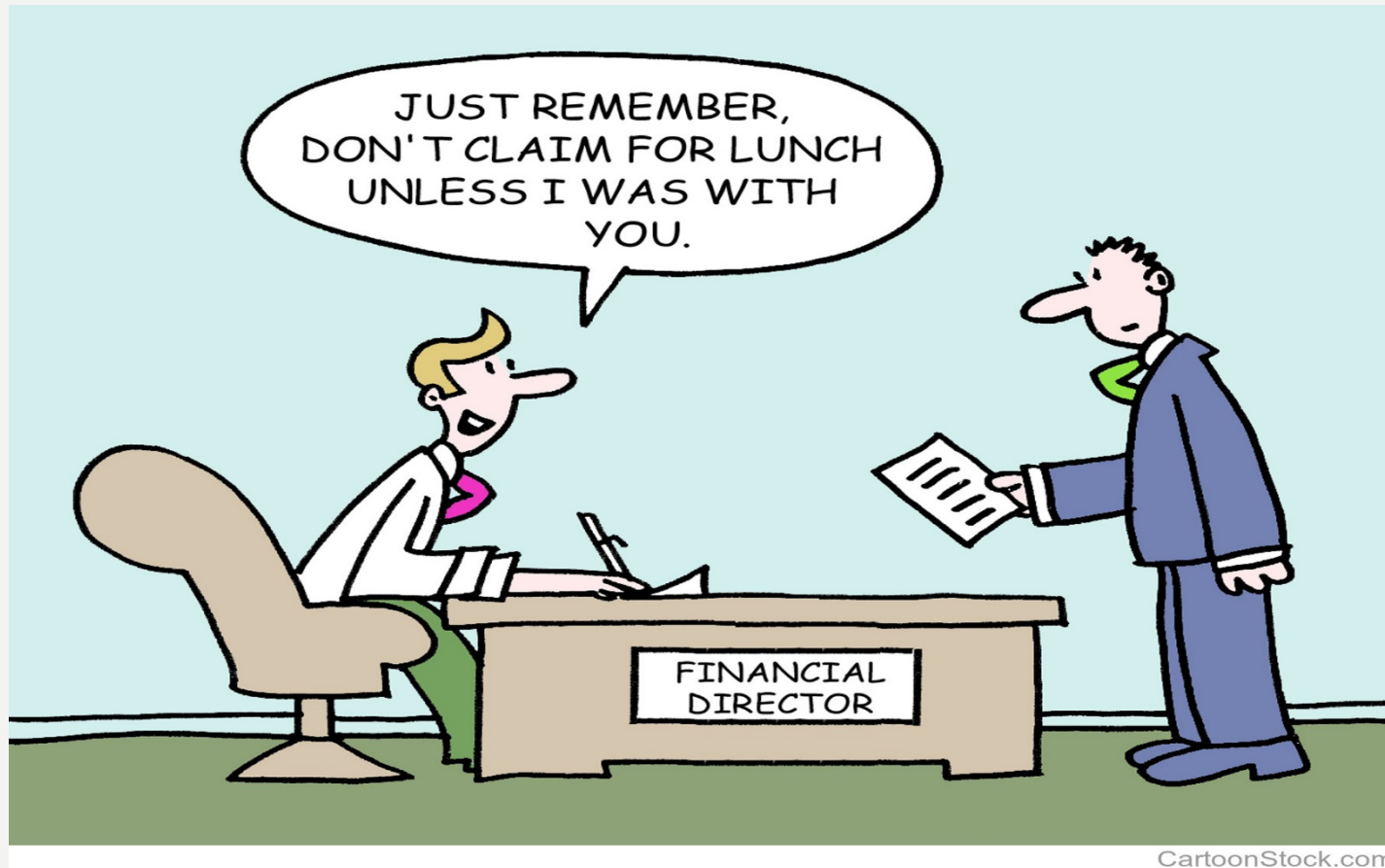
“A public officer or employee shall not use or attempt to use the officer’s or employee’s official position to secure any valuable thing or valuable benefit for the officer or employee that would not ordinarily accrue to the officer or employee in the official performance of the officer or employee’s official duties **if the thing or benefit is of such character as to manifest a substantial and improper influence on the officer or employee** with respect to the officer or employee’s duties.”

