

AGENDA



Date: May 26, 2022

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 2, 2022, in the Second Floor Board Room at 4100 Harry Hines Boulevard, Dallas, Texas and via telephone conference for audio at 214-271-5080 access code 588694 or Toll-Free (US & CAN): 1-800-201-5203 and Zoom meeting for visual <https://us02web.zoom.us/j/89963219920?pwd=dGsxUmdtb3lTdnlrN00vTzZjTVh4Zz09> Passcode: 055302.** 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 #1 of May 12, 2022
- b. Regular meeting of May 12, 2022

2. Approval of Refunds of Contributions for the Month of May 2022

- 3. Approval of Activity in the Deferred Retirement Option Plan (DROP) for June 2022**
- 4. Approval of Estate Settlements**
- 5. Approval of Survivor Benefits**
- 6. Approval of Service Retirements**
- 7. Approval of Earnings Test**
- 8. Spouse Wed After Retirement (SWAR)**
- 9. Approval of Payment of Previously Withdrawn Contributions**

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

- 1. Employee Handbook and Policies**
- 2. Communication Plan Update**
- 3. Monthly Contribution Report**

4. Board approval of Trustee education and travel

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

5. Financial Audit Status

6. Portfolio Update

7. Meketa Market Update & Quarterly Performance Reports

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.

8. 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 or any other legal matter in which the duty of the attorneys to DFPF and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.

9. Closed Session - Board serving as Medical Committee

Discussion of the following will be closed to the public under the terms of Section 551.078 of the Texas Government Code:

Disability application 2022-2

D. BRIEFING ITEMS

- 1. Public Comment**
- 2. Executive Director's report**
 - a. Associations' newsletters
 - NCPERS PERSist (Spring 2022)
 - b. Open Records
 - c. Non-member Trustee Election Update

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.



MOMENT OF SILENCE

In memory of our Members and Pensioners who recently passed away

NAME	ACTIVE/ RETIRED	DEPARTMENT	DATE OF DEATH
Clarence E. Jennings	Retired	Police	Apr. 13, 2022
Michael L. Kidd, Sr.	Retired	Police	May 7, 2022
D. L. Greene	Retired	Fire	May 11, 2022
Douglas H. May	Retired	Fire	May 12, 2022
John A. Reeves	Retired	Police	May 16, 2022
G. L. Waddleton, Sr.	Retired	Fire	May 19, 2022

Regular Board Meeting –Thursday, June 2, 2022

**Dallas Police and Fire Pension System
Thursday, May 12, 2022
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX**

Required Public meeting, Nicholas A. Merrick, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:32 a.m. Nicholas A. Merrick, William F. Quinn, Armando Garza, Michael Brown, Robert B. French, Gilbert A. Garcia (by telephone), Kenneth Haben, Tina Hernandez Patterson, Steve Idoux (by telephone)

Absent: Mark Malveaux

Staff

Kelly Gottschalk, Josh Mond, Ryan Wagner, Brenda Barnes, John Holt, Greg Irlbeck Akshay Patel, Milissa Romero

Others

David Elliston, Glenn Stone, James Freeman, Carolyn Freeman, Lester Mount, Dale Erves, Julian Bernal, Sally Lannom, Dwight Walker, Michael Taglienti, Aaron Anderson, Rick Salinas, Kristi Walters, William Hunt, Cheryl Hunt, Armando M. Vidal, David Potts, Tommy R. Buggs

* * * * *

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 Required Public meeting was called to order at 8:32 a.m.

* * * * *

- 1. Report on the health and performance of the Pension System**
 - a. Quarterly Financial Reports**
 - b. Monthly Contribution Report**

**Required Public Meeting
Thursday, May 12, 2022**

1. Report on the health and performance of the Pension System (continued)

- a. The Chief Financial Officer presented the first quarter 2022 financial statements.
- b. The Executive Director reviewed the Monthly Contribution Report.

No motion was made.

* * * * *

2. Public Comment

Prior to commencing items for Board discussion and deliberation, the Board received public comments during the open forum.

* * * * *

Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Quinn and a second by Mr. Garza, the meeting was adjourned at 9:13 a.m.

Nicholas A. Merrick
Chairman

ATTEST:

Kelly Gottschalk
Secretary

**Dallas Police and Fire Pension System
Thursday, May 12, 2022
8:30 a.m.
4100 Harry Hines Blvd., Suite 100
Second Floor Board Room
Dallas, TX**

Regular meeting, Nicholas A. Merrick, Chairman, presiding:

ROLL CALL

Board Members

Present at 8:32 a.m. Nicholas A. Merrick, William F. Quinn, Armando Garza, Michael Brown, Robert B. French, Gilbert A. Garcia (by telephone), Kenneth Haben, Tina Hernandez Patterson, Steve Idoux (by telephone)

Absent: Mark Malveaux

Staff

Kelly Gottschalk, Josh Mond, Brenda Barnes, Ryan Wagner, John Holt, Greg Irlbeck, Akshay Patel, Milissa Romero

Others

David Elliston, Glenn Stone, James Freeman, Carolyn Freeman, Lester Mount, Dale Erves, Julian Bernal, Sally Lannom, Dwight Walker, Michael Taglienti, Aaron Anderson, Rick Salinas, Kristi Walters, William Hunt, Cheryl Hunt, Armando M. Vidal, David Potts, Tommy R. Buggs

* * * * *

The Regular meeting was called to order and recessed at 8:32 a.m.

