DALLAS POLICE & FIRE PENSION SYSTEM

MINUTES SUMMARY
Board Meeting
Thursday, June 13, 2019

The Regular and Supplemental meetings of the Dallas Police and Fire Pension System Board of Trustees were held at 8:30 a.m. on Thursday, June 13, 2019, in the Second Floor Board Room at 4100 Harry Hines Blvd., Dallas, Texas.

The meeting was called to order at 8:30 a.m.

REGULAR POLICE AND FIRE PENSION BOARD MEETING

A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of members and pensioners who recently passed away.

B. CONSENT AGENDA

Approved by the Board, subject to the final review of the staff.

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. The Board elected from among its trustees a chairman, vice chairman and deputy vice chairman as required by Section 3.01(g) of Article 6243a-1.

2. Provided direction to Segal on the assumptions to be used in preparing the January 1, 2019 actuarial valuation reports.

3. Staff discussed a proposed Staff retirement plan structure for the Board's consideration and the Board directed staff to continue pursuing work with the actuary.

4. Approved the Fire Fighter Trustee applicant as qualified under Section 3.01(b-1) of the Plan to serve as a Trustee.

5. Staff reviewed the Monthly Contribution Report.

6. The Chief Financial Officer provided a status update on the annual financial audit.

7. Staff briefed the Board on new laws ruled by the legislature which would affect DPFP.

8. No discussion was held, and no motion was made regarding Trustee education and travel.

9. Investment Staff briefed the Board on recent events and current developments with respect to the investment portfolio.

10. Meketa and Investment Staff reviewed investment performance.

11. Approved the sale of Spring Valley and Harris Creek.

12. Representatives of Hancock Natural Resource Group updated the Board on the status and plans for DPFP's agricultural portfolio.

13. Staff briefed the Board on funds managed by Lone Star Investment Advisors.

14. The Board and staff discussed legal issues.

D. BRIEFING ITEMS

1. No one requested to speak to the Board.

2. The Executive Director's report was presented.

The regular Board meeting was adjourned at 12:06 a.m.

MINUTES SUMMARY
Board Meeting
Thursday, June 13, 2019

SUPPLEMENTAL POLICE AND FIRE PENSION BOARD MEETING

The meeting was called to order and recessed at 8:30 a.m.

The meeting was reconvened at 12:06 p.m.

CONSENT AGENDA

Approved by the Board, subject to the final review of the staff.

The Supplemental Board meeting was adjourned at 12:06 p.m.

Dallas Police and Fire Pension System
Thursday, June 13, 2019
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX

Regular meeting, William F. Quinn, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:31 a.m.	William F. Quinn, Nicholas A. Merrick (by phone), Blaine Dickens (by phone), Ray Nixon, Gilbert A. Garcia, Susan M. Byrne (by phone), Tina Hernandez Patterson, Robert C. Walters, Joseph P. Schutz
Present at 9:01 a.m.	Kneeland Youngblood (by phone)
Present at 10:11 a.m.	Kneeland Youngblood
Absent:	None
Staff	Kelly Gottschalk, Josh Mond, Kent Custer, Brenda Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero, Aimee Crews, Ann Mathews, Trish Wiley
Others	Jeff Williams, Alexandra Wallace, Aaron Lally, Todd Rosa, Adam Gore, Rick Bodio, Skeet Ponder, Robert Jones, Rick Salinas, Darryl Wachsman, Ken Sprecher, Sandy Alexander, Zaman Hemani, Danielle Huddleston

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The meeting was called to order at 8:31 a.m.

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A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of active police officer Stephen S. Comstra, retired police officers Bob L. Jones, Henry L. Ellison, Jerry W. Foster, Grady C. Ford, and retired firefighters John L. Blume, Jon P. Whatley, Jerry D. Morgan, Tommy G. Wyatt.

No motion was made.

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B. CONSENT AGENDA

1. Approval of Minutes

a. Required Public meeting of May 9, 2019
b. Regular meeting of May 9, 2019

2. Approval of Refunds of Contributions for the Month of May 2019

3. Approval of Activity in the Deferred Retirement Option Plan (DROP) for June 2019

4. Approval of Estate Settlements

5. Approval of Survivor Benefits

6. Approval of Service Retirements

7. Approval of Alternate Payee Benefits

8. Approval of Earnings Test

After discussion, Mr. Garcia made a motion to approve the minutes of the meeting of May 9, 2019. Mr. Walters seconded the motion, which was unanimously approved by the Board.

After discussion, Mr. Garcia made a motion to approve the remaining items on the Consent Agenda, subject to the final approval of the staff. Mr. Walters seconded the motion, which was unanimously approved by the Board.

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C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. Board Chairman, Vice Chairman and Deputy Vice Chairman Election

Mr. Quinn opened the floor for officer nominations, beginning with the office of Chairman.

1. Board Chairman, Vice Chairman and Deputy Vice Chairman Election (continued)

Mr. Garcia nominated William F. Quinn as Chairman. Mr. Nixon seconded the nomination. Nominations ceased. The Board voted unanimously to elect Mr. Quinn as Chairman.

Mr. Quinn opened nominations for the office of Vice Chairman. He nominated Nicholas A. Merrick as Vice Chairman. Ms. Hernandez Patterson seconded the nomination. Nominations ceased. The Board voted unanimously to elect Mr. Merrick as Vice Chairman.

Mr. Quinn opened nominations for the office of Deputy Vice Chairman. Mr. Garcia nominated Joseph P. Schutz as Deputy Vice Chairman. Mr. Nixon seconded the nomination. Nominations ceased. The Board voted unanimously to elect Mr. Schutz as Deputy Vice Chairman.

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2. January 1, 2019 Actuarial Valuation Assumptions

Jeff Williams, Vice President, Segal Consulting is preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan. At the April Board meeting Segal reviewed the economic and demographic assumptions required to prepare the valuation. The Board provided direction about most of the assumptions to be used in the valuation and requested additional information about the assumed rate of return assumption. Segal provided information about the assumed rate of return assumption.

After discussion, Mr. Garcia made a motion to direct Segal to continue with the 7.25% assumed rate of return assumption to be used in preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan. Mr. Walters seconded the motion, which was unanimously approved by the Board.

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3. Staff Retirement Plan

Jeff Williams, Vice President, Segal Consulting was present to discuss the staff retirement plan and provided additional information to address questions that were raised from the May 2019 Board meeting when the modifications to the Staff Retirement Plan were first proposed.

After discussion, the Board directed staff to continue pursuing work with Segal and bring back the proposed Staff Retirement Plan in the fall after further analysis and research is completed.

No motion was made.

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4. Review Fire Fighter Trustee applicant qualifications

The Board went into closed session executive session – Personnel at 11:58 a.m.

The meeting was reopened at 12:02 p.m.

After discussion, Ms. Hernandez Patterson made a motion to approve Armando Garza as qualified under Section 3.01(b-1) of the Plan to serve as a Trustee and authorize him to be seated as a Trustee at the next Board meeting pursuant to Section F of the Trustee Election Procedures. Mr. Walters seconded the motion, which was unanimously approved by the Board. Mr. Merrick and Mr. Dickens were not present for the vote.

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5. Monthly Contribution Report

Staff presented the Monthly Contribution Report.

No motion was made.

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6. Audit Status

The Chief Financial Officer provided a status update on the annual financial audit.

No motion was made.

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7. Legislative Update

Staff briefed the Board on new laws passed by the legislature which would affect DPFP.

No motion was made.

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8. Board approval of Trustee education and travel

a. Future Education and Business-related Travel
b. Future Investment-related Travel

No discussion was held, and no motion was made regarding Trustee education and travel. There was no future investment-related travel.

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9. Portfolio Update

Investment staff briefed the Board on recent events and current developments with respect to the investment portfolio.

No motion was made.

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10. First Quarter 2019 Investment Performance Analysis and Fourth Quarter 2018 Private Markets & Real Assets Review

Alexandra Wallace, Principal and Aaron Lally, Executive Vice President both of Meketa Investment Group and Investment Staff reviewed investment performance.

No motion was made.

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11. Hearthstone Portfolio Update and Possible Sale

The Board went into closed session executive session – Real Estate at 10:19 a.m.

The meeting was reopened at 10:31 a.m.

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Mr. Merrick left the meeting at 10:28 a.m.

Mr. Dickens left the meeting at 10:31 a.m.

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Todd Rosa, Vice President of Hearthstone was present to discuss the marketing process to date and recommended course of action for the two remaining assets in the Hearthstone portfolio, Spring Valley and Harris Creek.

After discussion, Mr. Youngblood made a motion to approve the sale of Spring Valley and Harris Creek. Mr. Garcia seconded the motion, which was unanimously approved by the Board. Mr. Merrick and Mr. Dickens were not present for the vote.

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12. Natural Resources Overview - Hancock Portfolio

The Board went into closed session executive session – Real Estate at 11:05 a.m.

The meeting was reopened at 11:16 a.m.

Adam Gore, CFA, Portfolio Manager, Rick Bodio, CFA, Director and Skeet Ponder, Portfolio Analyst Representatives of Hancock Natural Resource Group were present to update the Board on the status and plans for DPFP's agricultural portfolio.

No motion was made.

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13. Lone Star Investment Advisors Update

The Board went into closed session executive session – Legal at 11:19 a.m.

The meeting was reopened at 11:56 a.m.

Investment Staff updated the Board on recent performance, operational, and administrative developments with respect to DPFP investments in funds managed by Lone Star Investment Advisors.

No motion was made.

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14. Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including Eddington et al. v. DPFP et al., USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws

The Board went into closed session executive session – Legal at 11:19 a.m.

The meeting was reopened at 11:56 a.m.

No motion was made.

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D. BRIEFING ITEMS

1. Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System

No active member or pensioner requested to address the Board with concerns.

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2. Executive Director's report

- **a.** Associations' newsletters
  - NCPERS Monitor (May 2019)
  - NCPERS PERSist (Spring 2019)
- **b.** Open Records
- **c.** Nominations Committee Update
- **d.** Employee Service Award
- **e.** Executive Performance Evaluation Input

The Executive Director's report was presented.

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Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Nixon and a second by Mr. Walters, the meeting was adjourned at 12:05 p.m.

/s/ William F. Quinn

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William F. Quinn
Chairman

ATTEST:

/s/ Kelly Gottschalk

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Kelly Gottschalk
Secretary

AGENDA

Date: June 7, 2019

The regular meeting of the Dallas Police and Fire Pension System Board of Trustees will be held at **8:30 a.m. on Thursday, June 13, 2019, in the Second Floor Board Room at 4100 Harry Hines Boulevard, Dallas, Texas.** Items of the following agenda will be presented to the Board:

A. MOMENT OF SILENCE

B. CONSENT AGENDA

1. Approval of Minutes

- **a.** Required Public meeting of May 9, 2019
- **b.** Regular meeting of May 9, 2019

2. Approval of Refunds of Contributions for the Month of May 2019

3. **Approval of Activity in the Deferred Retirement Option Plan (DROP) for June 2019**

4. **Approval of Estate Settlements**

5. **Approval of Survivor Benefits**

6. **Approval of Service Retirements**

7. **Approval of Alternate Payee Benefits**

8. **Approval of Earnings Test**

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. **Board Chairman, Vice Chairman and Deputy Vice Chairman Election**

2. **January 1, 2019 Actuarial Valuation Assumptions**

3. **Staff Retirement Plan**

4. Review Fire Fighter Trustee applicant qualifications

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.074 of the Texas Government Code.

5. Monthly Contribution Report

6. Audit Status

7. Legislative Update

8. Board approval of Trustee education and travel

a. Future Education and Business-related Travel
b. Future Investment-related Travel

9. Portfolio Update

10. First Quarter 2019 Investment Performance Analysis and Fourth Quarter 2018 Private Markets & Real Assets Review

11. Hearthstone Portfolio Update and Possible Sale

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

12. Natural Resources Overview - Hancock Portfolio

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

13. Lone Star Investment Advisors Update

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.071 of the Texas Government Code.

14. Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including Eddington et al. v. DPFP et al., USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.

D. BRIEFING ITEMS

1. **Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System**

2. **Executive Director's report**

   a. Associations' newsletters
   - NCPERS Monitor (May 2019)
   - NCPERS PERSist (Spring 2019)

   b. Open Records

   c. Nominations Committee Update

   d. Employee Service Award

   e. Executive Performance Evaluation Input

The term "possible action" in the wording of any Agenda item contained herein serves as notice that the Board may, as permitted by the Texas Government Code, Section 551, in its discretion, dispose of any item by any action in the following non-exclusive list: approval, disapproval, deferral, table, take no action, and receive and file. At the discretion of the Board, items on this agenda may be considered at times other than in the order indicated in this agenda.

At any point during the consideration of the above items, the Board may go into Closed Executive Session as per Texas Government Code, Section 551.071 for consultation with attorneys, Section 551.072 for real estate matters, Section 551.074 for personnel matters, and Section 551.078 for review of medical records.

DALLAS POLICE & FIRE PENSION SYSTEM

MOMENT OF SILENCE

In memory of our Members and Pensioners who recently passed away

NAME	ACTIVE/ RETIRED	DEPARTMENT	DATE OF DEATH
Stephen S. Comstra	Active	Police	May 2, 2019
Bob L. Jones	Retired	Police	May 3, 2019
John L. Blume	Retired	Fire	May 5, 2019
Henry L. Ellison	Retired	Police	May 7, 2019
Jerry W. Foster	Retired	Police	May 8, 2019
Jon P. Whatley	Retired	Fire	May 10, 2019
Grady C. Ford	Retired	Police	May 15, 2019
Jerry D. Morgan	Retired	Fire	May 19, 2019
Tommy G. Wyatt	Retired	Fire	May 22, 2019

Dallas Police and Fire Pension System
Thursday, May 9, 2019
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX

Required Public Meeting, William F. Quinn, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:30 a.m.	William F. Quinn, Nicholas A. Merrick, Gilbert A. Garcia, Susan M. Byrne, Tina Hernandez Patterson (by phone), Joseph P. Schutz, Kneeland Youngblood (by phone)
Present at 8:47	Robert C. Walters (by phone)
Present at 9:00	Kneeland Youngblood
Absent:	Blaine Dickens, Ray Nixon
Staff	Kelly Gottschalk, Josh Mond, Kent Custer, Brenda Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero
Others	Janis Elliston, Darryl Wachsman, Kenneth Haben

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The first of two annual public meetings of the Dallas Police and Fire Pension System Board of Trustees as required by Section 3.01 (j-9) of Article 6243a-1 of Vernon's Revised Civil Statutes.

The meeting was called to order at 8:30 a.m.

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Required Public Meeting
Thursday, May 9, 2019

1. Report on the health and performance of the Pension System

a. Monthly Contribution Report
b. Portfolio Update
c. Quarterly Financial Reports
d. Audit Status

The Executive Director, Chief Investment Officer and Chief Financial Officer reported on the health and performance of DPFP as required by Section 3.01 (j-9) of Article 6243a-1 of Vernon's Revised Civil Statutes.

Mr. Walters left the meeting at 8:59 a.m.

No motion was made.

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2. Public comment

The Chairman extended an opportunity for public comment. No one requested to speak to the Board.

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Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Garcia and a second by Ms. Byrne, the meeting was adjourned at 9:11 a.m.

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William F. Quinn
Chairman

ATTEST:

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Kelly Gottschalk
Secretary

Dallas Police and Fire Pension System
Thursday, May 9, 2019
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX

Regular meeting, William F. Quinn, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:30 a.m.	William F. Quinn, Nicholas A. Merrick, Gilbert A. Garcia, Susan M. Byrne, Tina Hernandez Patterson (by phone), Joseph P. Schutz, Kneeland Youngblood (by phone)
Present at 9:00	Kneeland Youngblood
Absent:	Blaine Dickens, Ray Nixon, Robert C. Walters
Staff	Kelly Gottschalk, Josh Mond, Kent Custer, Brenda Barnes, John Holt, Damion Hervey, Cynthia Thomas, Ryan Wagner, Greg Irlbeck, Milissa Romero, Trish Wiley, Ann Mathews
Others	Jeff Williams (by phone), Janis Elliston, Darryl Wachsman, Kenneth Haben, Zaman Hemani

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The meeting was called to order and recessed at 8:30 a.m.

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The meeting was reconvened at 9:11 a.m.

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A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of active police officer Horacio Quiroz, and retired police officers Johnnie D. Brooks, George S. Finley, David J. Hawkins, William M. Scott, active firefighter Lloyd Moseley, and retired firefighters Landrum B. Nolen, A. T. Pinka.

No motion was made.

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Regular Board Meeting
Thursday, May 9, 2019

B. CONSENT AGENDA

1. **Approval of Minutes**

   Regular meeting of April 11, 2019

2. **Approval of Refunds of Contributions for the Month of April 2019**

3. **Approval of Activity in the Deferred Retirement Option Plan (DROP) for May 2019**

4. **Approval of Estate Settlements**

5. **Approval of Survivor Benefits**

6. **Approval of Service Retirements**

7. **Approval of Alternate Payee Benefits**

8. **Spouse Wed After Retirement (SWAR)**

9. **Approval of Payment of Military Leave Contributions**

10. **Approval of Payment of Previously Withdrawn Contributions**

After discussion, Mr. Youngblood made a motion to approve the minutes of the meeting of April 11, 2019. Mr. Garcia seconded the motion, which was unanimously approved by the Board.

After discussion, Mr. Youngblood made a motion to approve the remaining items on the Consent Agenda, subject to the final approval of the staff. Mr. Garcia seconded the motion, which was unanimously approved by the Board.

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C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. **Monthly Contribution**

   Staff presented the Monthly Contribution Report.

   No motion was made.

Regular Board Meeting
Thursday, May 9, 2019

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2. Portfolio Update

Investment staff briefed the Board on recent events and current developments with respect to the investment portfolio.

No motion was made.

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3. Quarterly financial reports

The Chief Financial Officer presented the first quarter 2019 financial statements.

No motion was made.

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4. Audit Status

The Chief Financial Officer provided a status update on the annual financial audit.

No motion was made.

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5. Chairman's Discussion Items

a. Fire Fighter Trustee Vacancy
b. Board Officer Election required in June

The Chairman briefed the Board on the Fire Fighter Trustee Vacancy and Board Officer Election required in June.

No motion was made.

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6. Fire Fighter Trustee Election Schedule and Application Packet

The Trustee election policy requires that trustee vacancies be filled if the remaining term of the vacated position is more than nine months. The Fire Fighter term vacated by Sam Friar ends August 31, 2020.

Regular Board Meeting
Thursday, May 9, 2019

6. Fire Fighter Trustee Election Schedule and Application Packet (Continued)

After discussion, Mr. Garcia made a motion to adopt the 2019 Fire Fighter Trustee Election schedule and application packet. Ms. Hernandez Patterson seconded the motion, which was unanimously approved by the Board.

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7. Legislative Update

Staff briefed the Board on pending legislation which would affect DPFP.

No motion was made.

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8. Board approval of Trustee education and travel

a. Future Education and Business-related Travel
b. Future Investment-related Travel

No discussion was held, and no motion was made regarding Trustee education and travel. There was no future investment-related travel.

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9. Staff Retirement Plan

Staff and Jeff Williams, representative of DPFP's Actuary, Segal Consulting (by phone) presented a proposed Staff retirement plan structure for the Board's consideration.

After discussion, the Board directed staff to consult with Segal and bring back the proposed Staff Retirement Plan in June after further analysis and research is completed.

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10. Timber Portfolio Review

Staff provided an overview of the portfolio and the strategy for DPFP's timber holdings managed by Forest Investment Associates and BTG Pactual.

The Board went into closed session executive session – Real Estate at 10:22 a.m.

The meeting was reopened at 10:33 a.m.

No Motion was made.

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11. Lone Star Investment Advisors Update

The Lone Star Growth Capital fund and the Lone Star CRA fund terms expire in October 2019. Investment Staff updated the Board on recent performance, operational, and administrative developments with respect to DPFP investments in funds managed by Lone Star Investment Advisors.

The Board went into closed session executive session – Legal at 10:33 a.m.

The meeting was reopened at 10:48 a.m.

No Motion was made.

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12. Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.

The Board went into closed session executive session – Legal at 10:33 a.m.

The meeting was reopened at 10:48 a.m.

Regular Board Meeting
Thursday, May 9, 2019

12. **Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws. (Continued)**

After discussion, Mr. Garcia made a motion to authorize the Executive Director and General Counsel to enter into a tolling agreement with the City of Dallas regarding DPFP's claim for contributions under the Uniform Services Employment and Reemployment Act. Mr. Youngblood seconded the motion, which was unanimously approved by the Board.

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D. BRIEFING ITEMS

1. **Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System**

No active member or pensioner requested to address the Board with concerns.

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2. **Executive Director's report**

a. Associations' newsletters
- NCPERS Monitor (April 2019)

b. Open Records
c. Nominations Committee Update

The Executive Director's report was presented.

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Regular Board Meeting
Thursday, May 9, 2019

Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Youngblood and a second by Mr. Garcia, the meeting was adjourned at 10:49 a.m.

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William F. Quinn
Chairman

ATTEST:

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Kelly Gottschalk
Secretary

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C1

Topic: **Board Chairman, Vice Chairman and Deputy Vice Chairman Election**

Discussion: Section 3.01(g) of Article 6243a-1 requires the Board in June of every odd year to elect from among its trustees a chairman, vice chairman, and a deputy vice chairman, each to serve for two-year terms.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C2

Topic: **January 1, 2019 Actuarial Valuation Assumptions**

Attendees: Jeff Williams, Vice President, Segal Consulting

Discussion: Segal Consulting is preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan. At the April Board meeting Segal reviewed the economic and demographic assumptions required to prepare the valuation. The Board provided direction about most of the assumptions to be used in the valuation and requested additional information about the assumed rate of return assumption. Segal will provide information about the assumed rate of return assumption.

Pursuant to Article 16, Section 67 (f)(3) of the Texas Constitution, the Board determines the assumptions used in the valuation.

Recommendation: **Provide** direction to Segal on the assumptions to be used in preparing the January 1, 2019 actuarial valuation reports for the Regular Plan (Combined Plan) and the Supplemental Plan.

Segal Consulting

2727 Paces Ferry Road SE Building One Suite 1400 Atlanta, GA 30339-4053
T 678.306.3100 www.segalco.com

MEMORANDUM

To: Board of Trustees – Dallas Police & Fire Pension System

From: Jeffrey S. Williams, FCA, ASA, MAAA, EA

Date: June 13, 2019

Re: Discount Rate and Investment Return Assumptions

This memo will discuss the discount rate and investment return assumption, the building block approach used in determining the viability of the assumption, and the lower rates of market returns expected over the next few years and why it is not appropriate to change a long-term assumption based on a few years of possibly lower-than-expected market returns. The terms "discount rate" and "investment return assumption" are often used interchangeably in terms of pension plans, and even though they are technically different assumptions, for the purpose of this memo, they should be considered the same thing.

Investment Return and Building Block Approach

To determine the appropriateness of the long-term expected rate of return on pension plan investments, a building-block method is employed, in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Segal Marco Advisors, a member of The Segal Group, provides their long-term expected real rates of return for each asset class in which the System is invested. Using the System's target allocations, the long-term expected rate of return for the System's investments was calculated to be 5.67% as of December 31, 2017 (see the chart on the following page). The System currently maintains a 2.75% inflation assumption. As a result, when taken together, the current 7.25% return assumption was justified for the January 1, 2018 actuarial valuation. An updated model will be used in the January 1, 2019 actuarial valuation.

Ultimately, the System's investment advisor should provide feedback on their determination of the assumption, as they are in position to judge the appropriateness of the assumption based on the System's asset allocation and performance.

The chart on the following page was included in the January 1, 2018 actuarial valuation, on page 60 in Section 5.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return[1]
Global Equity	20%	6.54%
Emerging Market Equity	5%	9.41%
Private Equity	5%	10.28%
Short-Term Core Bonds	2%	1.25%
Global Bonds	3%	1.63%
High Yield	5%	4.13%
Bank Loans	6%	3.46%
Structured Credit and Absolute Return	6%	5.38%
Emerging Markets Debt	6%	4.42%
Private Debt	5%	7.30%
Natural Resources	5%	7.62%
Infrastructure	5%	6.25%
Real Estate	12%	4.90%
Liquid Real Assets	3%	4.71%
Asset Allocation	10%	4.90%
Cash	2%	1.06%
Total	100%	5.67%

[1]As provided by Segal Marco Advisors, a member of The Segal Group. The real rates of return are net of inflation.

What is Considered Long-Term?

Investment advisors typically do not provide projections for greater than a 10 or 20-year period, as this is generally the longest term over which they are comfortable projecting returns. Actuaries consider long-term to be the next 60 to 100 years. Even though investment markets fluctuate and plans do not always meet their assumptions each year that does not necessitate changing the discount rate to match market performance, nor is it appropriate to do so each time returns do not meet the long-term assumption.

An actuarial valuation is a snapshot of one day in time. Asset and demographic data is collected as of a single date. On the demographic side, benefit streams are projected into the future for all current participants, and for those among the current group who are projected to retire, along with their expected beneficiaries. New participants are not considered in an actuarial valuation. In the January 1, 2018 actuarial valuation, benefit payments were projected to be paid for the next 100 years, just based on the participants and expected beneficiaries of those included in the valuation. This is the difference in projections between investment advisors and actuaries; investment advisors are projecting over the next couple of decades, actuaries are projecting over the next couple of generations.

Expected Asset Returns Through Calendar Year 2022 and Funded Projections

The System is currently trying to divest itself of certain investments. It is expected that over the next few years asset returns will be less than the current 7.25% assumption as this process is undertaken. It has been stated by the System's internal investment professionals that market returns through 2022 are expected to be as follows:

- 5.25% in 2019, 5.75% in 2020, 6.25% in 2021, and 6.75% in 2022

Even though the returns are expected to be less than the assumption over this four-year period, this does not mean the assumption needs to be changed to match these expected returns. As discussed, it is not appropriate to change the return assumption based on temporary deviations from what is assumed. Over the course of a 100-year stream of projected benefit payments, discounting the payment stream at 7.25%, versus discounting the payment stream with lower return assumptions for the first four years, followed by discounting the payment stream for 96 years at 7.25%, has a minimal impact on liabilities.

In the years-to-full-funded projections that we complete, we are using the interim return projections for asset returns. These returns produce projected asset losses that are being smoothed in over the course of the five-year asset smoothing period. The interim returns are already accounted for; incorporating the interim returns in the discount rate directly would essentially be double-counting the impact.

Subsequent to prior discussions with the Board on this topic, in order to clarify our previous thoughts on the matter, Segal completed projections using the select-and-ultimate discount rate approach that matches expected returns over the next four years. These projections were not presented to the Board as the impact on the long-term funding was negligible and did not warrant changing the assumption.

At the April 11, 2019 Board meeting we provided a memo which included the impact of lowering the discount rate from 7.25% to either 7.00% or 6.75%. We would be comfortable with any of these discount rates for the January 1, 2019 actuarial valuation.

cc: Kelly Gottschalk

8922706v1/14362.002

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C3

Topic: **Staff Retirement Plan**

Attendees: Jeff Williams, Vice President, Segal Consulting

Discussion: The retirement plan for the DPFP staff is a 401(a) defined contribution plan. DPFP and the employee contribute 12% and 6.5% of compensation, respectively, to the plan on a bi-weekly basis.

DPFP employees do not contribute to any retirement system where they are entitled to an annuity upon retirement. Without some form of an annuity, employees are at risk of not having a secure retirement. As providing secure retirements is the goal of DPFP, this would appear to be a reasonable goal to achieve for DPFP employees as well.

Without increasing cost to the system, based on Segal's actuarial analysis, a defined benefit plan can be added for the current and future staff members to provide a basic retirement annuity for staff members.

At the May 2019 Board meeting Staff presented a proposed modification to the Staff retirement plan structure. Additional information will be provided to address questions that were raised.

Recommendation: **Authorize** staff to work with the actuary and counsel to prepare a new retirement plan and amendments as necessary to the existing 401(a) and 457(b) plans and bring the plans to the Board for final approval.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C4

Topic: **Review Fire Fighter Trustee applicant qualifications**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.074 of the Texas Government Code.

Discussion: Section 3.01(b-3) requires the Board to make a determination as to whether any potential candidates for the fire fighter trustee position meet the qualifications of Section 3.01(b-1) to serve as a trustee. Section 3.01 (b-1) requires that a trustee not be an elected official of the city and that a trustee have demonstrated financial, accounting, business, investment, budgeting, real estate or actuarial experience.

Staff Recommendation: **Evaluate** the potential Trustee candidate and determine if the qualifications of Section 3.01(b-1) are met.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

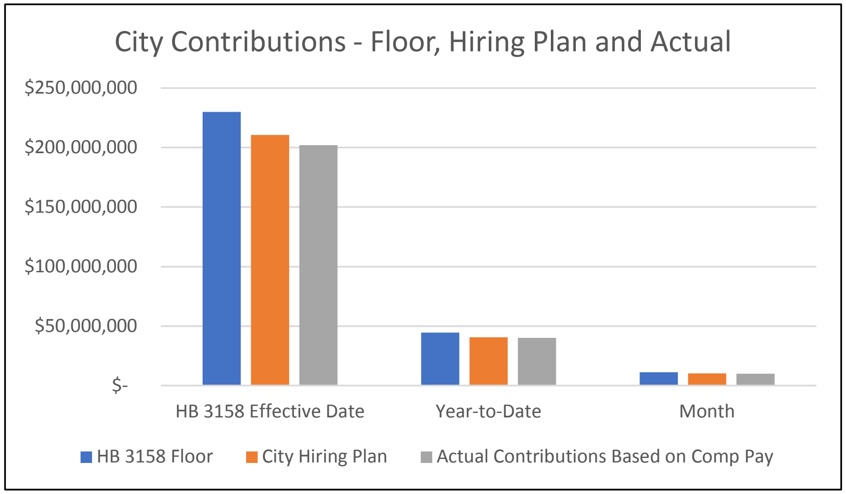
ITEM #C5

Topic: **Monthly Contribution Report**

Discussion: Staff will review the Monthly Contribution Report.

Regular Board Meeting – Thursday, June 13, 2019

Contribution Tracking Summary - June 2019 (April 2019 Data)



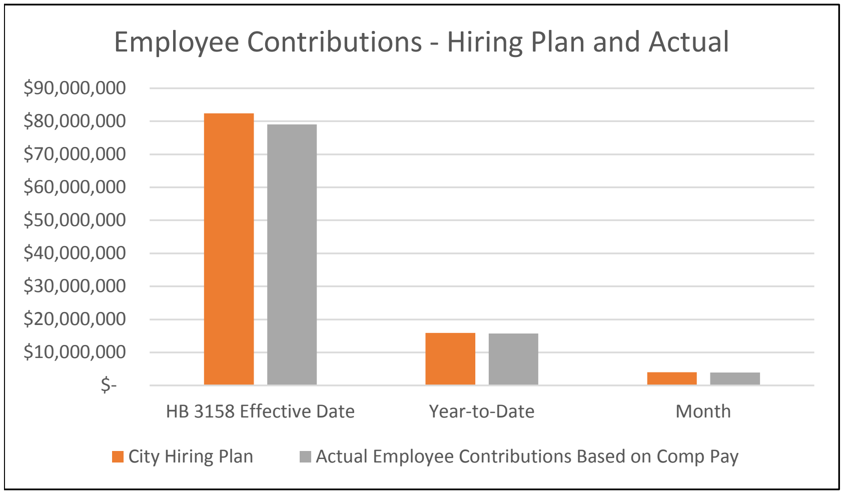
Actual Comp Pay was 96% of the Hiring Plan estimate since the effective date of HB 3158.

In the most recent month Actual Comp Pay was 98% of the Hiring Plan estimate and 90% of the floor amount.

The Hiring Plan Comp Pay estimate increased by 5.22% in 2019.

Through 2024 the HB 3158 Floor is in place so there is no City Contribution shortfall.

Combined the actual hiring is below the Hiring Plan estimate by 83 people. Fire is over the estimate by 43 and Police is under by 126 officers.



Since the effective date of HB 3158 actual employee contributions have been $3.4 million less than the Hiring Plan estimate. Potential earnings loss due to the contribution shortfall is $259k at the Assumed Rate of Return.

There is no Floor on employee contributions.

Contribution Summary Data

City Contributions

Apr-19	**Number of Pay Periods Beginning in the Month**	**HB 3158 Floor**	**City Hiring Plan**	**Actual Contributions Based on Comp Pay**	**Additional Contributions to Meet Floor Minimum**	**Comp Pay Contributions as a % of Floor Contributions**	**Comp Pay Contributions as a % of Hiring Plan Contributions**
Month	2	$ 11,142,000	$ 10,164,231	$ 9,996,345	$ 1,145,655	90%	98%
Year-to-Date		$ 44,568,000	$ 40,656,923	$ 40,095,462	$ 4,472,538	90%	99%
HB 3158 Effective Date		$ 230,069,000	$ 210,662,308	$ 201,976,675	$ 28,092,325	88%	96%

Due to the Floor through 2024, there is no cumulative shortfall in City Contributions
Does not include the flat $13 million annual City Contribution payable through 2024.
Does not include Supplemental Plan Contributions.

Employee Contributions

Apr-19	**Number of Pay Periods Beginning in the Month**	**City Hiring Plan**	**Actual Employee Contributions Based on Comp Pay**	**Actual Contribution Shortfall Compared to Hiring Plan**	**Actuarial Valuation Contribution Assumption**	**Actual Contributions as a % of Hiring Plan Contributions**	**Actual Contributions as a % of Actuarial Val Assumption**
Month	2	$ 3,977,308	$ 3,919,023	$ (58,285)	$ 3,692,278	99%	106%
Year-to-Date		$ 15,909,231	$ 15,686,606	$ (222,625)	$ 14,769,112	99%	106%
HB 3158 Effective Date		$ 82,433,077	$ 79,040,666	$ (3,392,411)	$ 78,867,908	96%	100%

Potential Earnings Loss from the Shortfall based on Assumed Rate of Return	$ (259,123)

Does not include Supplemental Plan Contributions.

Reference Information

City Contributions: HB 3158 Bi-weekly Floor and the City Hiring Plan Converted to Bi-weekly Contributions

	HB 3158 Bi-weekly Floor	City Hiring Plan-Bi-weekly	HB 3158 Floor Compared to the Hiring Plan	Hiring Plan as a % of the Floor	% Increase/ (decrease) in the Floor	% Increase/ (decrease) in the Hiring Plan
2017	$ 5,173,000	$ 4,936,154	$ 236,846	95%		
2018	$ 5,344,000	$ 4,830,000	$ 514,000	90%	3.31%	-2.15%
2019	$ 5,571,000	$ 5,082,115	$ 488,885	91%	4.25%	5.22%
2020	$ 5,724,000	$ 5,254,615	$ 469,385	92%	2.75%	3.39%
2021	$ 5,882,000	$ 5,413,846	$ 468,154	92%	2.76%	3.03%
2022	$ 6,043,000	$ 5,599,615	$ 443,385	93%	2.74%	3.43%
2023	$ 5,812,000	$ 5,811,923	$ 77	100%	-3.82%	3.79%
2024	$ 6,024,000	$ 6,024,231	$ (231)	100%	3.65%	3.65%

The HB 3158 Bi-weekly Floor ends after 2024

Employee Contributions: City Hiring Plan and Actuarial Val. Converted to Bi-weekly Contributions

		City Hiring Plan Converted to Bi-weekly Employee Contributions	Actuarial Valuation Assumption Converted to Bi-weekly Employee contributions	Actuarial Valuation as a % of Hiring Plan
2017		$ 1,931,538	$ 1,931,538	100%
2018		$ 1,890,000	$ 1,796,729	95%
2019		$ 1,988,654	$ 1,846,139	93%
2020		$ 2,056,154	**$ 2,056,154**	100%
2021		$ 2,118,462	**$ 2,118,462**	100%
2022		$ 2,191,154	**$ 2,191,154**	100%
2023		$ 2,274,231	**$ 2,274,231**	100%
2024		$ 2,357,308	**$ 2,357,308**	100%

The information on this page is for reference. The only numbers on this page that may change before 2025 are the Actuarial Valuation Employee Contributions Assumptions for the years 2019-2024 and the associated percentage.

Reference Information - Actuarial Valuation and GASB 67/68 Contribution Assumptions

Actuarial Assumptions Used in the Most Recent Actuarial Valuation - These assumptions will be reevaluated annually and may change.
City Contributions are based on the Floor through 2024, the Hiring Plan from 2025 to 2037, after 2037 an annual growth rate of 2.75% is assumed
Employee Contributions for 2018 are based on the 2017 actual employee contributions inflated by the growth rate of 2.75% and the Hiring Plan for subsequent years until 2038, when the 2037 Hiring Plan is increased by the 2.75 growth rate for the next 10 years

Actuarial/GASB Contribution Assumption Changes Since the Passage of HB 3158

	Actuarial Valuation	**GASB 67/68**
YE 2017 (1/1/2018 Valuation)		
2018 Employee Contributions Assumption - based on 2017 actual plus growth rate not the Hiring Plan Payroll	$ (2,425,047)	*
**90% of Hiring Plan was used for the Cash Flow Projection for future years in the 12/31/2017 GASB 67/68 calculation. At 12-31-17 this did not impact the pension liability or the funded percentage.*		

The information on this page is for reference. It is intended to document contribution related assumptions used to prepare the Actuarial Valuation and changes to those assumptions over time, including the dollar impact of the changes. Contribution changes impacting the GASB 67/68 liability will also be included.