Key:      **Is the benefit conferred such that it is influencing your decision? If so, accepting it is unlawful.**

# SIMILAR LEGAL PROHIBITIONS: THE LAW AGAINST BRIBERY, ARS § 13-2602

- This criminal statute makes it unlawful for a public employee to solicit or accept any personal benefit in exchange for official action, and it's no defense that the employee was not qualified to act as requested.
  - The consequence of accepting an unlawful gift or soliciting one is severe: if you are a member of a state retirement plan, your membership in that plan is terminated, you forfeit all your rights and benefits in the plan and may only receive a return on your contributions with interest, and it is likely you may be subject to severe penalties, including imprisonment and fines. See **ARS** § 13-713.
  - Thus, it's critical that both trustees and staff pay close attention to their obligations to eschew gifts which might influence their professional behavior

# TRAVEL AND INCIDENTAL REIMBURSEMENTS



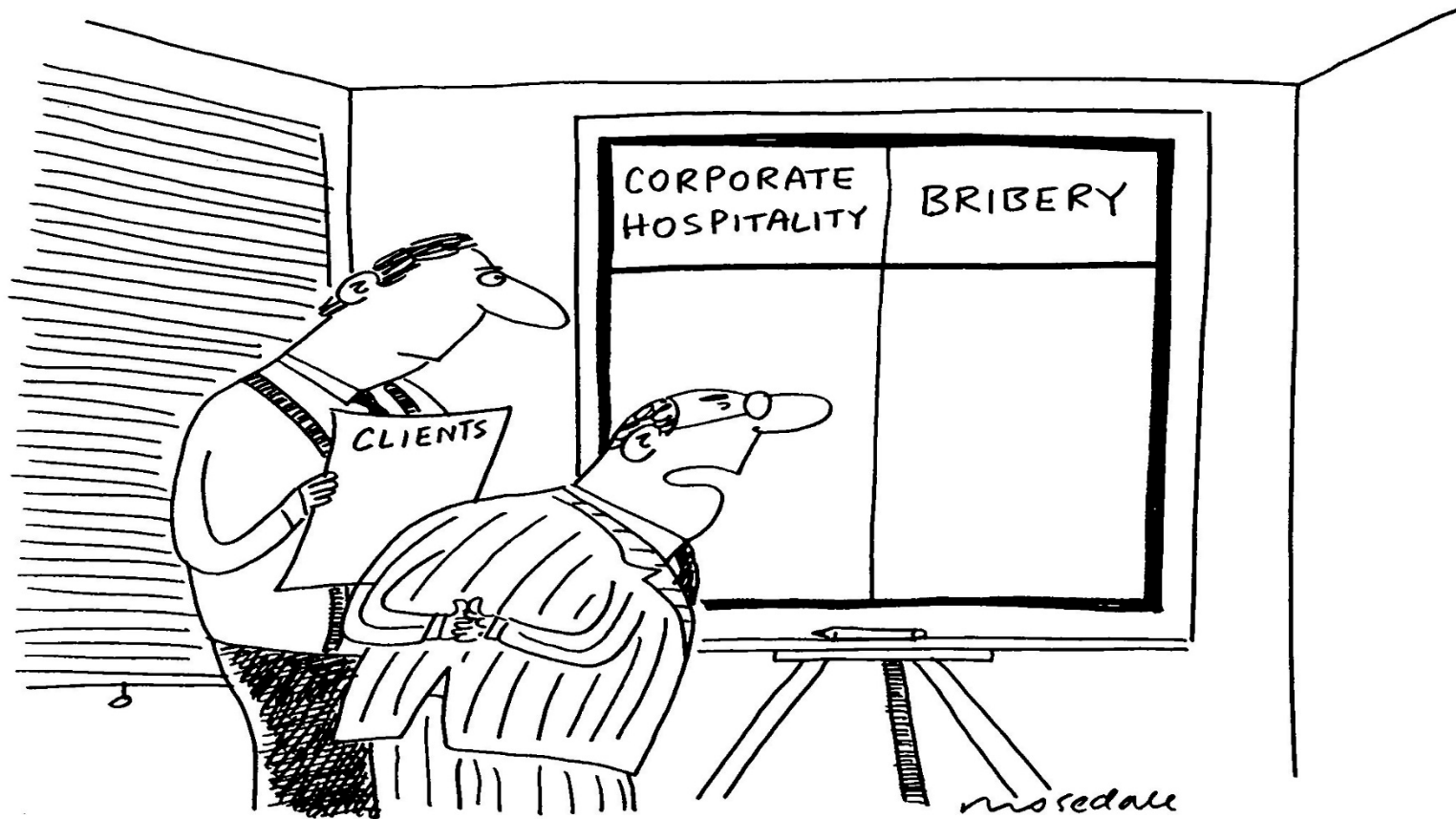
# TRAVEL AND INCIDENTAL REIMBURSEMENTS

Since public funds must be prudently expended, expenses should be actual, reasonable and necessary, and not exorbitant.