The Regular meeting was reconvened at 9:13 a.m.

* * * * *

A. MOMENT OF SILENCE

The Board observed a moment of silence in memory of retired police officer Alfred J. Watkins, Oscar F. Shinpaugh, Gregory T. Smith, Walter M. Clifton, Jr., Sam W. Wooley, John W. Sullivan, Ricky J. McGee, James A. Pierce, Melvin H. Bell, active firefighter Allarry K. Daniels, and retired firefighters Larry T. Gatchel, Frank R. Gamez, Richard D. Timmons, Raymond C. Lee, Denzil L. Cooper, D. W. Jones.

No motion was made.

**Regular Board Meeting
Thursday, May 12, 2022**

* * * * *

B. CONSENT AGENDA

1. Approval of Minutes

Regular meeting of April 14, 2022

- 2. Approval of Refunds of Contributions for the Month of April 2022**
- 3. Approval of Estate Settlements**
- 4. Approval of Survivor Benefits**
- 5. Approval of Service Retirements**
- 6. Approval of Alternate Payee Benefits**

After discussion, Mr. Garza made a motion to approve the minutes of the meeting of April 14, 2022. Mr. Haben seconded the motion, which was unanimously approved by the Board.

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

* * * * *

C. DISCUSSION AND POSSIBLE ACTION REGARDING ITEMS FOR INDIVIDUAL CONSIDERATION

1. Quarterly Financial Reports

The Chief Financial Officer presented the first quarter 2022 financial statements.

No motion was made.

**Regular Board Meeting
Thursday, May 12, 2022**

* * * * *

2. Monthly Contribution Report

The Executive Director reviewed the Monthly Contribution Report.

No motion was made.

* * * * *

3. Active-Duty Survivor Benefits

The Chairman established a committee at the January 2022 Board meeting to review and consider enhancements to DPFP benefits provided to the surviving spouse of a member who dies while on active service with the City of Dallas. The Board and staff discussed considerations, recommendations, and proposed next steps regarding Active-Duty Survivor Benefits.

No motion was made.

* * * * *

4. Employee Handbook and Policies

The Executive Director discussed the key provision and significant changes of the draft Employee Handbook which is intended to consolidate and update various personnel-related policies and procedures and will seek the Board's approval at the June 2022 Board meeting.

No motion was made.

* * * * *

5. Board approval of Trustee education and travel

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

The Board and staff discussed future Trustee education. There was no investment-related travel scheduled.

No motion was made.

* * * * *

**Regular Board Meeting
Thursday, May 12, 2022**

6. Portfolio Update

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

No motion was made.

* * * * *

7. Natural Resources Portfolio Review – BTG Pactual

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

The meeting was reopened at 10:36 a.m.

Staff provided an overview of the Natural Resources portfolio and the strategy for DFPF’s timber holdings managed by BTG Pactual.

No motion was made.

* * * * *

8. 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 or any other legal matter in which the duty of the attorneys to DFPF and the Board under the Texas Disciplinary Rules of Professional Conduct clearly conflicts with Texas Open Meeting laws.

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

The meeting was reopened at 10:36 a.m.

The Board and staff discussed legal issues.

No motion was made.

* * * * *

**Regular Board Meeting
Thursday, May 12, 2022**

9. Closed Session - Board serving as Medical Committee

Disability application 2022-2

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

The meeting was reopened at 10:36 a.m.

After discussion, Mr. Garza made a motion to delegate authority to Michael Brown, Robert French, and Ken Haben to determine whether to grant disability application 2022-2 provided that if such determination is not unanimous then the application shall be presented to the Board at the June 2022 Board meeting. Ms. Hernandez Patterson seconded the motion, which was unanimously approved by the Board.

Mr. Haben was not present for the vote.

* * * * *

D. BRIEFING ITEMS

1. Public Comments

Prior to commencing items for Board discussion and deliberation, the Board received public comments during the open forum.

* * * * *

**Regular Board Meeting
Thursday, May 12, 2022**

2. Executive Director's report

- a. Associations' newsletters
 - NCPERS Monitor (May 2022)
- b. Open Records
- c. Non-member Trustee Election Update
- d. Ethics Policy Certification

The Executive Director's report was presented.

* * * * *

Ms. Gottschalk stated that there was no further business to come before the Board. On a motion by Mr. Quinn and a second by Ms. Hernandez Patterson the meeting was adjourned at 10:39 a.m.

Nicholas A. Merrick
Chairman

ATTEST:

Kelly Gottschalk
Secretary



DISCUSSION SHEET

ITEM #C1

Topic: Employee Handbook and Policies

Discussion: At the May 2022 Board meeting, staff reviewed the key provisions and significant changes of the draft Employee Handbook which is intended to consolidate and update various personnel-related policies and procedures. The Employee Handbook contains five sections: Governing Principles of Employment, Operational Policies, Benefits, Leave of Absence and General Standards of Conduct.