City Hiring Plan - Annual Computation Pay and Numbers of Employees						
	Computation Pay			Number of Employees		
Year	Hiring Plan	Actual	Difference	Hiring Plan	Actual EOY	Difference
2017	$ 372,000,000	Not Available	Not Available	5,240	4,935	(305)
2018	$ 364,000,000	$ 349,885,528	$ (14,114,472)	4,988	4,983	(5)
2019	$ 383,000,000			5,038		
2020	$ 396,000,000			5,063		
2021	$ 408,000,000			5,088		
2022	$ 422,000,000			5,113		
2023	$ 438,000,000			5,163		
2024	$ 454,000,000			5,213		
2025	$ 471,000,000			5,263		
2026	$ 488,000,000			5,313		
2027	$ 507,000,000			5,363		
2028	$ 525,000,000			5,413		
2029	$ 545,000,000			5,463		
2030	$ 565,000,000			5,513		
2031	$ 581,000,000			5,523		
2032	$ 597,000,000			5,523		
2033	$ 614,000,000			5,523		
2034	$ 631,000,000			5,523		
2035	$ 648,000,000			5,523		
2036	$ 666,000,000			5,523		
2037	$ 684,000,000			5,523		

Comp Pay by Month - 2019	Annual Divided by 26 Pay Periods	Actual	Difference	2019 Cumulative Difference	Number of Employees - EOM	Difference
January	$ 29,461,538	$ 29,084,185	$ (377,354)	$ (377,354)	4963	(75)
February	$ 29,461,538	$ 29,067,129	$ (394,410)	$ (771,763)	4974	(64)
March	$ 29,461,538	$ 29,092,504	$ (369,035)	$ (1,140,798)	4962	(76)
April	$ 29,461,538	$ 28,974,912	$ (486,626)	$ (1,627,424)	4955	(83)
May	$ 44,192,308	$ -		$ (1,627,424)		
June	$ 29,461,538	$ -		$ (1,627,424)		
July	$ 29,461,538	$ -		$ (1,627,424)		
August	$ 29,461,538	$ -		$ (1,627,424)		
September	$ 29,461,538	$ -		$ (1,627,424)		
October	$ 44,192,308	$ -		$ (1,627,424)		
November	$ 29,461,538	$ -		$ (1,627,424)		
December	$ 29,461,538	$ -		$ (1,627,424)		

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C6

Topic: **Audit Status**

Discussion: The Chief Financial Officer will provide a status update on the annual financial audit.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C7

Topic: **Legislative Update**

Discussion: Staff will brief the Board on legislation adopted at the legislature this session which would affect DPFP.

S.B. No. 322

AN ACT

relating to the evaluation and reporting of investment practices and performance of certain public retirement systems.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Section 801.209(a), Government Code, is amended to read as follows:

(a) For each public retirement system, the board shall post on the board's Internet website, or on a publicly available website that is linked to the board's website, the most recent data from reports received under Sections 802.101, 802.103, 802.104, 802.105, 802.108, <u>802.109,</u> 802.2015, and 802.2016.

SECTION 2. Section 802.103, Government Code, is amended by amending Subsection (a) and adding Subsection (e) to read as follows:

(a) <u>The</u> [~~Except as provided by Subsection (c), the~~] governing body of a public retirement system shall publish an annual financial report showing the financial condition of the system as of the last day of the fiscal year covered in the report. The report must include<u>:</u>

<u>(1)</u> the financial statements and schedules examined in the most recent audit performed as required by Section 802.102<u>;</u>

<u>(2)</u> [~~and must include~~] a statement of opinion by the certified public accountant as to whether or not the financial statements and schedules are presented fairly and in accordance

with generally accepted accounting principles;

(3) a listing, by asset class, of all direct and indirect commissions and fees paid by the retirement system during the system's previous fiscal year for the sale, purchase, or management of system assets; and

(4) the names of investment managers engaged by the retirement system.

(e) The board may adopt rules necessary to implement this section.

SECTION 3. Subchapter B, Chapter 802, Government Code, is amended by adding Section 802.109 to read as follows:

Sec. 802.109. INVESTMENT PRACTICES AND PERFORMANCE REPORTS. (a) Except as provided by Subsection (e) and subject to Subsections (c) and (k), a public retirement system shall select an independent firm with substantial experience in evaluating institutional investment practices and performance to evaluate the appropriateness, adequacy, and effectiveness of the retirement system's investment practices and performance and to make recommendations for improving the retirement system's investment policies, procedures, and practices. Each evaluation must include:

(1) an analysis of any investment policy or strategic investment plan adopted by the retirement system and the retirement system's compliance with that policy or plan;

(2) a detailed review of the retirement system's investment asset allocation, including:

(A) the process for determining target allocations;

(B) the expected risk and expected rate of return, categorized by asset class;

(C) the appropriateness of selection and valuation methodologies of alternative and illiquid assets; and

(D) future cash flow and liquidity needs;

(3) a review of the appropriateness of investment fees and commissions paid by the retirement system;

(4) a review of the retirement system's governance processes related to investment activities, including investment decision-making processes, delegation of investment authority, and board investment expertise and education; and

(5) a review of the retirement system's investment manager selection and monitoring process.

(b) The governing body of a public retirement system may determine additional specific areas to be evaluated under Subsection (a) and may select particular asset classes on which to focus, but the first evaluation must be a comprehensive analysis of the retirement system's investment program that covers all asset classes.

(c) In selecting an independent firm to conduct the evaluation described by Subsection (a), a public retirement system:

(1) subject to Subdivision (2), may select a firm regardless of whether the firm has an existing relationship with the retirement system; and

(2) may not select a firm that directly or indirectly manages investments of the retirement system.

(d) A public retirement system shall conduct the evaluation described by Subsection (a):

(1) once every three years, if the retirement system has total assets the book value of which, as of the last day of the last fiscal year considered in an evaluation under this section, was at least $100 million; or

(2) once every six years, if the retirement system has total assets the book value of which, as of the last day of the last fiscal year considered in an evaluation under this section, was at least $30 million and less than $100 million.

(e) A public retirement system is not required to conduct the evaluation described by Subsection (a) if the retirement system has total assets the book value of which, as of the last day of the preceding fiscal year, was less than $30 million.

(f) A report of an evaluation under this section must be filed with the governing body of the public retirement system not later than May 1 of each year following the year in which the system is evaluated under Subsection (d).

(g) Not later than the 31st day after the date the governing body of a public retirement system receives a report of an evaluation under this section, the governing body shall submit the report to the board.

(h) A public retirement system shall pay the costs of each evaluation of the system under this section.

(i) The board shall submit an investment performance report to the governor, the lieutenant governor, the speaker of the house of representatives, and the legislative committees having principal jurisdiction over legislation governing public retirement systems in the biennial report required by Section 801.203. The report must compile and summarize the information received under this section by the board during the preceding two fiscal years.

(j) A report of an evaluation by the Teacher Retirement System of Texas and an investment report that includes the Teacher Retirement System of Texas under this section satisfies the requirements of Section 825.512.

(k) The following reports may be used by the applicable public retirement systems to satisfy the requirement for a report of an evaluation under this section:

(1) an investment report under Section 10A, Article 6243g-4, Revised Statutes;

(2) an investment report under Section 2D, Chapter 88 (H.B. 1573), Acts of the 77th Legislature, Regular Session, 2001 (Article 6243h, Vernon's Texas Civil Statutes); and

(3) a report on a review conducted on the retirement system's investments under Section 2B, Article 6243e.2(1), Revised Statutes.

(l) The board may adopt rules necessary to implement this section.

SECTION 4. Notwithstanding Section 802.109(d), Government Code, as added by this Act, a report of the first evaluation of a public retirement system, as required by Section 802.109, Government Code, as added by this Act, must be filed with the governing body of the system not later than May 1, 2020.

SECTION 5. The State Pension Review Board is required to implement a provision of this Act only if the legislature appropriates money specifically for that purpose. If the legislature does not appropriate money specifically for that purpose, the State Pension Review Board may, but is not required to, implement a provision of this Act using other appropriations available for that purpose.

SECTION 6. This Act takes effect immediately if it receives a vote of two-thirds of all the members elected to each house, as provided by Section 39, Article III, Texas Constitution. If this Act does not receive the vote necessary for immediate effect, this Act takes effect September 1, 2019.

S.B. No. 322

President of the Senate | Speaker of the House

I hereby certify that S.B. No. 322 passed the Senate on April 17, 2019, by the following vote: Yeas 31, Nays 0; and that the Senate concurred in House amendment on May 24, 2019, by the following vote: Yeas 31, Nays 0.

Secretary of the Senate

I hereby certify that S.B. No. 322 passed the House, with amendment, on May 22, 2019, by the following vote: Yeas 144, Nays 0, two present not voting.

Chief Clerk of the House

Approved:

Date

Governor

S.B. No. 1640

AN ACT

relating to the open meetings law.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Section 551.001(2), Government Code, is amended to read as follows:

(2) "Deliberation" means a verbal or written exchange [~~during a meeting~~] between a quorum of a governmental body, or between a quorum of a governmental body and another person, concerning an issue within the jurisdiction of the governmental body [~~or any public business~~].

SECTION 2. The heading to Section 551.143, Government Code, is amended to read as follows:

Sec. 551.143. PROHIBITED SERIES OF COMMUNICATIONS [~~CONSPIRACY TO CIRCUMVENT CHAPTER~~]; OFFENSE; PENALTY.

SECTION 3. Section 551.143(a), Government Code, is amended to read as follows:

(a) A member [~~or group of members~~] of a governmental body commits an offense if the member:

(1) [~~or group of members~~] knowingly engages in at least one communication among a series of communications that each occur outside of a meeting authorized by this chapter and that concern an issue within the jurisdiction of the governmental body in which the members engaging in the individual communications constitute fewer than a quorum of members but the members engaging

in the series of communications constitute a quorum of members; and

(2) knew at the time the member engaged in the communication that the series of communications:

(A) involved or would involve a quorum; and

(B) would constitute a deliberation once a quorum of members engaged in the series of communications [~~conspires to circumvent this chapter by meeting in numbers less than a quorum for the purpose of secret deliberations in violation of this chapter~~].

SECTION 4. Section 551.143, Government Code, as amended by this Act, applies only to an offense committed on or after the effective date of this Act. An offense committed before the effective date of this Act is governed by the law in effect on the date the offense was committed, and the former law is continued in effect for that purpose. For purposes of this section, an offense was committed before the effective date of this Act if any element of the offense occurred before that date.

SECTION 5. This Act takes effect immediately if it receives a vote of two-thirds of all the members elected to each house, as provided by Section 39, Article III, Texas Constitution. If this Act does not receive the vote necessary for immediate effect, this Act takes effect September 1, 2019.

S.B. No. 1640

______________________________ President of the Senate

______________________________ Speaker of the House

I hereby certify that S.B. No. 1640 passed the Senate on April 9, 2019, by the following vote: Yeas 30, Nays 1; and that the Senate concurred in House amendment on May 23, 2019, by the following vote: Yeas 31, Nays 0.

______________________________ Secretary of the Senate

I hereby certify that S.B. No. 1640 passed the House, with amendment, on May 17, 2019, by the following vote: Yeas 145, Nays 1, one present not voting.

______________________________ Chief Clerk of the House

Approved:

______________________________ Date

______________________________ Governor

S.B. No. 2224

AN ACT

relating to requiring a public retirement system to adopt a written funding policy.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Subchapter C, Chapter 802, Government Code, is amended by adding Section 802.2011 to read as follows:

Sec. 802.2011. FUNDING POLICY. (a) In this section:

(1) "Funded ratio" means the ratio of a public retirement system's actuarial value of assets divided by the system's actuarial accrued liability.

(2) "Governmental entity" has the meaning assigned by Section 802.1012.

(b) The governing body of a public retirement system shall:

(1) adopt a written funding policy that details the governing body's plan for achieving a funded ratio of the system that is equal to or greater than 100 percent;

(2) maintain for public review at its main office a copy of the policy;

(3) file a copy of the policy and each change to the policy with the board not later than the 31st day after the date the policy or change, as applicable, is adopted; and

(4) submit a copy of the policy and each change to the policy to the system's associated governmental entity not later than the 31st day after the date the policy or change is adopted.

SECTION 2. Not later than January 1, 2020, each public retirement system shall adopt a funding policy as required by Section 802.2011, Government Code, as added by this Act.

SECTION 3. This Act takes effect September 1, 2019.

______________________________ President of the Senate

______________________________ Speaker of the House

I hereby certify that S.B. No. 2224 passed the Senate on April 11, 2019, by the following vote: Yeas 31, Nays 0.

______________________________ Secretary of the Senate

I hereby certify that S.B. No. 2224 passed the House on May 17, 2019, by the following vote: Yeas 147, Nays 0, two present not voting.

______________________________ Chief Clerk of the House

Approved:

______________________________ Date

______________________________ Governor

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C8

Topic: **Board approval of Trustee education and travel**

a. Future Education and Business-related Travel
b. Future Investment-related Travel

Discussion:

a. Per the Education and Travel Policy and Procedure, planned Trustee education and business-related travel and education which does not involve travel requires Board approval prior to attendance.

Attached is a listing of requested future education and travel noting approval status.

b. Per the Investment Policy Statement, planned Trustee travel related to investment monitoring, and in exceptional cases due diligence, requires Board approval prior to attendance.

There is no future investment-related travel for Trustees at this time.

Future Education and Business Related Travel
Regular Board Meeting – June 13, 2019

ATTENDING APPROVED

Conference: **TEXPERS Summer Educational Forum**
Dates: August 18-20, 2019
Location: Frisco, TX
Est. Cost: TBD

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C09

Topic: **Portfolio Update**

Discussion: Investment Staff will brief the Board on recent events and current developments with respect to the investment portfolio.

Regular Board Meeting – Thursday, June 13, 2019

DALLAS POLICE & FIRE PENSION SYSTEM

Portfolio Update

June 13, 2019

Asset Allocation

DPFP Asset Allocation	% weight				$ millions		
	5/31/19	Target	Variance		5/31/19	Target	Variance
Equity	**37.2%**	**55.0%**	**-17.8%**		**744**	**1,100**	**-356**
Global Equity	22.2%	40.0%	-17.8%		444	800	-356
Emerging Markets	2.5%	10.0%	-7.5%		51	200	-149
Private Equity*	12.5%	5.0%	7.5%		249	100	149
Fixed Income	**31.2%**	**35.0%**	**-3.8%**		**624**	**700**	**-76**
Safety Reserve - Cash	3.5%	3.0%	0.5%		71	60	11
Safety Reserve - ST IG Bonds	12.9%	12.0%	0.9%		258	240	18
Investment Grade Bonds	0.0%	4.0%	-4.0%		0	80	-80
Global Bonds	3.3%	4.0%	-0.7%		66	80	-14
High Yield Bonds	4.2%	4.0%	0.2%		83	80	3
Bank Loans	5.8%	4.0%	1.8%		116	80	36
Emerging Mkt Debt	1.0%	4.0%	-3.0%		20	80	-60
Private Debt*	0.6%	0.0%	0.6%		11	0	11
Real Assets*	**31.6%**	**10.0%**	**21.6%**		**632**	**200**	**432**
Real Estate*	21.4%	5.0%	16.4%		427	100	327
Natural Resources*	7.3%	5.0%	2.3%		147	100	47
Infrastructure*	2.9%	0.0%	2.9%		58	0	58
Total	**100.0%**	**100.0%**	**0.0%**		**2,000**	**2,000**	**0**
Safety Reserve	16.4%	15.0%	1.4%		329	300	29
*Private Market Assets	44.6%	15.0%	29.6%		892	300	592

Source: JP Morgan Custodial Data, Staff Calculations

Preliminary data

2019 Investment Review Calendar*

January ✓	• Real Estate: Staff review of Vista 7, King's Harbor, and Museum Tower
February ✓	• Real Estate: Clarion Presentation • Global Equity Structure Review (Staff/Meketa)
March ✓	• Real Estate: AEW Presentation
April	• None
May ✓	• Staff Timber Portfolio Review (FIA & BTG)
June	• Natural Resources: Hancock Presentation • Real Estate: Hearthstone Presentation
2H19	• Infrastructure: Staff review of AIRRO and JPM Maritime • Private Equity: Staff review of Lone Star, Huff, Hudson, and Industry Ventures • Global Equity Manager Reviews • Fixed Income Manager Reviews

*Future presentation schedule is subject to change.

DALLAS POLICE & FIRE PENSION SYSTEM

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C10

Topic: **First Quarter 2019 Investment Performance Analysis and Fourth Quarter 2018 Private Markets & Real Assets Review**

Attendees: Alexandra Wallace, Principal - Meketa Investment Group
Aaron Lally, Executive Vice President - Meketa Investment Group

Discussion: Meketa and Investment Staff will review investment performance.

FUND EVALUATION REPORT

Dallas Police & Fire Pension System

Quarterly Review
As of March 31, 2019

M E K E T A   I N V E S T M E N T   G R O U P

Boston Massachusetts	Chicago Illinois	Miami Florida	New York New York	Portland Oregon	San Diego California	London United Kingdom

www.meketagroup.com

Agenda

Executive Summary

DPFP 1Q19 Flash Summary

Category	Result	Notes
Total Fund Performance Return	**Positive**	4.8%
Performance vs. Policy Index	**Trailed**	4.8% vs. 7.0%
DPFP Public Markets vs. 60/40[1]	**Trailed**	7.8% vs. 8.2%
Asset Allocation vs. Targets	**Detracted**	Underweight public equities, overweight PE and overweight RE all detracted
Safety Reserve Exposure	**Sufficient**	$310 million (approximately 15%)
Performance vs. Peers	**Underperformed**	99th percentile in peer group in 1Q19[2]
Active Management	**Additive**	Outperformed in Global Equity and Natural Resources
Compliance with Targets	**No**	Under minimums in Investment Grade Bond and EM Debt[3]

[1] Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.
[2] InvestorForce Public DB $1-$5 billion net accounts.
[3] Investment Grade Bonds and Emerging Market Debt are below target minimums in accordance with to following the implementation plan approved by the Trustees.

DPFP Trailing One-Year Flash Summary

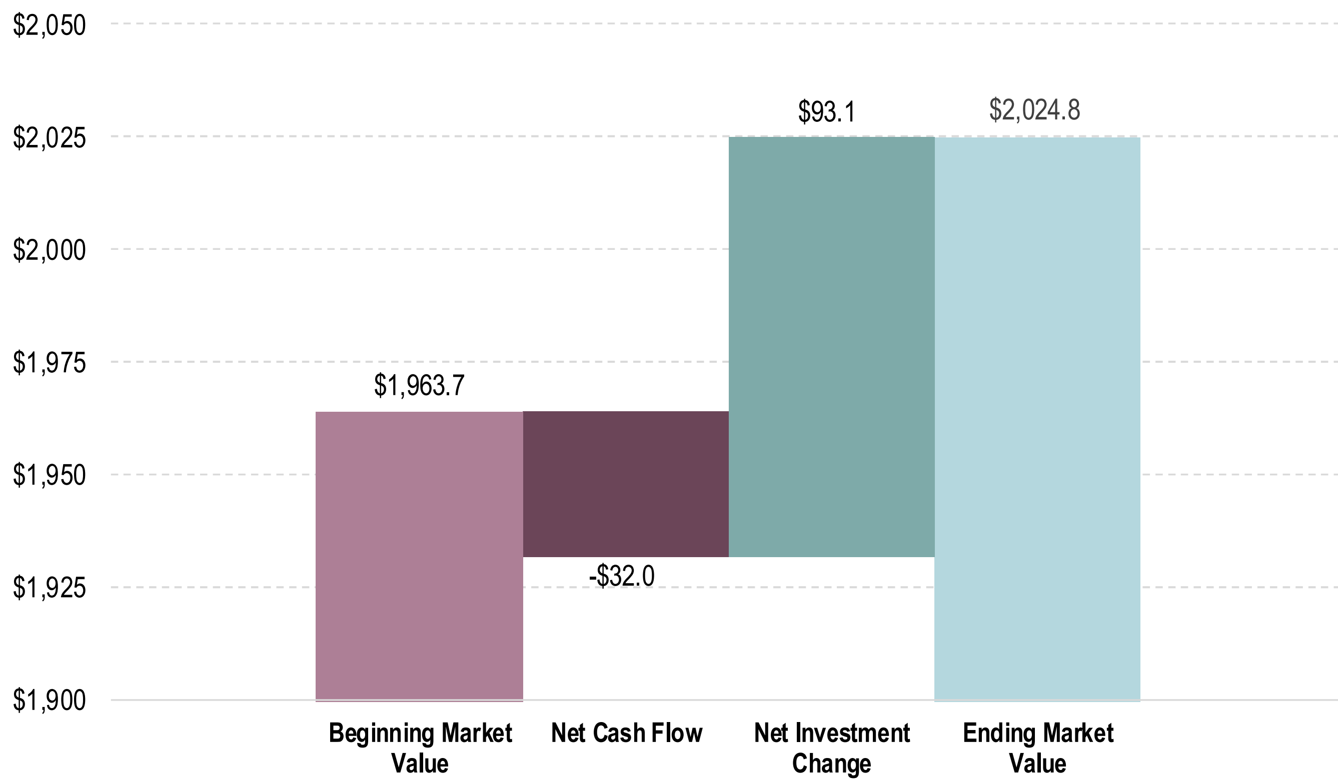
Category	Trailing 1 YR Result	1 YR Notes
Total Fund Performance Return	Positive	2.6%
Performance vs. Policy Index	Outperformed	2.6% vs. 1.2%
DPFP Public Markets vs. 60/40[1]	Outperformed	3.3% vs. 1.2%
Asset Allocation vs. Targets	Additive	Underweight global equity and overweight RE helped
Performance vs. Peers	Underperformed	65 percentile in peer group[2]
Active Management	Detracted	PE, NR, IS Negative Selection

DPFP Trailing Three-Year Flash Summary

Category	Trailing 3 YR Result	3 YR Notes
Total Fund Performance Return	Positive	4.4%
Performance vs. Policy Index	Trailed	4.4% vs. 7.7%
DPFP Public Markets vs. 60/40[1]	Outperformed	9.0% vs. 7.0%
Performance vs. Peers	Trailed	99th percentile in peer group[1]
Active Management	Detracted	PE, NR, RE and PD Negative Selection

1 Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.
2 InvestorForce Public DB $1-$5 billion net accounts.

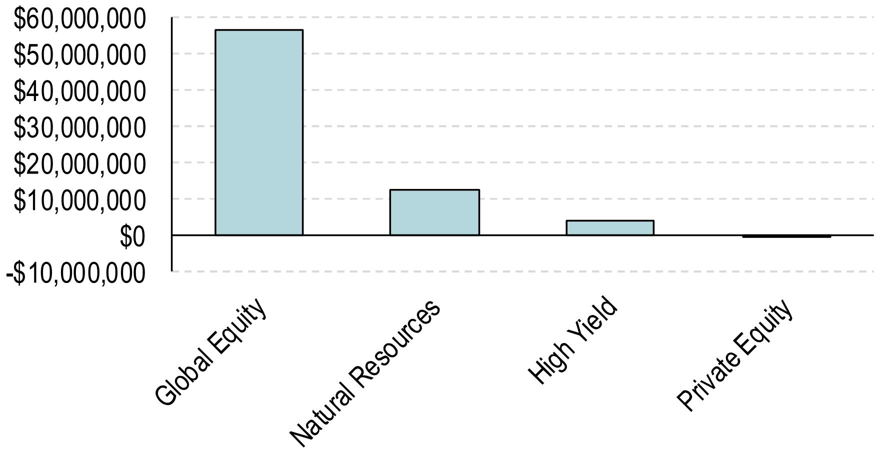
Quarterly Change in Market Value



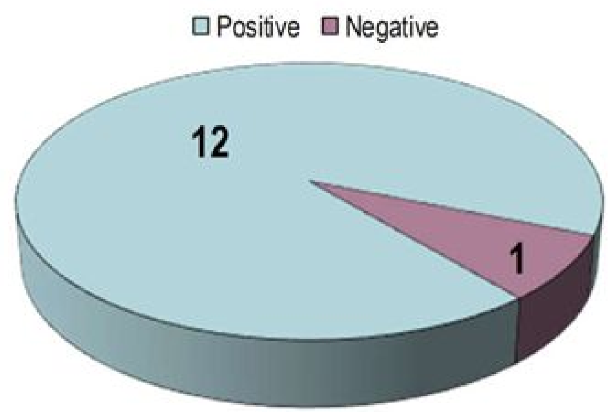
- Total market value increased due to positive investment performance.

Quarterly Absolute Performance

Asset Classes Dollar[1] Gain/Loss
Top Three and Bottom Three[2]



Asset Class Absolute Performance

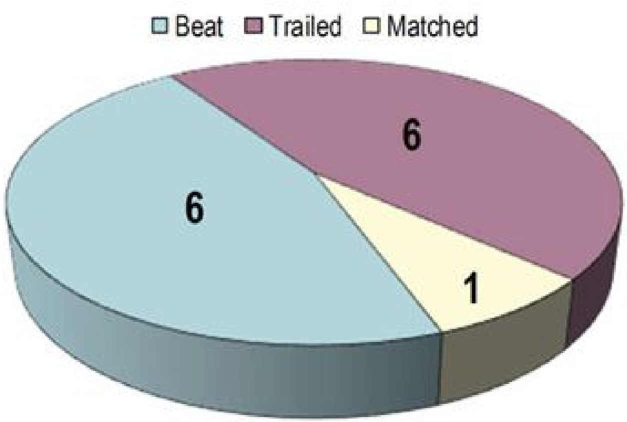


- All asset classes with the exception of private equity generated positive absolute performance in the quarter.
- In absolute terms, global equity appreciated the most, gaining $56.6 million in market value.

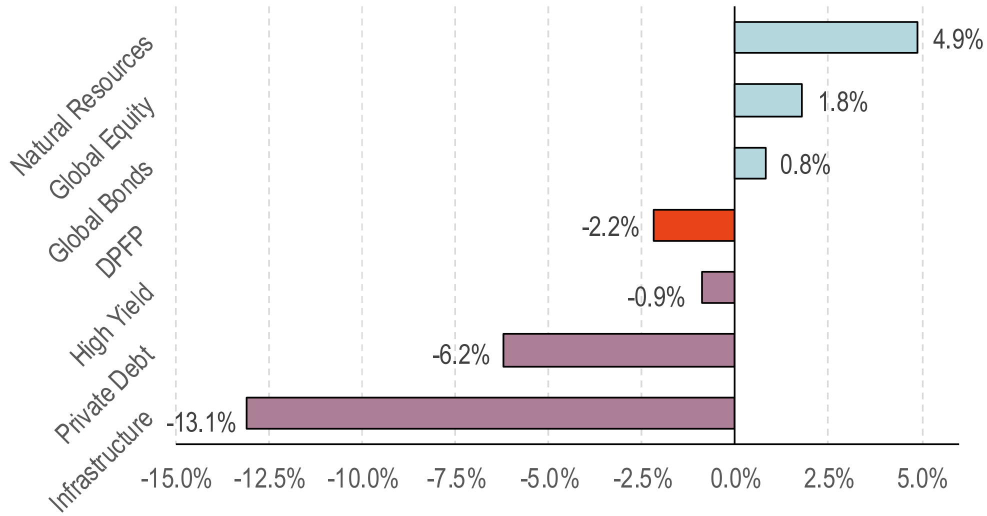
1 Estimated gain/loss calculated by multiplying beginning market value by quarterly performance.
2 Only Private Equity generated minimal negative absolute performance in the quarter.

Quarterly Relative Performance

Asset Classes vs. Benchmarks



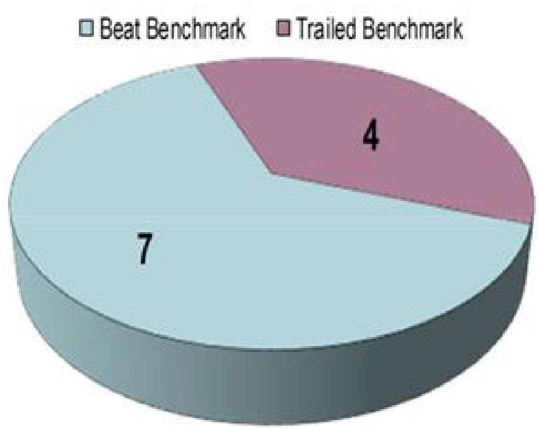
Top Three and Bottom Three Asset Classes vs. Benchmarks



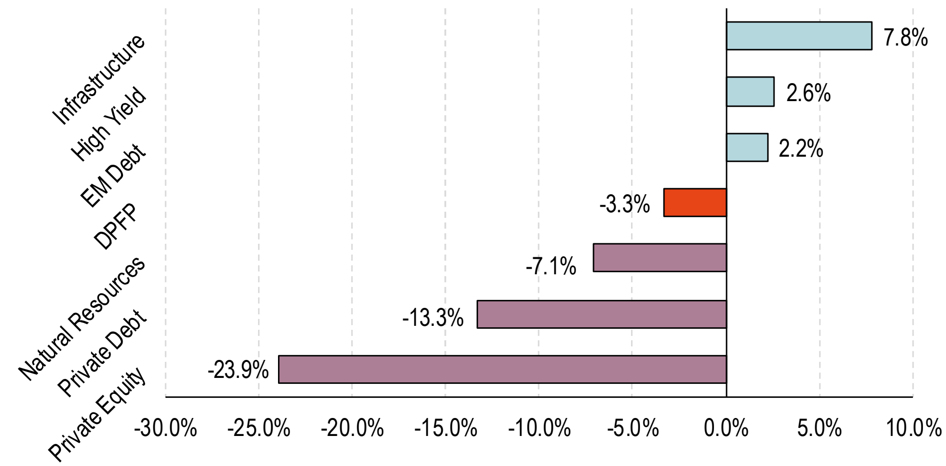
- In the quarter, the best relative performance came from natural resources, global equity and global bonds.
- Infrastructure, private debt and high yield bonds had the worst relative performance in the quarter.
- Six of the thirteen asset classes delivered positive relative performance versus respective benchmarks.

Trailing Three-Year Relative Performance

Asset Classes vs. Benchmarks



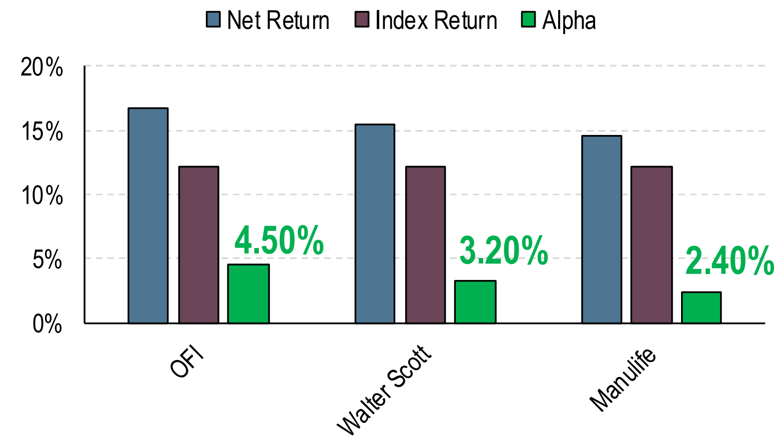
Top Three and Bottom Three Asset Classes vs. Benchmarks



- Seven of the eleven asset classes with trailing three-year return history have delivered positive relative performance versus respective benchmarks.
- Over the trailing three-year period, the best relative performance came from infrastructure, high yield bonds and emerging market debt asset classes.
- Private equity, private debt and natural resources had the worst relative performance over the three-year trailing period.

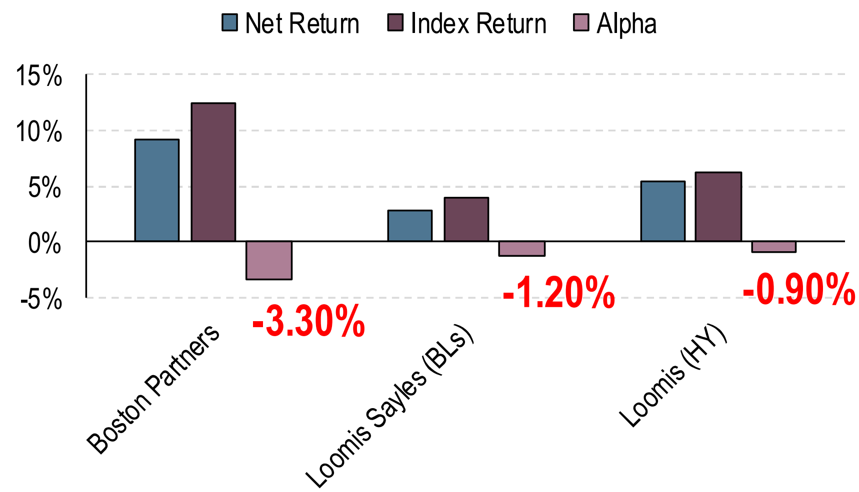
Public Manager Alpha

Top Three Outperformers in Quarter



$354 million combined exposure

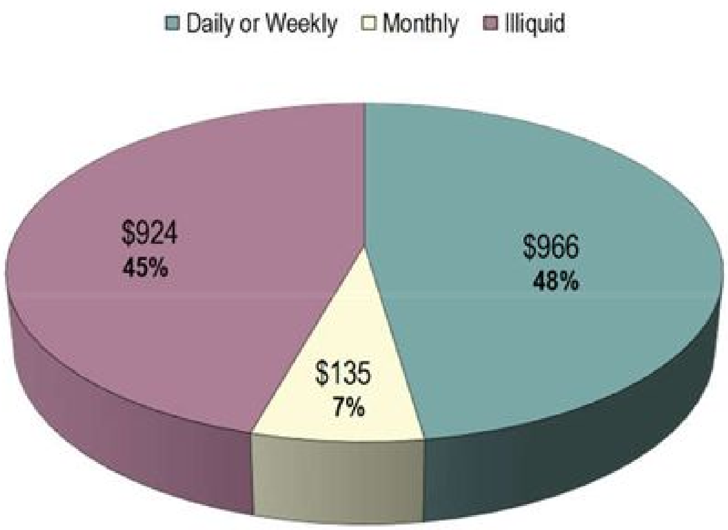
Bottom Three Underperformers in Quarter



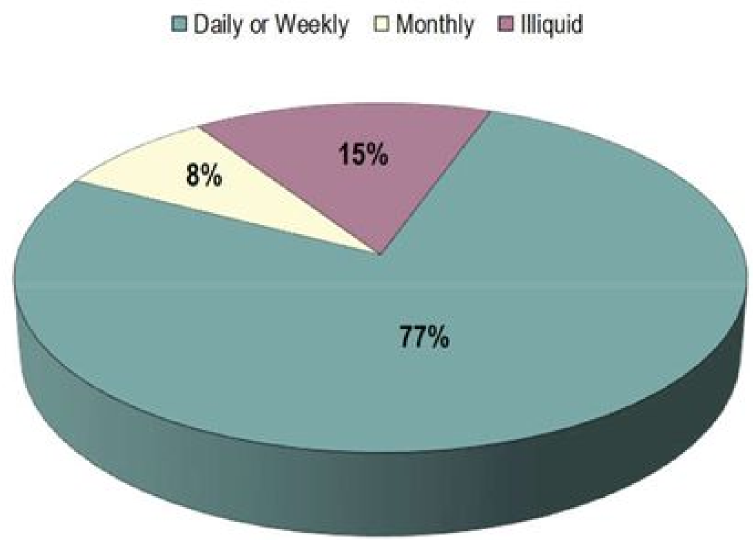
$249 million combined exposure

Liquidity Exposure
as of March 31, 2019

Exposure ($mm)



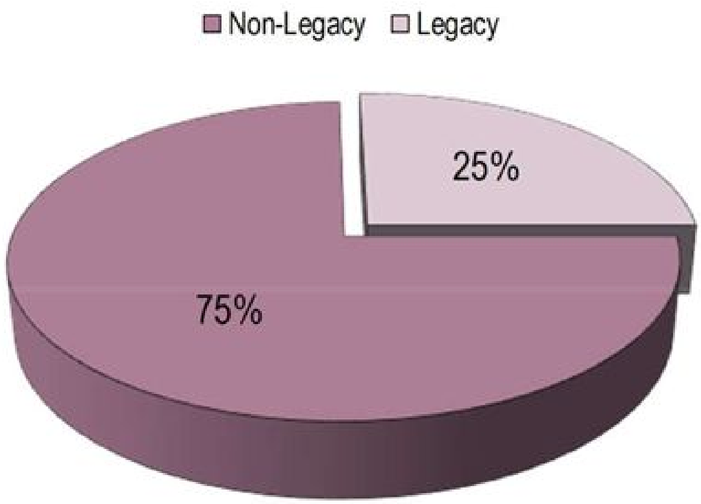
Targets



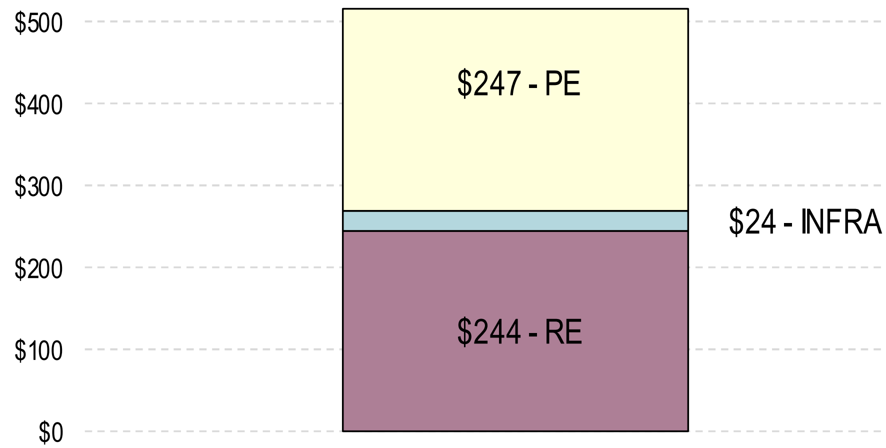
- Approximately 48% of the System's assets are illiquid versus 15% of the target allocation.