- **Expenses must be actual:** Thus, if on a business trip, your meal is paid for by a prospective investment manager, can you nevertheless seek reimbursement for the meal from the System?
- **Reasonable expenses include costs of travel, meals or supplies which enable you to achieve your objectives:** must you stay in the cheapest hotel, even at the risk of your safety or convenience?
  - On the other extreme, would it be prudent to stay at the most expensive hotel, or fly first class airfare?
- **Necessary expenses:** Is it necessary to spend five days in a city for a two hour meeting?
  - So, was Congressman Duncan Hunter imprudent when he reportedly spent \$14,261 of campaign funds on a trip to Italy with his family, justifying the expense on grounds he had intended to (but never took) a day tour of a U.S. Naval facility near Rome.
    - Even if he had taken the tour of the Naval facility, would that tour have justified the cost of his family trip at taxpayer expense?



# ATTENDANCE AT FUNCTIONS



'It's a thin dividing line, Johnson. Let's just ignore it.'



# ATTENDANCE AT FUNCTIONS

You should refrain from attending meetings **paid for by others** which might jeopardize your independence and objectivity— such as those promoting a specific business or product, and especially, a business or product not suited for use by the System.

**Example: Jane Trustee is invited by an investment firm currently under criminal indictment for violations of the Foreign Corrupt Practices Act to attend a three day, all expense paid trip to NYC—**

Knowing there is little chance Staff will consider investing in the firm, Jane attends anyway since she always wanted to go to NYC and can't afford to spend three days there on her own dime. When asked about the trip, Jane justifies it on grounds she wanted to know more about the firm and its products, despite the indictment, which she says, might be just an isolated incident not really reflective of the firm's ethics.

**Was Jane's trip to NYC ethical? Wise?**

In contrast, attendance at conferences involving topics pertinent to management of the System and not intended to promote a particular business are perfectly acceptable.

**Example: Same example as above but Jane is invited to attend a conference on trends in Emerging Market Investments sponsored by 10 investment managers and ILPA, the Institutional Limited Partners' Association. Jane attends because she wants to learn more about these types of investments.**

**Any question about the ethics of Jane's attendance at this conference?**

# USE OF SYSTEM ASSETS/PERSONNEL



# USE OF SYSTEM ASSETS/PERSONNEL

Not surprisingly, trustees should not use any property or resources of the System for their personal gain—

– You should not:

- **use System computers to conduct your personal business**
- **borrow from the System or ask the System’s investment consultants for free advice about your personal investment portfolios**
- **instruct System staff to perform tasks for you personally unrelated to your System duties**

**Thus, perhaps was it inappropriate for a former director of the Getty Museum to reportedly, direct museum personnel to pick up his dry cleaning, have the museum hire his girlfriend and then pay her college tuition, as well as have the museum pay for exotic “business” trips he took with his girlfriend?**

# PSPRS CODE OF CONDUCT

- The Code largely reiterates the ethical duties we've already discussed, but has a few additional requirements, such as:
  - Your duty to monitor does not include the duty to participate in daily operations given the fact that individual trustees can only act collectively by way of decisions of their board and not individually
  - Your efforts to seek information should be limited to that required for monitoring purposes– you cannot ask for information which for use in your personal business
  - Like a judge who must abide by precedent, you have an obligation to abide by the decisions of the board even if you disagree with them, unless you can persuade the board as a whole to change them or you believe the action being taken is nevertheless in violation of the law or your fiduciary responsibilities
  - And the Code of Conduct provides a procedure to resolve conflicts between trustees about alleged violations of fiduciary obligations

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# Ethical Jeopardy!

Your Hosts:

Marc Lieberman, Tom Hickey and  
Michael Calabrese

# Category: Disguised Business Travel

- ▶ You are an executive director of a police pension system who is a devoted Oklahoma Sooners fan. You are dying to see the upcoming Oklahoma/Texas football game in Dallas, but don't want to personally foot the bill for attending the game.