The Employee Handbook will replace more than a dozen policies.

Staff

Recommendation: **Approve** the proposed Employee Handbook as presented and **authorize** the Executive Director to rescind obsolete policies.

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

ITEM #C2

Topic: **Communication Plan**

Discussion: During the November 2020 Board meeting the Board directed the Executive Director to develop a communication plan related to funding issues. The status of this project will be discussed.

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

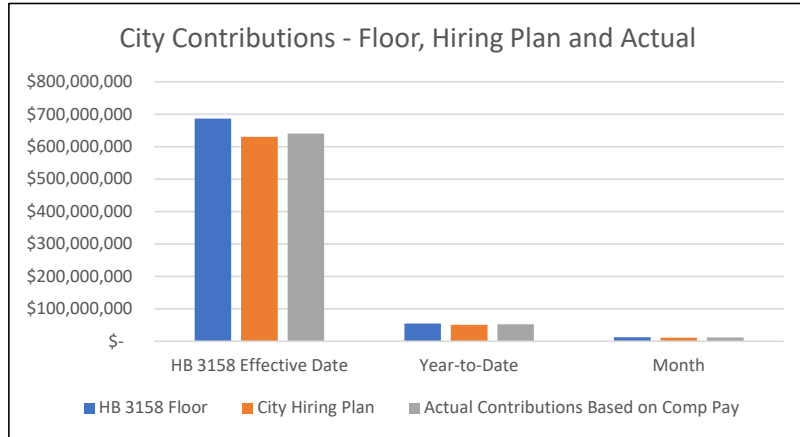
ITEM #C3

Topic: Monthly Contribution Report

Discussion: Staff will review the Monthly Contribution Report.

Regular Board Meeting – Thursday, June 2, 2022

Contribution Tracking Summary - June 2022 (April 2022 Data)



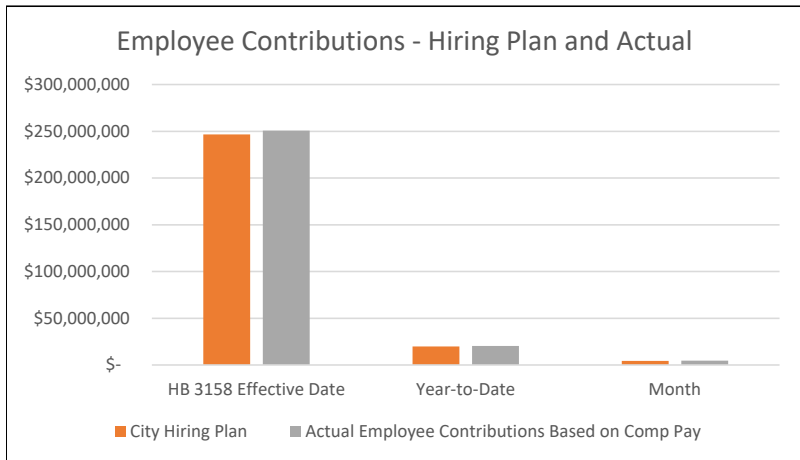
Actual Comp Pay was 102% of the Hiring Plan estimate since the effective date of HB 3158.

In the most recent month Actual Comp Pay was 103% of the Hiring Plan estimate and 96% of the Floor amount.

The Hiring Plan Comp Pay estimate increased by 3.43% in 2022. The Floor increased by 2.74%.

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

The combined actual employees was 183 less than the Hiring Plan for the pay period ending May 10, 2022. Fire was over the estimate by 35 fire fighters and Police under by 218 officers.



Employee contributions exceeded the Hiring Plan estimate for the month, the year and since inception.

There is no Floor on employee contributions.

Contribution Summary Data

City Contributions

Apr-22	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	\$ 12,086,000	\$ 11,199,231	\$ 11,576,614	\$ 509,386	96%	103%
Year-to-Date		\$ 54,387,000	\$ 50,396,538	\$ 51,891,389	\$ 2,495,611	95%	103%
HB 3158 Effective Date		\$ 686,490,000	\$ 629,916,923	\$ 640,704,213	\$ 45,859,494	93%	102%

*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-22	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	\$ 4,382,308	\$ 4,529,740	\$ 147,432	\$ 4,236,924	103%	107%
Year-to-Date		\$ 19,720,385	\$ 20,304,345	\$ 583,960	\$ 19,066,158	103%	106%
HB 3158 Effective Date		\$ 246,489,231	\$ 250,553,257	\$ 4,064,026	\$ 240,725,812	102%	104%

Potential Earnings Loss from the Shortfall based on Assumed Rate of Return \$ (299,298)

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	\$ 1,885,417	95%
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 2020-2024 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 & 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)	*
2019 Estimate (1/1/2019 Valuation)		
2019 Employee Contribution Assumption	\$ 9,278	*
<i>*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, 12-31-18 and 12-31-2019 this did not impact the pension liability or the funded percentage.</i>		