* Assets can be redeemed between monthly and annual basis often with gating, lock-ups or notice of more than 30 days required.

Legacy Assets



Exposure ($ mm)



$515 million

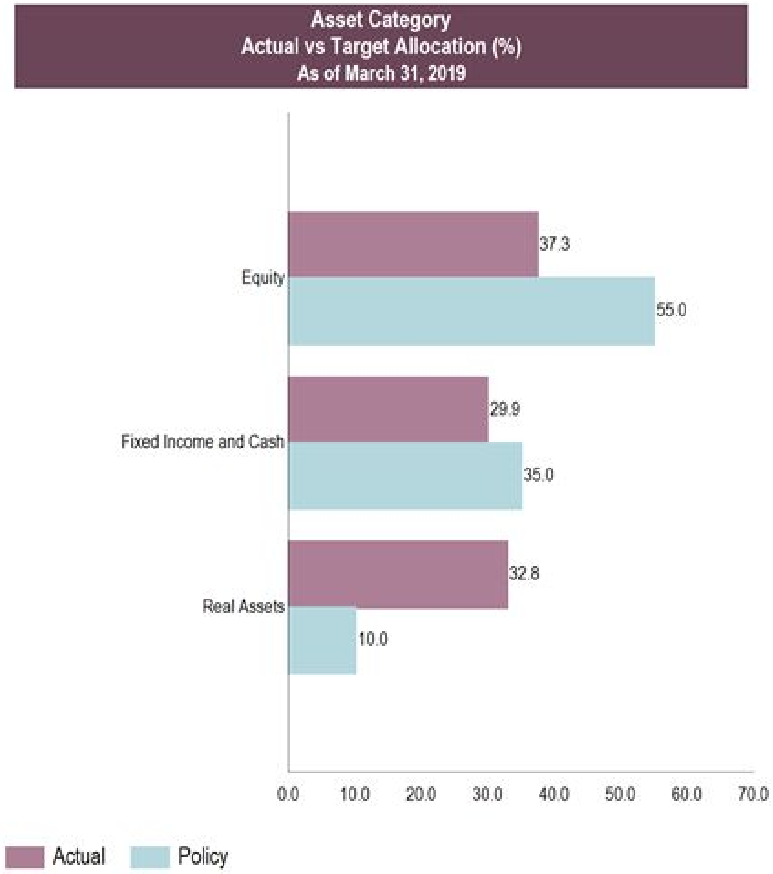
Net Asset Value of Legacy Assets

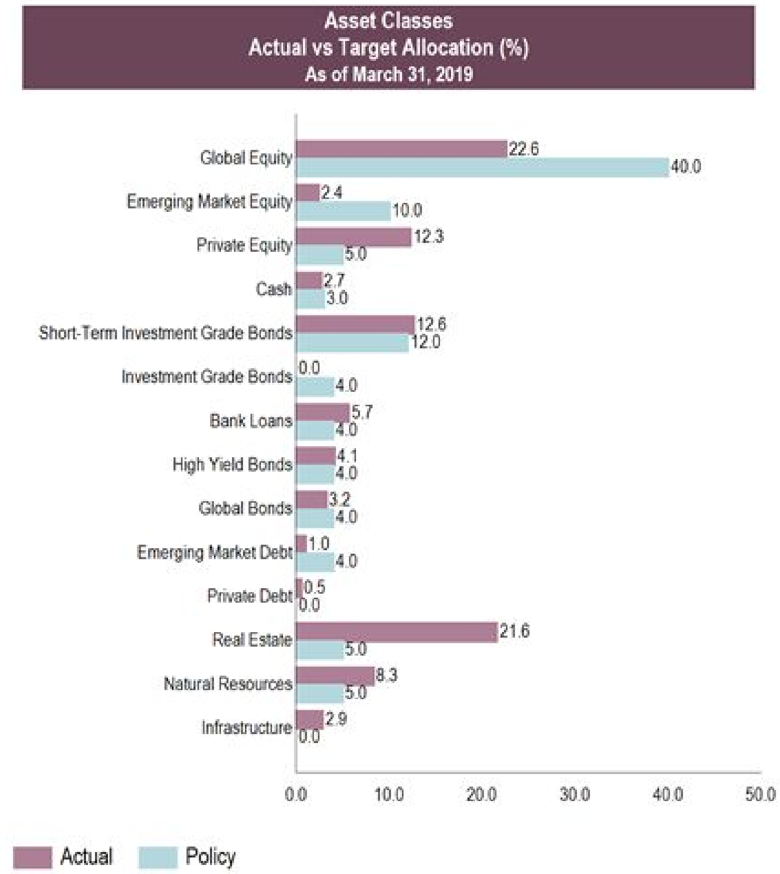
1Q19 Review

Dallas Police & Fire Pension System

DPFP

As of March 31, 2019





Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Equity	**$756,066,642**	**37%**	**55%**		
Global Equity	$457,567,002	23%	40%	18% - 48%	Yes
Emerging Market Equity	$49,279,249	2%	10%	0% - 12%	Yes
Private Equity	$249,220,391	12%	5%		
Fixed Income and Cash	**$605,169,170**	**30%**	**35%**		
Cash	$54,242,576	3%	3%	0% - 5%	Yes
Short-Term Investment Grade Bonds	$255,818,339	13%	12%	5% - 15%	Yes
Investment Grade Bonds	$0	0%	4%	2% - 6%	No
Bank Loans	$114,748,574	6%	4%	2% - 6%	Yes
High Yield Bonds	$83,529,659	4%	4%	2% - 6%	Yes
Global Bonds	$65,592,576	3%	4%	2% - 6%	Yes
Emerging Market Debt	$20,231,121	1%	4%	2% - 6%	No
Private Debt	$11,006,326	1%	0%		
Real Assets	**$663,557,803**	**33%**	**10%**		
Real Estate	$436,873,528	22%	5%		
Natural Resources	$168,942,189	8%	5%		
Infrastructure	$57,742,085	3%	0%		
Total	**$2,024,793,615**	**100%**	**100%**		

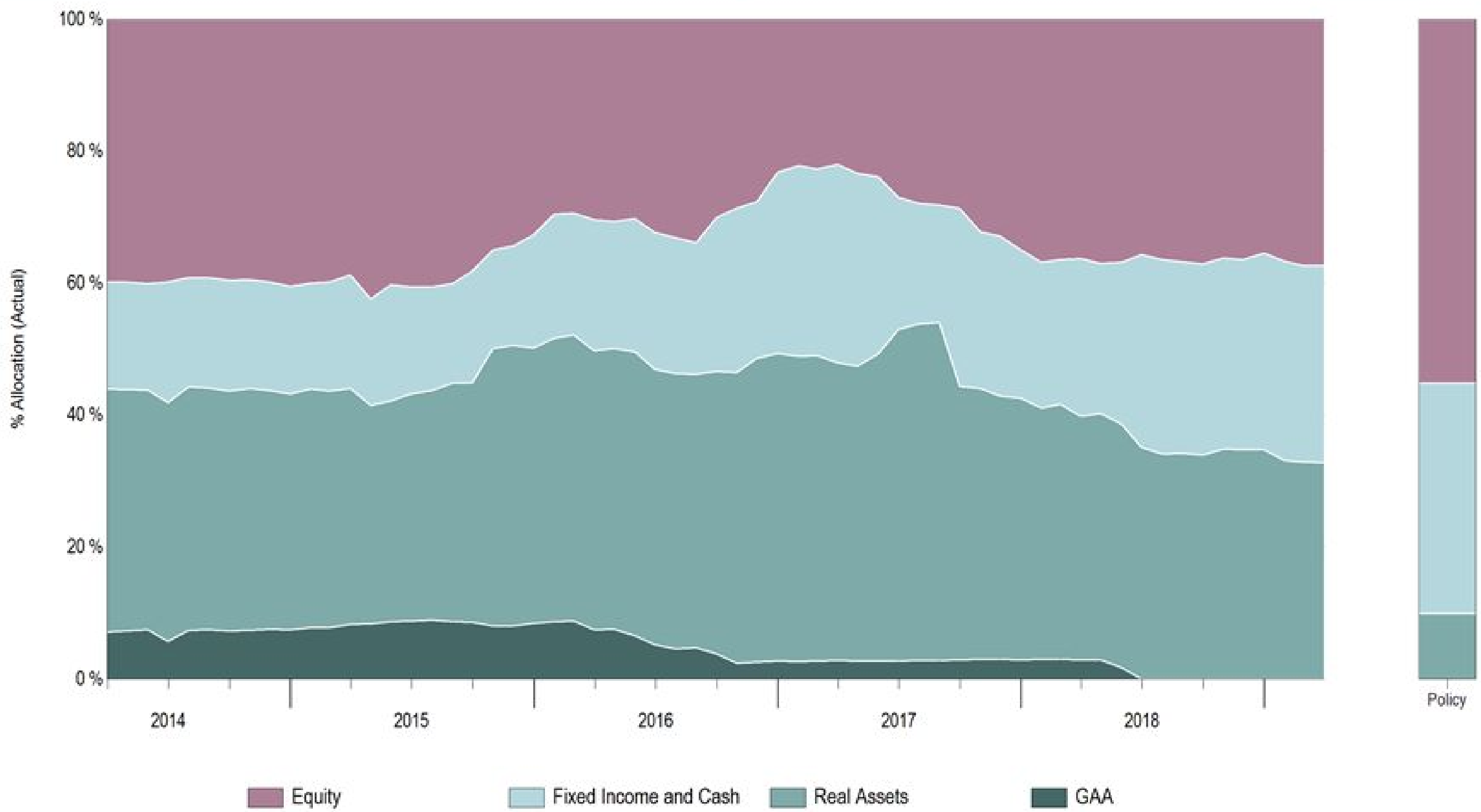
As of 3/31/2019, the Safety Reserve exposure was approximately $310.1 million (15.3%).
Rebalancing ranges are not established for illiquid assets (Private Equity, Private Debt, Natural Resources, Infrastructure and Real Estate)

Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Asset Allocation History vs. Policy
5 Years Ending March 31, 2019

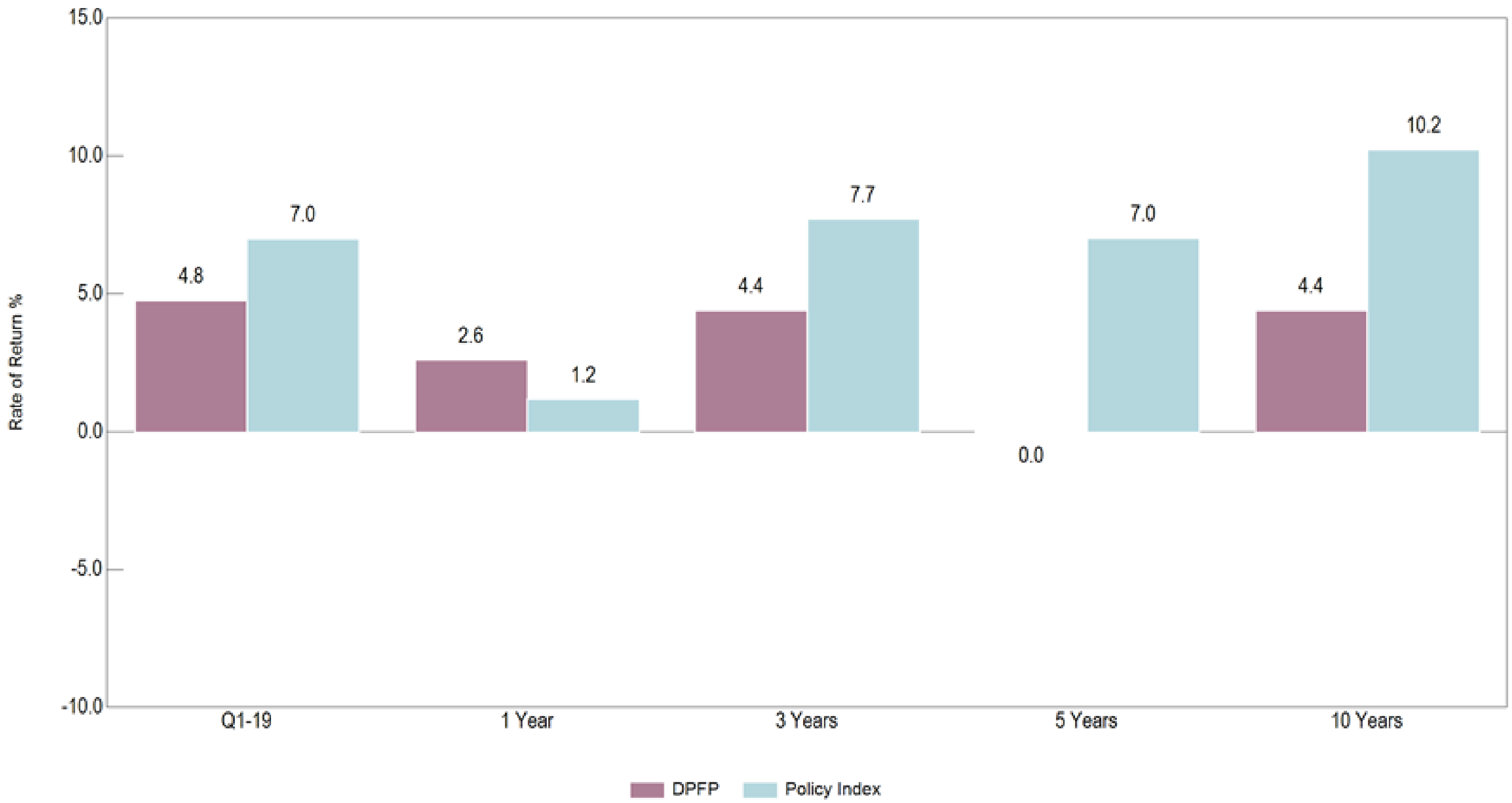


Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Net Return Summary
Ending March 31, 2019

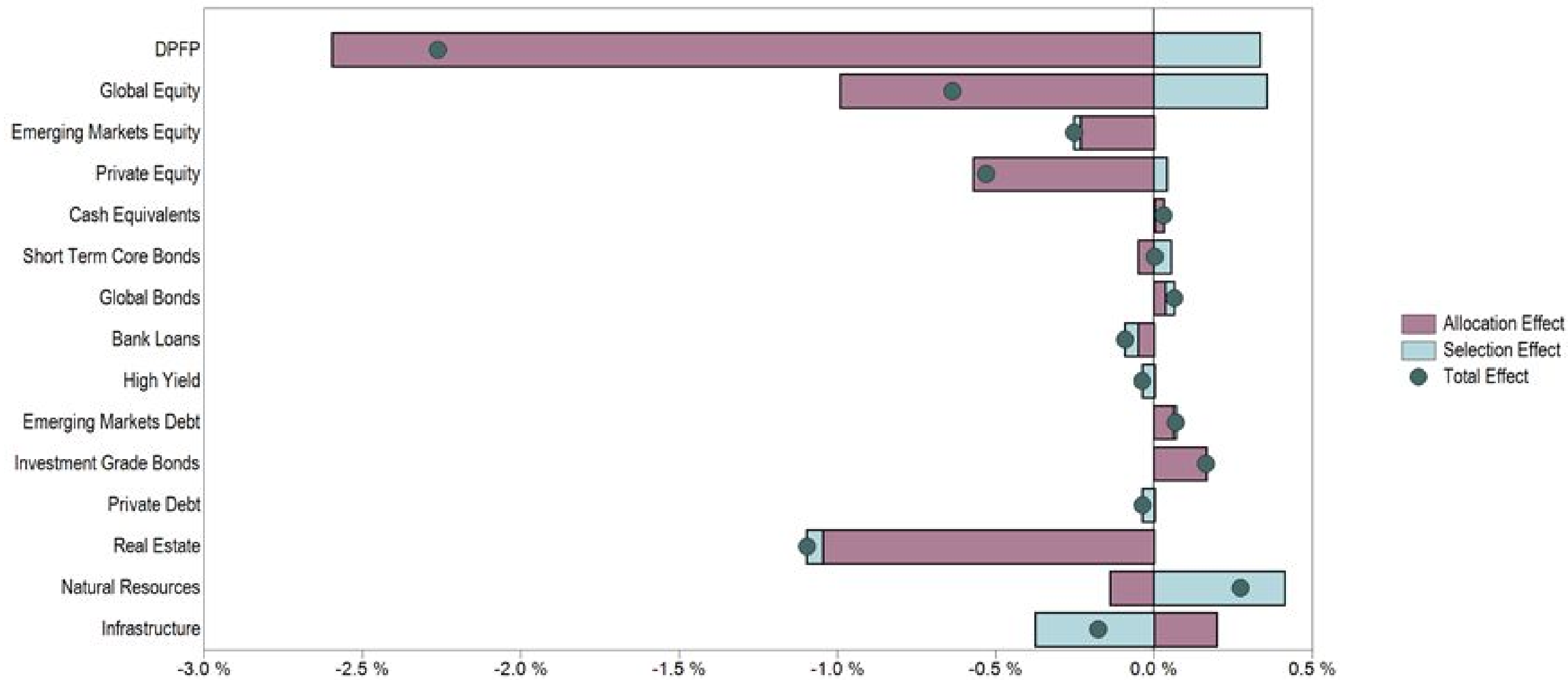


Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Attribution Effects vs. Policy Benchmark
3 Months Ending March 31, 2019



Attribution Summary
3 Months Ending March 31, 2019

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	**4.8%**	**7.0%**	**-2.3%**	**0.3%**	**-2.6%**	**-2.3%**

The performance claculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied by the time period performance of that asset class and summed. Values may not foot due to rounding.

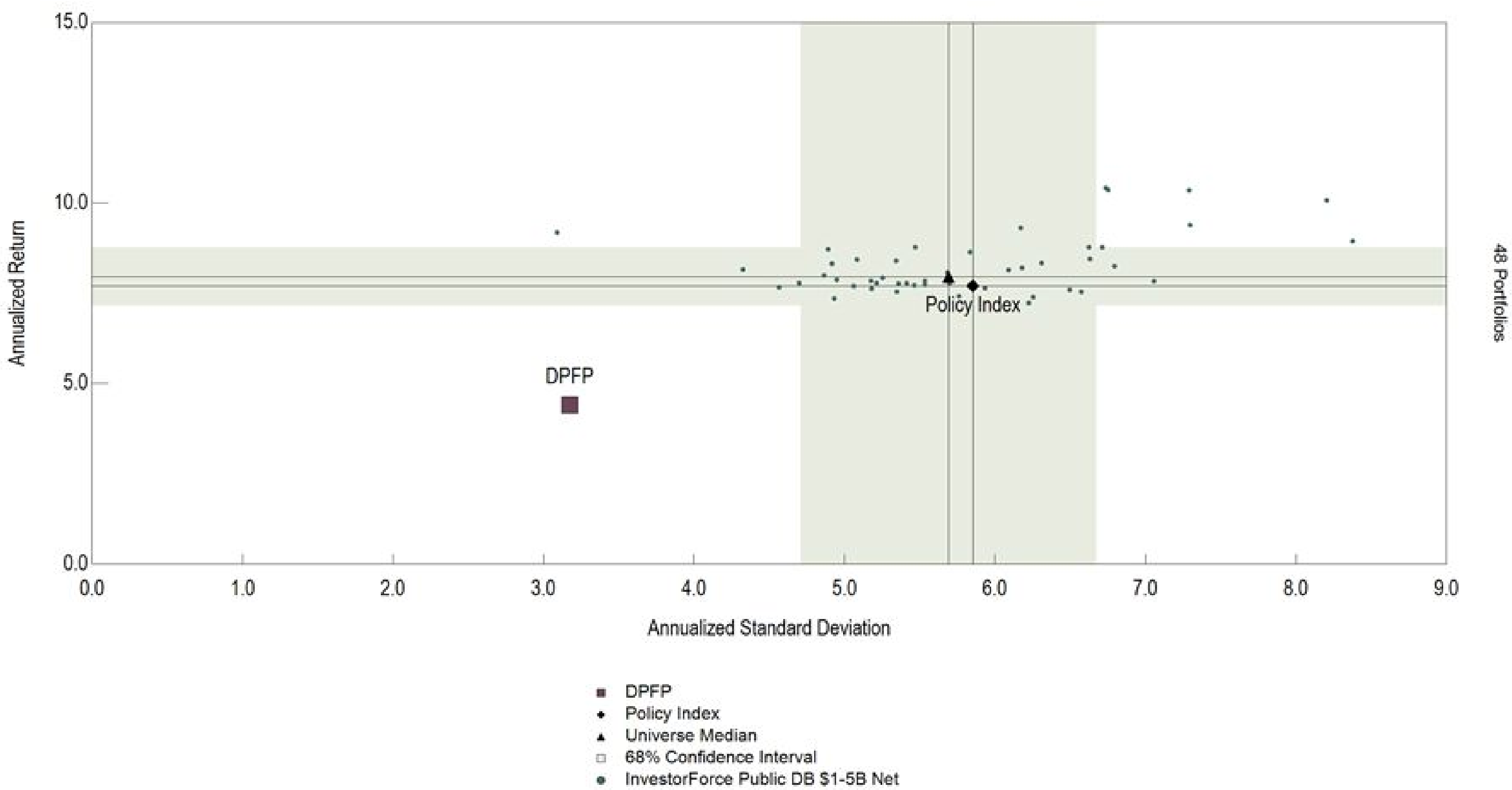
Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Net Annualized Return vs. Annualized Standard Deviation
3 Years Ending March 31, 2019

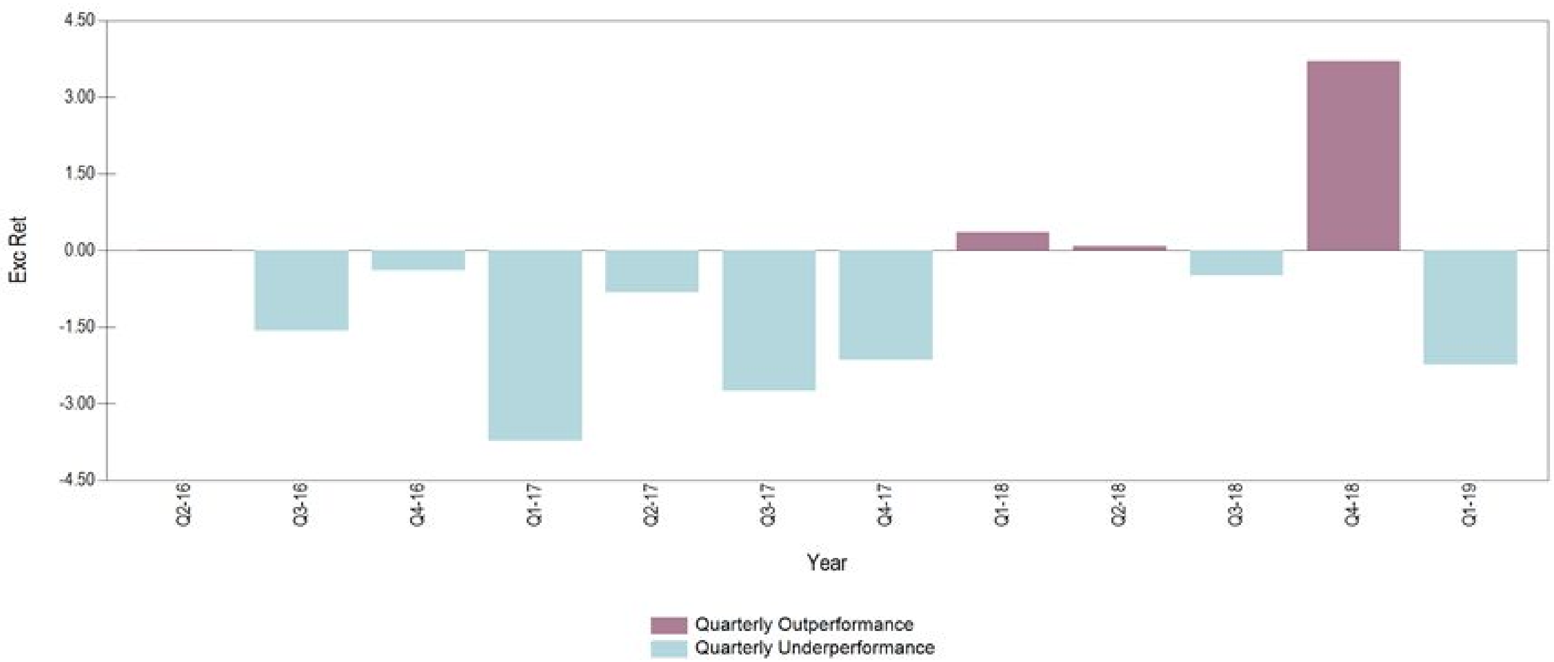


Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Quarterly Excess Performance vs. Policy Benchmark



Total Fund Correlation Matrix
1 Year Ending March 31, 2019

	DPFP	Policy Index	60% MSCI ACWI/40% Barclays Global Agg
DPFP	1.00	--	--
Policy Index	0.96	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.97	0.98	1.00

Total Fund Correlation Matrix
3 Years Ending March 31, 2019

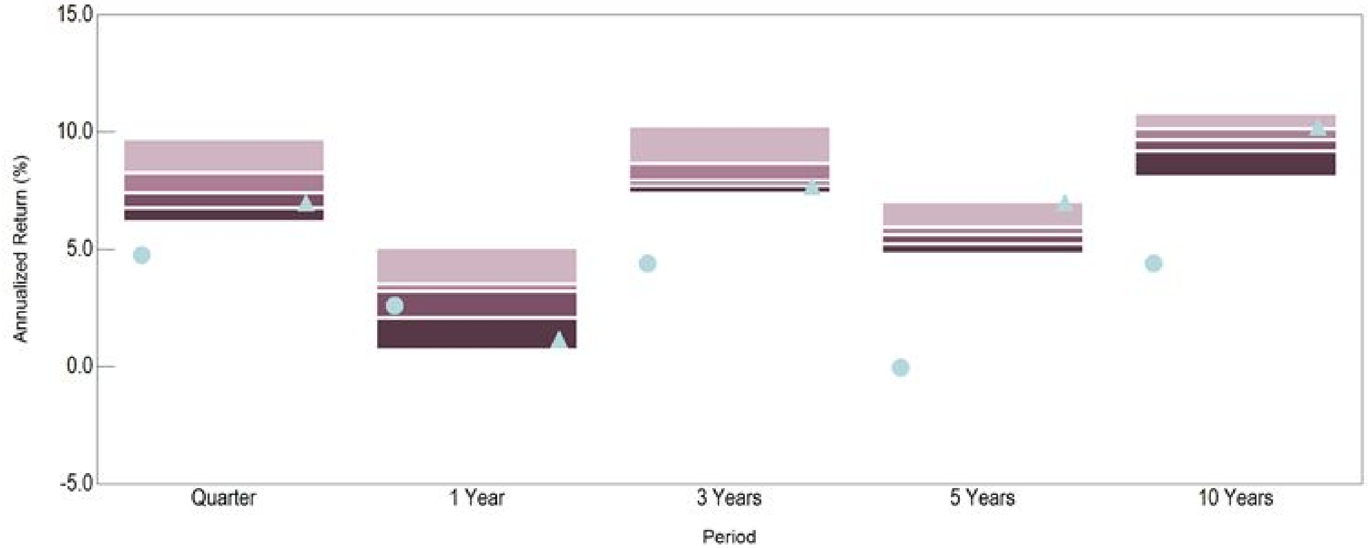
	DPFP	Policy Index	60% MSCI ACWI/40% Barclays Global Agg
DPFP	1.00	--	--
Policy Index	0.81	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.79	0.97	1.00

Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Total Plan Allocation vs. InvestorForce Public DB $1-5B Net Accounts
As of March 31, 2019



	Return (Rank)									
5th Percentile	9.7		5.1		10.3		7.0		10.8	
25th Percentile	8.3		3.5		8.7		6.0		10.2	
Median	7.4		3.2		8.0		5.6		9.7	
75th Percentile	6.8		2.1		7.7		5.2		9.2	
95th Percentile	6.2		0.7		7.4		4.8		8.1	
# of Portfolios	48		48		48		47		43	
DPFP	4.8	(99)	2.6	(65)	4.4	(99)	0.0	(99)	4.4	(99)
Policy Index	7.0	(67)	1.2	(87)	7.7	(78)	7.0	(7)	10.2	(21)

Dallas Police & Fire Pension System

As of March 31, 2019

Asset Class Performance Summary (Net)

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	**2,024,793,615**	**100.0**	**4.8**	**2.6**	**4.4**	**0.0**	**4.4**	**5.8**	**Jun-96**
Policy Index			*7.0*	*1.2*	*7.7*	*7.0*	*10.2*	*--*	*Jun-96*
Allocation Index			*4.5*	*3.1*	*7.7*	*7.2*	*9.2*	*7.2*	*Jun-96*
Total Fund Ex Private Markets			*7.8*	*3.3*	*9.0*	*5.3*	*10.7*	*5.7*	*Jun-96*
60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index			*8.2*	*1.2*	*7.0*	*4.3*	*8.7*	*6.0*	*Jun-96*
Global Equity	**457,567,002**	**22.6**	**14.1**	**4.5**	**12.6**	**7.9**	**13.0**	**6.3**	**Jul-06**
MSCI ACWI IMI Net USD			*12.3*	*1.9*	*10.6*	*6.3*	*12.3*	*5.9*	*Jul-06*
Emerging Markets Equity	**49,279,249**	**2.4**	**9.1**	**-1.7**	**--**	**--**	**--**	**-2.1**	**Jan-18**
MSCI Emerging Market IMI Net			*9.7*	*-8.0*	*10.1*	*3.4*	*9.1*	*-5.5*	*Jan-18*
Private Equity	**249,220,391**	**12.3**	**0.0**	**0.0**	**-9.4**	**-9.7**	**-2.7**	**-0.7**	**Oct-05**
Cambridge Associates US All PE (1 Qtr Lag)			*-0.4*	*13.1*	*14.5*	*12.0*	*14.0*	*12.8*	*Oct-05*
Cash Equivalents	**54,242,576**	**2.7**	**0.6**	**2.1**	**1.3**	**--**	**--**	**1.3**	**Apr-15**
91 Day T-Bills			*0.6*	*2.1*	*1.2*	*0.8*	*0.4*	*0.9*	*Apr-15*
Short Term Core Bonds	**255,818,339**	**12.6**	**1.4**	**3.5**	**--**	**--**	**--**	**1.9**	**Jun-17**
BBgBarc US Treasury 1-3 Yr TR			*1.0*	*2.7*	*1.0*	*1.0*	*1.0*	*1.4*	*Jun-17*
Global Bonds	**65,592,576**	**3.2**	**3.0**	**-4.9**	**2.0**	**1.5**	**--**	**2.6**	**Dec-10**
BBgBarc Global Aggregate TR			*2.2*	*-0.4*	*1.5*	*1.0*	*3.0*	*1.8*	*Dec-10*
Bank Loans	**114,748,574**	**5.7**	**3.3**	**2.6**	**6.9**	**3.9**	**--**	**4.0**	**Jan-14**
S&P/LSTA Leveraged Loan			*4.0*	*3.0*	*5.7*	*3.6*	*--*	*3.7*	*Jan-14*
High Yield	**83,529,659**	**4.1**	**5.4**	**1.9**	**9.9**	**3.4**	**--**	**6.3**	**Dec-10**
BBgBarc Global High Yield TR			*6.3*	*2.4*	*7.3*	*4.0*	*11.1*	*6.3*	*Dec-10*
Emerging Markets Debt	**20,231,121**	**1.0**	**5.6**	**-1.7**	**6.8**	**3.1**	**--**	**3.5**	**Dec-10**
50% JPM EMBI/50% JPM GBI-EM			*4.9*	*-1.8*	*4.6*	*2.2*	*--*	*3.1*	*Dec-10*
Private Debt	**11,006,326**	**0.5**	**0.6**	**7.9**	**-3.8**	**--**	**--**	**-2.9**	**Jan-16**
Barclays Global High Yield +2%			*6.8*	*4.4*	*9.5*	*--*	*--*	*10.2*	*Jan-16*
Real Estate	**436,873,528**	**21.6**	**1.2**	**5.7**	**5.3**	**-5.8**	**-4.1**	**3.8**	**Mar-85**
NCREIF Property (1-quarter lagged)			*1.4*	*6.7*	*7.2*	*9.3*	*7.5*	*8.1*	*Mar-85*
Natural Resources	**168,942,189**	**8.3**	**7.8**	**0.5**	**-0.4**	**3.0**	**--**	**4.6**	**Dec-10**
NCREIF Farmland Total Return Index 1Q Lag			*2.9*	*6.7*	*6.7*	*8.6*	*11.2*	*12.5*	*Dec-10*
Infrastructure	**57,742,085**	**2.8**	**1.0**	**-6.8**	**16.5**	**8.5**	**--**	**7.9**	**Jul-12**
S&P Global Infrastructure TR USD			*14.1*	*9.2*	*8.7*	*5.4*	*10.9*	*8.4*	*Jul-12*

[1] Please see the Appendix for composition of the Custom Benchmarks. [2] As of 3/31/2019, the Safety Reserve exposure was approximately $310.1 million (15.3%).[3] All private market data is one quarter lagged, unless otherwise noted.

Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

DPFP

As of March 31, 2019

Trailing Net Performance

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DPFP	**2,024,793,615**	**100.0**	**--**	**4.8**	**2.6**	**4.4**	**0.0**	**4.4**	**5.8**	**Jun-96**
Policy Index				*7.0*	*1.2*	*7.7*	*7.0*	*10.2*	*--*	*Jun-96*
Allocation Index				*4.5*	*3.1*	*7.7*	*7.2*	*9.2*	*7.2*	*Jun-96*
Total Fund Ex Private Markets				*7.8*	*3.3*	*9.0*	*5.3*	*10.7*	*5.7*	*Jun-96*
60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index				*8.2*	*1.2*	*7.0*	*4.3*	*8.7*	*6.0*	*Jun-96*
InvestorForce Public DB $1-5B Net Rank				*99*	*65*	*99*	*99*	*99*	*79*	*Jun-96*
Total Equity	**756,066,642**	**37.3**	**37.3**	**8.7**	**2.6**	**0.4**	**0.5**	**--**	**4.1**	**Dec-10**
MSCI ACWI IMI Net USD				*12.3*	*1.9*	*10.6*	*6.3*	*12.3*	*7.6*	*Dec-10*
Public Equity	**506,846,251**	**25.0**	**67.0**	**13.6**	**3.8**	**12.3**	**7.8**	**12.9**	**6.3**	**Jul-06**
MSCI ACWI IMI Net USD				*12.3*	*1.9*	*10.6*	*6.3*	*12.3*	*5.9*	*Jul-06*
eV All Global Equity Net Rank				*40*	*41*	*22*	*30*	*41*	*38*	*Jul-06*
Global Equity	**457,567,002**	**22.6**	**90.3**	**14.1**	**4.5**	**12.6**	**7.9**	**13.0**	**6.3**	**Jul-06**
MSCI ACWI IMI Net USD				*12.3*	*1.9*	*10.6*	*6.3*	*12.3*	*5.9*	*Jul-06*
eV All Global Equity Net Rank				*32*	*38*	*20*	*27*	*40*	*38*	*Jul-06*
Boston Partners Global Equity Fund	103,570,251	5.1	22.6	9.2	-3.7	--	--	--	2.6	Jul-17
MSCI World Net				*12.5*	*4.0*	*10.7*	*6.8*	*12.4*	*7.5*	*Jul-17*
eV Global Large Cap Value Eq Net Rank				*76*	*69*	*--*	*--*	*--*	*66*	*Jul-17*
Manulife Global Equity Strategy	118,554,769	5.9	25.9	14.6	6.7	--	--	--	5.4	Jul-17
MSCI ACWI Net				*12.2*	*2.6*	*10.7*	*6.5*	*12.0*	*7.2*	*Jul-17*
eV Global Large Cap Value Eq Net Rank				*2*	*5*	*--*	*--*	*--*	*26*	*Jul-17*
OFI Global Equity Strategy	110,644,366	5.5	24.2	16.7	1.9	14.3	8.2	14.2	6.1	Oct-07
MSCI ACWI Net				*12.2*	*2.6*	*10.7*	*6.5*	*12.0*	*4.0*	*Oct-07*
eV Global Large Cap Growth Eq Net Rank				*44*	*83*	*37*	*77*	*52*	*63*	*Oct-07*
Walter Scott Global Equity Fund	124,797,615	6.2	27.3	15.4	12.8	13.9	9.6	--	9.9	Dec-09
MSCI ACWI Net				*12.2*	*2.6*	*10.7*	*6.5*	*12.0*	*8.3*	*Dec-09*
eV Global Large Cap Growth Eq Net Rank				*66*	*12*	*47*	*41*	*--*	*80*	*Dec-09*

[1]60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index composed of 60% MSCI ACWI (Net)/ 40% Barclays Global Aggregate in periods before 2/1/1997.

Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

DPFP

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	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Equity	**49,279,249**	**2.4**	**9.7**	**9.1**	**-1.7**	**--**	**--**	**--**	**-2.1**	**Jan-18**
MSCI Emerging Market IMI Net				*9.7*	*-8.0*	*10.1*	*3.4*	*9.1*	*-5.5*	*Jan-18*
eV Emg Mkts Equity Net Rank				*66*	*3*	*--*	*--*	*--*	*10*	*Jan-18*
RBC Emerging Markets Equity	49,279,249	2.4	100.0	9.1	-1.7	--	--	--	-2.1	Jan-18
MSCI Emerging Market IMI Net				*9.7*	*-8.0*	*10.1*	*3.4*	*9.1*	*-5.5*	*Jan-18*
eV Emg Mkts Equity Net Rank				*66*	*3*	*--*	*--*	*--*	*10*	*Jan-18*
Private Equity	**249,220,391**	**12.3**	**33.0**	**0.0**	**0.0**	**-9.4**	**-9.7**	**-2.7**	**-0.7**	**Oct-05**
Cambridge Associates US All PE (1 Qtr Lag)				*-0.4*	*13.1*	*14.5*	*12.0*	*14.0*	*12.8*	*Oct-05*
Total Fixed Income	**605,169,170**	**29.9**	**29.9**	**2.5**	**1.6**	**4.5**	**2.0**	**9.0**	**5.3**	**Jul-06**
BBgBarc Multiverse TR				*2.4*	*-0.3*	*1.8*	*1.2*	*3.3*	*3.7*	*Jul-06*
eV All Global Fixed Inc Net Rank				*74*	*52*	*42*	*59*	*14*	*37*	*Jul-06*
Cash Equivalents	**54,242,576**	**2.7**	**9.0**	**0.6**	**2.1**	**1.3**	**--**	**--**	**1.3**	**Apr-15**
91 Day T-Bills				*0.6*	*2.1*	*1.2*	*0.8*	*0.4*	*0.9*	*Apr-15*
Public Fixed Income	**539,920,269**	**26.7**	**89.2**	**2.7**	**1.3**	**6.9**	**3.1**	**--**	**5.3**	**Dec-10**
BBgBarc Multiverse TR				*2.4*	*-0.3*	*1.8*	*1.2*	*3.3*	*2.0*	*Dec-10*
Short Term Core Bonds	**255,818,339**	**12.6**	**47.4**	**1.4**	**3.5**	**--**	**--**	**--**	**1.9**	**Jun-17**
BBgBarc US Treasury 1-3 Yr TR				*1.0*	*2.7*	*1.0*	*1.0*	*1.0*	*1.4*	*Jun-17*
IR&M 1-3 Year Strategy	255,818,339	12.6	100.0	1.4	3.5	--	--	--	1.9	Jul-17
BBgBarc US Treasury 1-3 Yr TR				*1.0*	*2.7*	*1.0*	*1.0*	*1.0*	*1.4*	*Jul-17*
eV US Short Duration Fixed Inc Net Rank				*60*	*22*	*--*	*--*	*--*	*43*	*Jul-17*

[1] All Private Equity market values are one quarter lagged unless otherwise noted. Huff and Lone Star valuations are more than a quarter lagged because updated valuations were not released at the time of report production.

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	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Global Bonds	**65,592,576**	**3.2**	**12.1**	**3.0**	**-4.9**	**2.0**	**1.5**	**--**	**2.6**	**Dec-10**
BBgBarc Global Aggregate TR				*2.2*	*-0.4*	*1.5*	*1.0*	*3.0*	*1.8*	*Dec-10*
eV All Global Fixed Inc Net Rank				*62*	*95*	*76*	*68*	*--*	*67*	*Dec-10*
Brandywine Global Fixed Income	65,592,576	3.2	100.0	3.0	-4.9	2.1	1.5	6.4	4.5	Oct-04
BBgBarc Global Aggregate TR				*2.2*	*-0.4*	*1.5*	*1.0*	*3.0*	*3.4*	*Oct-04*
eV All Global Fixed Inc Net Rank				*62*	*95*	*73*	*70*	*41*	*49*	*Oct-04*
Bank Loans	**114,748,574**	**5.7**	**21.3**	**3.3**	**2.6**	**6.9**	**3.9**	**--**	**4.0**	**Jan-14**
S&P/LSTA Leveraged Loan				*4.0*	*3.0*	*5.7*	*3.6*	*--*	*3.7*	*Jan-14*
eV US Float-Rate Bank Loan Fixed Inc Net Rank				*85*	*47*	*1*	*15*	*--*	*10*	*Jan-14*
Loomis Sayles Senior Rate and Fixed Income	61,537,700	3.0	53.6	2.8	2.2	6.8	3.9	--	4.0	Jan-14
S&P/LSTA Leveraged Loan				*4.0*	*3.0*	*5.7*	*3.6*	*--*	*3.7*	*Jan-14*
eV US Float-Rate Bank Loan Fixed Inc Net Rank				*94*	*86*	*2*	*18*	*--*	*12*	*Jan-14*
Pacific Asset Management Corporate (Bank) Loan Strategy	53,210,874	2.6	46.4	3.8	3.1	--	--	--	3.8	Aug-17
Credit Suisse Leveraged Loan				*3.8*	*3.3*	*5.9*	*3.8*	*--*	*3.8*	*Aug-17*
eV US Float-Rate Bank Loan Fixed Inc Net Rank				*40*	*11*	*--*	*--*	*--*	*8*	*Aug-17*
High Yield	**83,529,659**	**4.1**	**15.5**	**5.4**	**1.9**	**9.9**	**3.4**	**--**	**6.3**	**Dec-10**
BBgBarc Global High Yield TR				*6.3*	*2.4*	*7.3*	*4.0*	*11.1*	*6.3*	*Dec-10*
eV Global High Yield Fixed Inc Net Rank				*85*	*84*	*1*	*84*	*--*	*28*	*Dec-10*
Loomis Sayles High Yield Fund	83,529,659	4.1	100.0	5.4	1.9	10.4	4.0	12.4	9.2	Oct-98
BBgBarc Global High Yield TR				*6.3*	*2.4*	*7.3*	*4.0*	*11.1*	*8.2*	*Oct-98*
eV Global High Yield Fixed Inc Net Rank				*85*	*84*	*1*	*51*	*1*	*1*	*Oct-98*

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	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Debt	**20,231,121**	**1.0**	**3.7**	**5.6**	**-1.7**	**6.8**	**3.1**	**--**	**3.5**	**Dec-10**
50% JPM EMBI/50% JPM GBI-EM				*4.9*	*-1.8*	*4.6*	*2.2*	*--*	*3.1*	*Dec-10*
eV All Emg Mkts Fixed Inc Net Rank				*46*	*57*	*18*	*53*	*--*	*56*	*Dec-10*
Ashmore EM Blended Debt	20,231,121	1.0	100.0	5.6	-1.7	--	--	--	0.8	Dec-17
Ashmore Blended Debt Benchmark				*4.6*	*-0.9*	*4.4*	*2.4*	*5.8*	*0.8*	*Dec-17*
eV All Emg Mkts Fixed Inc Net Rank				*46*	*57*	*--*	*--*	*--*	*41*	*Dec-17*
Private Debt	**11,006,326**	**0.5**	**1.8**	**0.6**	**7.9**	**-3.8**	**--**	**--**	**-2.9**	**Jan-16**
Barclays Global High Yield +2%				*6.8*	*4.4*	*9.5*	*--*	*--*	*10.2*	*Jan-16*
Total Real Assets	**663,557,803**	**32.8**	**32.8**	**2.8**	**3.2**	**6.4**	**-2.3**	**--**	**-1.8**	**Dec-10**
Total Real Assets Policy Index				*2.1*	*6.7*	*6.9*	*9.0*	*--*	*11.6*	*Dec-10*
Real Estate	**436,873,528**	**21.6**	**65.8**	**1.2**	**5.7**	**5.3**	**-5.8**	**-4.1**	**3.8**	**Mar-85**
NCREIF Property (1-quarter lagged)				*1.4*	*6.7*	*7.2*	*9.3*	*7.5*	*8.1*	*Mar-85*
Natural Resources	**168,942,189**	**8.3**	**25.5**	**7.8**	**0.5**	**-0.4**	**3.0**	**--**	**4.6**	**Dec-10**
NCREIF Farmland Total Return Index 1Q Lag				*2.9*	*6.7*	*6.7*	*8.6*	*11.2*	*12.5*	*Dec-10*
Infrastructure	**57,742,085**	**2.9**	**8.7**	**1.0**	**-6.8**	**16.5**	**8.5**	**--**	**7.9**	**Jul-12**
S&P Global Infrastructure TR USD				*14.1*	*9.2*	*8.7*	*5.4*	*10.9*	*8.4*	*Jul-12*

[1] All Private Market market values are one quarter lagged unless otherwise noted.

Dallas Police & Fire Pension System

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Statistics Summary

5 Years Ending December 31, 2018

	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
DPFP	-0.5%	5.6%	-1.3	0.5	-0.2	5.5%
Policy Index	6.4%	4.5%	--	1.0	1.3	0.0%
Public Equity	5.3%	11.0%	0.4	1.0	0.4	1.8%
Public Equity Weighted Index	4.5%	11.0%	--	1.0	0.4	0.0%
Global Equity	5.3%	11.0%	0.4	1.0	0.4	1.8%
Global Equity Weighted Index	4.7%	11.0%	--	1.0	0.4	0.0%
Private Equity	-9.5%	16.8%	-1.0	0.0	-0.6	20.3%
Private Equity Custom Benchmark	11.1%	11.2%	--	1.0	0.9	0.0%
Public Fixed Income	3.1%	4.7%	-0.1	1.1	0.5	1.5%
Public Fixed Income Weighted Index	3.3%	4.1%	--	1.0	0.6	0.0%
Global Bonds	1.5%	6.3%	0.1	1.1	0.1	3.8%
BBgBarc Global Aggregate TR	1.1%	4.5%	--	1.0	0.1	0.0%
High Yield	2.9%	6.4%	-0.4	1.2	0.3	2.3%
BBgBarc US High Yield TR	3.8%	5.1%	--	1.0	0.6	0.0%
Emerging Markets Debt	2.3%	8.2%	0.3	1.0	0.2	2.1%
50% JPM EMBI/50% JPM GBI-EM	1.8%	7.9%	--	1.0	0.1	0.0%
Real Estate	-5.4%	13.7%	-0.9	-1.3	-0.4	15.6%
NCREIF Property Index	9.3%	3.9%	--	1.0	2.2	0.0%
Natural Resources	1.9%	5.0%	-0.7	0.0	0.3	13.4%
Natural Resources Benchmark (Linked)	11.0%	12.9%	-	1.0	0.8	0.0%
Infrastructure	9.6%	29.1%	0.2	0.0	0.3	30.9%
S&P Global Infrastructure TR USD	4.1%	10.1%	-	1.0	0.3	0.0%

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Benchmark History
As of March 31, 2019

DPFP		
1/1/2019	Present	40% MSCI ACWI IMI Net USD / 10% MSCI Emerging Market IMI Net / 5% Cambridge Associates US All PE (1 Qtr Lag) / 12% BBgBarc US Treasury 1-3 Yr TR / 4% BBgBarc Global Aggregate TR / 4% BBgBarc Global High Yield TR / 4% BBgBarc US Aggregate TR / 4% S&P/LSTA Leveraged Loan / 4% 50% JPM EMBI/50% JPM GBI-EM / 5% NCREIF Farmland Total Return Index 1Q Lag / 5% NCREIF Property (1-quarter lagged) / 3% 91 Day T-Bills
10/1/2018	12/31/2018	40% MSCI ACWI Gross / 10% MSCI Emerging Markets Gross / 5% Private Equity Custom Benchmark / 12% BBgBarc US Treasury 1-3 Yr TR / 4% BBgBarc Global Aggregate TR / 4% BBgBarc Global High Yield TR / 4% S&P/LSTA Leveraged Loan / 4% BBgBarc US Aggregate TR / 4% 50% JPM EMBI/50% JPM GBI-EM / 5% Natural Resources Benchmark (Linked) / 5% NCREIF Property Index / 3% 91 Day T-Bills
4/1/2016	9/30/2018	20% MSCI ACWI Gross / 5% MSCI Emerging Markets Gross / 5% Private Equity Custom Benchmark / 2% BBgBarc US Treasury 1-3 Yr TR / 3% BBgBarc Global Aggregate TR / 5% BBgBarc Global High Yield TR / 6% S&P/LSTA Leveraged Loan / 6% HFRI RV: FI (50/50-ABS/Corp) / 6% 50% JPM EMBI/50% JPM GBI-EM / 5% Barclays Global High Yield +2% / 5% 60% MSCI ACWI/40% Barclays Global Agg / 3% 60% MSCI ACWI/40% Barclays Global Agg / 2% HFRX Absolute Return Index / 5% Natural Resources Benchmark (Linked) / 5% S&P Global Infrastructure TR USD / 12% NCREIF Property Index / 3% CPI + 5% (Seasonally Adjusted) / 2% 91 Day T-Bills
4/1/2014	3/31/2016	15% MSCI ACWI / 15% S&P 500 + 2% / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% CPI + 5% (Seasonally Adjusted) / 15% NCREIF Property Index
1/1/2014	3/31/2014	15% MSCI ACWI / 15% Private Markets / 10% Total Global Natural Resources Custom Benchmark / 15% BBgBarc Global Aggregate TR / 20% CPI + 5% (Seasonally Adjusted) / 10% Infrastructure / 15% Real Estate
Ashmore EM Blended Debt		
12/1/2017	Present	50% JP Morgan EMBI Global Diversified / 25% JPM ELMI+ TR USD / 25% JP Morgan GBI EM Global Diversified TR USD
Total Real Assets		
12/31/2010	Present	50% NCREIF Property (1-quarter lagged) / 50% NCREIF Farmland Total Return Index 1Q Lag

Disclaimer, Glossary, and Notes

Disclaimer

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

Duration: Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\%\ \text{(discount)}}{5\ \text{(yrs. to maturity)}} = \begin{array}{c}1\%\ \text{pro rata, plus} \\ 5.26\%\ \text{(current yield)}\end{array} = 6.26\%\ \text{(yield to maturity)}$$

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991.

Notes

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

FUND EVALUATION REPORT

Dallas Police & Fire Pension System

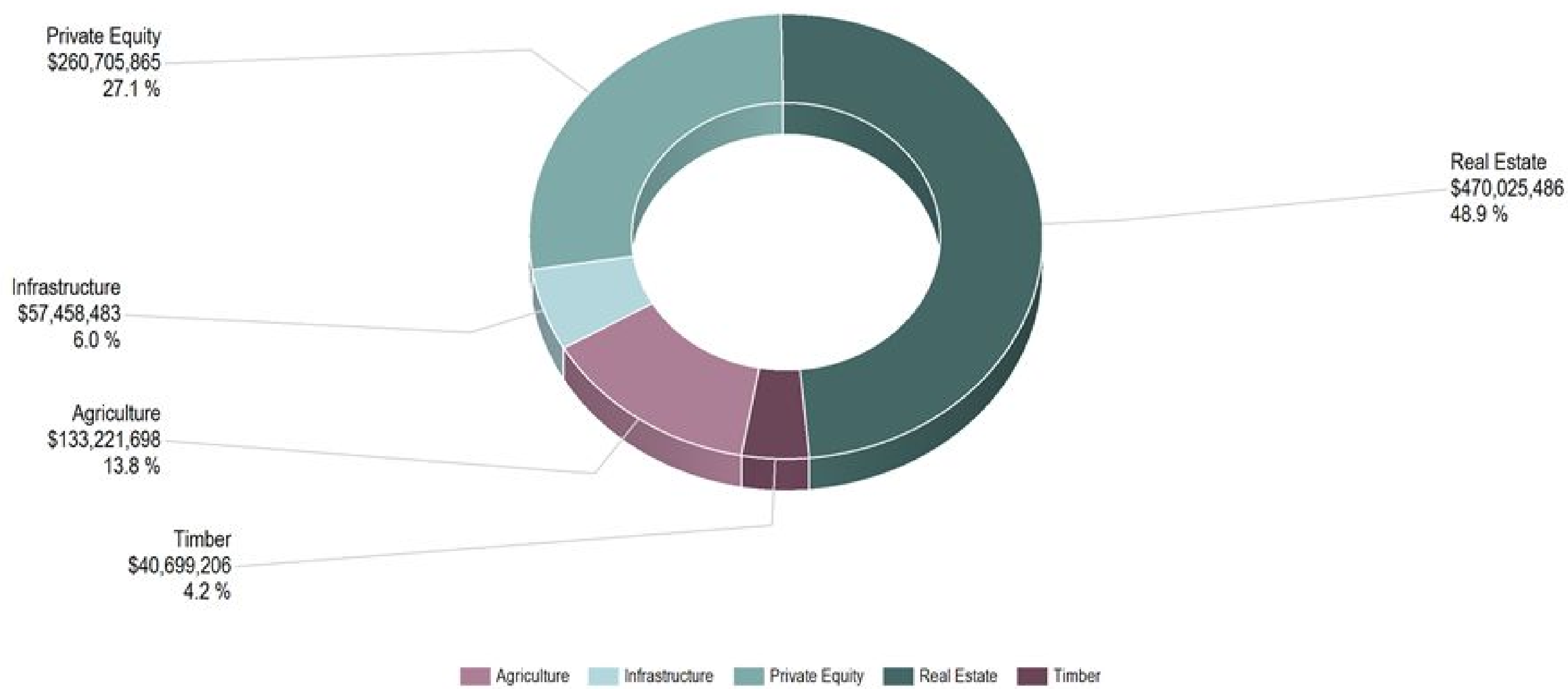
Private Markets Review
As of December 31, 2018

MEKETA INVESTMENT GROUP

Boston Massachusetts	Chicago Illinois	Miami Florida	New York New York	Portland Oregon	San Diego California	London United Kingdom

www.meketagroup.com

Private Market Investments as of December 31, 2018
Market Value Allocation by Asset Class



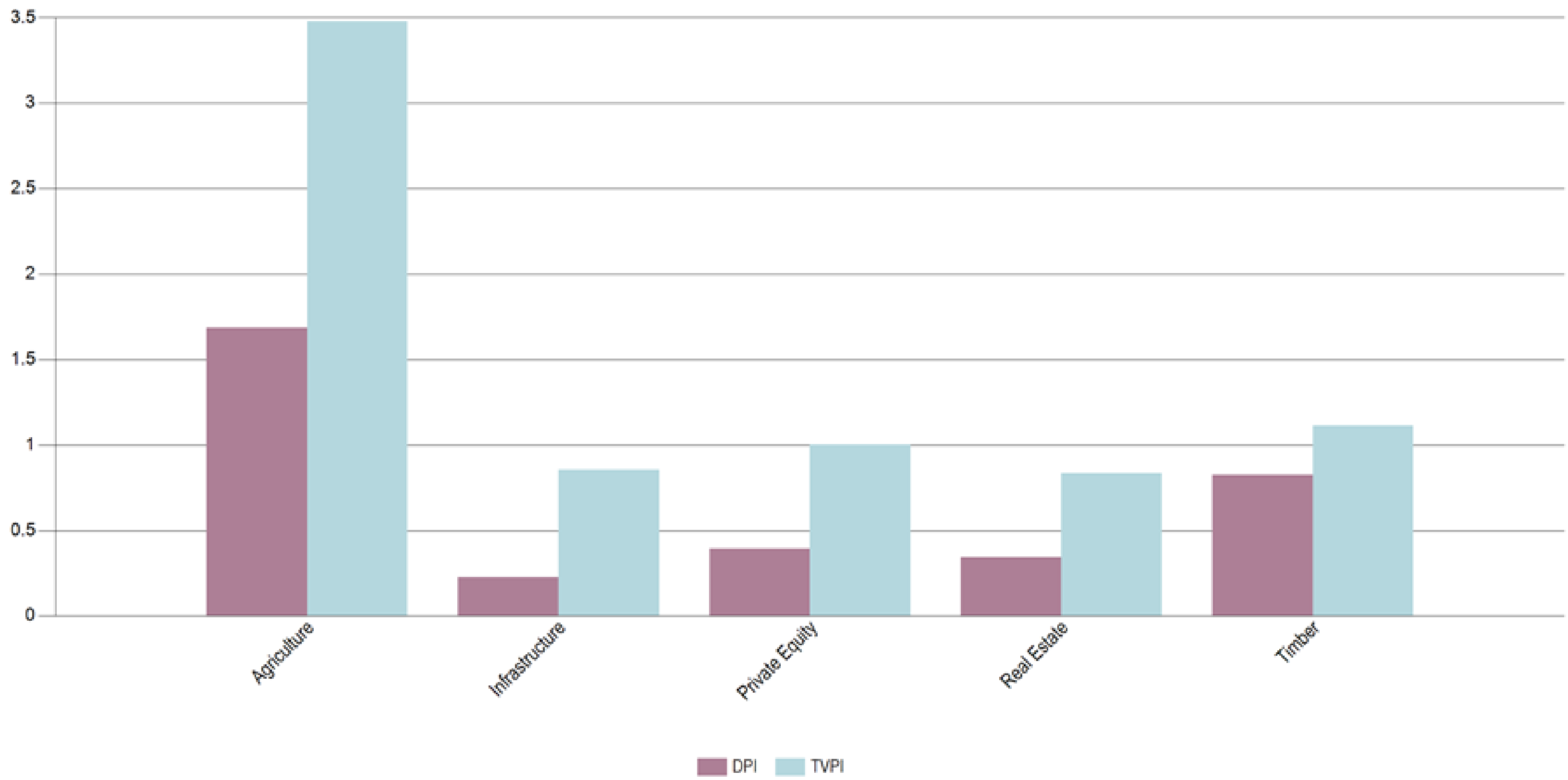
1. Private Equity is composed of Private Equity and Private Debt

Dallas Police & Fire Pension System

Private Markets Review

As of December 31, 2018

Private Market Investments as of December 31, 2018
DPI and TVPI by Asset Class



1. Private Equity is composed of Private Equity and Private Debt
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Private Markets Review

As of December 31, 2018

Private Market Investments Overview

Active Funds	Commitments		Distributions & Valuations				Performance			
Asset Class	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Total Agriculture	74,420,001	74,420,001	125,555,634	133,221,698	258,777,332	184,357,331	1.00	1.69	3.48	15.40
Total Infrastructure	97,000,000	92,070,029	21,348,653	57,458,483	78,807,136	-13,262,893	0.95	0.23	0.86	-3.23
Total Private Equity	414,034,369	442,591,478	171,009,531	260,705,865	431,715,396	-10,876,082	1.07	0.39	0.98	-0.48
Total Real Estate	962,109,790	951,460,270	326,876,153	470,025,486	796,901,639	-154,558,631	0.99	0.34	0.84	-2.71
Total Timber	141,635,229	141,635,229	117,030,209	40,699,206	157,729,415	16,094,186	1.00	0.83	1.11	2.02
Total	1,689,199,389	1,702,177,007	761,820,180	962,110,738	1,723,930,918	21,753,911	1.01	0.45	1.01	0.22

1. Private Equity is composed of Private Equity and Private Debt
2. Private markets performance reflected is composed of active investments only
3. Commitment value is equal to paid in capital for direct investments made outside of a traditional limited partnership fund structure.

Dallas Police & Fire Pension System

Active Funds with Unfunded Commitments Overview

As of December 31, 2018

Active Funds with Unfunded Commitments

Active Funds		Commitments		
Investment Name	**Vintage Year**	**Commitment ($)**	**Paid In Capital ($)**	**Unfunded Commitment ($)**
Infrastructure				
TRG AIRRO	2008	37,000,000	36,408,196	3,966,347
TRG AIRRO II	2013	10,000,000	7,048,417	2,539,271
JPM Maritime Fund, LP	2009	50,000,000	48,613,416	1,365,941
Total Infrastructure		**97,000,000**	**92,070,029**	**7,871,559**
Private Equity				
Huff Energy Fund LP	2006	100,000,000	98,932,684	119,979
Industry Ventures Partnership IV	2016	5,000,000	1,990,292	3,009,708
Lone Star Growth Capital	2006	16,000,000	26,560,000	2,240,000
Riverstone Credit Partners LP	2016	10,000,000	12,242,390	1,444,678
Yellowstone Capital	2008	5,283,254	5,112,307	170,947
Total Private Equity		**136,283,254**	**144,837,673**	**6,985,312**
Real Estate				
Hearthstone MS II Homebuilding Investors	1999	10,000,000	7,973,058	1,008,131
Hearthstone MS III Homebuilding Investors	2003	10,000,000	1,221,446	1,278,554
Total Real Estate		**20,000,000**	**9,194,504**	**2,286,685**
Total		**253,283,254**	**246,102,206**	**17,143,556**

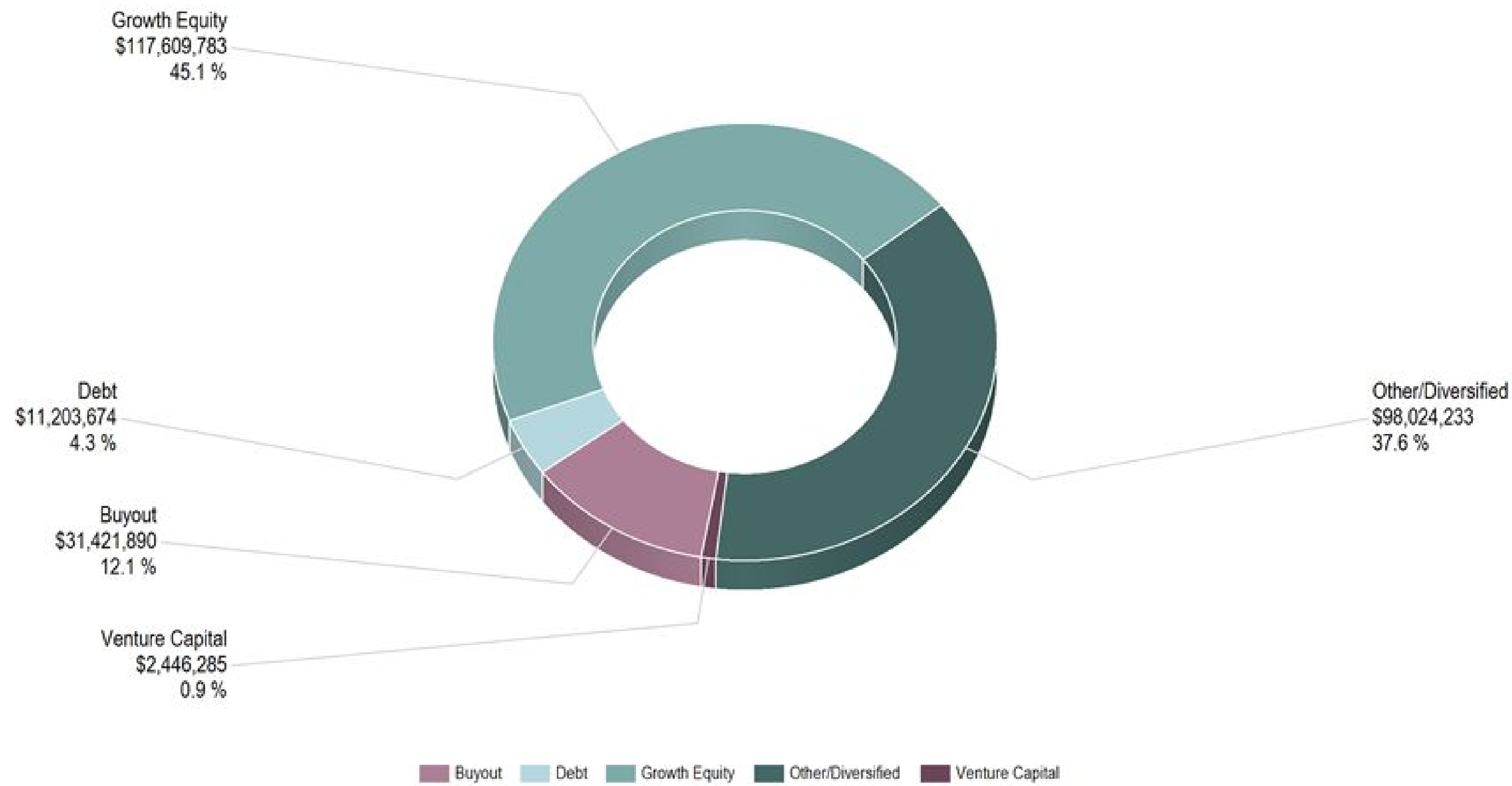
1. Private markets performance reflected is composed of active investments only
2. The funds and figures above represent investments with unfunded capital commitments
3. Lone Star valuations as directed by Dallas Police and Fire investment staff
4. The current quarter valuations for Huff and Lone Star are not yet available. These valuations will be reflected in the next quarterly report

Dallas Police & Fire Pension System

Private Equity and Debt

As of December 31, 2018

Private Equity and Debt Investments as of December 31, 2018
Market Value Allocation by Strategy

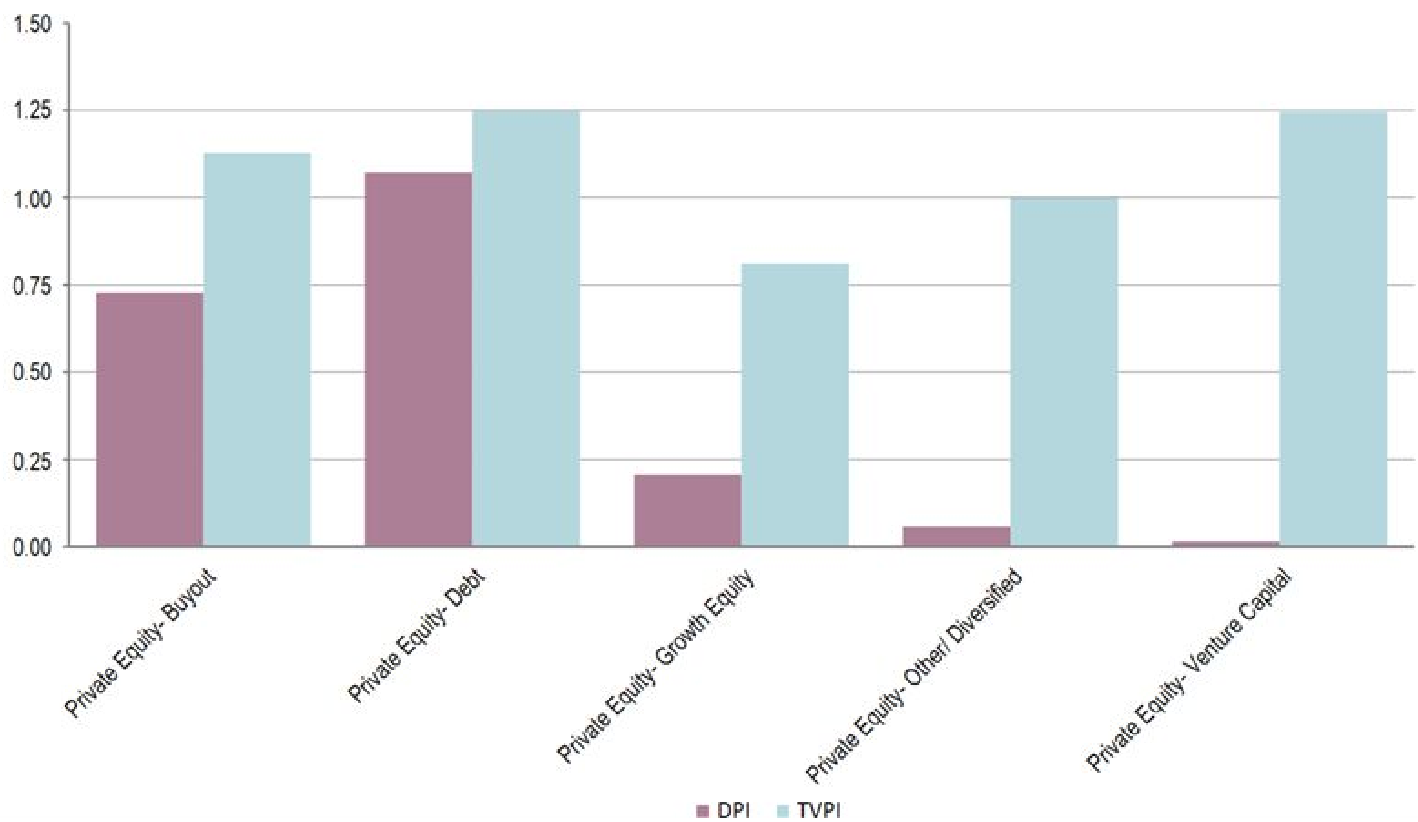


Dallas Police & Fire Pension System

Private Equity and Debt

As of December 31, 2018

Private Equity and Debt Investments as of December 31, 2018
DPI and TVPI by Strategy



1. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Private Equity and Debt

As of December 31, 2018

Private Equity and Debt Investments Overview

Active Funds		Commitments		Distributions & Valuations				Performance			
Investment Name	Vintage Year	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Buyout											
Huff Alternative Fund	2000	66,795,718	78,818,394	57,386,716	31,421,890	88,808,606	9,990,212	1.18	0.73	1.13	1.54
Total Buyout		**66,795,718**	**78,818,394**	**57,386,716**	**31,421,890**	**88,808,606**	**9,990,212**	**1.18**	**0.73**	**1.13**	**1.54**
Debt											
Highland Crusader Fund	2003	50,955,397	50,955,397	62,263,032	2,596,181	64,859,213	13,903,816	1.00	1.22	1.27	4.23
Riverstone Credit Partners LP	2016	10,000,000	12,242,390	5,419,589	8,607,493	14,027,082	1,784,692	1.22	0.44	1.15	10.46
Total Debt		**60,955,397**	**63,197,787**	**67,682,621**	**11,203,674**	**78,886,295**	**15,688,508**	**1.04**	**1.07**	**1.25**	**4.44**
Growth Equity											
Hudson Clean Energy	2009	25,000,000	24,994,470	4,688,958	4,130,778	8,819,736	-16,174,734	1.00	0.19	0.35	-16.92
Lone Star CRA	2008	50,000,000	57,787,983	12,928,698	70,073,832	83,002,530	25,214,547	1.16	0.22	1.44	13.53
Lone Star Growth Capital	2006	16,000,000	26,560,000	12,800,000	15,359,684	28,159,684	1,599,684	1.66	0.48	1.06	1.74
Lone Star Opportunities V	2012	75,000,000	75,000,000	531,444	26,457,213	26,988,657	-48,011,343	1.00	0.01	0.36	-40.30
North Texas Opportunity Fund	2000	10,000,000	10,000,000	9,023,910	1,588,276	10,612,186	612,186	1.00	0.90	1.06	0.68
Total Growth Equity		**176,000,000**	**194,342,453**	**39,973,010**	**117,609,783**	**157,582,793**	**-36,759,660**	**1.10**	**0.21**	**0.81**	**-7.86**
Other/Diversified											
Huff Energy Fund LP	2006	100,000,000	98,932,684	4,477,394	98,024,233	102,501,627	3,568,943	0.99	0.05	1.04	0.41
Yellowstone Capital	2008	5,283,254	5,112,307	1,458,572	0	1,458,572	-3,653,735	0.97	0.29	0.29	-32.45
Total Other/Diversified		**105,283,254**	**104,044,991**	**5,935,966**	**98,024,233**	**103,960,199**	**-84,792**	**0.99**	**0.06**	**1.00**	**-0.01**
Venture Capital											
Industry Ventures Partnership IV	2016	5,000,000	1,990,292	31,219	2,446,285	2,477,504	487,212	0.40	0.02	1.24	15.79
Total Venture Capital		**5,000,000**	**1,990,292**	**31,219**	**2,446,285**	**2,477,504**	**487,212**	**0.40**	**0.02**	**1.24**	**15.79**
Unclassified											
Miscellaneous Private Equity Expenses	2016		197,562								
Total Unclassified			**197,562**								
Total		**414,034,369**	**442,591,478**	**171,009,531**	**260,705,865**	**431,715,396**	**-10,876,082**	**1.07**	**0.39**	**0.98**	**-0.48**

1. Private Markets performance reflected is composed of active investments only.
2. Current quarter valuations for Huff and Lone Star are not yet available. These valuations will be reflected in the next quarterly report. Lone Star valuations directed by Dallas Police and Fire investment staff.