True or False: It's ok to have the pension system pay your expenses to see the game so long as you arrange a meeting in Dallas before the game with an investment firm which manages some of the system's investments--

# Answer: FALSE

The Executive Director of the Oklahoma Police Pension and Retirement System believed his system should underwrite his personal expenses, including travel to Europe and various entertainment venues, so long as he set up impromptu meetings with investment managers at each venue.

The Director has been indicted on 6 counts of filing false claims for making up phony business reasons to justify personal trips at the State's expense.





## Category: Personal Profit

- ▶ An investment officer at a public pension plan hosts a golf tournament, and invites several dozen representatives of the plan's investment managers. The entry fee is a donation to a local charity that the investment manager supports, but with which she has no formal relationship. The tournament raises \$31,000 for the project from 12 of the plan's managers.
- ▶ True or False: It's ok for a public official to solicit money from those with whom her plan does business so long as the money is not going to the official, her family or a business in which she has a financial interest.

# Answer: True

- ▶ The State's ethics commission issued a letter finding that the golf tournament did not violate state law because the investment officer did not receive any proceeds of the tournament and did not have a relationship with the charity that would cause the donations to be imputed to her!
- ▶ Nevertheless, the commission recognized that because the incident raised ethical and fiduciary concerns, the investment officer should be denied a discretionary bonus. The commission also created a policy to prohibit such solicitations in the future.



## Category: Education/Gifts

- ▶ A Trustee of a public pension plan asks one of the plan's investment managers to donate tickets to a prestigious conference on economic issues and policy for use by him and his fellow Trustees. The Trustee knows the investment manager has tickets available and is permitted to give them away or even sell them for up to \$10,000.
  - ▶ True or False: It's ok to ask the investment manager to provide tickets to an educational conference, even if the tickets have a high dollar value, because education is an important aspect of a Trustee's duties and the cost of it is therefore a benefit to the plan and not a personal benefit to the Trustee.

# Answer: True

- ▶ While public officials are prohibited from receiving gifts which may influence their official actions, free and reduced tuition to educational conferences are not considered “gifts” so long as they are provided exclusively for purposes of assisting the official to perform his official duties.
- ▶ **But be careful:** Is the content of the program closely related to the plan’s mission?
- ▶ And even if the gift is legal, there still may ethical or fiduciary concerns. Does the provision of free tuition have the potential to affect the Trustee’s official decisions with respect to the investment manager? Might it give rise to the appearance of impropriety?





# Category: Facilitating Business

A former board member of a pension system is using his previous association with the board to solicit the system's investment in a fund managed by a registered investment adviser. The former board member is receiving a significant percentage of every investment he solicits for the adviser.

True or False: It's ok for the former board member to receive a percentage of every investment he solicits for the investment adviser so long as the former board member fully discloses his compensation to the system.