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						
Year	Computation Pay			Number of Employees		
	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	\$ 386,017,378	\$ 3,017,378	5,038	5,104	66
2020	\$ 396,000,000	\$ 421,529,994	\$ 25,529,994	5,063	4,988	(75)
2021	\$ 408,000,000	\$ 429,967,675	\$ 21,967,675	5,088	4,958	(130)
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 - 2022	Annual Divided by 26 Pay Periods	Actual	Difference	2022 Cumulative Difference	Number of Employees EOM	Difference
January	\$ 32,461,538	\$ 33,363,143	\$ 901,604	\$ 901,604	4946	(167)
February	\$ 32,461,538	\$ 33,314,230	\$ 852,692	\$ 852,692	4943	(170)
March	\$ 48,692,308	\$ 50,179,220	\$ 1,486,912	\$ 1,486,912	4937	(176)
April	\$ 32,461,538	\$ 30,064,903	\$ (2,396,635)	\$ (2,396,635)	4930	(183)
May	\$ 32,461,538					
June	\$ 32,461,538					
July	\$ 32,461,538					
August	\$ 48,692,308					
September	\$ 32,461,538					
October	\$ 32,461,538					
November	\$ 32,461,538					
December	\$ 32,461,538					



DISCUSSION SHEET

ITEM #C4

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.

Regular Board Meeting – Thursday, June 2, 2022

**Future Education and Business Related Travel & Webinars
Regular Board Meeting – June 2, 2022**

ATTENDING APPROVED

- 1. Conference: TEXPERS Summer Education Forum**
Dates: August 21-23, 2022
Location: El Paso, TN
Est Cost: TBD

- 2. Conference: NCPERS Public Safety Conference**
Dates: October 25-28, 2022
Location: Nashville, TN
Est Cost: TBD