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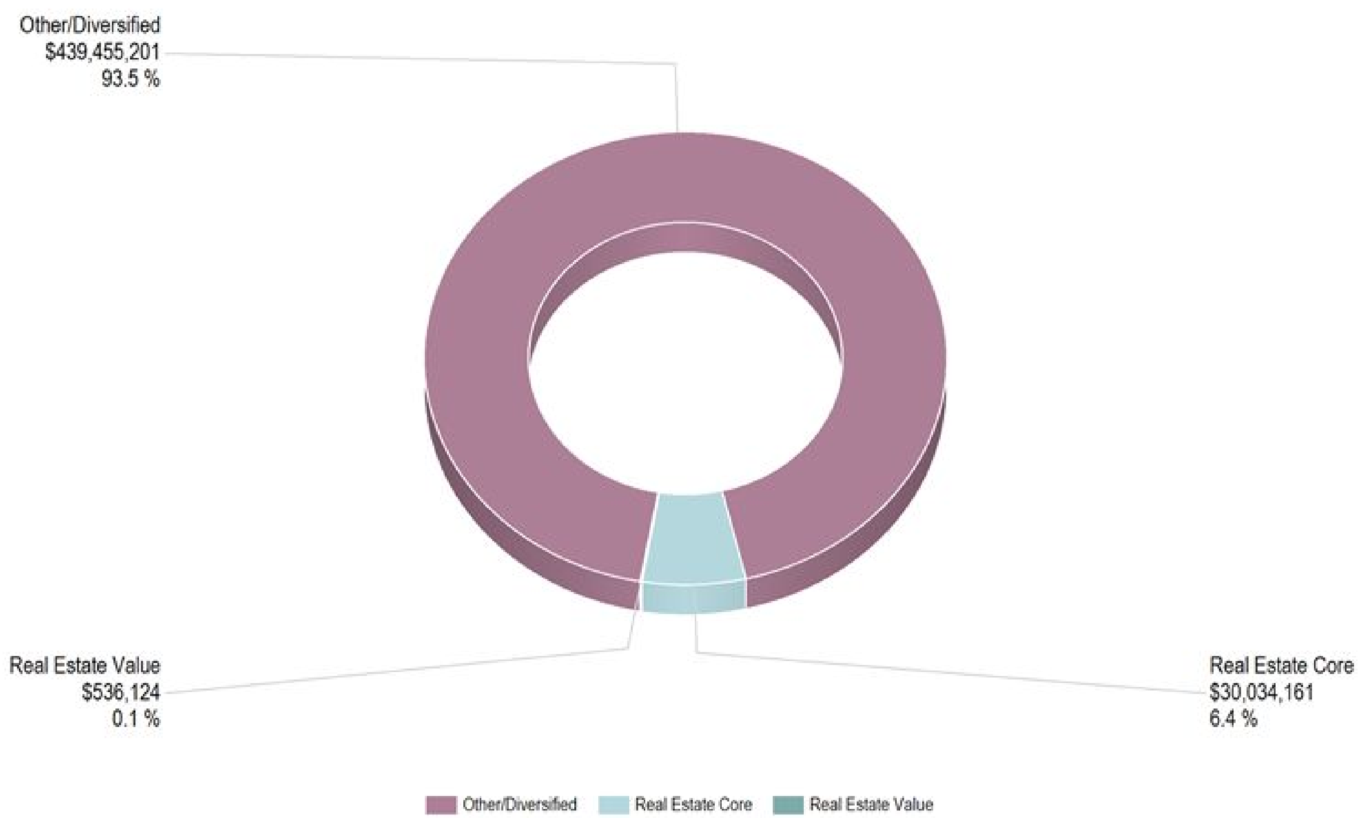
Dallas Police & Fire Pension System

Real Estate

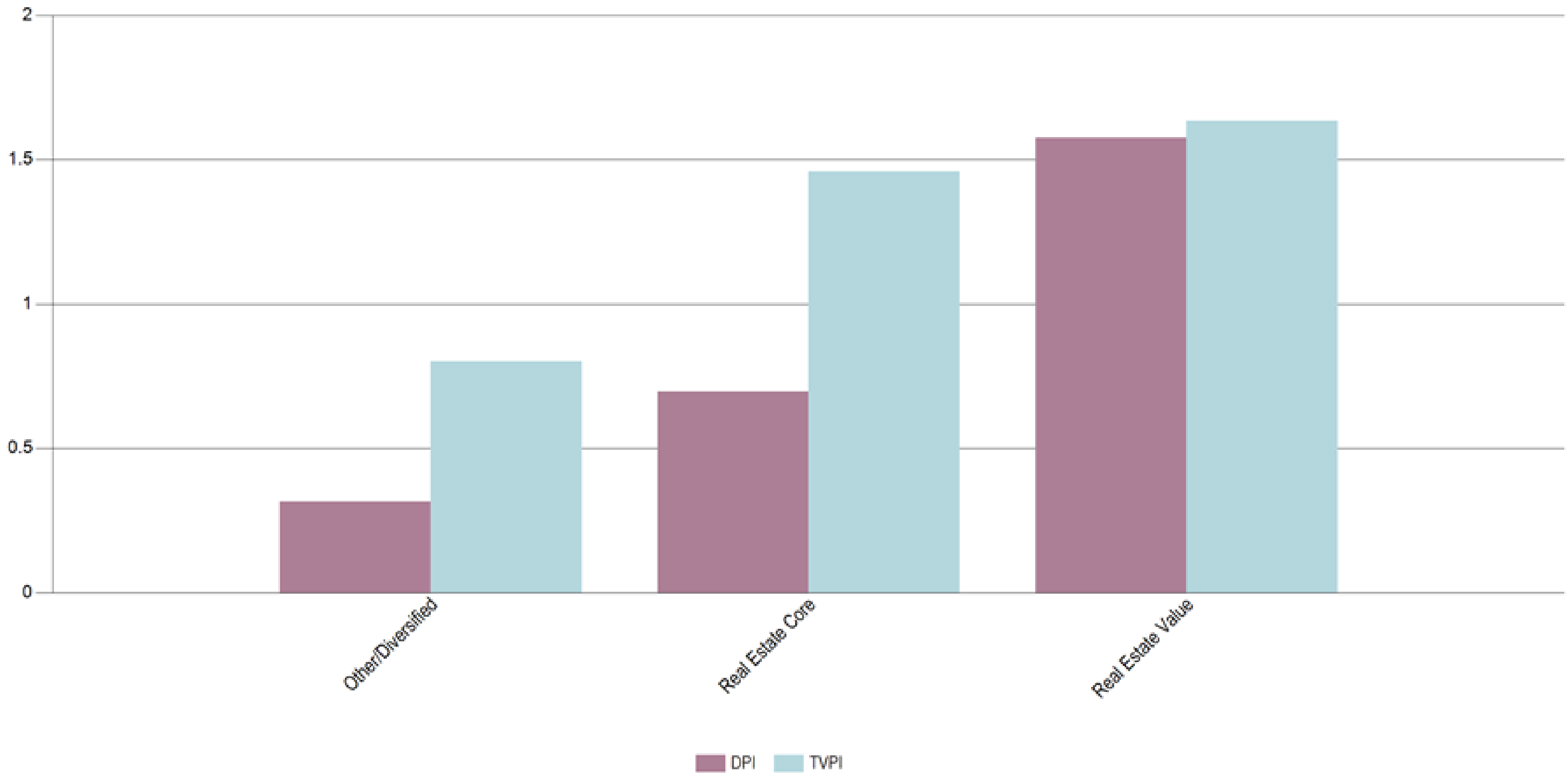
As of December 31, 2018

Real Estate Investments as of December 31, 2018
Market Value Allocation by Strategy



1. Other/Diversified is composed of direct real estate investments made by the fund

Real Estate Investments as of December 31, 2018
DPI and TVPI Call Ratio by Strategy



1. Other/Diversified is composed of direct real estate investments made by the fund
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Real Estate

As of December 31, 2018

Real Estate Investments Overview

Active Funds	Commitments		Valuations				Performance			
Investment Name	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Total Other/Diversified	902,794,970	902,794,970	284,370,853	439,455,201	723,826,054	-178,968,916	1.00	0.31	0.80	-3.28
Real Estate Core										
Total Real Estate Core	39,314,820	39,314,820	27,356,265	30,034,161	57,390,426	18,075,606	1.00	0.70	1.46	5.87
Real Estate Value										
Total Real Estate Value	20,000,000	9,194,504	14,487,455	536,124	15,023,579	5,829,075	0.46	1.58	1.63	25.91
Total	962,109,790	951,460,270	326,876,153	470,025,486	796,901,639	-154,558,631	0.99	0.34	0.84	-2.71

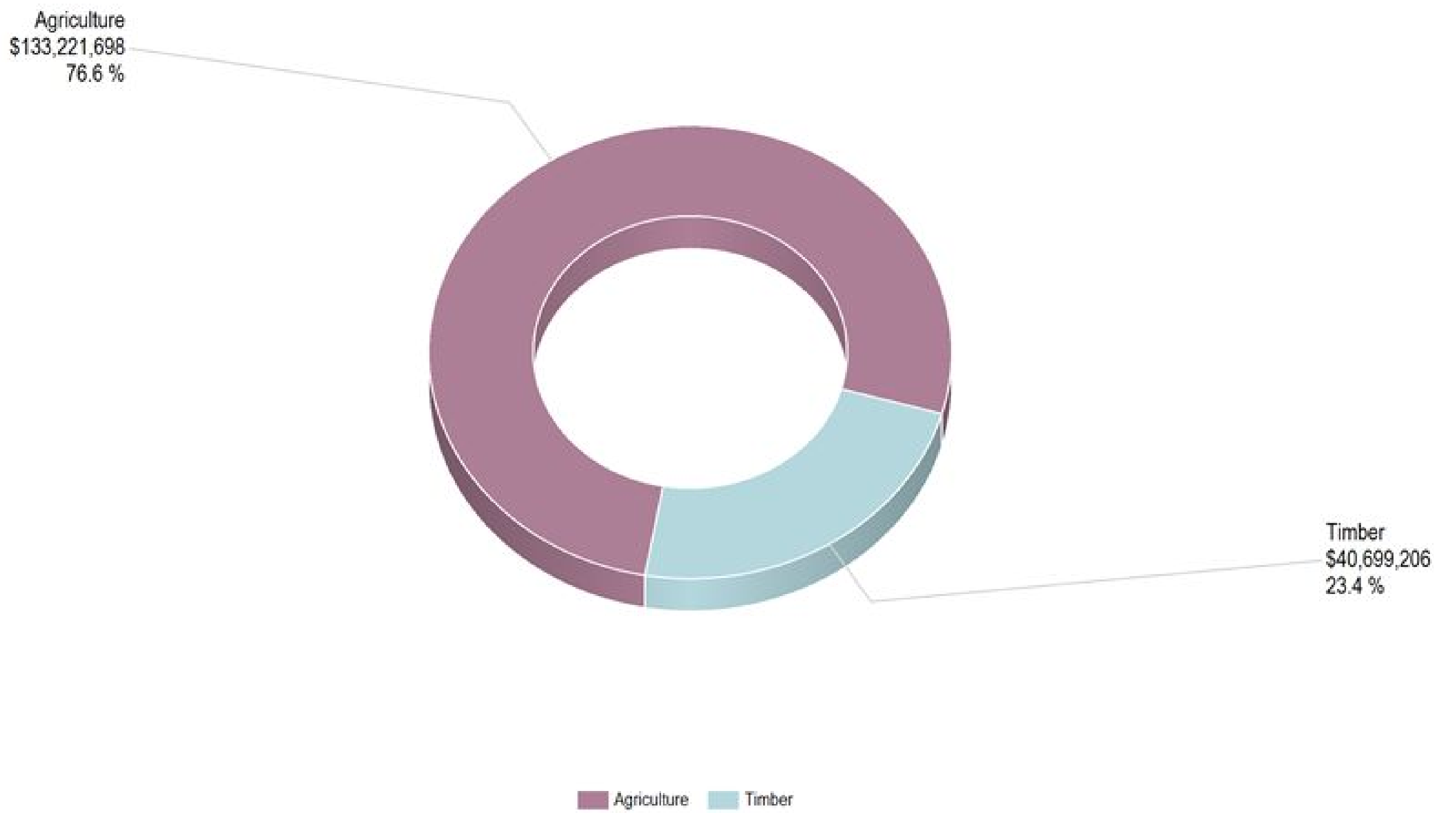
1. Private markets performance reflected is composed of active investments only
2. Commitment value is equal to paid in capital for direct investments made outside of a traditional Limited Partnership fund structure

Prepared by Meketa Investment Group

Natural Resources

As of December 31, 2018

Natural Resources Investments as of December 31, 2018
Market Value Allocation by Asset Class

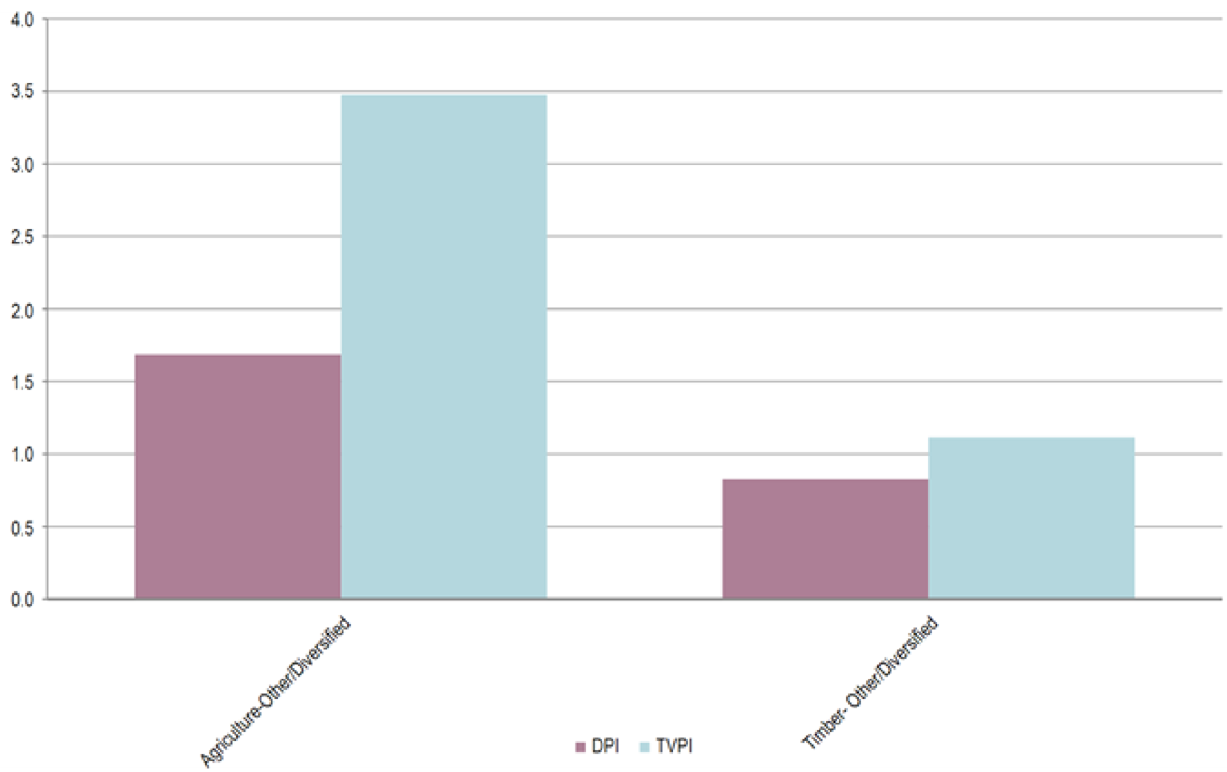


Dallas Police & Fire Pension System

Natural Resources

As of December 31, 2018

Natural Resource Investments as of December 31, 2018
DPI and TVPI by Strategy



1. Agriculture 'Other/Diversified' is composed of permanent and row crops exposure.
2.Timber 'Other/Diversified' is composed of domestic and global timber exposure.
3. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Natural Resources

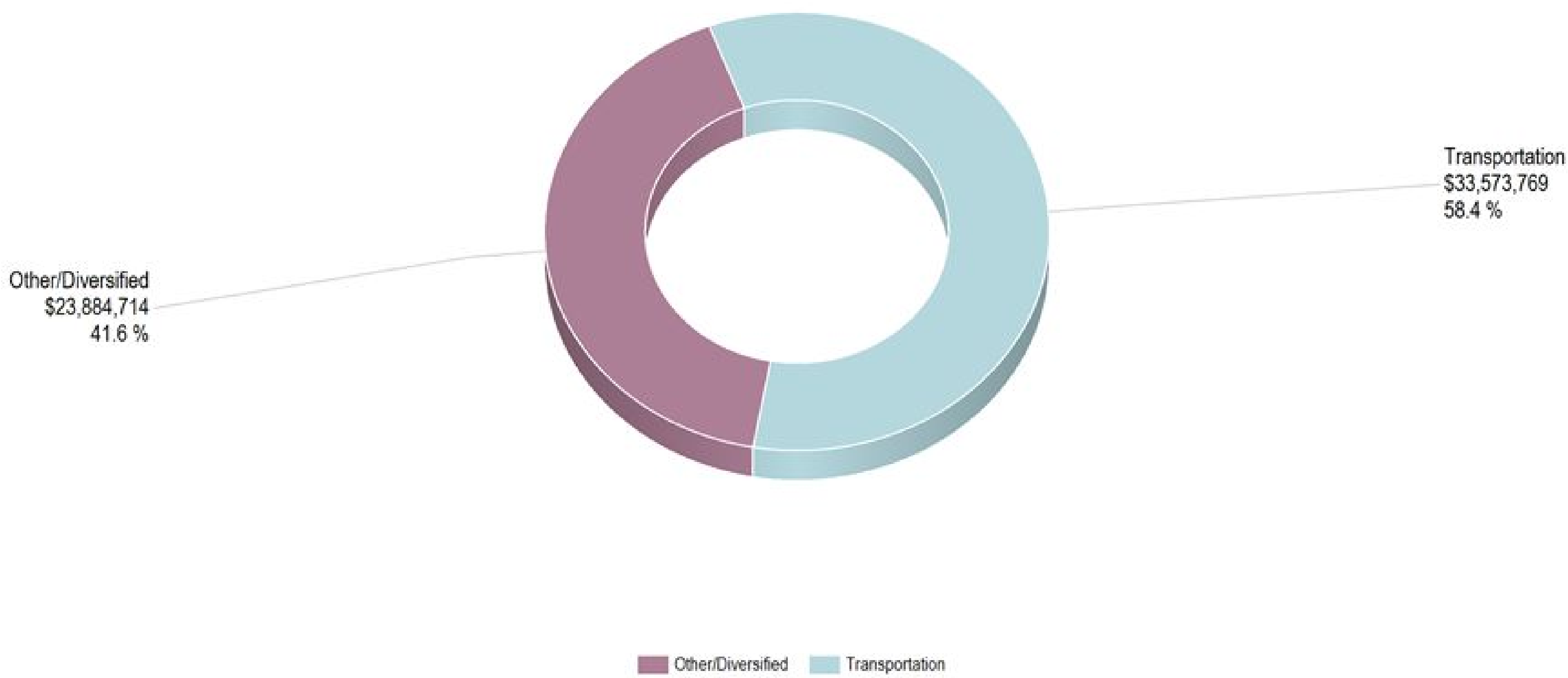
As of December 31, 2018

Natural Resource Investments Overview

Active Funds		Commitments		Valuations				Performance			
Investment Name	Vintage Year	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Agriculture											
Hancock Agricultural	1998	74,420,001	74,420,001	125,555,634	133,221,698	258,777,332	184,357,331	1.00	1.69	3.48	15.40
Total Agriculture		**74,420,001**	**74,420,001**	**125,555,634**	**133,221,698**	**258,777,332**	**184,357,331**	**1.00**	**1.69**	**3.48**	**15.40**
Timber											
BTG Pactual	2006	81,985,533	81,985,533	16,500,000	31,977,442	48,477,442	-33,508,091	1.00	0.20	0.59	-8.05
Forest Investment Associates	1992	59,649,696	59,649,696	100,530,209	8,721,764	109,251,973	49,602,277	1.00	1.69	1.83	7.73
Total Timber		**141,635,229**	**141,635,229**	**117,030,209**	**40,699,206**	**157,729,415**	**16,094,186**	**1.00**	**0.83**	**1.11**	**2.02**
Total		**216,055,230**	**216,055,230**	**242,585,843**	**173,920,904**	**416,506,747**	**200,451,517**	**1.00**	**1.12**	**1.93**	**9.24**

1. Private markets performance reflected is composed of active investments only
2. Commitment value is equal to paid in capital for direct investments made outside of a traditional limited partnership fund structure.

Infrastructure Investments as of December 31, 2018
Market Value Allocation by Strategy



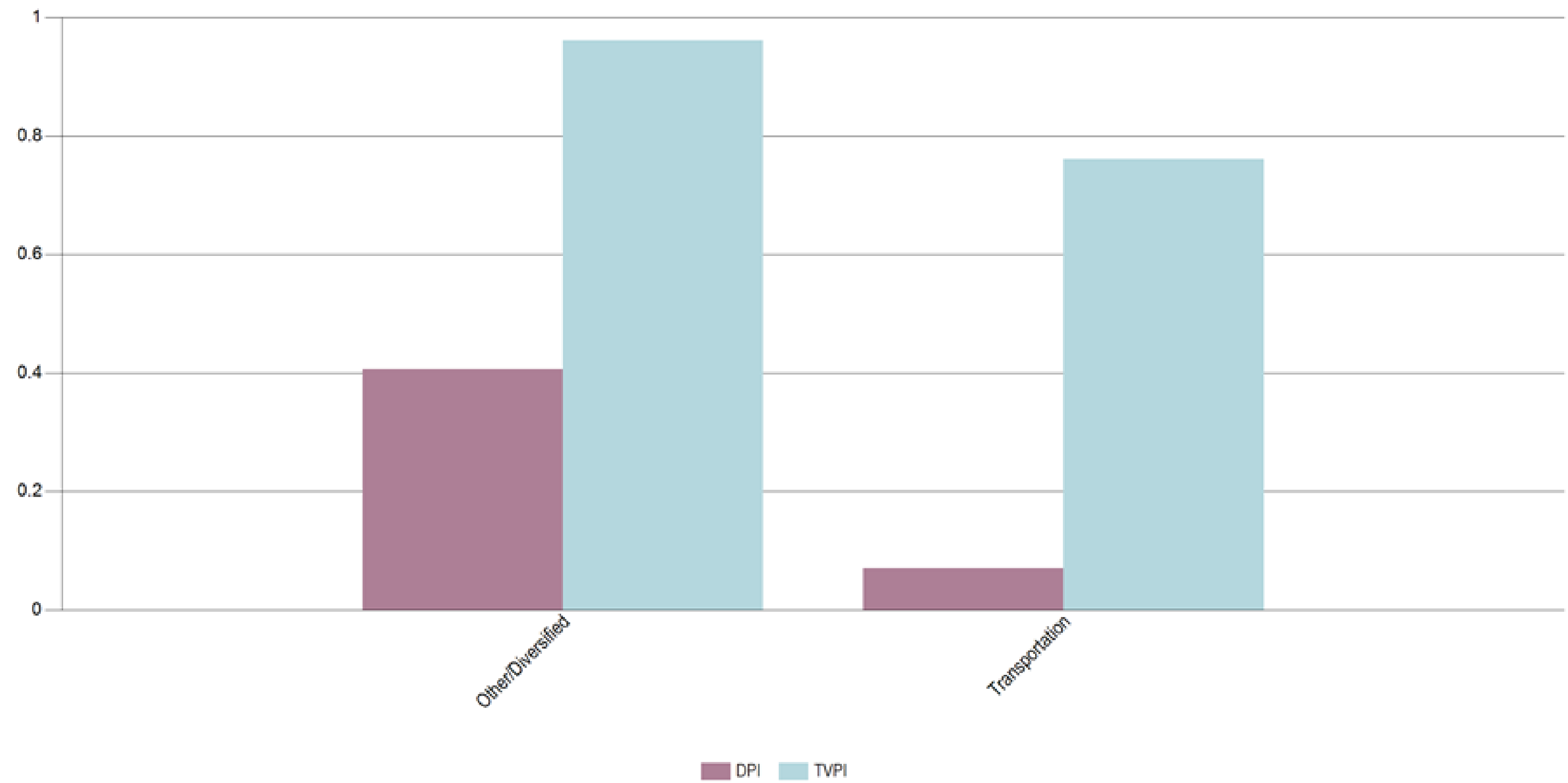
1.'Other/Diversified' is composed of various operating and developing infrastructure project exposure

Dallas Police & Fire Pension System

Infrastructure

As of December 31, 2018

Infrastructure Investments as of December 31, 2018
DPI and TVPI by Strategy



1. Other/Diversified' is composed of various operating and developing infrastructure project exposure
2. Private markets performance reflected is composed of active investments only

Dallas Police & Fire Pension System

Infrastructure

As of December 31, 2018

Infrastructure Investments Overview

Active Funds		Commitments		Distributions & Valuations				Performance			
Investment Name	Vintage Year	Commitment ($)	Paid In Capital ($)	Distributions ($)	Valuation ($)	Total Value ($)	Gain/Loss ($)	Call Ratio	DPI	TVPI	IRR (%)
Infrastructure											
TRG AIRRO	2008	37,000,000	36,408,196	17,873,234	19,362,386	37,235,620	827,424	0.98	0.49	1.02	0.37
TRG AIRRO II	2013	10,000,000	7,048,417	58,731	4,522,329	4,581,060	-2,467,357	0.70	0.01	0.65	-8.26
JPM Maritime Fund, LP	2009	50,000,000	48,613,416	3,416,688	33,573,769	36,990,457	-11,622,959	0.97	0.07	0.76	-6.81
Total Infrastructure		**97,000,000**	**92,070,029**	**21,348,653**	**57,458,483**	**78,807,136**	**-13,262,893**	**0.95**	**0.23**	**0.86**	**-3.23**

1. Private markets performance reflected is composed of active investments only

Private Markets Review

List of Completed Funds

Dallas Police & Fire Pension System

Private Markets Review

As of December 31, 2018

Total Real Assets Program

Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Addtnl Fees	Cummulative Distributions	Valuation	Total Value	Gain/Loss	DPI Ratio	TVPI Ratio	IRR
AEW Creative Holdings	2007	13,035,849	13,035,849	0	0	0	0	0	-13,035,849	0.00	0.00	N/A
BTG U.S. Timberland	2007	22,230,000	22,230,000	0	0	33,065,920	0	33,065,920	10,835,920	1.49	1.49	4.82%
CDK Multifamily I	2014	10,559,876	10,617,376	0	0	10,025,434	0	10,025,434	-591,942	0.94	0.94	-1.99%
Clarion 1210 South Lamar	2014	10,500,000	10,201,489	0	0	13,214,065	0	13,214,065	3,012,576	1.30	1.30	12.85%
Clarion 4100 Harry Hines Land	2006	3,088,810	3,092,788	0	0	3,641,946	0	3,641,946	549,158	1.18	1.18	1.69%
Clarion Beat Lofts	2005	8,729,783	8,730,183	0	0	1,137,817	0	1,137,817	-7,592,366	0.13	0.13	-30.76%
Clarion Bryan Street Lofts	2005	5,112,048	5,112,048	0	0	4,163,659	0	4,163,659	-948,389	0.81	0.81	-2.23%
Clarion Four Leaf	2005	16,892,767	16,892,767	0	0	3,733,148	0	3,733,148	-13,159,619	0.22	0.22	-39.69%
Hearthstone Dry Creek	2005	52,303,043	52,303,043	0	0	8,973,059	0	8,973,059	-43,329,984	0.17	0.17	-38.78%
Hearthstone Nampa	2006	11,666,284	11,666,284	0	0	2,562,654	0	2,562,654	-9,103,630	0.22	0.22	-31.90%
JP Morgan Infrastructure Investments Fund	2007	37,000,000	37,000,000	0	-5,658	44,302,131	0	44,302,131	7,307,789	1.20	1.20	2.48%
L&B Realty Advsiors Beach Walk	2006	33,013,796	33,013,796	0	0	36,752,690	0	36,752,690	3,738,894	1.11	1.11	2.19%
L&B Realty Advisors KO Olina	2008	28,609,658	28,609,658	0	0	30,529,136	0	30,529,136	1,919,478	1.07	1.07	1.11%
L&B Realty Advisors West Bay Villas	2007	8,712,411	8,712,411	0	0	3,785,480	0	3,785,480	-4,926,931	0.43	0.43	-8.29%
LBJ Infrastructure Group Holdings, LLC (LBJ)	2009	50,000,000	44,346,229	0	0	77,892,000	0	77,892,000	33,545,771	1.76	1.76	12.77%
Lone Star Fund III (U.S.), L.P.	2000	20,000,000	19,827,576	0	0	40,701,250	0	40,701,250	20,873,674	2.05	2.05	31.88%
Lone Star Fund IV (U.S.), L.P.	2001	20,000,000	19,045,866	0	0	43,898,442	0	43,898,442	24,852,576	2.30	2.30	30.15%
Lone Star Fund V (U.S.), L.P.	2005	22,500,000	22,275,229	0	0	20,605,895	0	20,605,895	-1,669,334	0.93	0.93	-1.41%
Lone Star Fund VI (U.S.), L.P.	2008	25,000,000	20,034,018	0	0	31,712,968	0	31,712,968	11,678,950	1.58	1.58	21.76%
Lone Star Real Estate Fund (U.S.), L.P.	2008	25,000,000	20,743,769	0	0	25,403,707	0	25,403,707	4,659,938	1.22	1.22	5.15%
Lone Star Real Estate Fund II	2011	25,000,000	22,169,907	0	0	32,789,371	0	32,789,371	10,619,464	1.48	1.48	24.73%
Lone Star Real Estate Fund III	2014	25,000,000	23,490,784	0	0	26,638,028	0	26,638,028	3,147,244	1.13	1.13	8.20%
M&G Real Estate Debt Fund II	2013	29,808,841	21,523,663	0	0	17,088,107	0	17,088,107	-4,435,556	0.79	0.79	-15.04%
NTE 3a-3b	2012	50,000,000	23,794,565	0	0	28,186,978	0	28,186,978	4,392,413	1.18	1.18	16.03%
NTE Mobility Partners Holding, LLC (NTE)	2009	50,000,000	43,397,054	0	0	105,890,000	0	105,890,000	62,492,946	2.44	2.44	19.33%
Olympus II-Hyphen Solutions	2007	836,511	836,511	0	0	1,418,149	0	1,418,149	581,638	1.70	1.70	5.96%
P&F Housing IV	2006	134,015,889	134,015,889	0	0	83,179,802	0	83,179,802	-50,836,087	0.62	0.62	-8.44%
RREEF North American Infrastructure Fund	2007	50,000,000	50,000,000	0	846,289	55,238,755	0	55,238,755	4,392,466	1.09	1.09	12.59%
Sungate	2005	6,481,568	6,481,568	0	0	308,624	0	308,624	-6,172,944	0.05	0.05	-22.30%
Tucson Loan	2014	4,500,000	4,500,000	0	0	5,082,785	0	5,082,785	582,785	1.13	1.13	5.75%
Total Completed Funds		**799,597,134**	**737,700,320**	**0**	**840,631**	**791,922,000**	**0**	**791,922,000**	**53,381,049**	**1.07**	**1.07**	

Prepared by Meketa Investment Group

Dallas Police & Fire Pension System

Private Markets Review

As of December 31, 2018

Private Equity & Debt Funds

Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Addtnl Fees	Cummulative Distributions	Valuation	Total Value	Gain/Loss	DPI Ratio	TVPI Ratio	IRR
Ashmore Global Special Situations Fund IV	2007	70,000,000	70,012,300	0	0	39,652,711	0	39,652,711	-30,359,589	0.57	0.57	-10.12%
BankCap Partners Fund I	2007	20,000,000	20,000,000	0	0	24,960,986	0	24,960,986	4,960,986	1.25	1.25	2.58%
BankCap Partners Opportunity Fund, LP	2013	20,000,000	19,587,052	0	0	18,266,454	0	18,266,454	-1,320,598	0.93	0.93	-5.69%
CDK Southern Cross	2008	1,535,316	1,535,316	0	0	0	0	0	-1,535,316	0.00	0.00	-20.08%
Highland Credit Ops	2006	35,348,165	35,348,165	0	0	29,994,190	0	29,994,190	-5,353,975	0.85	0.85	-2.06%
HM Capital Sector Performance Fund	2008	47,300,000	44,354,248	0	1,933,378	39,792,545	0	39,792,545	-6,495,081	0.86	0.86	-4.01%
Huff Alternative Income Fund	1994	40,000,000	40,000,000	0	2,018,676	66,940,198	0	66,940,198	24,921,522	1.59	1.59	17.82%
Kainos Capital Partners, L.P.	2013	35,000,000	30,316,015	0	0	43,263,688	0	43,263,688	12,947,673	1.43	1.43	24.76%
Levine Leichtman Capital Partners IV	2008	50,000,000	38,009,085	0	0	78,916,788	0	78,916,788	40,907,703	2.08	2.08	20.12%
Levine Leichtman Capital Partners V, L.P.	2013	25,000,000	19,181,272	0	-4,405	24,506,336	0	24,506,336	5,329,469	1.28	1.28	15.26%
Levine Leichtman Deep Value Fund	2006	75,000,000	75,000,000	0	11,025,662	88,688,224	0	88,688,224	2,662,562	1.03	1.03	0.73%
Levin Leichtman Private Capital Solutions II, L.I	2012	25,000,000	17,961,807	0	-175	18,691,764	0	18,691,764	730,132	1.04	1.04	1.30%
Lone Star Fund IX (U.S.), L.P.	2014	35,000,000	24,241,467	0	0	23,459,730	0	23,459,730	-781,737	0.97	0.97	-3.28%
Lone Star Fund VII (U.S.), L.P.	2011	25,000,000	23,469,024	0	0	41,624,566	0	41,624,566	18,155,542	1.77	1.77	47.54%
Lone Star Fund VIII (U.S.), L.P.	2013	25,000,000	22,564,537	0	0	28,017,551	0	28,017,551	5,453,014	1.24	1.24	16.26%
Merit Energy Partners E-I	2004	7,018,930	7,031,052	0	-1,741	14,975,776	0	14,975,776	7,946,465	2.13	2.13	14.48%
Merit Energy Partners F-I	2005	8,748,346	8,749,275	0	0	3,801,206	0	3,801,206	-4,948,069	0.43	0.43	-17.19%
Merit Energy Partners G, LP	2008	39,200,000	39,320,050	0	0	26,756,651	0	26,756,651	-12,563,399	0.68	0.68	-9.96%
Merit Energy Partners H, LP	2010	10,000,000	10,033,415	0	0	6,870,451	0	6,870,451	-3,162,964	0.68	0.68	-13.78%
Oaktree Fund IV	2001	50,000,000	50,000,000	0	0	82,516,590	0	82,516,590	32,516,590	1.65	1.65	28.36%
Oaktree Loan Fund 2X	2007	60,000,000	60,004,628	0	0	65,066,951	0	65,066,951	5,062,323	1.08	1.08	2.24%
Oaktree Power Fund III	2011	30,000,000	16,167,147	0	0	23,839,959	0	23,839,959	7,672,812	1.47	1.47	12.35%
Pharos Capital Co-Investment, LLC	2007	20,000,000	20,000,000	0	0	10,019,157	0	10,019,157	-9,980,843	0.50	0.50	-9.92%
Pharos Capital Co-Investment, LP	2008	40,000,000	40,000,000	0	0	67,459,271	0	67,459,271	27,459,271	1.69	1.69	8.42%
Pharos Capital Partners IIA, L.P.	2005	20,000,000	20,080,306	0	0	17,715,199	0	17,715,199	-2,365,107	0.88	0.88	-2.39%
Pharos Capital Partners III, LP	2012	50,000,000	28,397,038	0	-54,286	20,196,932	0	20,196,932	-8,145,820	0.71	0.71	-19.95%
Total Completed Funds		**864,150,757**	**781,363,199**	**0**	**14,917,109**	**905,993,874**	**0**	**905,993,874**	**109,713,566**	**1.14**	**1.14**	

Disclaimer

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM", "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

DISCUSSION SHEET

ITEM #C11

Topic: **Hearthstone Portfolio Update and Possible Sale**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

Attendees: Todd Rosa, Vice President - Hearthstone

Discussion: In 2015, Hearthstone was engaged to take over investment management of several DPFP land holdings. The two remaining assets in this portfolio, Spring Valley and Harris Creek, are in the Boise, Idaho area and have been marketed since 2017. Spring Valley consists of approximately 6,000 acres located in Eagle, Idaho planned for over 7,000 residential lots. Harris Creek consists of over 9,000 acres of raw land in the foothills of Boise County. Hearthstone will discuss the marketing process to date for each property and provide a recommended course of action.

Staff Recommendation: **Approve** the sale of Spring Valley and Harris Creek.