# Answer: True

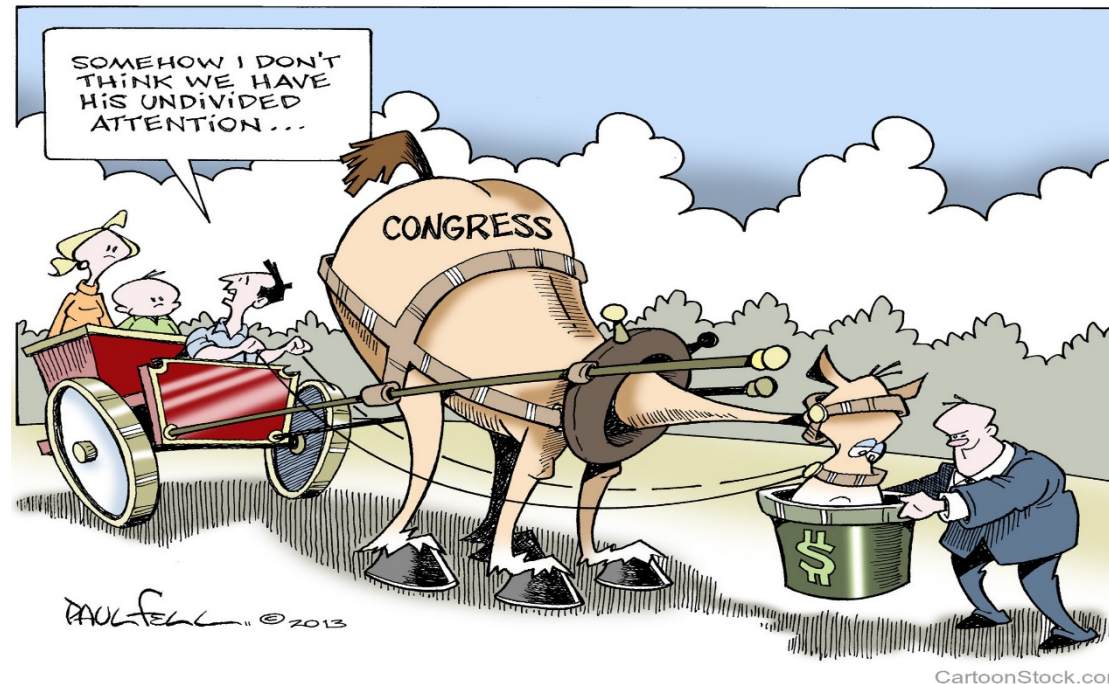
- ▶ There is no law precluding a former member of the board from doing business with his former system. With respect to the payment of placement fees, some states (NY) have banned them, while others permit them so long as the person receiving the fees, and the amounts paid him, are fully disclosed.
- ▶ Arizona does not ban the payment of placement fees, and the PSPRS has taken the approach such fees are permissible because banning them might preclude the PSPRS from participating in funds it otherwise could not access without the assistance of placement agents. However, PSPRS requires full disclosure of the fees and who is receiving them to make sure the persons receiving them are not prohibited recipients (prohibited recipients would be system personnel).

# Category: Campaign Contributions

- ▶ Suppose the same scenario as we've just discussed but the former board member is facilitating the payment of campaign contributions to some of the existing board members to acquire the system's business—
- ▶ True or False: The payment of placement fees to the former board member is lawful because the First Amendment protects the payment of campaign contributions as political speech.

# Answer: False

- ▶ With few exceptions, the SEC precludes the payment of compensation to any investment manager or placement agent who has directly or indirectly made political contributions to the investor and its affiliates within 2 years.





# Category: Gifts

- ▶ Suppose the former board member who is soliciting investment from his former system regularly wines, dines and entertains current board members and investment staff with whom he had earlier established a personal or collegial relationship.
- ▶ True or False: It is lawful for the former board member to entertain his friends, regardless of their positions with the system and the costs spent for their entertainment, so long as he never conditions his provision of food, entertainment or travel on the receipt of system business.

# Answer: False

- ▶ With some reasonable exceptions, Arizona law, and PSPRS's policies, prohibit system personnel from receiving gifts clearly intended to improperly influence their official actions. While this doesn't mean you are precluded from having a meal purchased for you on occasion by someone who is doing business with the system, you must refrain from accepting gifts which are **obviously** intended to influence the decisions you would otherwise make but for the gift.

**For Example:** In 2013, the former chair of the CalPERS board, along with its former CEO, were indicted in connection with a scheme whereby in exchange for lavish trips to gambling meccas on private jets and other exorbitant gifts, the CEO arranged for CalPERS to invest \$3 billion through the former board chair, who received \$14 million in placement fees for his effort.

# Category: Inadequate Supervision

- ▶ You've been appointed trustee to a pension system in which all investments are made by professional investment staff, who appear competent. Unknown to you, some of the investment staff are actually employed by one of the system's investment managers to "save the system money" and provide the system with "industry expertise and guidance."
- ▶ True or False: It's perfectly acceptable for an investment manager who is investing the system's money to provide staffing to the system to save the system money and provide industry expertise.

## Answer: False

- ▶ All system investment personnel are fiduciaries to the system, and that means they must have undivided loyalty to the system and no one else. A person vested with discretion to make investment decisions for the system who is actually employed by one of the system's investment managers cannot have undivided loyalty to the system, especially in the event he is recommending the system's investment in his employer.
  - ▶ Example: In *Mayberry v. KKR et al*, the trustees of the Kentucky Retirement System are being sued for inadequate supervision for allowing KKR to place one of its employees on the system's investment staff at the time staff invested \$300 million of the system's cash in one of KKR's hedge funds which at the time, was seriously underperforming.