DISCUSSION SHEET

ITEM #C5

Topic: Financial Audit Status

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

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

ITEM #C6

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 2, 2022



D A L L A S
POLICE & FIRE
PENSION SYSTEM



Portfolio Update

June 2nd, 2022

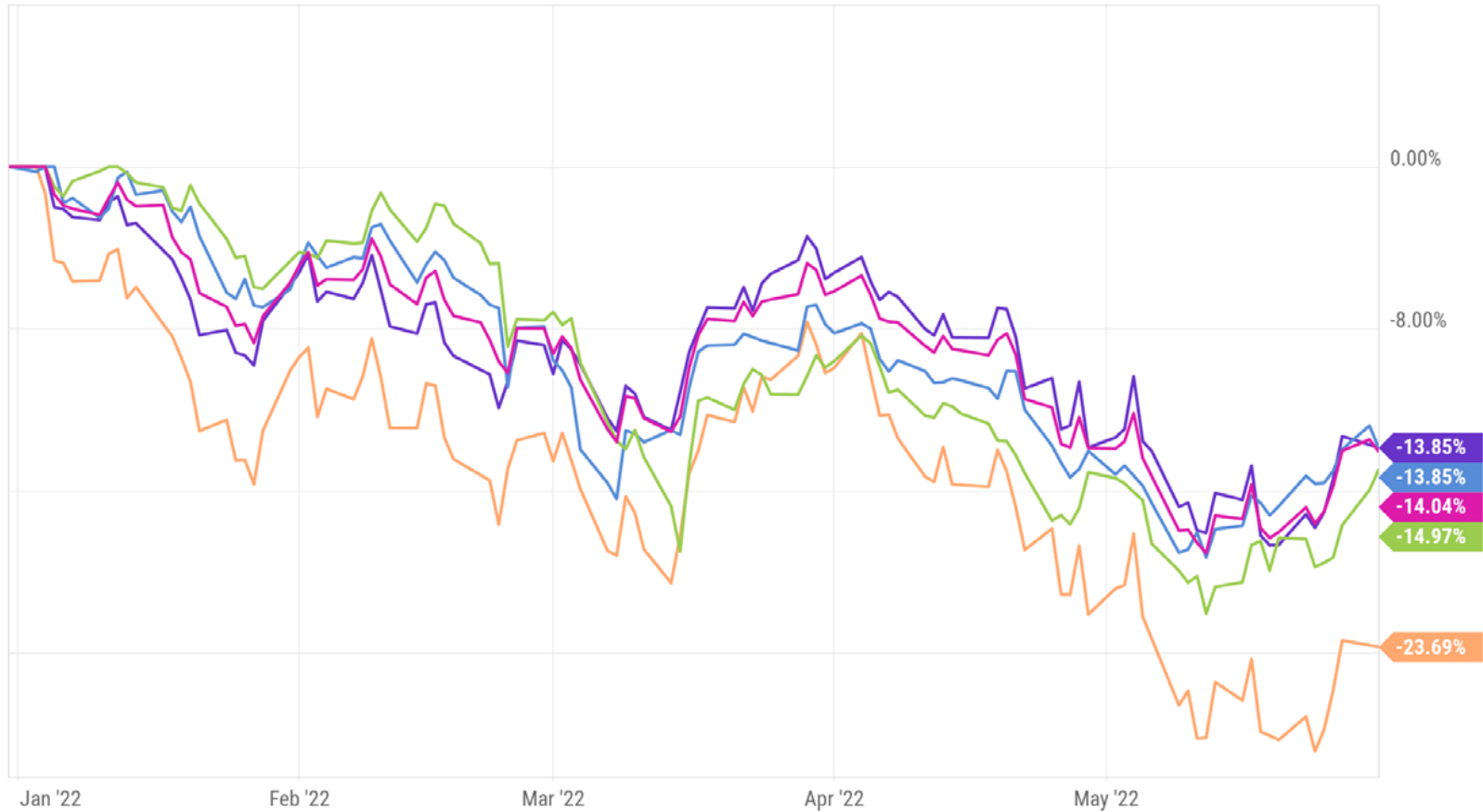
Executive Summary

- Liquidation of private market assets remains the top focus.
 - \$14.6M in distributions received YTD as of 5/31/22. \$25M+ in distributions expected over next few months.
- At the March Board meeting, staff notified the Board that the Safety Reserve would be drawn down to fund net benefit outflows.
- EM Debt Search underway. RFP has been issued to 7 firms with responses due on June 6th. Plan to have IAC interview Finalists at July meeting.
- **Rebalancing Actions:**
 1. Fund **\$40M to Global Alpha**, new International Small Cap manager, from the Northern Trust ACWI IMI passive index fund.
 2. Redeem **\$5M from Pacific Asset Management**, the Bank Loans manager to be redeployed into Global Equity.
 3. Rebalance to equal weight **4 active Global Equity Managers** (estimated amounts detailed on pg. 8, will shift based on market movements)
- Estimated Year-to-Date Return (as of 5/31/22): -7.4% for DPFP portfolio; -11.3% for Public Markets (ex-Cash) which accounts for 67% of the assets.

Equity Market Correction

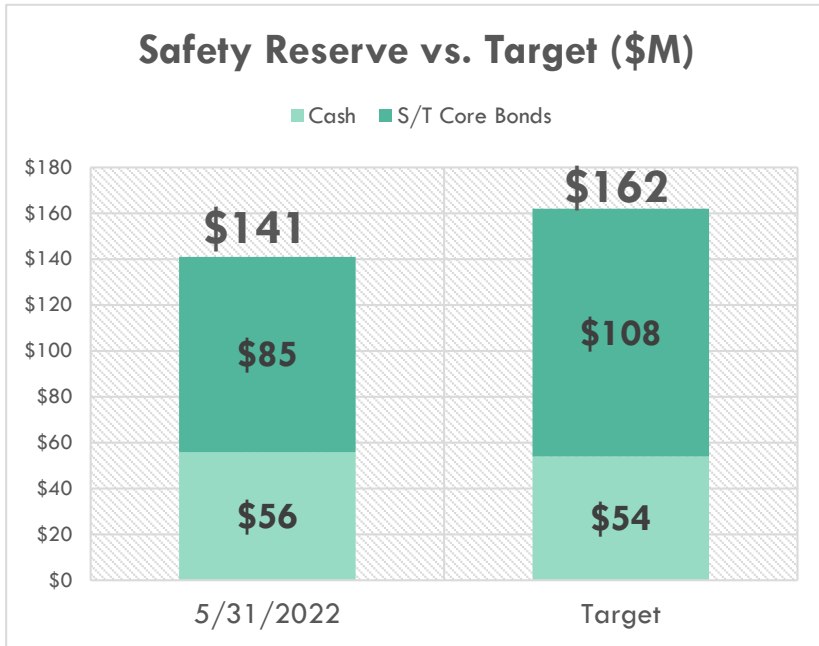
Equity Indices - % Off High YTD (Thru 5/31/22)

- S&P 500 Level % Off High
- Nasdaq Composite Level % Off High
- MSCI EAFE Level % Off High
- MSCI Emerging Markets Level % Off High
- MSCI ACWI IMI Level % Off High

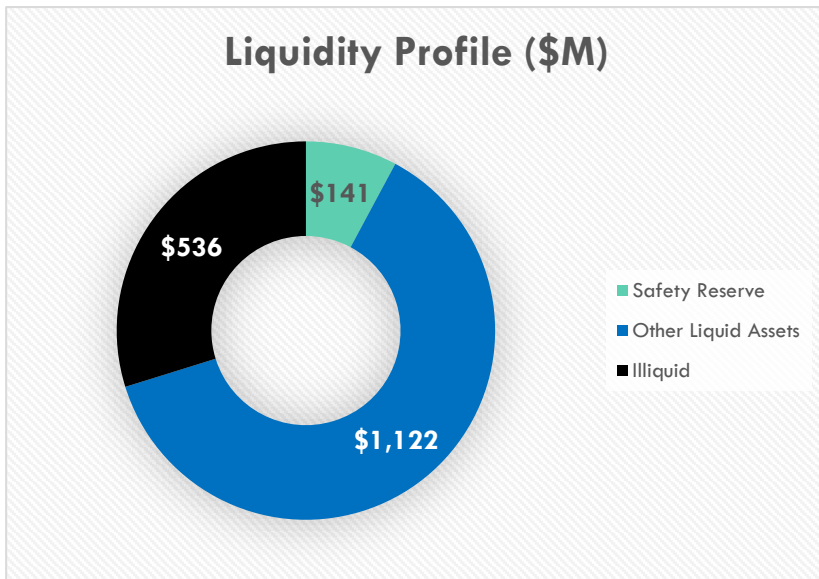


Jun 01 2022, 9:22AM EDT. Powered by YCHARTS

Safety Reserve Dashboard – As of 5/31/22



Projected Net Monthly outflows of **\$9.3M** per month. Safety Reserve of **\$141M** would cover net monthly outflows for next **15 months** or through **August 2023**.