Residential Portfolio Review

Spring Valley and Harris Creek

HEARTHSTONE

America's Preeminent Investor in Residential Development

DPFPS Board Presentation – Open Session

June 13, 2019

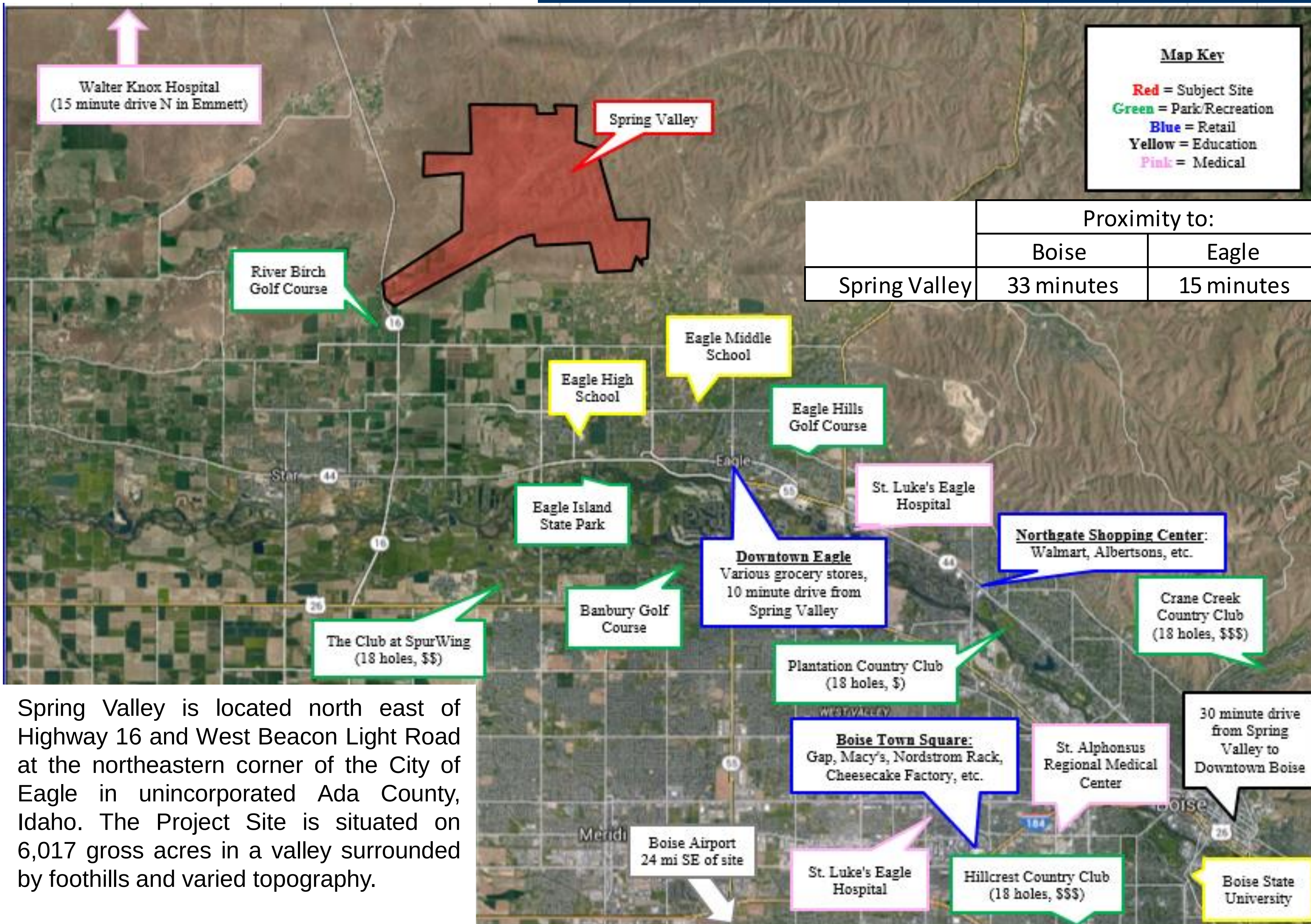
The conclusions and recommendations contained in this Residential Portfolio Review are derived from forecasts and projections based on Hearthstone's assumptions and beliefs and on information currently available to Hearthstone. Such forecasts and projections are subject to risks and uncertainties which could cause actual results to differ materially from those anticipated. Consequently, nothing contained in this Review should be construed or implied as a representation, warranty, or guarantee that the conclusions and recommendations contained herein will ever be realized or achieved. Nothing in this Review shall be deemed to impart legal, engineering, geologic, or environmental expertise nor should this Review be considered or referred to as an appraisal.

Confidential

Timeline of Engagement and Tasks

- Hearthstone was appointed Investment Manager in February 2015 of four real estate assets in Idaho (Spring Valley, Harris Creek, Dry Creek, and Nampa) and one real estate asset in Colorado (Sandstone Ranch).
- Hearthstone presented a Strategic Review with initial findings and recommendations to the DPFPS Board in August 2015.
- Nampa sold in December 2015; Dry Creek sold in September 2016; and Sandstone Ranch sold in January 2018.
- Hearthstone prepared Spring Valley's Asset Disposition Analysis in June 2017.
- The marketing of Harris Creek and Spring Valley began in April 2017 and August 2017, respectively. Spring Valley and Harris Creek are now contracted to be sold. Approval of the sale of these assets is being sought from the DPFPS Board.

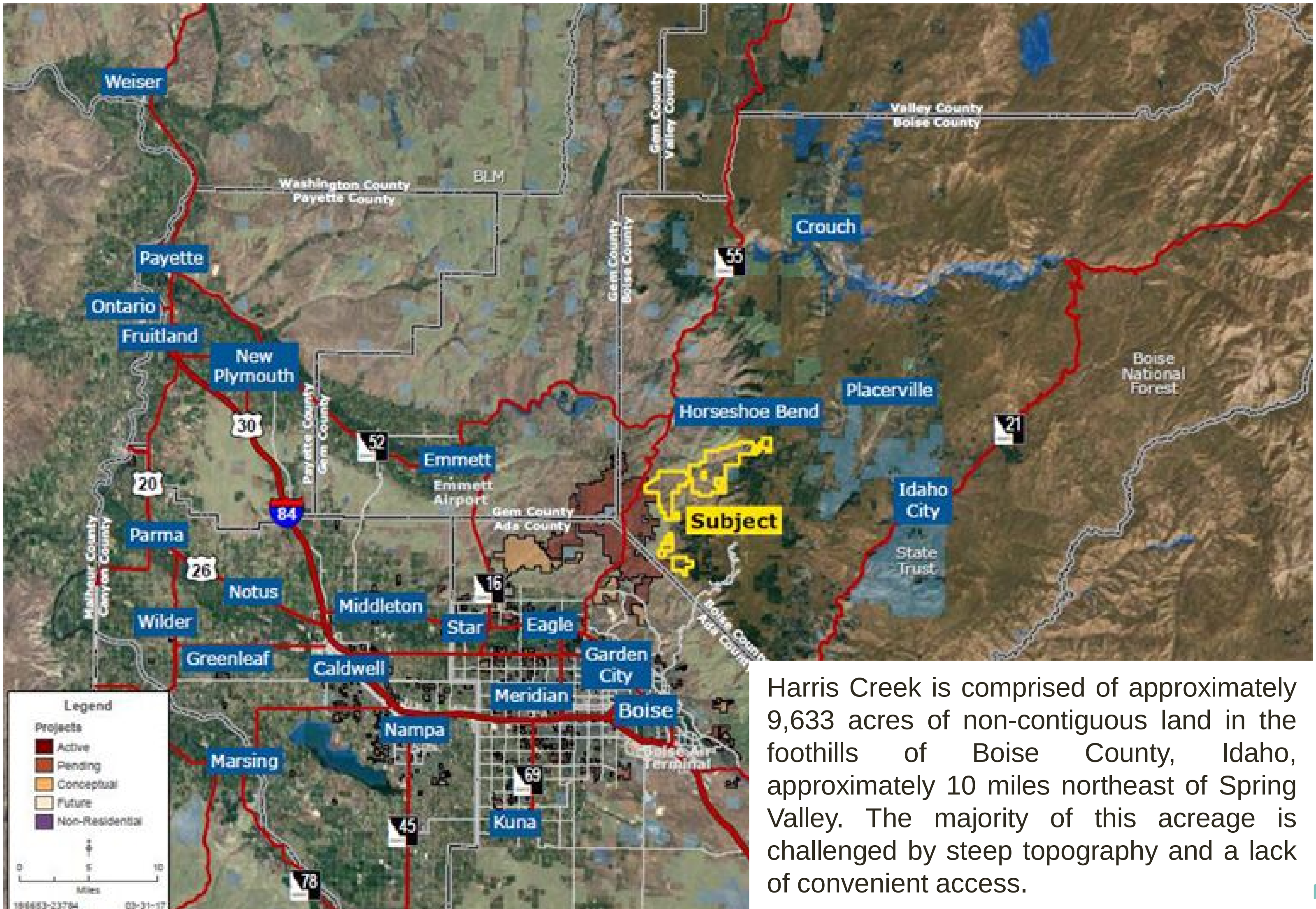
Spring Valley – Location Map



	Proximity to:	
	Boise	Eagle
Spring Valley	33 minutes	15 minutes

Spring Valley is located north east of Highway 16 and West Beacon Light Road at the northeastern corner of the City of Eagle in unincorporated Ada County, Idaho. The Project Site is situated on 6,017 gross acres in a valley surrounded by foothills and varied topography.

Harris Creek – Location Map



Harris Creek is comprised of approximately 9,633 acres of non-contiguous land in the foothills of Boise County, Idaho, approximately 10 miles northeast of Spring Valley. The majority of this acreage is challenged by steep topography and a lack of convenient access.

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DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C12

Topic: **Natural Resources Overview - Hancock Portfolio**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.072 of the Texas Government Code.

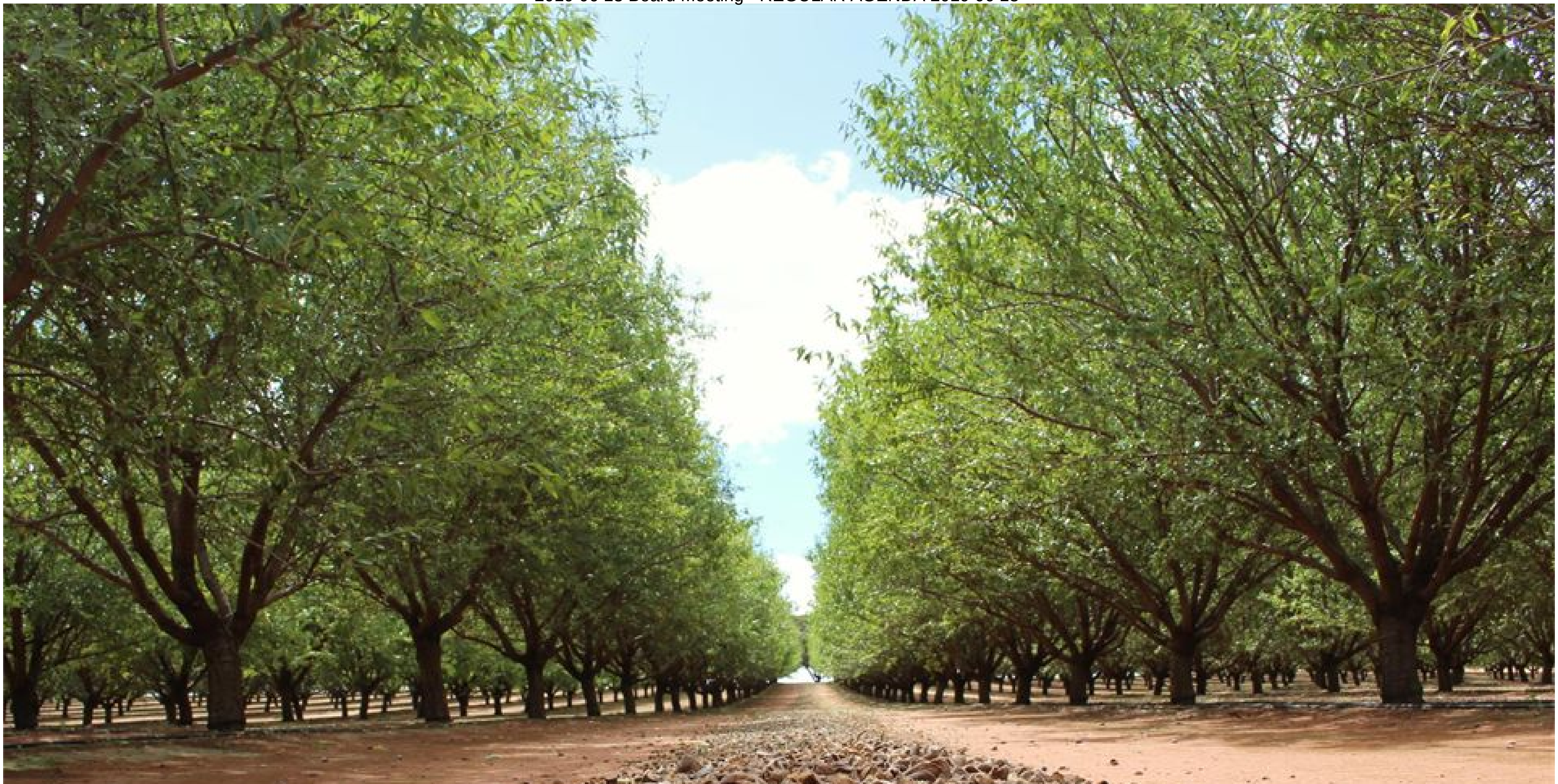
Attendees: Adam Gore, CFA, Portfolio Manager - Hancock
Rick Bodio, CFA, Director - Hancock
Skeet Ponder, Portfolio Analyst - Hancock

Discussion: Representatives of Hancock Natural Resource Group will update the Board on the status and plans for DPFP's agricultural portfolio, as well as provide a market update on the major crops in the DPFP portfolio – Almonds and Pistachios. Hancock has managed DPFP's direct farmland investments since 1998.

Hancock Introduction

- Hancock manages wholly-owned agricultural investments valued at $102 million*, representing 73% of the Natural Resources portfolio and 5% of the total fund. (*Value as of 5/31/19)
  - Hancock has been a discretionary agriculture manager for DPFP since 1998. The portfolio has returned 10% net annualized since inception with a total value to paid-in capital multiple of 4.3x.
  - Since developing a hold-sell plan with DPFP staff in 2016, Hancock has sold 14 properties resulting in $67.5 million in proceeds to DPFP.
  - Go-forward target portfolio:
    - *Approx. $90 million of NAV based on current carrying values*
    - *Concentrated in almonds and pistachios located in California, along with apple property in Washington*
    - *Expected returns of ~ 10% with a high income component*

DALLAS POLICE & FIRE PENSION SYSTEM



Hancock Natural Resource Group

June 13, 2019

Our Global Asset Management Business

Manulife Asset Management™

Public Markets

Equity	Fixed Income
Global/International Equity	Global Fixed Income
US Equity	US Fixed Income
Canadian Equity	Canadian Fixed Income
Regional Equity	Asian Fixed Income
Passive Equity	Opportunistic
	Liability Driven Investment

Private Markets

Hancock Timber Resource Group® Timberland	Private Equity & Private Credit
Hancock Agricultural Investment Group® Farmland	Infrastructure Equity
Real Estate	Commercial Mortgage Loans
Oil & Gas	Private Placement Debt

Asset Allocation & Solutions

Multi-asset Funds

Customized Solutions

Strategic & Tactical

As of December 31, 2018

Hancock Natural Resource Group®

A Manulife Asset Management Company

Hancock Natural Resource Group

Managing real assets on behalf of institutional investors since 1985

Manulife

Manulife Asset Management

Hancock Natural Resource Group, Inc

Hancock Natural Resource Group®

Hancock Timber Resource Group®	Hancock Agricultural Investment Group®
USD $10.7B in AUM	USD $3.0B in AUM

USD $13.7B*	6.0M
Total Assets Under Management	Total Acres Under Management

North America	South America	Australasia

*AUM in USD as of December 31, 2018

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Hancock Agricultural Investment Group

Focused on developing farmland portfolios diversified by geography, crop type, and operating structure

- Founded in 1990
- USD $3.0B in assets under management, covering 335,205 acres of prime US, Australian and Canadian farmland*
- One of North America's largest farmland managers with offices located in key agricultural regions throughout the US and Australia
- Integrated farm management services
  - Hancock Farmland Services (US) and Hancock Farmland Services (Australia)
  - Specialize in direct-operation of permanent crop properties



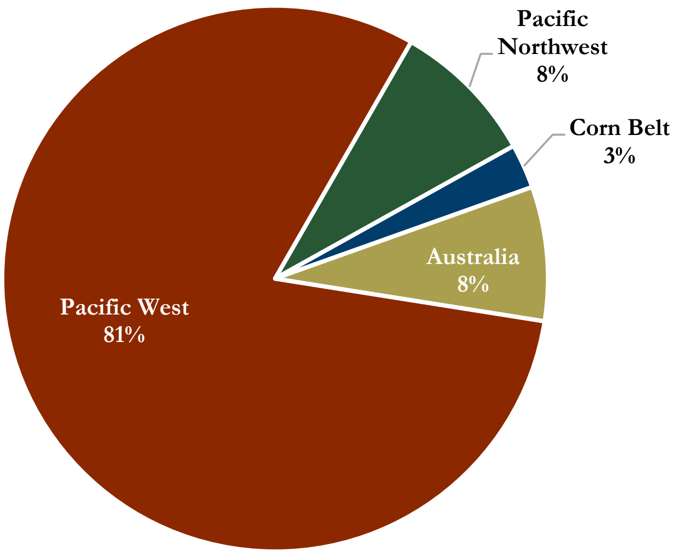

*AUM in USD as of December 31, 2018

Hancock Agricultural Investment Group

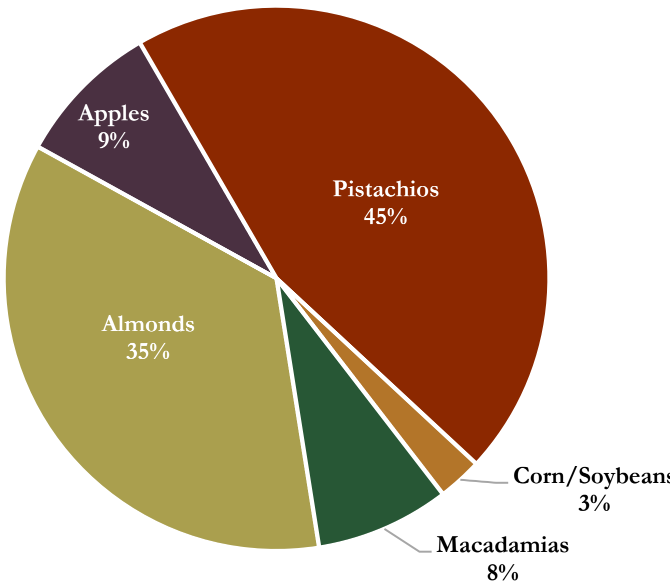
Advisor relationship with Dallas Police and Fire Pension began in 1998

- Account consists of farmland in the United States and Australia with a focus on permanent crops
- Portfolio NAV estimated at $102.9 million as of May 1, 2019
  - Farmland real estate valued at approximately $84.9 million

Geographic Diversification By Market Value



Commodity Diversification By Market Value



*AUM in USD and is an estimate as of May 1, 2019

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Farmland Plays an Important Role in Portfolios

Investment characteristics

- Provide diversification benefits
  - Low to negative correlation with major asset classes
  - Inflation hedge
- Favorable market fundamentals
  - Global population and income growth
  - Increasing consumption trends
- Attractive risk/return characteristics
  - Can provide relatively stable total returns with annual cash yields at relatively low risk levels
- Farmland can contribute to broader sustainability goals

No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment. Diversification does not guarantee a profit nor protect against loss in any market.

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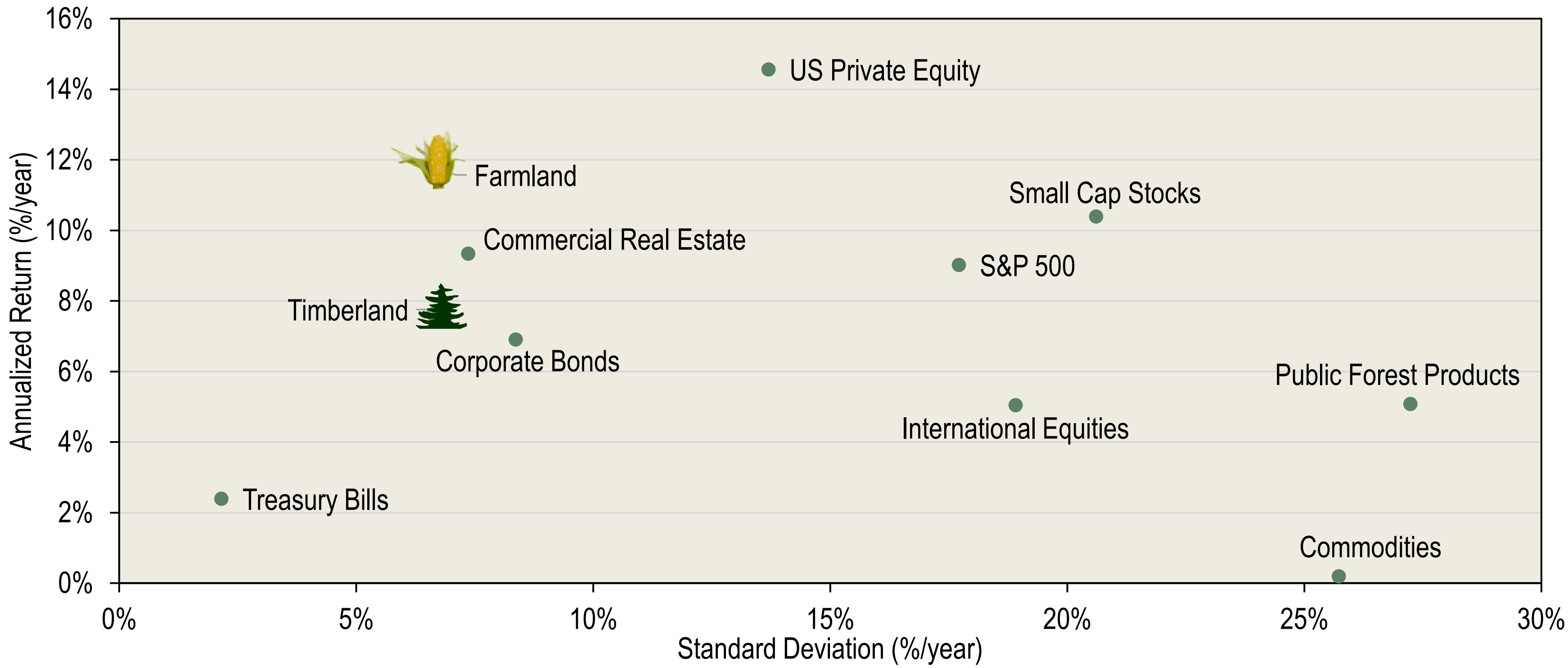
Farmland Asset Class Performance

Favorable long-term risk-adjusted returns

Historical Return and Standard Deviation (1994-2018)



Sources: Data for Timberland refer to the NCREIF Timberland Index as of 12/31/18. Data for Farmland refer to the NCREIF Farmland Index as of 12/31/18. Data for Commercial Real Estate refer to the NCREIF Property Index as of 12/31/18. Data for Small Cap Equities refer to the Ibbotson series IA SBBI US Small Stock TR USD as of 12/31/18. Data for Non US Equities refer to the MSCI/EAFE International Equities Index as of 12/31/18. Data for Corporate Bonds refer to the Ibbotson series IA SBBI US LT Corp TR USD as of 12/31/18. Data for US Treasury Bills refer to the Ibbotson series IA SBBI US 30 Day Tbill TR USD as of 12/31/18. Data for the CPI refer to the US Bureau of Labor Statistics as of 12/31/18. The S&P 500 series is from Standard & Poor's Financial Services LLC as of 12/31/18. Data for US Private Equity refers to the Cambridge Associates Private Equity Index as of 12/31/18. Data for US Forest Products refer to the S&P Composite 1500 Paper and Forest Products series as of 12/31/2018. Data for Commodities refer to the Goldman Sachs Commodity Index as of 12/31/2018.

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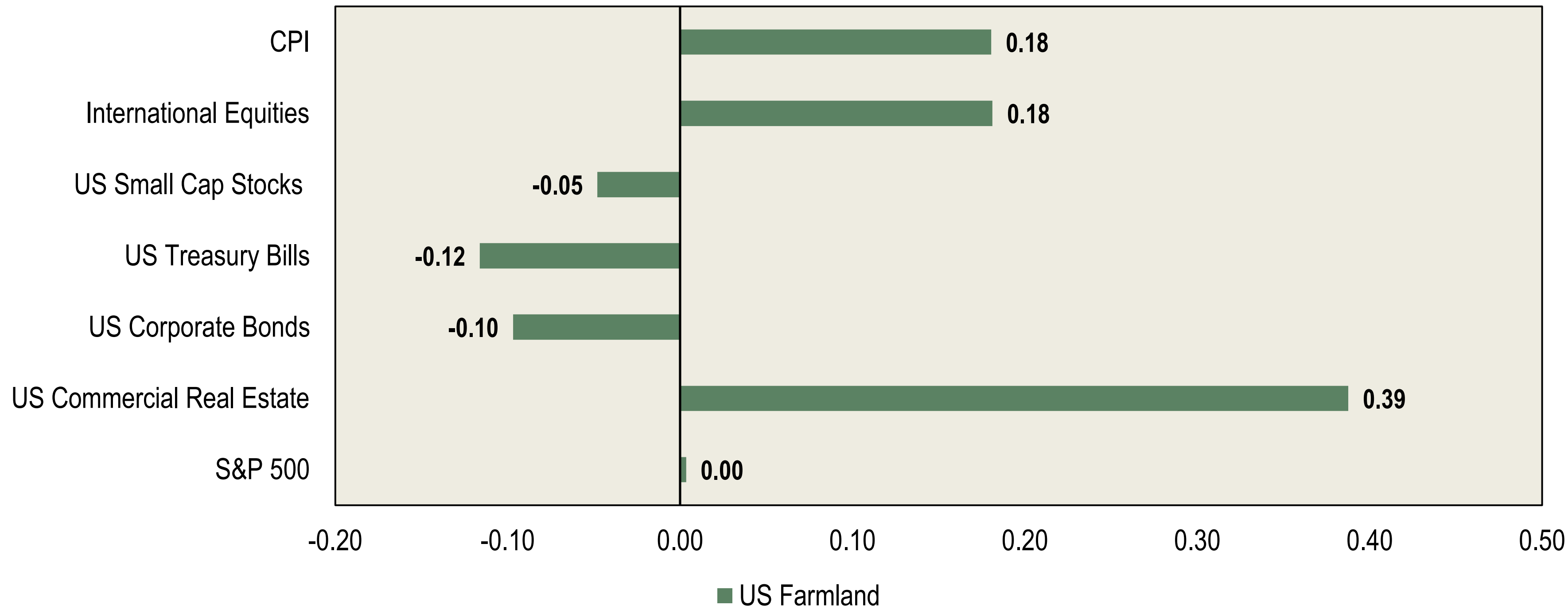
Portfolio Diversification and Inflation Protection

Low correlation with traditional assets

Historical $US Correlations with Farmland (1994-2018)



Sources: Data for Farmland refer to the NCREIF Farmland Index as of 12/31/18. Data for Commercial Real Estate refer to the NCREIF Property Index as of 12/31/18. Data for Small Cap Equities refer to the Ibbotson series IA SBBI US Small Stock TR USD as of 12/31/18. Data for Non US Equities refer to the MSCI/EAFE International Equities Index as of 12/31/18. Data for Corporate Bonds refer to the Ibbotson series IA SBBI US LT Corp TR USD as of 12/31/18. Data for US Treasury Bills refer to the Ibbotson series IA SBBI US 30 Day Tbill TR USD as of 12/31/18. Data for the CPI refer to the US Bureau of Labor Statistics as of 12/31/18. The S&P 500 series is from Standard & Poor's Financial Services LLC as of 12/31/18.

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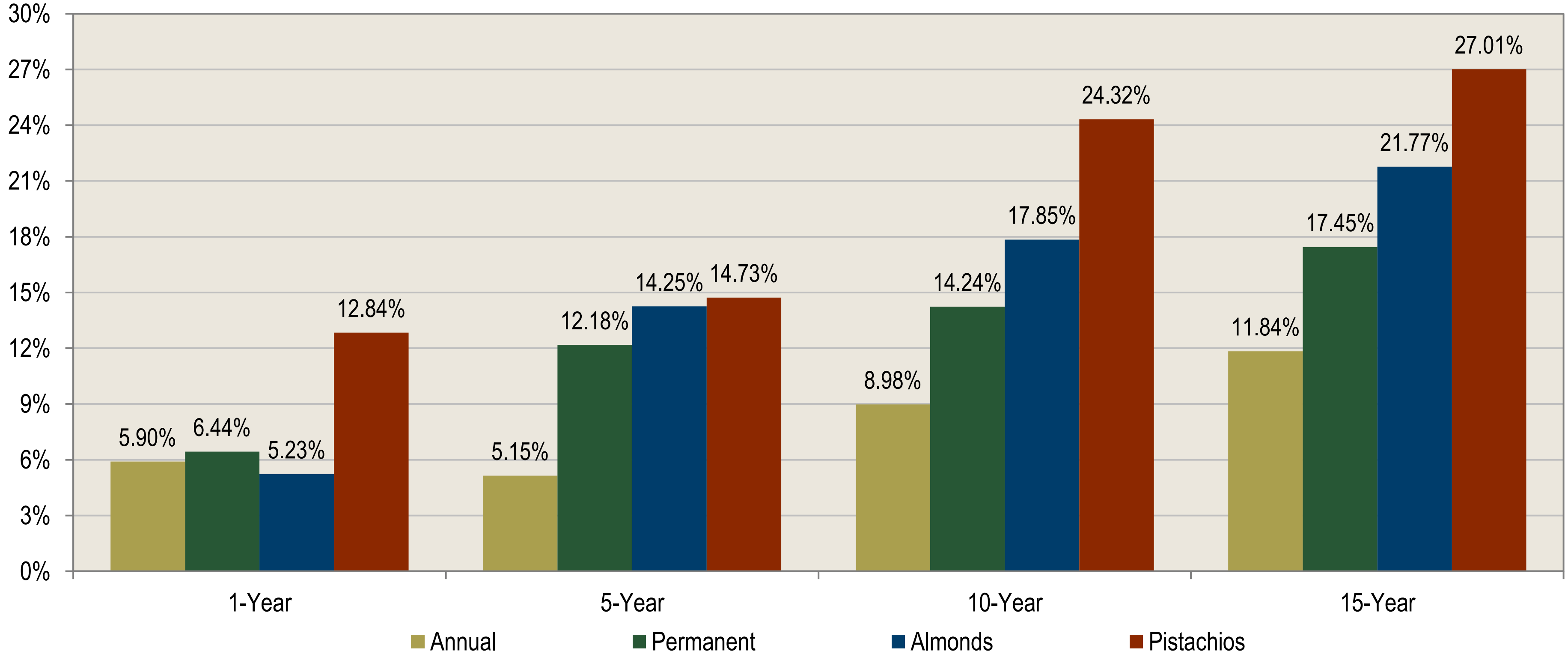
Permanent Crops Outperform

NCREIF Total Returns



As of March 31, 2019. All returns are calculated at property-level on market value, before deducting investment management fees. The NCREIF Farmland Index does not include development properties.

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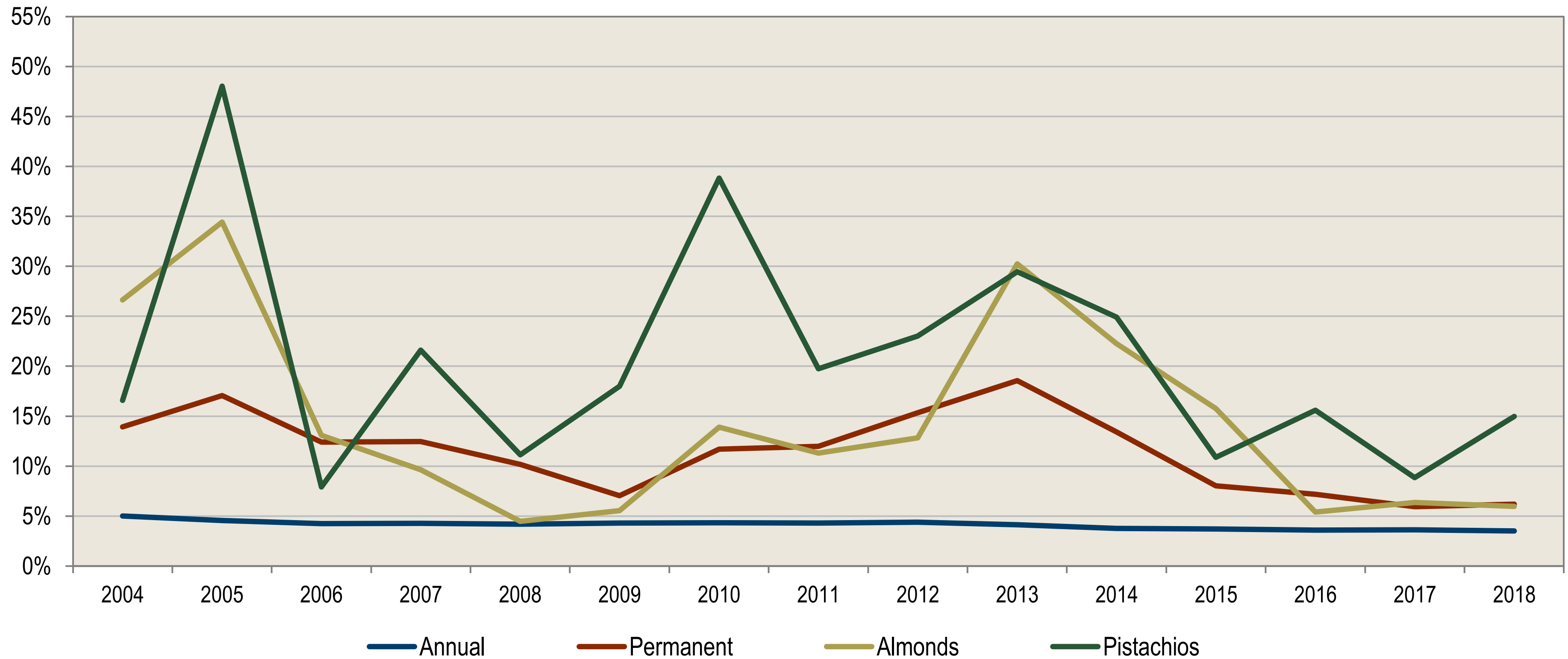
Permanent Crops Outperform

NCREIF Income Returns



As of March 31, 2019. All returns are calculated at property-level on market value, before deducting investment management fees. The NCREIF Farmland Index does not include development properties

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Almond Market Heading Back into Balance

Long-Term Almond Trends

- Robust demand growth trend continues
  - Rising per capita consumption globally driven by multiple strong consumer trends
  - Geographic broadening of demand
  - Diversification from ingredient use into fresh snacks and beverages

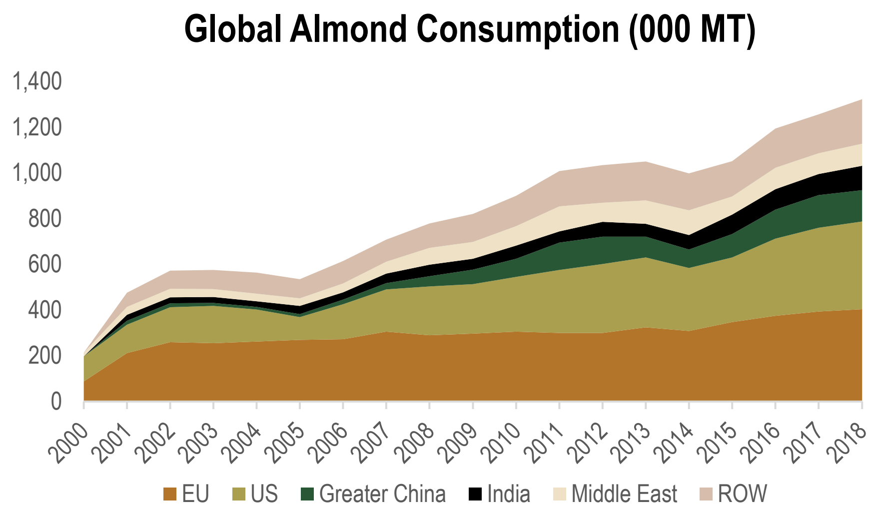
- Continued supply expansion to meet increased global consumption
  - Expanding acreage and steady yields
  - Rate of new planting has slowed due to lower prices
  - Water and climate factors moderate supply growth

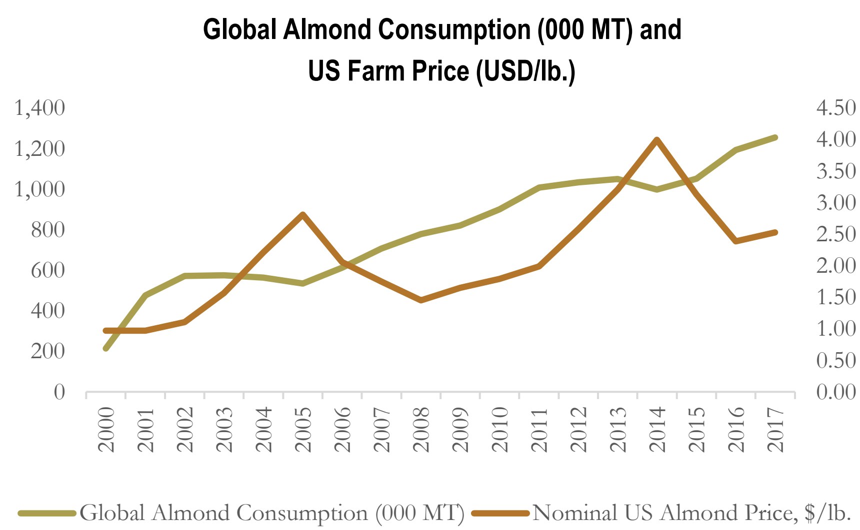
- Inflation-adjusted prices for almonds have returned to more historically sustainable levels
  - Looking ahead, strong demand will balance higher production levels and prices will rise slowly but steadily

Almond Demand Growth

Favorable fundamentals and steady, sustained demand growth

- World's leading tree nut by shelled volume
  - Increasing consumption growth in developing and emerging economies
  - Fits well with broad consumer food trends: healthy snacking, plant-based protein, and alternative protein beverages (almond milk)
  - 2012 to 2016, global per capita almond consumption grew from 0.12 kg to 0.16 kg (5% CAGR), as US consumption per capita consumption rose from 0.91 kg to 0.98 kg (2% CAGR)
  - Demand strength illustrated by higher price than other leading global tree nuts, such as walnuts, pistachios, and pecans
- Demand growth risks
  - Substitution with other tree nuts based on price, particularly for almonds used as ingredients





Sources: Years are marketing years. USDA PSD as of March 2019, International Nut and Dried Fruit Council, USDA NASS, HNRG Research

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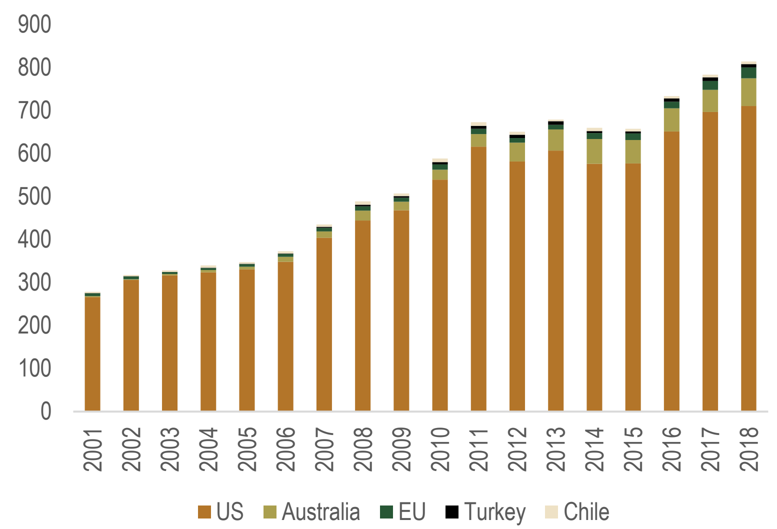
Almond Trade

Almond trade resumed rapid growth 2016-2018 after pausing 2011-2015

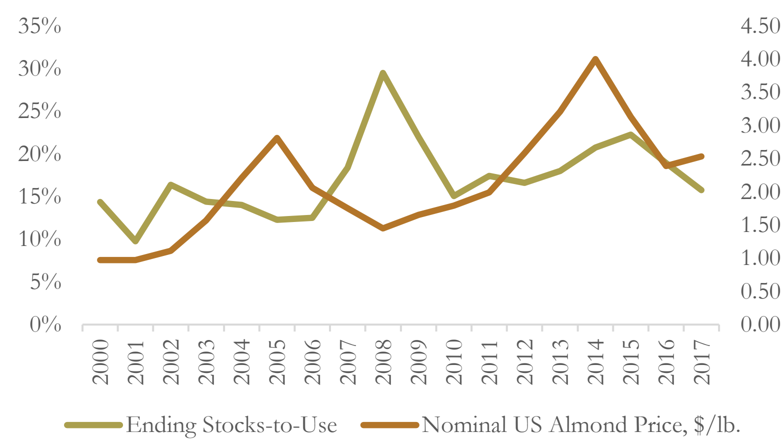
- Global almond trade dominated by the US: average export share of 90% from 2007-2017
- Exports
  - US exports in-shell (28%) and shelled (72%) almonds
  - India imports more than half of US in-shell almonds, followed by Greater China and Vietnam
  - EU is the leading importer of US shelled almonds, followed by Greater China and Japan
  - Australia benefits from US-China trade dispute
    - 2018 in-shell exports to China grew 55x, shelled exports grew 12x
- Imports
  - EU is the leading importer (41%), followed by India (12%) and China (9%)
  - Since 2007, EU imports have grown at a 3% CAGR, while imports into India and China grew at CAGRs of 8% and 12%, respectively

Greater China includes mainland China, Hong Kong and Macau. EU includes the UK.