# Your duty of Supervision:

- ▶ As a trustee, you are authorized to delegate investment responsibility to staff, but with that delegation comes the responsibility to take reasonable measures to ensure that staff is exercising their delegated duties responsibly—
  - ▶ In the Mayberry case, examination of the system's budget would have revealed that the investment staffer paid by KKR had no budgeted salary, leading to the conclusion that this person was paid by, and perhaps owed his loyalties to, an external source. That revelation likely would have led to the conclusion that the staffer employed by KKR had conflicted loyalties.



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# Annual Board Meeting

PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM (PSPRS)

WILL BUIVIDAS, CHAIRMAN, PSPRS DEFINED CONTRIBUTION COMMITTEE

SEPTEMBER 27, 2018



*SERVING THOSE WHO SERVE OTHERS*

# PSPRS DEFINED CONTRIBUTION COMMITTEE



## Arizona PSPRS Defined Contribution Committee

William T. Buividas  
Chairman, Trustee



Jared A. Smout  
Vice Chairman, Administrator



Bryan N. Jeffries  
PFFA President,  
Mesa Fire



Ryan McKinnon  
Scottsdale Police



Brian Moore  
Phoenix Fire



Daren Wunderle  
Phoenix Police



William Thatcher  
PSPRS CIO Designee



Fiduciary Counsel





## STARTING FROM SCRATCH

- Started with under \$20,000,000 in assets from the supplemental 401(a) plan and Elected Officials 401(a) plan
- Competitive RFP for four service providers:
- Investment Consultant, Record Keeper, Registered Investment Advisor / Education Provider, Annuity Provider
- Completed in under 6 months from start to finish
- During the RFP process we were able to significantly reduce fees from initial proposals for all outside vendors
- Nationwide Fixed Account is paying a guarantee 2.75% up from their initial offer of 2.00% and one of the highest in the State of Arizona
- 401(A) plan is already becoming a model across the country, Brian Moore presented on a panel at NAGDCA this week

## DC COMMITTEE SERVICE PROVIDERS



### Contractual Service Providers



Plan Consulting



Nationwide<sup>®</sup>

Plan Provider/Recordkeeper



GALLOWAY

Federally Registered Investment  
Advisor/Education



SECURITY  
BENEFIT<sup>SM</sup>

TO AND THROUGH RETIREMENT

Annuity Service Provider

*All service providers participated in a competitive bid process conducted by the DC Committee where contractual authority was delegated by the Board of Trustees.*

## CURRENT ASSETS



- \$81,000,000 in the PSPRS 401(A)
- \$19,000,000 in the supplemental 401(A)
- \$5,000,000 in the Elected Officials 401(A)
- **\$105,000,000 across all three plans as of 8/31**
- Initially experience significant leakage, past couple months leakage has been reduced
- In August, sent a mailing out to almost 5,000 members with 18 years or more of service
- Monthly mailings continue to go out to members as they reach critical milestones

## EDUCATION

- SB 1428 “pension reform” added an education component to PSPRS
- Previously, PSPRS relied on the local boards and employers to provide any retirement / financial wellness education to our members
- This was not being accomplished efficiently and many members were unprepared to make retirement decisions.
- FY 2018 Education Stats:
  - 78 seminars (Financial wellness / Retiring from DROP)
  - 995 members attended
  - 98% found the training informative
  - 100% would recommend to others
  - 88% motivated to increase 457 / 401(A) deferrals
  - 94% were motivated to change / review asset allocations (IE move out of fixed account)
- Numerous new hire “tier 3” classes
- Starting last month CORP classes and CORP new hire “tier 3” classes



- Adding seminars to all areas of the State, not just the valley
- Tweaking the seminars to keep up with current trends / issues
- Working on a robust member engagement reference Aug 3, 2018 law that allows retired members to roll all their 457 / 401(A) assets into the PSPRS 401(A) plan
- Continue to grow the assets in the plans
- Work on legislation to enact a statewide 457 plan. Useful for smaller agencies that don't have access to a good 457 plan

THANK YOU



to the DC committee for all you hard work over the past year!





## QUESTIONS AND DISCUSSION



*SERVING THOSE WHO SERVE OTHERS*

September 21, 2018

#### Report from PSPRS Advisory Committee

The PSPRS Advisory Committee has met three times in the year since the last PSPRS Annual Meeting. In October 2017 the committee discussed the issue of Board Consolidation in light of the Tier 3 structure, the recommendation from Cortex and previous recommendations of the League and labor groups. Being unable to achieve an agreement, the committee authorized the creation of an ad hoc committee made of up of four outside members charged with negotiating a recommendation.