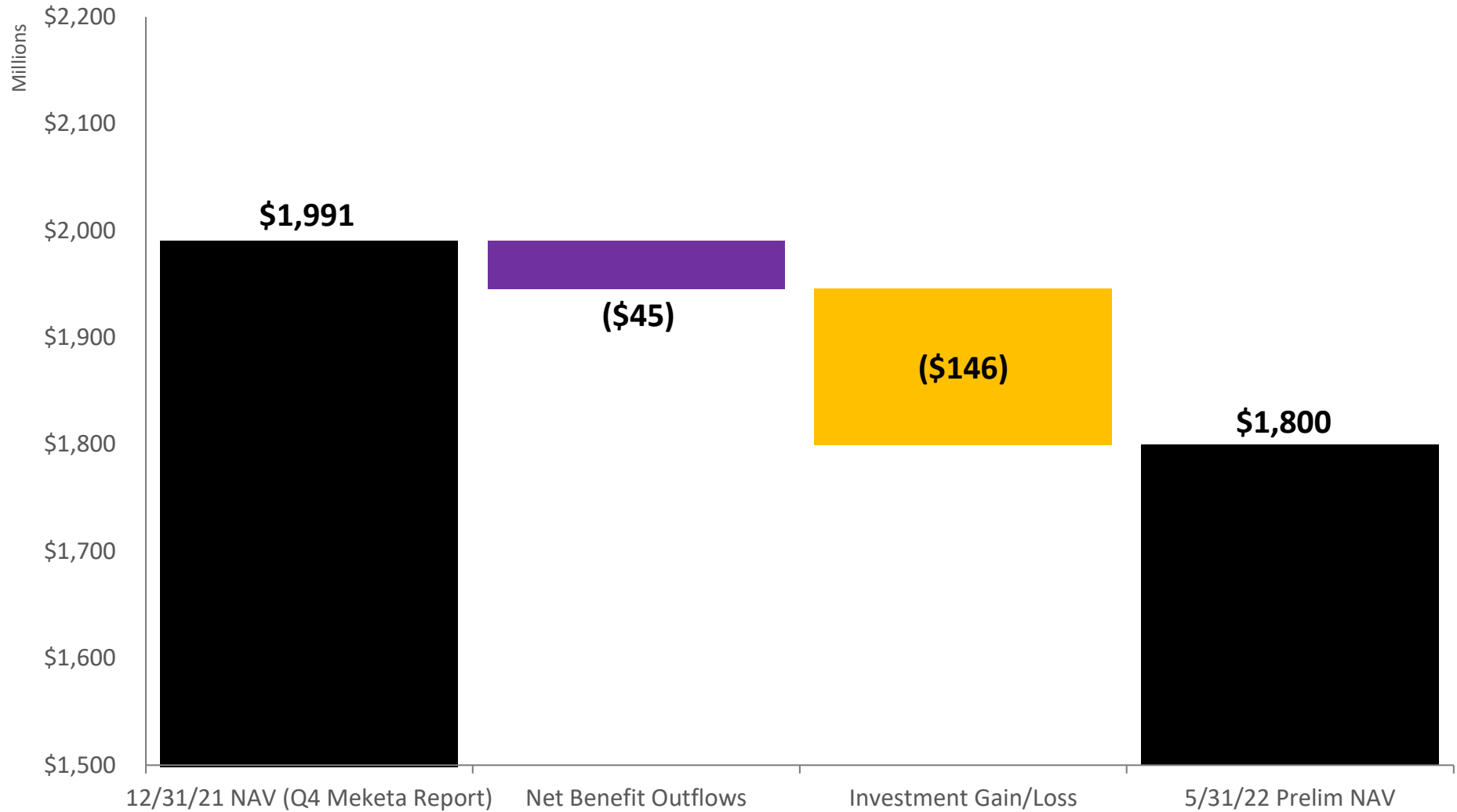
Expected Cash Activity	Date	Amount (\$M)	Projected Cash Balance (\$M)	Projected Cash (%)
	5/27/22		\$55.9	3.1%
Global Alpha Funding	5/31/22	(\$40.0)	\$15.9	0.9%
NT Proceeds	6/3/22	\$40.0	\$55.9	3.1%
City Contribution	6/10/22	\$8.7	\$64.6	3.6%
City Contribution	6/24/22	\$8.7	\$73.3	4.1%
Pension Payroll	6/28/22	(\$27.5)	\$45.8	2.5%
City Contribution	7/8/22	\$8.7	\$54.5	3.0%
City Contribution	7/22/22	\$8.7	\$63.2	3.5%
Pension Payroll	7/27/22	(\$27.5)	\$35.7	2.0%

Projected Cash activity includes expected benefit contributions, payments, and material expected capital calls or expenses. Numbers may not foot due to rounding

2022 YTD Change in Market Value Bridge Chart

In Millions

2022 YTD Investment Return estimated at -7.4%



Numbers may not foot due to rounding.