Global Almond Exports (000 MT)



US Almond Price and Stocks-to-Ending-Use



Source: Years are marketing years. USDA PSD as of March 2019, HNRG Research

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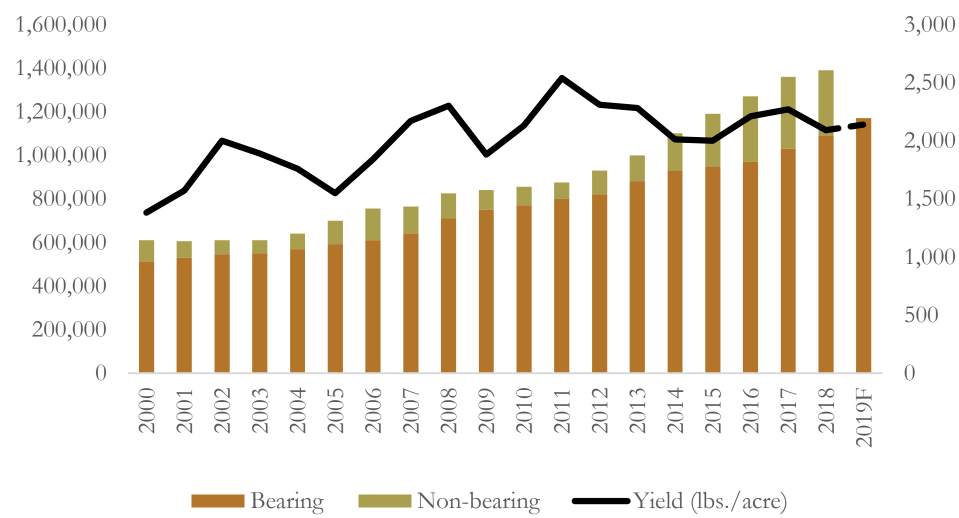
Almond Production

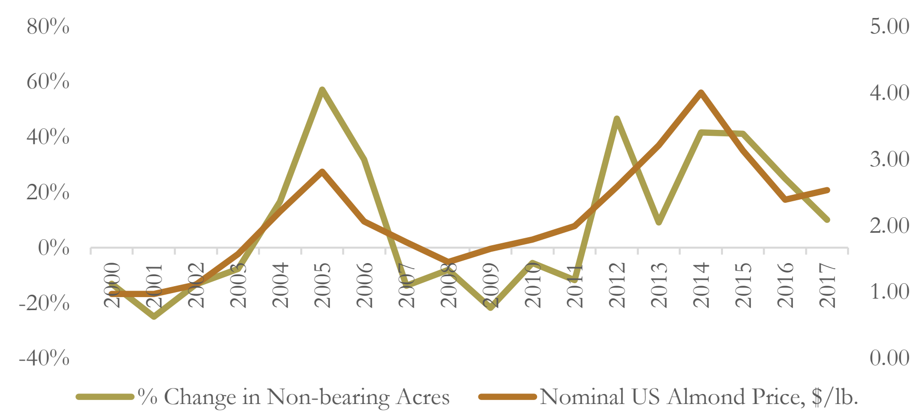
Production sets new high, driven by additional acres, as yields have stabilized

- From 2001-2018, global almond production grew from 490,000 MT to 1.4 million MT, a 6% CAGR, driven by increases in acreage and yield in California
  - US was 82% of global volume 2007-2017
  - USDA forecasts a 2.5 billion pound crop for 2019
- Supply drivers
  - Yield growth flat 2013-2018
  - US bearing acreage is expected to flatten after the surge of 2012-2015 plantings (high price period) comes online
  - Lower prices are leading to the removal of older, less productive trees. During the high prices, many older trees remained profitable despite declining yields.
- Supply constraints
  - Potential changes in water and climate in key almond growing regions

US Almond Acreage and Yield



US Almond Price and Change in Non-Bearing Acres



Source: Years are marketing years. USDA NASS as of May 2019, HNRG Research

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Pistachio Market Grows as Prices Rebound

Long-Term Pistachio Trends

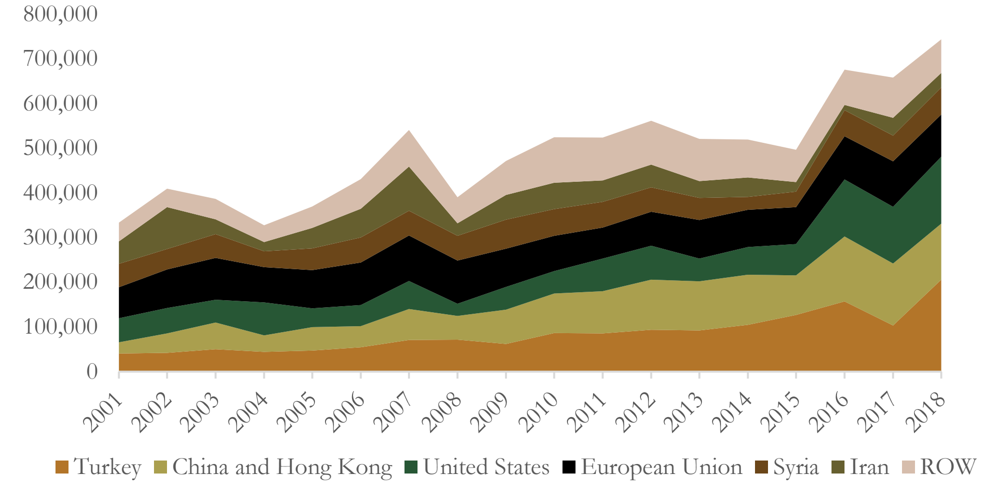
- Robust demand growth continues
  - Falling price since 2014 reinvigorated demand growth
  - Rising per capita consumption globally driven by multiple strong consumer trends
  - Demand expansion focused in US and China
- Continued supply expansion to meet increased global consumption
  - Expanding acreage with flat yields, concentrated in US
- Inflation-adjusted prices for pistachios have returned to more historically sustainable levels
  - Increasing demand expected to balance higher production levels, allowing prices to make moderate gains slightly above the rate of inflation

Pistachio Demand Growth Continues

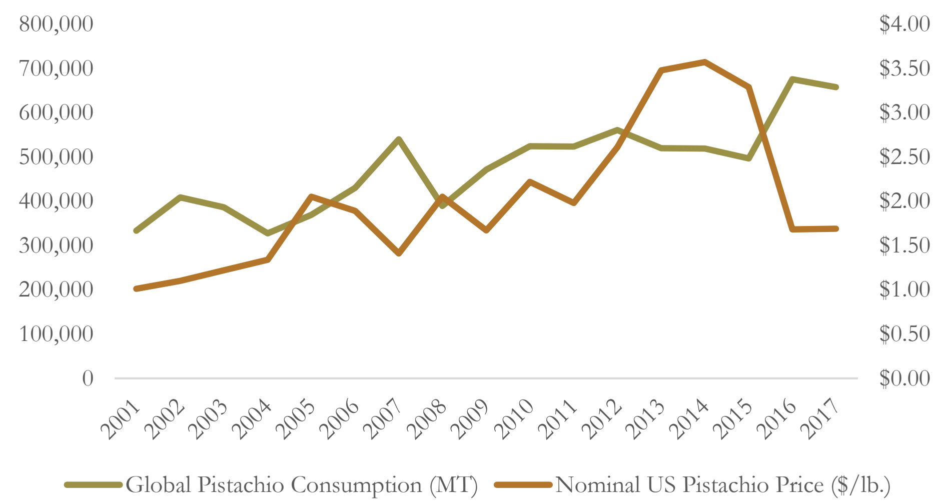
Demand growth resumes 2016-2018 after pausing 2012-2015

- World's #4 tree nut by value and volume
  - Broad global consumer food trends: healthy snacking, plant-based protein support growing demand
  - Global consumption increased 2.2x from 2001 to 2018
- Demand growth risks
  - Substitution with other tree nuts, particularly in ingredient end-uses
  - Significant concentration of global demand in the Middle East, increasing risk from geopolitical or macroeconomic shocks in the region

Global Pistachio Consumption (MT)



Global Pistachio Consumption (MT) and US Farm Price (USD/lb.)



Sources: Years are marketing years. USDA PSD and USDA NASS as of May 2018, HNRG Research

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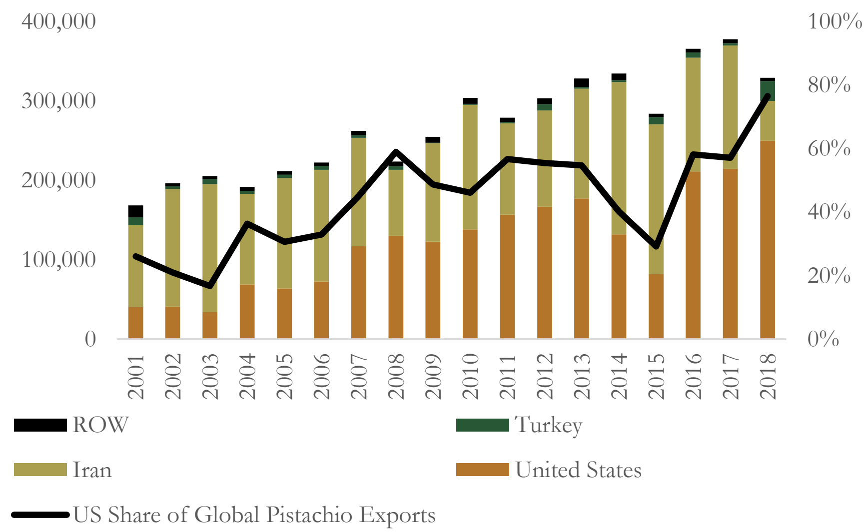
Pistachio Trade – Growing US Dominance

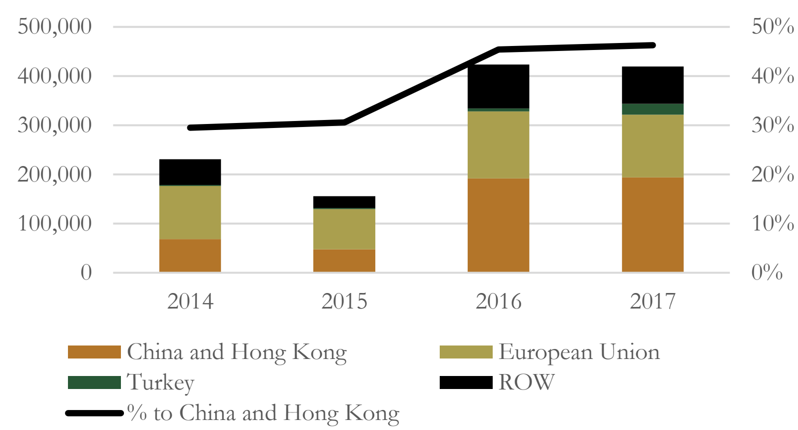
Pistachio trade expansion driven by US exports and Chinese imports

- Volatility in pistachio exports due to the alternate bearing production of pistachio trees, and because production is highly regionally concentrated
- **Exports**
  - Global pistachio trade led by the US: average export share of 50% from 2007-2017, 55% in 2018
  - The US and Iran accounted for 98% of global pistachio exports 2007-2017, US was 77% in 2018
- **Imports**
  - China, including Hong Kong, is the leading importer (43%), followed by the EU (29%), Canada (5%), India (3%) and the UAE (3%)
  - Since 2007, China imports have grown at a 4% CAGR, while imports into the EU have been flat
  - Chinese imports continue to move higher despite 45% tariff on US pistachios,

Global Pistachio Exports (MT)



US Exports by Destination (MT)



Source: Years are marketing years. USDA PSD and USDA ERS as of May 2019, HNRG Research

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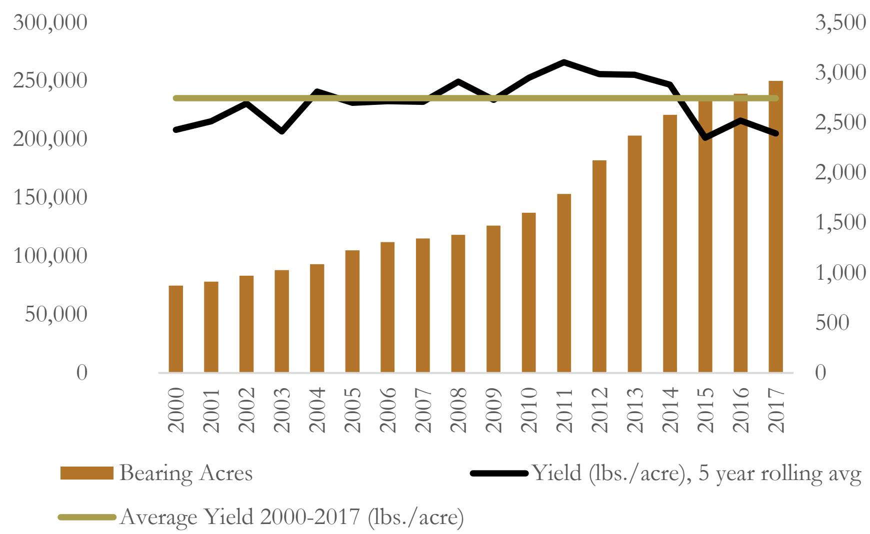
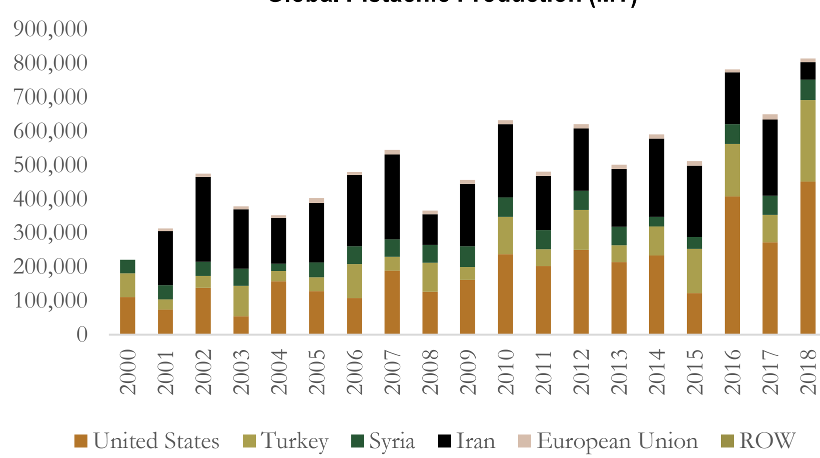
Pistachio Production Expands Primarily in the US

Production sets new high, driven by additional acres

- From 2001-2018, global pistachio production grew from 313,000 MT to 814,000 MT, a 5.8% CAGR, driven by the US (11.2% CAGR)
  - The US, Iran, Turkey and Syria combined for 98% of global production 2007-2017
- Supply drivers
  - Flat long-term yield growth trend in the US
  - US bearing acreage is expected to flatten after the large surge of plantings from 2012-2015 (high price period) comes online
  - Lower prices are leading to the removal of older, less productive trees.
  - Higher supplies in 2018 marketing year expected to be offset by record world consumption
- Potential changes in water and climate in California
  - Pistachio tree more water resilient than almonds or walnuts





Source: Years are marketing years. USDA NASS as of May 2019, HNRG Research

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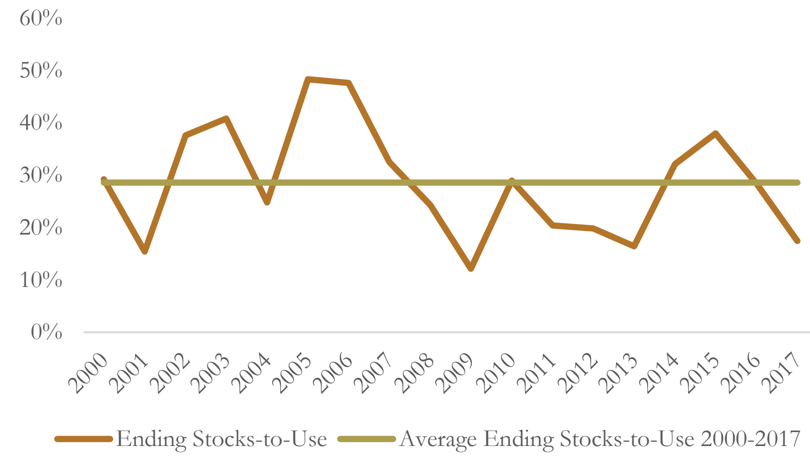
Pistachio Price Forecast Moderately Optimistic

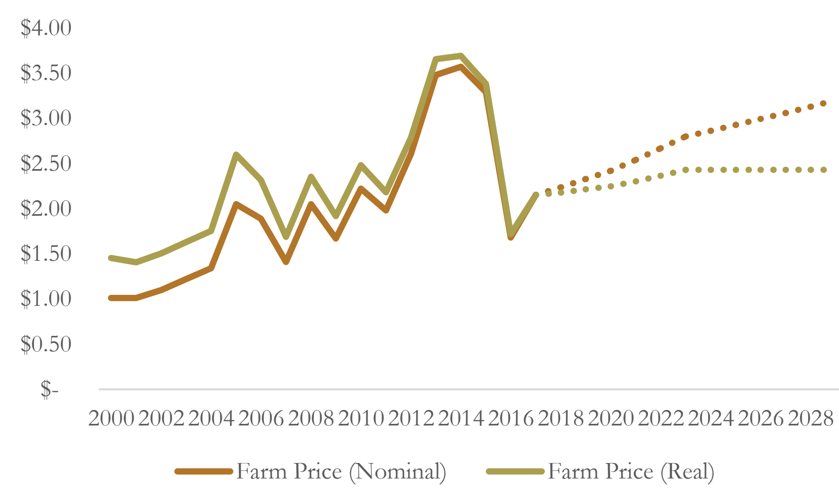
For 2018 crop, pistachio prices bounce back from major correction

- Low stocks at the end of the 2017 marketing year and the start of the 2018 marketing year have helped drive prices higher to date, despite a record U.S. crop of 995 million pounds (451,000 MT)
- For the first half of the 2018 crop marketing year (September 2018 through February 2019), US pistachio exports were up 5% in volume and 7% in value, compared to the prior year period
- Following the bounce-back, prices will grow moderately long-term, keeping pace with inflation, reflecting balanced markets

US Pistachio Ending-Stocks-to-Use



Pistachio Price History and Forecast



Source: Years are marketing years. USDA NASS as of May 2019, HNRG Research

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Biographies

Richard Bodio, Jr., CFA, Director, Hancock Natural Resource Partners, is responsible for the development and execution of client investment strategies and portfolio management, including evaluating investment opportunities, portfolio performance, investment allocations, and managing client relationships. Prior to joining HAIG in 2011, Rick worked in Financial Strategy for Forest Systems Management Company. Rick holds a B.A. in English and Philosophy from Providence College and a MBA in Finance and Real Estate from the University of Connecticut, where he managed a portion of the University's endowment. Rick is a CFA charterholder and a member of the CFA Society Boston.

Adam Gore, CFA, AFM, Portfolio Manager, is responsible for developing and implementing investment strategies, evaluating acquisition and disposition opportunities and managing agricultural portfolios. Prior to joining HNRG in 2019, Adam served as Director of Portfolio Management for US Agriculture, an agriculture investment manager, where he was a member of the investment committee and was responsible for portfolio management, acquisitions and dispositions, and investment strategy. Prior to that role, he was Vice President of Halderman Real Asset Management where he worked with several institutional clients to build and manage farmland portfolios throughout the United States. Adam holds a B.S. in Applied Economics and Management, with a concentration in Agribusiness Management, from Cornell University. Adam has earned the Accredited Farm Manager designation from the American Society of Farm Managers and Rural Appraisers and is a CFA charterholder.

Skeet Ponder, Portfolio Analyst
Skeet assists with portfolio management, investment analysis, and client reporting. Prior to joining HAIG, Skeet worked as a fiber supply analyst with WestRock, as well as an investment analyst for a family office investment firm that specializes in timber and farmland properties. He holds an MFR in Forest Business from the University of Georgia as well as a Bachelor's in Natural Resources from Sewanee: The University of the South.

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DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C13

Topic: **Lone Star Investment Advisor funds**

Portions of the discussion under this topic may be closed to the public under the terms of Section 551.071 of the Texas Government Code.

Discussion: The Lone Star Growth Capital fund and the Lone Star CRA fund terms expire in October 2019. Investment Staff will update the Board on recent performance, operational, and administrative developments with respect to DPFP investments in funds managed by Lone Star Investment Advisors.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #C14

Topic: **Legal issues - In accordance with Section 551.071 of the Texas Government Code, the Board will meet in executive session to seek and receive the advice of its attorneys about pending or contemplated litigation, including Eddington et al. v. DPFP et al., USERRA contributions owed by the City of Dallas or any other legal matter in which the duty of the attorneys to DPFP and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.**

Discussion: Counsel will brief the Board on these issues.

DALLAS POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #D1

Topic: **Reports and concerns of active members and pensioners of the Dallas Police and Fire Pension System**

Discussion: This is a Board-approved open forum for active members and pensioners to address their concerns to the Board and staff.

D A L L A S POLICE & FIRE PENSION SYSTEM

DISCUSSION SHEET

ITEM #D2

Topic: **Executive Director's report**

a. Associations' newsletters
- NCPERS Monitor (May 2019)
- NCPERS PERSist (Spring 2019)

b. Open Records

c. Nominations Committee Update

d. Employee Service Award

e. Executive Performance Evaluation Input

Discussion: The Executive Director will brief the Board regarding the above information.

THE NCPERS

MONITOR

The Latest in Legislative News

MAY 2019

In This Issue

Research Underscores Link Between Cities' Revenue Structures and Pension Funding Levels

Photo Illustration © 2019, istockphoto

New research from a University of Texas professor shines a light on how cities' revenue structures impact their ability to meet pension funding obligations.

Cities that rely on stable revenue sources such as property taxes are better positioned to fund their pension obligations than those that depend on variable revenue, such as sales, use and sin taxes, according to the report by Evgenia Gorina, an assistant professor at the school of economic, political and policy sciences at the University of Texas at Dallas.

City governments with stable revenue are less likely to borrow from pension funds to cover budget shortfalls, and may be more willing to commit available funds to pension contributions instead of hoarding cash for some uncertain future, Gorina wrote in the paper, "City Revenue Structure and Unfunded Pension Liabilities." It was published in *State and Local Government Review.*

The report found that every one percentage-point increase in reliance on property taxes as a share of revenue corresponded with a $3.22-per-capita drop in unfunded pension liabilities.

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NCPERS **Executive Directors Corner**

Latest NCPERS Research Examines 'Auto-Trigger' Plans as a Complement to DBs

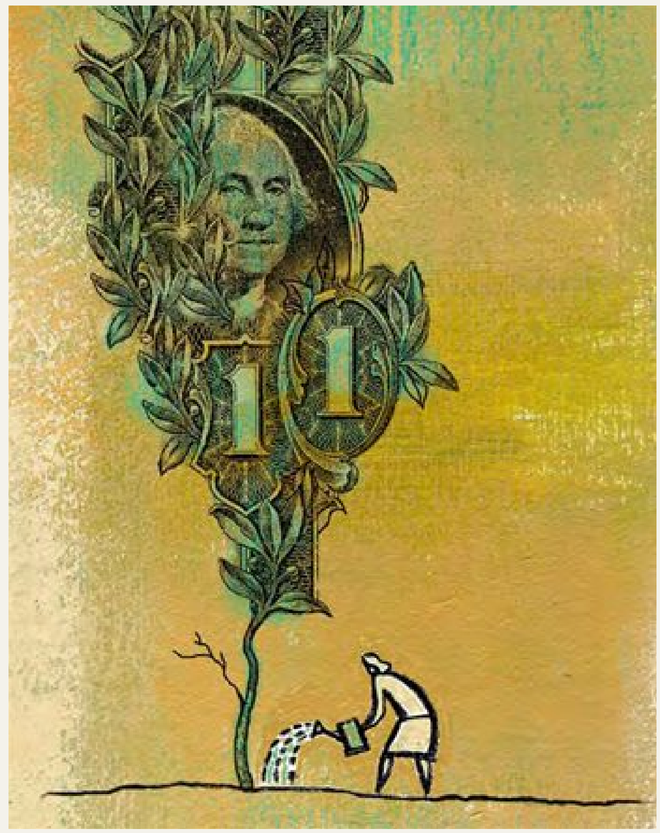

Illustration by: Leon Zernitsky © 2019 Illustration Source

Research remains one of the most important cornerstones of our work at NCPERS. We continue to provide highly focused information and insight into all facets of public pensions as a way of effectively telling the story of how pensions are vital to a secure retirement.

Our newest research initiative examines at an alternative that is emerging for public pension systems that want to offer workers a supplement to the traditional defined-benefit plan.

Collective defined-contribution plans, or CDCs, meld some of the desired features of traditional pensions with the administrative benefits of 401(k) plans. The NCPERS research report, "Auto-Triggers: Understanding Their Potential in the Public Pension Ecosystem," examines experiences with these plans in four jurisdictions: The Netherlands; New Brunswick, Canada; and the U.S. states of Maine and Wisconsin. We presented a "Facebook Live" event on this program on April 22, and the full 13-page report is available for download from our website.

CDCs use auto-triggers to surmount the shortcomings of individual defined-contribution plans, or DCs. Also known as risk-sharing or defined-ambitions plans, CDCs are designed to avoid one of the clear downsides of DCs: The shifting of investment and longevity risks to employees. In our latest research, we explore examples of how elements of such plans are being utilized in four contexts: the Netherlands, Canada, and two U.S. states.

Collective defined-contribution plans, or CDCs, meld some of the desired features of traditional pensions with the administrative benefits of 401(k) plans.

We all understand that part of the great value proposition of a real pension, or a defined-benefit plan (DB), is that the final lifetime benefits they pay in retirement are determined or "defined" in advance using formulas, providing meaningful certainty for public workers. By contrast, the nature of DCs, such as 401(k) plans, is that only the amount that workers contribute is set; how much beneficiaries can draw out of their 401(k) plans to support themselves in retirement varies based on market performance and other factors.

At a time when public employers are being called upon to supplement pensions with defined-contribution plans, we think they should be encouraged to learn about options that do not place undue burden on the beneficiary. While 401(k) plans

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California Supreme Court Declined to Overturn "California Rule" of Benefit Protection

By Robert D. Klausner, NCPERS General Counsel

Overview

On March 4, 2019 the California Supreme Court decided a closely watched case that could have served as a vehicle to undermine the so-called California Rule. Nevertheless, in *Cal Fire Local 2881 v. CALPERS* (hereinafter "*Cal Fire*") the Court declined the invitation to overrule the California Rule that dates back to 1955. The narrow issue in the case involved only the prospective elimination of "airtime" purchases (known as "ARS credit" in California). Thus, the unanimous opinion is properly understood as a circumspect decision, that carefully avoided addressing the larger issues that led to the filing of fifty-one amicus briefs in the case; at least for now.

Memorandum

For nearly sixty-five years, the California Rule has recognized that pension benefits cannot be diminished for existing employees without a corresponding exchange of another benefit of equivalent value. The so-called "California Rule" dates back to the case of *Allen v. City of Long Beach* (1955) 45 Cal.2d 128. After the *Cal Fire* decision, this rule remains in place. Although the Court affirmed the decisions of the trial court and the intermediate Court of Appeal upholding the prospective elimination of airtime purchases, the *Cal Fire* Court carefully explained that it was not addressing the California Rule in its decision.

Photo illustration © 2019, Shutterstock.com

It remains to be seen whether the California Supreme Court will be as guarded in its next opinion expected later this year. In the pending Alameda County case the Court will be confronted with reductions to cash outs of vacation and sick leave. Importantly, because the *Cal Fire* case only involved airtime, the Court was able to conclude that the case did not implicate "core pension rights." By contrast, the pending Alameda County case will test the constitutionality of amendments which are closer to "core" pension rights.

The *Cal Fire* opinion by Chief Justice Cantil-Sakauye was unanimous decision. There is no doubt that it was easier for the judges to all agree, when the Court declined to address the larger issue of the future of the California Rule.

In the *Cal Fire* case, Local 2881 challenged amendments which eliminated the ability of employees to increase pension benefits by purchasing "airtime." The elimination of airtime occurred in late 2012 during the Great Recession with the adoption of the California Public Employees' Pension Reform Act of 2013 (PEPRA). Cal Fire Local 2881 sued to reinstate airtime for employees hired prior to the PEPRA amendments.

At the outset, it is useful to recognize that this "reform" did not impact the pensions of public employees who had already purchased airtime. The preliminary issue in the case was whether the opportunity to purchase airtime was a vested right protected by the contract clause of the California Constitution. The second

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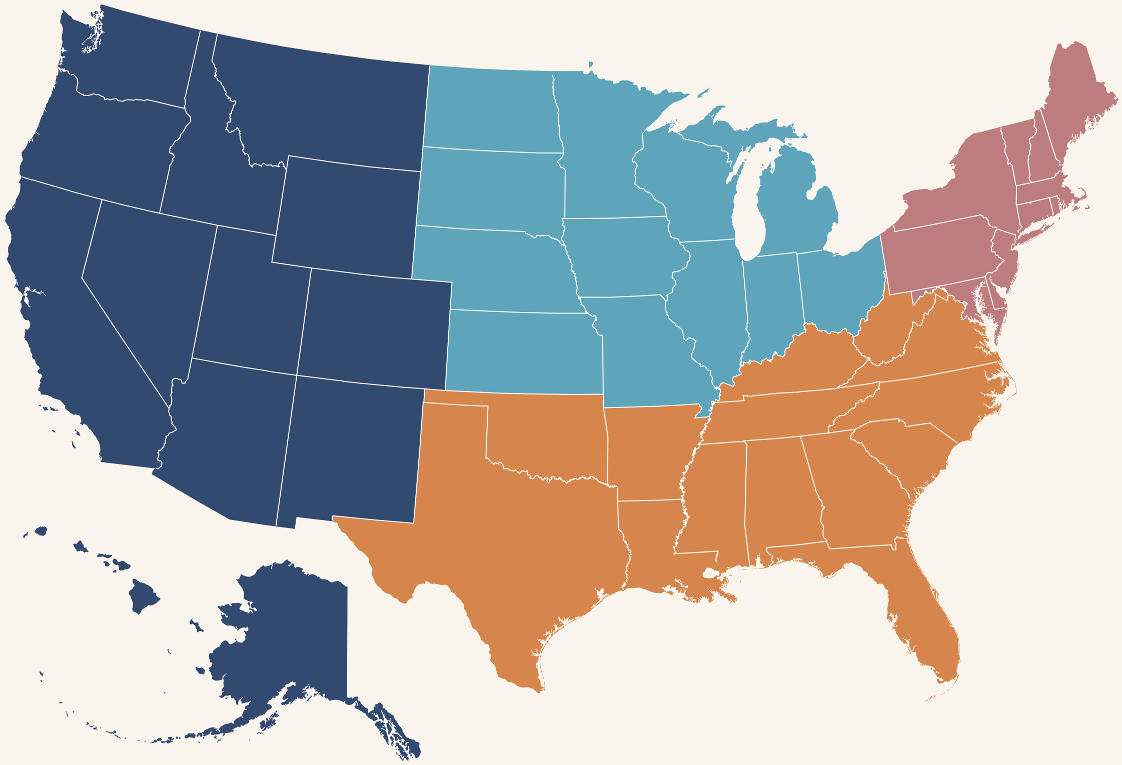
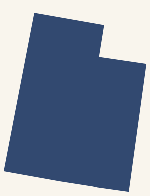
NCPERS Around the Regions

This month, we will highlight Utah, Pennsylvania, North Dakota, and Kentucky.



THE WEST: Utah



With the passage of Senate Bill 129, Utah police and firefighters have reason to celebrate. The law, which is being phased in between May 14 and July 1, restores pension benefits that had been drastically cut in previous budgets.

The bill, sponsored by Republican Sen. Wayne Harper, went through several rounds of changes before it was signed by Governor Gary Herbert. It corrects what Harper called mistakes made in the 2010 pension reforms that converted guaranteed retirement benefits into a 401(k) style retirement plan that shifted investment risks to the employees.

With enactment, "Prime responders, the people who keep us safe and take care of our fires and our health needs, are being recognized for the great service they're doing. I think it was the best bill passed on Capitol Hill this year because it helps those people who help us in times of emergencies," Harper said in an interview posted on his website.

The 2010 bill lengthened the time in service required to qualify for pension benefits to 25 years, from 20 years, and reduced the amount of the pension paid to 37.5 percent of final average salary, from 50 percent. The law bumps the pension benefit back up to 50 percent of final average salary after 25 years of service.

Marty Peterson, head of the Pension Membership Council of the Professional Fire Fighters of Utah, said the PFFU was very pleased with the bill, and was particularly excited with decision to increase the multiplier percentage used in calculating benefits under the Tier 2 hybrid retirement system. The multiplier will be increased from 1.5 percent to 2 percent for individuals affected, he noted.

CONTINUED ON PAGE 5

AROUND THE REGIONS CONTINUED FROM PAGE 4

Peterson added that the Fire Fighters Pension System is in the fully funded range, and "there is no reason that we should not remain 100 percent funded." He noted that another bill, HB-5, restored funding from fire insurance premiums that have helped fund the pension system for over 100 years. These taxes had been redirected to the state's general fund two years ago, partially restored to the pension system in 2018, and now are fully restored. Without this compromise, Fire Fighters would have faced approximately a 5 percent increase in required contributions to the pension fund, Peterson said.

NORTHEAST: Pennsylvania

Pennsylvania has laid down a marker in the fight against corruption in government by making a pension forfeiture bill the first state legislation signed into law in 2019.

Governor Tom Wolf, a Democrat, on March 28 signed the Public Employee Pension Forfeiture Act, also known as Act 1 of 2019. It received overwhelming support in both chambers of the General Assembly, passing in each case with just one "no" vote.

The law expands the list of crimes that require pension forfeiture to include all felonies. In a statement, the governor's office said this revision "will help stop convicted employees from dodging pension forfeiture by pleading guilty or no contest to felonies that were previously not listed." Previously, forfeitures were subject to a list of crimes related to public office or public employment.

The new law also requires the courts notify benefits administrators to immediately halt pension payments upon a guilty or no contest plea. This rule helps ensure no pension payments are made to an ineligible recipient.

It also requires the forfeiture of pensions when a defendant pleads guilty or no contest, or is found guilty by a judge or jury. Until last week, the law had imposed pension forfeiture when a defendant is sentenced, leading to periods when someone who has lost their criminal case continues to receive benefits.