At a meeting in May 2018, the committee re-elected Ken Strobeck as Chairman for the calendar year and heard a presentation from GRS regarding actuarial assumptions, methods, and other general matters. Members of the ad hoc committee reported that despite multiple meetings, there had been no progress on a compromise structure. The Advisory Committee asked them to continue to meet and try to reach an agreement.

In August of 2018, the committee heard an update presentation from Marc Lieberman of Kutak Rock LLP regarding a request authorized by the Board for a formal Attorney General Opinion on the constitutionality of various pension statutes. They also heard from Administrator Jared Smout and the system's contract lobbyist on possible recommendations on legislative initiatives for the 2019 session.

The Committee plans to meet at least one more time this year to hear a final update from the ad hoc committee.



Ken Strobeck, Chairman





# Frank Kung, Ph.D., M.B.A.

MANAGING PARTNER  
VIVO CAPITAL, LLC

Dr. Kung is a founding member of Vivo Capital, LLC (formerly BioAsia Investments), a healthcare/biotechnology venture capital management firm in Palo Alto, California.

Dr. Kung started his career in the biotechnology industry in 1979 when he joined Cetus Corporation. He later co-founded Cetus Immune Corporation in 1981, which was acquired by its parent company in 1983. In 1984 he co-founded Genelabs Technologies, Inc. (NASDAQ: GNLB) where he served as Chairman and CEO until 1995. During his tenure in Genelabs, he brought the company public in 1991, and built it to a 175 employee international biotech company with operations in the United States, Belgium, Singapore, Switzerland and Taiwan.

Dr. Kung received his B.S. in chemistry from the National Tsing Hua University in Taiwan, his Ph.D. in molecular biology and M.B.A. from the University of California, Berkeley. He received the Best Use of Technology Award from the Governor of California, the Entrepreneur of the Year Awards from Ernst and Young, and the Asian Business League. He also served on the board of directors of the Emerging Company Governing Body of the Biotechnology Industry Organization (BIO); Mt. Jade Science and Technology Association, West Coast; and the Asian American Manufacturing Association. He was appointed by the U.S. Secretary of Health and Human Services as a voting member of the National Biotechnology Policy Board. Dr. Kung currently serves on the board of directors of a number of emerging healthcare and biotechnology companies.



# Seth Birnbaum

SENIOR PORTFOLIO STRATEGIST,  
BRIDGEWATER ASSOCIATES

Seth is a 15 year veteran of Bridgewater Associates' research group. He is a Senior Portfolio Strategist and senior member of research, with expertise in Bridgewater's investment process, portfolio structuring, and the FX, interest rate, commodity and equity markets. For many years, Seth has worked closely with clients to develop tailored investment strategies, portfolio modeling capabilities, and investment training and development experiences. He also regularly meets with clients to share Bridgewater's thinking on global markets and economies. Seth is a graduate of Amherst College, where he majored in economics, political science, and philosophy.



# Oskar Lewnowski

## CHIEF INVESTMENT OFFICER ORION RESOURCE PARTNERS

Oskar Lewnowski is the founder and Chief Investment Officer of Orion Resource Partners. Prior to Orion, Mr. Lewnowski was a founding partner of the Red Kite Group and the Chief Investment Officer of the mine finance business. Before this, Mr. Lewnowski was a Director for Corporate Development at Varomet Ltd, a metals processor and merchant firm in excess of \$1 billion in revenues formed to purchase certain of Enron's metals and mining assets. While at Varomet, he was responsible for seven acquisitions and divestitures totaling over \$130 million and business operations (offtake agreements, mining and processing) with annual revenues exceeding \$1 billion. He was also responsible for structuring metal offtake agreements and other physical market transactions. Before this, Mr. Lewnowski was a Vice President for Credit Suisse First Boston in London, where he was responsible for preparing growth companies for public distribution of their securities. Until 1993, he held various positions in trading as well as mergers and acquisitions at Deutsche Bank both in New York and Frankfurt culminating in his founding membership of the Deutsche Capital Markets Division. Lewnowski earned a BS/BA in Business Administration from Georgetown University and an MBA from the Leonard Stern School of Business (New York University).