Public Markets Performance Snapshot - Estimates

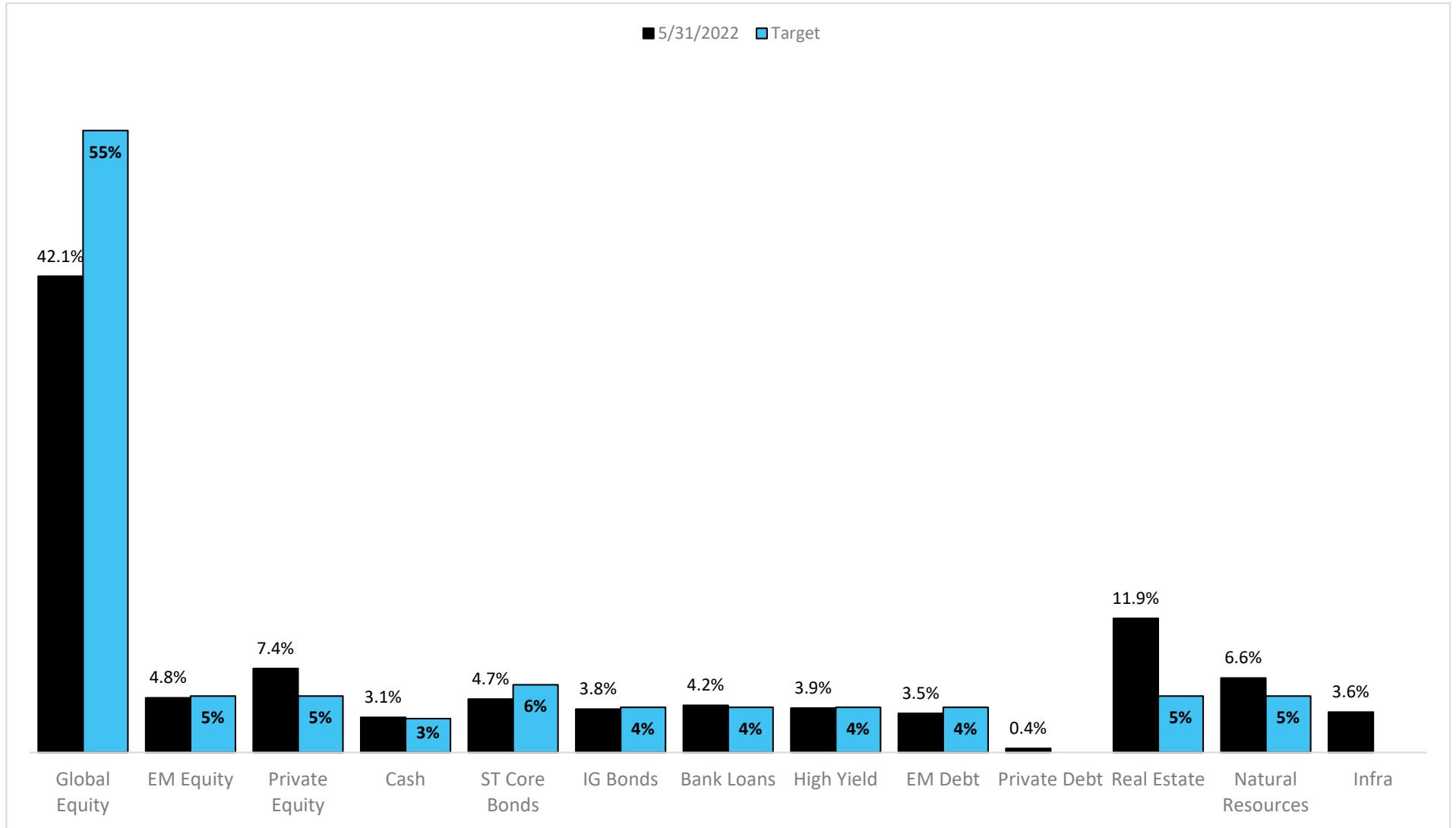
Public Markets (ex-Cash) currently make up 67% of DFPF Investment Portfolio.