The bill was triggered in part by a 2017 decision by the State Employees' Retirement Board to reinstate the pension benefits of a former state senator who pleaded guilty to federal charges. Former state Sen. Robert Mellow, D-Lackawanna, lost a $246,000-a-year pension after his 2012 plea to a conspiracy charge for using Senate staff to work on political campaigns. But it was reinstated when his attorney successfully argued to the retirement board that his conviction did not match up with state crimes that prompt pension forfeiture.

MIDWEST: North Dakota

The North Dakota House of Representatives on House has passed several measures to alter public employee benefits, and has ordered a study into converting the system to a defined-contribution plan.

One bill reduces the pension "multiplier" for employees hired after December 31 from 2 to 1.75. Another bill ends the health credit, instead keeping that money in the main retirement plan.

The House Appropriations Committee amended a third measure, which increases the employee and employer contributions to the retirement plan by 1 percent per year, to include the defined contribution study. "At some point, if we ever want to get away from the unfunded liability, we will have to go to defined contribution," House Appropriations Committee Chairman Jeff Delzer, a Republican, said. "The study will be about figuring out how to do it." Delzer said the study would also look at switching the University System from the current PERS plan to the TIAA-CREF plan, which is a defined contribution plan.

Rep. Pamela Anderson, a Democrat, argued against the study. She said the issue has been studied extensively and will do nothing but waste money.

In a related development, the state took a step closer to adopting a "self insurance" plan for state employee health care coverage. The budget bill for PERS, which was in conference committee at press time, was amended to require the board to solicit bids for health insurance over the next two-year period, specifically including an option for self-insurance.

CONTINUED ON PAGE 12

New Federal Retirement Legislation

By Tony Roda

House Ways and Means Committee Chairman Richie Neal (D-MA) has emphasized retirement security policy throughout his entire Congressional career. When he gained the gavel of the Committee in January, he made clear that he intended to continue these efforts and, as Chairman, he was now in a position to play a major leadership role.

The legislation discussed in this article is expected to be just the start of Chairman Neal's efforts on retirement security, which may include subsequent legislation on multiemployer pension plans and possible action to strengthen Social Security. In the early days of this Congress, the Chairman introduced H.R. 397, which would create the Pension Rehabilitation Administration within the Department of the Treasury for the purpose of making loans to struggling multiemployer plans. In addition, the Ways and Means Committee's Subcommittee on Social Security has held three hearings to discuss proposals to strengthen the Social Security program.

On April 2, the House Ways and Means Committee took its first significant action on retirement legislation by favorably reporting the Setting Every Community Up for Retirement Enhancement (SECURE) Act, H.R. 1994. The legislation includes several changes to retirement and related tax provisions. It is expected to be considered by the full House in May.

Some of the bill's key provisions are:

Required Minimum Distributions (RMD) – Qualified retirement plans, including state or local governmental defined benefit plans, section 457(b) plans, section 403(b) plans, and section 401(k) plans, are subject to the RMD rules. The general rule under current law is that RMDs must begin by April 1 of the calendar year following the calendar year in which the individual reaches age 70 ½. In recognition of the increasing longevity of our population the SECURE Act would increase the trigger for RMDs to age 72.

IRA Contributions – Current law provides that individuals who have reached age 70 ½ may no longer contribute to a traditional IRA. The legislation would repeal that prohibition. The Committee states in its summary of the bill, "As Americans live longer, an increasing number continue employment beyond traditional retirement age."

Multiple Employer Plans (MEP) – The SECURE Act would make it easier for unrelated employers to create pooled provider pension plans. These plans are alternatively known as "Open-MEPs" and are clearly a response to state-run plans for private sector workers, such as CalSavers and OregonSaves. Among other provisions, the bill would provide relief from plan disqualification merely because one or more participating employers fail to take actions required under the plan, the so-called "one bad apple" rule. This relief is accompanied by other safeguards for plan participants.

Of considerable interest to public pension plans are the ongoing discussions among actuaries, economists, trustees, and policymakers on what is an appropriate assumed rate of investment return. This topic was raised during the Ways and Means Committee's markup of the SECURE Act by four Republican members: Reps. Drew Ferguson (GA), Tom Rice (SC), David Schweikert (AZ) and Jodey Arrington (TX).

The members took aim at a provision in the bill that would give pension funding relief to certain ERISA-covered, privately-held, community newspapers. They argued that, by allowing the plans to use a higher interest rate and a longer amortization period, the

CONTINUED ON PAGE 10

CITIES' REVENUE STRUCTURES CONTINUED FROM PAGE 1

Conversely, cities that depended on the "less predictable" revenue source of intergovernmental saw a $3.57-per-capital increase in unfunded liabilities for every one percentage-point increase in intergovernmental funds as a share of total revenue.

"Cities that depend on less-stable revenue and also on state aid may be more focused on maintaining their operating solvency than on funding longer-term obligations," Gorina said.

The report was undertaken with an eye on filling a research gap. To date, there has been little research into what determines pension funding by individual local governments that act as plan sponsors, Gorina wrote. She sought to illuminate the connection between a government's revenue structure and the solvency of the retirement plans it sponsors by examining the behaviors of a large national sample of cities between 2003 and 2012.

One takeaway is that revenue uncertainty makes cities less likely to prioritize longer-term obligations, Gorina wrote. "To keep pension funding on a sustainable path, cities with less stable revenue are likely to benefit from stricter pension contribution rules and from strengthening their countercyclical budget stabilization capacity to withstand fiscal pressure," she said.

According a report in *Governing*, one reason the findings are notable is because the structure of city budgets varies widely. According to the Lincoln Institute of Land Policy, four cities—Buffalo, N.Y.; Casper, Wyo.; New Haven, Conn.; and Springfield, Mass.—relied on intergovernmental aid to fund more than 60 percent of their general revenue in 2016. Intergovernmental aid accounted for one-fifth or less of revenue in 20 other cities.

Comparable differences were at play for property tax collection, *Governing* noted. Particularly in the Northeast, many cities receive the majority of their revenue from property taxes when intergovernmental funding is excluded. At the high end, property taxes fund 80 percent of revenue in Bridgeport, Conn.; Nashua, R.I.; and Warwick, R.I. But in 14 other cities, property taxes accounted for less than a quarter of revenue. The share was just 10 percent in Flint, Mich. ◆

EXECUTIVE DIRECTOR'S CORNER CONTINUED FROM PAGE 2

are often held up as a model, they have faced criticism from their earliest advocates for shifting risks from employers to employees.

"The jury is still out on whether 401(k) plans in lieu of traditional pensions can provide truly resilient income security in retirement," our research director, Michael Kahn, said in the report. "Members of Generation X—those born between 1965 and 1978—are the first generation to have had access to 401(k) plans for most of their working careers, and the vast majority of them are still in their prime working years."

In a collective defined contribution plan, assets are pooled, risks are shared and investments and benefits are determined and managed like a pension plan. Benefits and contribution rates are adjusted with ups and downs of financial markets. For example, if investment returns are better than expected, contribution rates may be decreased, benefits may be increased, or both. If investment returns are worse than expected, then contribution rates may be increased, benefits may be decreased, or both.

The report details how the plans are being utilized in four jurisdictions in Europe and North America, examining features such as funding policies, benefits accrual, and methods employed for calculating solvency and actuarial liabilities. In New Brunswick, for instance, the province's shared risk for public servants is designed to provide a lifetime secure pension to plan members with a high degree of certainty, but it does not absolutely guarantee that base benefits will never be reduced.

I hope you'll take time to read and provide feedback on the Auto-Triggers research. Your input and experience is important to us, and your guidance enables us to understand how you are using the research and whether it raises additional questions you want us to explore. ◆

CALIFORNIA SUPREME COURT CONTINUED FROM PAGE 3

issue would arise if, and only, if the Court agreed that airtime was a vested right. If so, the second issue – which was never reached - was whether the Legislature's elimination of airtime constituted an unconstitutional impairment of vested rights.

The Court held, for reasons discussed in this memorandum, that airtime was not a vested right. As a result, the Court did not need to reach the second hotly debated issue. As explained by the Court, "[i]n the absence of constitutional protection, the opportunity to purchase ARS credit could be altered or eliminated at the discretion of the Legislature." According to the Court, "we have no occasion in this decision to address, let alone to alter, the continued application of the California Rule."

Nevertheless, the Court acknowledged that the State and many amici urged it "to use this decision as a vehicle to reduce the protection afforded pension rights by modifying or abandoning" the California Rule. Of course, other amici (and by our count more amici) argued in favor of leaving the California Rule intact.

On the first issue, the Court held that airtime is not a vest right:

> We conclude that the opportunity to purchase ARS credit was not a right protected by the contract clause. There is no indication in the statute conferring the opportunity to purchase ARS credit that the Legislature intended to create contractual rights. Further, unlike core pension rights, the opportunity to purchase ARS credit was not granted to public employees as deferred compensation for their work, and here we find no other basis for concluding that the opportunity to purchase ARS credit is protected by the contract clause. In the absence of constitutional protection, the opportunity to purchase ARS credit could be altered or eliminated at the discretion of the Legislature. We therefore affirm the decisions of the trial court and the Court of Appeal, which concluded that PEPRA's elimination of the opportunity to purchase ARS credit did not violate the Constitution.

In evaluating airtime, the following analogy was important to understand the Court's holding:

> The opportunity to purchase ARS credit was not different in form from a variety of other optional benefits offered to public employees in connection with their work. In addition to their salary or hourly pay, it is not unusual for public employees to be offered the opportunity to purchase different types of health insurance benefits from a variety of providers; to purchase life and long-term disability insurance; and to create a flexible spending account, by which certain medical and child care expenses can be paid with pre-tax income. We have never suggested that this type of benefit is entitled to protection under the contract clause.

The Court's reasoning also relied on the early retirement case of *Miller v. California*:

> Our decision in Miller is illustrative. The plaintiff in Miller was a state tax attorney who was forced to retire upon reaching the age of 67, the statutory age of mandatory retirement from state service. At the time he began his state employment, and until a few years before his retirement, the mandatory age of retirement was 70, and the plaintiff's pension benefit would have been less if he was required to abide by the lower retirement age. Despite the impact on the plaintiff's pension benefit, we declined to hold that he had a vested right to retire according to the mandatory age in effect at the time he joined state service. (citations omitted)

The Court took pains to clarify that the 2012 amendment did not impact existing airtime purchases (only the loss of the right to make future purchases). According to the Court:

> Before addressing this argument, it is important to make clear what is not at issue here. The only change made by PEPRA relating to ARS credit was to eliminate the opportunity to purchase ARS credit after the end of 2012. PEPRA does not purport to affect the rights of employees who took advantage of the opportunity to purchase ARS credit while it was still available. Persons who actually purchased ARS credit therefore remain in precisely the same position as they were prior to PEPRA, and we need not consider their circumstances further. What is claimed here to be a vested right is the opportunity to purchase ARS credit, rather than any of the rights conferred by its purchase.

In any attempt to read this case as predictive of future decisions, it may also be useful to scrutinize the following background discussion by the Court. Yet, because the Court carefully held that there was no contract right to airtime, it never reached the merits of the California Rule which the Court framed as follows:

> The scope of constitutional protection afforded public pension rights by our prior decisions, beginning with *Allen v. City of Long Beach* (1955), has come to be referred to as the "California Rule," in part because its breadth has not been widely adopted by other jurisdictions. (See, e.g., Monahan, *Statutes as Contracts? The "California Rule" and Its Impact on Public Pension Reform* (2012) 97 Iowa L.Rev. 1029 (Monahan) [referring to our doctrine as the "so-called

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CALIFORNIA SUPREME COURT CONTINUED FROM PAGE 8

> California Rule" and noting that, of the twelve states to adopt the rule, three have since modified it].) The state and many amici urge us to use this decision as a vehicle to reduce the protection afforded pension rights by modifying or abandoning the California Rule, while plaintiffs and many other amici urge us to leave the California Rule intact. Because we conclude that the opportunity to purchase ARS credit was not a term and condition of public employment protected from impairment by the contract clause, its elimination does not implicate the Constitution. For that reason, we have no occasion in this decision to address, let alone to alter, the continued application of the California Rule. (citations omitted).

Separate Concurrence by Justice Kruger

Justice Kruger signed onto the majority opinion, but also issued a separate concurrence to expand on what he describes as a "key element" of the Court's analysis. In so doing, Justice Kruger stressed that airtime was not an "employment benefit that vested by implication" as in the seminal *Betts* and *Kern* cases.

Kruger explains that "not every future benefit is the subject of a vested right; if that were so, the implied-right exception would swallow the general rule" in California that the terms and conditions of employment for public employees are set by statute, not by contract. Importantly, Kruger acknowledges that California precedent has treated "deferred compensation programs, such as pension plan, *as special* in this regard." (emphasis added).

According to Kruger, "monetary compensation," whether received periodically or deferred until retirement in the form of a pension benefit, "is the central consideration" for which public employees work. "An implied contractual promise" arises because neither party could reasonably expect an offer of deferred compensation to be revocable at will after employment.

None of this reasoning applies, however, to airtime. Kruger observed that no new service was required to purchase airtime. Moreover, employees were obligated to pay the full value of the airtime purchase. "Objectively speaking, a party looking at this arrangement would understand that the ARS purchase option was not offered in exchange for any period of public service but rather in exchange for the statutorily mandated purchase price." ◆

FEDERAL RETIREMENT LEGISLATION CONTINUED FROM PAGE 6

newspapers would be allowed to systematically underfund their pension plans. However, in making his argument against the overall provision, Rep. Schweikert added that one aspect of it was positive – the requirement that any pension plan taking advantage of the funding relief would have to calculate the funding targets and normal cost of any new benefit accruals by using the U.S. Treasury obligation yield curve. Schweikert said that this concept, once put into statute, should be applied to multiemployer and governmental pension plans.

As our community knows, the reporting requirements of the proposed Public Employee Pension Transparency Act (PEPTA) mandate the use of the Treasury yield curve to calculate the funded status of public pension plans. We have opposed this legislation since it was first introduced in 2010 because it will cause unnecessary alarm among plan participants and will not provide any useful economic data with which to analyze the sustainability of public plans.

Please be aware that NCPERS will closely monitor developments on the Treasury yield curve as well as any legislation that could have an impact on state and local governmental pension plans. ◆

Tony Roda *is a partner at the Washington, D.C. law and lobbying firm Williams & Jensen, where he specializes in federal legislative and regulatory issues affecting state and local governmental pension plans. He represents NCPERS and statewide, county and municipal pension plans in California, Georgia, Kentucky, Ohio, Tennessee and Texas. He has an undergraduate degree in government and politics from the University of Maryland, J.D. from Catholic University of America, and LL.M (tax law) from Georgetown University.*

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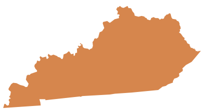
AROUND THE REGIONS CONTINUED FROM PAGE 5

THE SOUTH: Kentucky



Kentucky's Republican governor, Matt Bevin, said April 25 he plans to convene a special legislative session to work on pension reform "sooner than later," but offered no details.

Bevin on April 9 vetoed House Bill 358, a measure that was designed to give regional universities, county health departments and other quasi-governmental entities relief from a massive spike in pension costs that takes effect July 1. In his veto message, he said he would call a special session before that date so that lawmakers can consider alternatives.

Bevin said in his veto message that the bill would have added pressure to the state's estimated $37 billion public pension shortfall. He said the bill was flawed because of how it would have allowed universities and agencies to calculate their pension liabilities before exiting Kentucky Retirement System, and also criticized a payment schedule that could have continued for more than 30 years.

Bevin has not yet said when he intends to call the special session. In 2017, he said he intended to convene a special session, but did not do so. In December 2018, he unexpectedly called one with less than a day's notice to lawmakers to convene in the state capital of Frankfort. That session dissolved on the second day when lawmakers determined they could not reach an agreement.

Some of the governor's fellow Republicans voiced frustration with the veto. In a statement, House Speaker David Osborne lamented that the veto occurred despite "exhaustive amounts of time meeting with the stakeholders, the universities and the quasis, as well as the representative employees of both. We sent the Governor a bill that we believed provided stability for the employers while keeping the state's commitment to the retirement futures of our employees."

At a press briefing April 25, the governor indicated he did not want the special session to bump up against graduations and vacations. He noted that revised legislation would affect the state's 118 quasi-governmental agencies, which include rape crisis centers and public health departments, as well as regional universities. He said that if revised legislation isn't "done right," it will hurt "the very people we're trying to help." ◆

2019 Conferences

May

NCPERS Accredited Fiduciary Program (All modules)
May 18 – 19
Austin, TX

Trustee Educational Seminar
May 18 – 19
Austin, TX

Annual Conference & Exhibition (ACE)
May 19 – 22
Austin, TX

June

Chief Officers Summit (COS)
June 13 – 14
Chicago, IL

September

Public Pension Funding Forum
September 11 – 13
New York, NY

October

NCPERS Accredited Fiduciary Program (All modules)
October 26 – 27
New Orleans, LA

Public Safety Conference
October 27 – 30
New Orleans, LA

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Apring 2019 | Volume 32 | Number 2

Message from the President

Daniel Fortuna
NCPERS President

I am very excited to preside over my third NCPERS Annual Conference & Exhibition (ACE) Program, held on May 19-22, 2019, in Austin, Texas. I am excited to announce that our capstone event in our Annual Conference and Exhibition (ACE), will be supplemented by the first session of NCPERS University. I hope to see many members in Texas at the Hilton Austin from May 18 to 22 for these two exceptional programs.

NCPERS University will be up first, running May 18-19. I am excited to present this new, consolidated program of training for trustees and fiduciaries NCPERS University features three programs in tandem catering the educational needs of trustees at different points on their journey. For new and novice trustees, we offer the Trustee Educational Seminar. For more advanced practitioners, we present the Program for Advanced Trustee Studies. And for those who wish demonstrate their mastery by pursuing a challenging credential, we offer the NCPERS Accredited Fiduciary Program.

The beauty of NCPERS University is that you can bring trustees and fiduciaries at different levels of your organization for a shared experience, and yet still have programs that are tailored to their level of experience.

As NCPERS University wraps up May 19, ACE gets underway and continues through May 22. Our general sessions feature some of the best thinking happening right now about public pensions and the framework within which they operate. Our general session topics include the five-year outlook, legal updates, insights into artificial intelligence, social investing, and alternative investing.

Some of the highlights I wouldn't want you to miss include Brown University Professor Tom Sgouros's iconoclastic perspective on

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In This Issue

Pensions vs. 401(k)s: Under Which System Do Teachers Fare Better?

By Rocky Joyner

Some studies in the last few years garnered coverage when they tried to show that traditional pensions are no longer the best retirement choice for teachers. However, a study that I co-authored looked at data from six states and found the opposite – 401(k)s and hybrid plans underserve the majority of teachers. A defining difference was that the earlier studies that favored defined contribution (DC) plans did not look closely enough at the demographics and tenure of teachers.

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The Foundation of the Study

The study– funded and published by the National Institute on Retirement Security (NIRS) – looked at public school teachers in Colorado, Connecticut, Georgia, Kentucky, Missouri, and Texas. My co-author Nari Rhee, PhD, the Director of the Retirement Security Program at the UC Berkeley Center for Labor Research and Education, and I examined teacher turnover patterns for the *real-life* teaching workforce in each of these six states to project the final years of service at retirement or separation using the retirement systems' actuarial assumptions.

The analysis considered all possible combinations of age and service at separation when we compared benefits under the existing teacher pension (using the least generous pension benefit tier) and a hypothetical 401(k) with the same contribution rate as the pension.

Do Teacher Attrition Rates Matter?

Simply stated, yes, both tenure and attrition make a significant difference. Most classroom teaching is performed by teachers with long careers – typically 25 or more years in the same state. They tend to retire or separate at around age 58. In fact, 65% of teachers will stay in their state for at least 20 years, and 70% will stay until at least early retirement age. These figures overshadow the one in ten teachers who leave before vesting and the additional two out of ten who remain employed at least until initial vesting.

Applying each state's plan provisions and actuarial assumptions, we found that 77% of teachers in the six states studied would work long enough to see greater value and security from the lowest-tiered pension than from even an idealized 401(k) with low fees, no investment mistakes and no significant economic downturns. Our analysis also concluded that it would cost employers between 20% and 40% more depending on the state in DC plan contributions to match the value of the pension plans in place.

Lessons for School Systems

How do school systems keep good, experienced teachers? With a path to a more secure retirement.

As teacher shortages worsen and low teacher pay pushes them to consider other or supplemental options, better retirement security can prove to be a significant retention tool. Further, retaining more teachers lowers turnover costs.

Teaching is one of those professions where even the gifted get better with experience. The quality of education goes hand in hand with the quality of the teachers. In this way, faculty stability pays dividends for students and the future. ◆

Leon F. "Rocky" Joyner, Jr., *FCA, ASA, MAAA, EA, is a Vice President and Actuary as well as Segal Consulting's Public Sector Retirement Practice Leader. He has over 40 years of actuarial consulting experience with all types of pension plans. He has spoken at numerous conferences on public funding issues, testified before state legislative committees and published articles and newsletters on retirement topics.*

There Are Hidden Risks Lurking in Your Portfolios

By Michael Hunstad, PH.D

All portfolios have embedded risk, but in our experience much of that risk is hidden beneath the surface and therefore unknown to investors. Our experts have conducted in-depth risk/return driver evaluations of more than 100 complex investment portfolios to determine if investors are earning sufficient excess returns for the active risks they are taking—and the fees they are paying. In each instance we have found that investors are surprised by what the analysis uncovers.

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Uncover Your True Exposures

There is a broad array of investment products in the market designed to help investors gain exposure to beta, factor or stock-specific risk. But understanding how each product will impact the aggregate portfolio exposure is critical.

We see many investors targeting factor exposure that is indeed intended. However, when combined with other managers (to form the aggregate portfolio), there is little material factor exposure remaining. Or worse, there is unintended risk exposure. So despite best efforts to target specific exposures to help meet specific objectives, the true exposure at the portfolio level is minimal and the opportunity for success is diminished.

The Most Common Portfolio Miscues

Factor Cancellation
Traditional investing approaches offset underlying factor exposures, creating index-like outcomes with higher fees

Lack of Material Exposure
Investments designed with specific factor tilts have struggled to capture the material exposure necessary to drive performance

Over-Diversification
The potential for outperformance is diversified away because of too many managers or strategies with similar holdings

Misunderstood Attribution
Asset owners pay a premium for fundamental managers, when the factor exposure of those managers may actually be generating the performance, not stock-picking

Learn if the Risks you Take are Compensated

Investors should be compensated for the risks they intended to take, but this often doesn't occur because of issues such as over-diversification. For example, as you increase the number of equity managers in a portfolio, you diversify away active risk. This reduces the opportunity to outperform (without diversifying away the fees).

We believe investors should efficiently target a number of factors that are positively compensated — such as quality, size, low volatility, value or dividend yield — to achieve their objectives. Targeting factors efficiently means minimizing portfolio "noise" caused by unintended risks, such as currencies, sectors and countries. This noise could significantly increase risk without a sufficient increase in expected return.

A New Way to Approach Portfolio Construction

We see many large investors taking a similar approach to portfolio construction, where excess returns are sought after in a traditional ("1.0") core-satellite approach. While this approach has been widely adopted historically,

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NCPERS Corporate Governance

Why Can't Boards Innovate?

By Brad Kelly

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Innovation is fast. For instance, Moore's Law claims that computer processing capabilities will double approximately every two years and surprisingly, this has held true for over 50 years since it was first predicted. Innovations change societies, industries and lives. My mother's parents both passed away at the age of 97 and I was always amazed at the fact that throughout their lives they witnessed the adoption of things such as trains, cars and airplanes that transformed travel; radio and telephone technologies that transformed communication; and at the end of their lives computers and the internet that continue to transform everything (i.e. the internet of everything). Similarly, my wife and I have installed several Google homes throughout our house and as a result, our two very young children will most likely never know a world without access to a virtual assistant and as a result, I often wonder what the lives of today's children will be like and how new technologies will influence and change their lives.

On the contrary, Boards of Directors/Trustees tend to be slow in their evolution and as a result, the external rate of innovation has exponentially increased the risk that these boards are faced with. Board proceedings tend to follow parliamentary procedure first formalized in Henry M. Robert's Rules of Order in 1876 and with only 11 revised editions over a period of 143 years, one can argue that a rate of innovation like Moore's law does not apply to this area. However, in a world of abundant computing technologies, ubiquitous access to internet-enabled information and services and an ever-increasing threat of cyber security, most boards are either still caught in the 1870's or have advanced to the 1990's.

Boards caught in the 1870's are still sending out paper materials to all of its Board members. These are the Boards that have their administrators print, assemble and ship out the infamous "binder packages" one to two weeks in advance of upcoming meetings. Boards members are expected to review the material, lug the package with them (securely) to the meeting, and then either heave the package home (securely) or have the board administrator collect and destroy all of the packages left behind.

More evolved Boards caught in the 1990's have embraced the internet, most notably email, and have chosen to send all of their board materials one to two weeks in advance via email accounts which are often unsecure and susceptible to interception/theft/hacks.

Often, Boards fall victim to member complacency and comfort. When we conduct governance effectiveness assessments, we will often ask Board members why they do the things they do and the response we most frequently hear is "because that is the way we have always done it." This mindset implies that the concept of innovation or improved change is never a topic for discussion or consideration. This makes sense when you consider the fact that most Board members are fulfilling their role in a part-time capacity and often have other things or "day jobs" that they are responsible for. However, not evolving or striving to improve would imply that they are not fulfilling their fiduciary duty of loyalty to the stakeholders, which could also make them liable if there was ever a crisis.

The tools for governance security and facilitated board meeting administration have evolved. Cloud-based platforms ensure secure administration, storage and dissemination of materials, and powerful communication channels. They help to protect the

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__Brad Kelly__ is a Partner at Global Governance Advisors advising Boards and senior management on Executive Compensation, HR Strategy & Governance.

Meeting ESG Investor Needs

By Frances Barney, CFA

Making a difference and investing for the future go hand in hand for an increasing number of individual investors. Several industry studies have shown that millennials—the generation between 18 and 38 years old—are significantly more interested than their respective counterparts in responsible investing. By 2030, Millennials are expected to come into almost $350B of assets through intra-generational and other types of wealth transfer[1]. Given these anticipated demographic and behavioral shifts, it becomes crucially important to understand how socially responsible investing is evolving and what that might mean for investing millennials.

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ESG investing, which focuses on Environmental, Social and Governance factors in investment performance, has traditionally been driven by a sub-set of institutional investors who tend to have long-term investment horizons. A number of notable endowments, family foundations and sovereign wealth funds take it a step further with what's known as impact investing. These impact investors channel their assets to effect positive change in their chosen areas of ethical and environmental concern. In the last year, Bloomberg made headlines when it became the first U.S. corporate plan sponsor to sign onto the U.N.'s Principles for Responsible Investment. It was also one of the first big corporations to offer an ESG-themed equity fund into its 401(k) options. Unsurprisingly, Bloomberg's plan administrators found that it was most popular among millennials. As a plan administrator for state-sponsored 529 savings plans, BNY Mellon has seen one college saving plan introduce an investment option focused on social and environmental criteria—and we anticipate that others may follow suit.

Some of the barriers that have prevented plan administrators from considering ESG options are starting to be addressed. There's a significant body of research to support that taking into account ESG factors can enhance risk-adjusted returns. There are now a number of socially responsible ETFs in the marketplace. As more ESG funds and benchmarks come to market and establish a track record, plan sponsors and other fiduciaries will have more information to help them incorporate ESG into the investment process. Also, more investment managers are integrating ESG practices and creating new products that seek to promote specific areas of ethical concern.

An industry survey revealed that ESG integration in investment analysis—and not exclusionary screening—is the predominant approach that investment managers are using when it comes to sustainable investing[2]. That's great news but assessing ESG risks is not straightforward. There are variations in ESG methodologies, frameworks and reporting, which can be scarce or inconsistent. In order for investment analysts and risk professionals to incorporate ESG into their recommendations, they need consistency in reporting

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Frances Barney, CFA *has twenty-four years of investment industry experience, most of it in performance and risk analytics services. Prior to joining BNY Mellon in 2006, Frances worked at State Street Corporation, where she oversaw one of three regional offices supporting the delivery of performance analytics for its U.S. custody clients and managed the U.S. performance outsourcing service for investment managers and consultants. Prior to that, she worked at Deutsche Bank Trust Company Americas, where she was head of performance analytics. Frances started her career at Bankers Trust, where she held a variety of product and risk management roles in the global markets and investor services divisions. Frances received a B.A. from Yale University, an M.B.A. from The Wharton School of the University of Pennsylvania and is a Chartered Financial Analyst. Frances also consults with the CFA Institute in the ongoing development of the Certificate in Investment Performance Measurement ("CIPM") program.*

Litigation Funding: Extending Access to Justice

By Noah Wortman

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Litigation finance, in its modern form, originated in Australia in the 1990s following legislative reform which recognized legal claims as corporate assets and funding companies emerged to service this market.

The rise of litigation funding in Australia also followed the legalization of class actions in 1992 as an efficient way to deal with group claims.

Litigation Finance Spreads Across the Globe

Litigation funding has since become an integral part of mainstream civil justice systems to facilitate access to justice. Litigation funders finance the cost of proceedings in exchange for a portion of the recovery, and frequently coordinate investor-claimants, provide access to legal resources, and (in some cases) underwrite the risk of "adverse costs."

While litigation funding is now an international phenomenon, financing activity has concentrated in common law jurisdictions which contend with high costs of litigation that impede access to justice. Litigation funding has the potential to equalize the power of litigants and provide new risk reallocation products to corporations and institutional investors.

Non-U.S. Securities Class Action Litigation

Non-US securities class actions have risen since the U.S. Supreme Court's 2010 decision in *Morrison v. National Bank of Australia Ltd*. The Court held that the U.S. federal securities laws apply only to securities purchased on domestic stock exchanges. Since then, investors have increasingly turned to forums across the globe to recoup losses and assert their rights as shareholders associated with securities purchased or sold outside the U.S. Indeed, shareholder securities litigations filed against RBS and Tesco (UK), Volkswagen (Germany), Danske Bank (Denmark), and Olympus and Toshiba (Japan) have settled or are working their way through their respective court systems.

Certain jurisdictions have laws on how litigation is funded, which make for significant practical distinctions as compared with participation in U.S. class actions. For example, in contrast to a typical U.S. securities class action, many countries (eg., Australia, Hong Kong, Singapore, France and Germany) prohibit or restrict contingency fee agreements by lawyers.

Another crucial difference is that the U.S. system generally does not require the losing party to pay costs or legal fees, whereas many non-U.S. jurisdictions have a "loser pays" obligation. This "adverse costs" risk, can double the financial risk of litigation).

CONTINUED ON PAGE 10

Noah Wortman *joined IMF Bentham in July 2018 as Business Development Manager (Global Investor Recoveries) and splits his time between Philadelphia and London with a global remit covering North America, the UK and Europe, Australia and Asia.*

Noah has extensive experience advocating for investors, promoting corporate governance, and implementing strategies to achieve collective redress. He is responsible for account management and assisting IMF Bentham's international network institutional investors (including financial institutions, superannuation, sovereign wealth, and pension funds) to recover their investment losses, for example through shareholder or bondholder class actions. He is also a frequent speaker around the globe on the topic of shareholder legal redress, recovery, rights and responsibilities.

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MESSAGE FROM PRESIDENT CONTINUED FROM PAGE 1

pension accounting standards and a candid panel discussion featuring pension plan CEOs from around the nation. We'll also take a deep dive into the implications of the Supreme Court's Janus decision, which overturned decades of precedent regarding the payment of union dues by public employees.

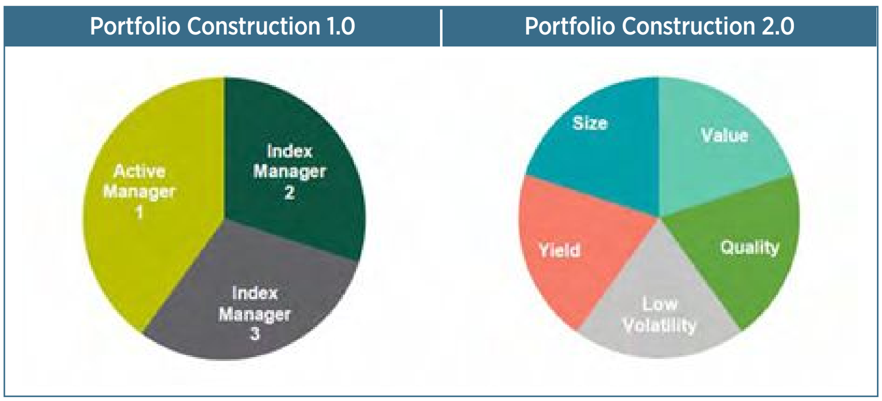
And that's only the general sessions. We will also offer 17 concurrent sessions over three days, enabling participants to tailor their attendance at Annual to best meet their needs.

Finally, I can't overstate the importance of the networking opportunities you get by attending ACE. In the exhibit hall and during breakfasts, lunches, refreshment breaks, receptions, and a closing dinner on May 22, members can mix with one another and share ideas and insights. There's nowhere else a public pension official can go to find such a high concentration of people whose work resembles his or her own.

I hope you'll be able to carve time out of your busy schedule to join us in Austin May 18-22! ◆

ASSET MANAGER CONTINUED FROM PAGE 3

our research has shown that excess returns are being driven by the underlying factor exposure. So we believe that's where the portfolio construction process should begin.



Portfolio Construction 2.0 is a new way to approach investing that focuses on targeting the compensated factors that most appropriately align with your desired outcomes. This factor-based approach is designed to capture the material exposure necessary to achieve objectives at the portfolio level. The hypothetical illustration below shows how a traditional equity portfolio might be viewed through this approach.

WHAT INVESTORS CAN DO

Portfolio factor analysis takes a deep-dive into the exposures of an asset owner's portfolio and reveals how those exposures align with their intended strategy. An analysis (which we at Northern Trust Asset Management perform for clients) captures how efficiently the current products may capture intended targets. It also offers additional context on how the portfolio could be optimized to potentially deliver more efficient exposure to desired factors. ◆

__Michael Hunstad__ is the head of Quantitative Strategies at Northern Trust Asset Management. Mike was a featured speaker as part of a breakout session on asset allocation and portfolio construction at the 2018 NCPERS Ace Conference. Prior to joining Northern, Mike was head of research at Breakwater Capital, a proprietary trading firm and hedge fund. Other roles included head of quantitative asset allocation at Allstate Investments, LLC and quantitative analyst with a long-short equity hedge fund. Michael holds a PhD in mathematics, an MA in economics and an MBA in quantitative finance.

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CORPORATE GOVERNANCE CONTINUED FROM PAGE 4

work of the Board and the interests of its stakeholders. But this is often seen as new, different, and NOT the way Boards historically did things. Besides, it may require something new like a secure "login" and a "password"; or enable people to fully participate in meetings from faraway places; or simply just make their lives easier.

People were still comfortable using horses and wagons when my grandparents were first born, however, it never stopped them from traveling by train, airplane, or purchasing cars throughout their lifetime.

Boards don't need to innovate as fast as Moore's Law, they just need to understand that comfortably relying on their printed binder packages or unsecure email distribution of material is outdated, inefficient, and risky. But that is okay, this is the way they have always done things – and no one will judge them when they arrive at their meetings in their horse and buggies.

If technology tools for governance exist, for the ease of the board and the interests of its stakeholders, maybe it's time they innovate. ◆

CUSTODIAN BANK CONTINUED FROM PAGE 5

and common best practices to build upon. However, it's important to remember that the field of ESG is not static and even definitions and measures for ESG are likely to evolve. At BNY Mellon, we're experimenting with a number of data sources to help address these gaps. We expect to evolve our ESG solutions as regulations, investor demands and technology continue to evolve. ◆

[1] Deloitte University Press—The Future of Wealth in the United States (2015), pg 6. Retrieved from https://www2.deloitte.com/content/dam/insights/us/articles/us-generational-wealth-trends/DUP_1371_Future-wealth-in-America_MASTER.pdf

[2] CFA Institute—Environmental, Social and Governance Survey (May 2017), https://www.cfainstitute.org/en/research/survey-reports/esg-survey-2017

The views expressed herein are those of the authors only and may not reflect the views of BNY Mellon.

LEGAL CONTINUED FROM PAGE 6

These factors have increased demand for third-party funding for securities litigations and inspired investors to come together to litigate common claims against defendants with deep pockets on a "no-win, no-fee" basis, with the financial risks outsourced to the third-party funder.

Litigation Finance is Here to Stay

Historically, well-resourced parties had advantages in litigation - they could afford the best lawyers and experts and overwhelm less resourced parties.

Institutional investors realize third-party funding can be a sensible way of managing risk. Sharing some equity in a successful outcome provides certainty instead of exposure; and partnering with specialists can save internal resources, while increasing the prospects of a favorable outcome.

As the English Court of Appeal held in its 2016 decision in *Excalibur Ventures LLC v Texas Keystone Inc & Ors*, "[l]itigation funding is an accepted and judicially sanctioned activity perceived to be in the public interest." ◆

Calendar of Events 2018

May

NCPERS Accredited Fiduciary Program (All modules)
May 18 – 19
Austin, TX

Trustee Educational Seminar
May 18 – 19
Austin, TX

Annual Conference & Exhibition (ACE)
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Chief Officers Summit (COS)
June 13 – 14
Chicago, IL

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Public Pension Funding Forum
September 11 – 13
New York, NY

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October 26 – 27
New Orleans, LA

Public Safety Conference
October 27 – 30
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PERSist is published by the National Conference on Public Employee Retirement Systems.
Website: www.NCPERS.org • E-mail: amanda@ncpers.org