Net of fees	Index	MTD as of 5/31/22			YTD as of 5/31/2022			3 Year Trailing as of 5/31/2022		
		Manager	Index	Excess	Manager	Index	Excess	Manager	Index	Excess
Total Public Portfolio (ex-Cash)	60% ACWI IMI/40% Global AGG	0.6%	0.1%	0.5%	-11.3%	-12.1%	0.8%	6.8%	6.3%	0.5%
Global Equity	MSCI ACWI IMI	1.1%	0.1%	1.1%	-13.6%	-13.0%	-0.6%	11.5%	11.5%	0.0%
Boston Partners	MSCI World	4.1%	0.1%	4.0%	-1.4%	-13.0%	11.6%	13.7%	12.7%	1.0%
Manulife	MSCI ACWI	2.3%	0.1%	2.2%	-10.4%	-12.9%	2.5%	11.1%	11.7%	-0.6%
Invesco (OFI)	MSCI ACWI	-0.8%	0.1%	-0.9%	-25.7%	-12.9%	-12.8%	8.6%	11.7%	-3.2%
Walter Scott	MSCI ACWI	-0.9%	0.1%	-1.0%	-17.2%	-12.9%	-4.3%	11.1%	11.7%	-0.6%
Northern Trust ACWI IMI Index*	MSCI ACWI IMI	0.5%	0.1%	0.5%	-12.7%	-13.0%	0.2%	11.9%	11.5%	0.4%
Eastern Shore US Small Cap*	Russell 2000	1.7%	0.2%	1.5%	-19.6%	-16.5%	-3.0%	8.4%	9.7%	-1.3%
EM Equity - RBC	MSCI EM IMI	1.4%	0.2%	1.3%	-10.1%	-11.6%	1.5%	5.2%	5.7%	-0.6%
Public Fixed Income (ex-Cash)	BBG Multiverse TR	-0.6%	0.3%	-0.8%	-7.2%	-11.0%	3.8%	0.3%	-1.3%	1.7%
S/T IG Bonds - IR+M	BBG 1-3YR AGG	0.4%	0.6%	-0.2%	-2.6%	-2.4%	-0.1%	1.1%	0.6%	0.5%
IG Bonds - Longfellow*	BBG US AGG	0.0%	0.6%	-0.7%	-9.3%	-8.9%	-0.4%	0.3%	0.0%	0.3%
Bank Loans - Pacific Asset Mgmt.	CS Leveraged Loan	-2.5%	-2.5%	0.0%	-2.3%	-2.4%	0.1%	2.9%	2.8%	0.1%
High Yield - Loomis Sayles*	BBG USHY 2% Cap	0.0%	0.2%	-0.2%	-8.5%	-8.0%	-0.5%	2.2%	3.2%	-1.1%
EM Debt - Ashmore	50% EMBI / 25% ELM I / 25% GBI-EM	-0.7%	-0.7%	0.0%	-15.5%	-13.5%	-2.0%	-6.7%	-2.8%	-3.9%

Source: JPM Morgan custody data, manager reports, Investment Staff estimates and calculations. Numbers may not foot due to rounding.

* - 3 yr trailing performance is based on composite data due to inception date with DFPF being less than 3 years.

Asset Allocation – Actual vs Target



Asset Allocation & Rebalancing Detail

DPPF Asset Allocation	5/31/2022			6/15 Pro Forma Actual		6/15 Pro Forma Target		6/15 Pro Forma Variance	
	NAV	%	Rebalancing	NAV	%	\$ mil.	%	\$ mil.	%
Global Equity	758	42.1%	5	763	42.4%	990	55%	-227	-12.6%
<i>Boston Partners</i>	147	8.1%	-18	129	7.1%	144	8%	-15	-0.9%
<i>Manulife</i>	134	7.4%	-6	128	7.1%	144	8%	-16	-0.9%
<i>Invesco (OFI)</i>	106	5.9%	23	129	7.2%	144	8%	-15	-0.8%
<i>Walter Scott</i>	123	6.8%	6	129	7.1%	144	8%	-15	-0.9%
<i>Northern Trust ACWI IMI Index</i>	216	12.0%	-40	176	9.8%	270	15%	-94	-5.2%
<i>Eastern Shore US Small Cap</i>	33	1.8%		33	1.8%	72	4%	-39	-2.2%
<i>Global Alpha Intl Small Cap</i>	0	0.0%	40	40	2.2%	72	4%	-32	-1.8%
Emerging Markets Equity - RBC	87	4.8%		87	4.8%	90	5%	-3	-0.2%
Private Equity*	134	7.4%		134	7.4%	90	5%	44	2.4%
Fixed Income	425	23.6%	-5	420	23.3%	450	25%	-30	-1.7%
Cash	56	3.1%		56	3.1%	54	3%	2	0.1%
S/T Investment Grade Bonds - IR+M	85	4.7%		85	4.7%	108	6%	-23	-1.3%
Investment Grade Bonds - Longfellow	69	3.8%		69	3.8%	72	4%	-3	-0.2%
Bank Loans - Pacific Asset Management	75	4.2%	-5	70	3.9%	72	4%	-2	-0.1%
High Yield Bonds - Loomis Sayles	71	3.9%		71	3.9%	72	4%	-1	-0.1%
Emerging Markets Debt - Ashmore	62	3.5%		62	3.5%	72	4%	-10	-0.5%
Private Debt*	6	0.4%		6	0.4%	0	0%	6	0.4%
Real Assets*	396	22.0%		396	22.0%	180	10%	216	12.0%
Real Estate*	213	11.9%		213	11.9%	90	5%	123	6.9%
Natural Resources*	119	6.6%		119	6.6%	90	5%	29	1.6%
Infrastructure*	64	3.6%		64	3.6%	0	0%	64	3.6%
Total	1,800	100.0%	0	1,800	100.0%	1,800	100%	0	0.0%
Safety Reserve ~\$162M=18 mo net CF	141	7.8%	0	141	7.8%	162	9%	-21	-1.2%
*Private Market Assets	536	29.8%	0	536	29.8%	270	15%	267	14.8%

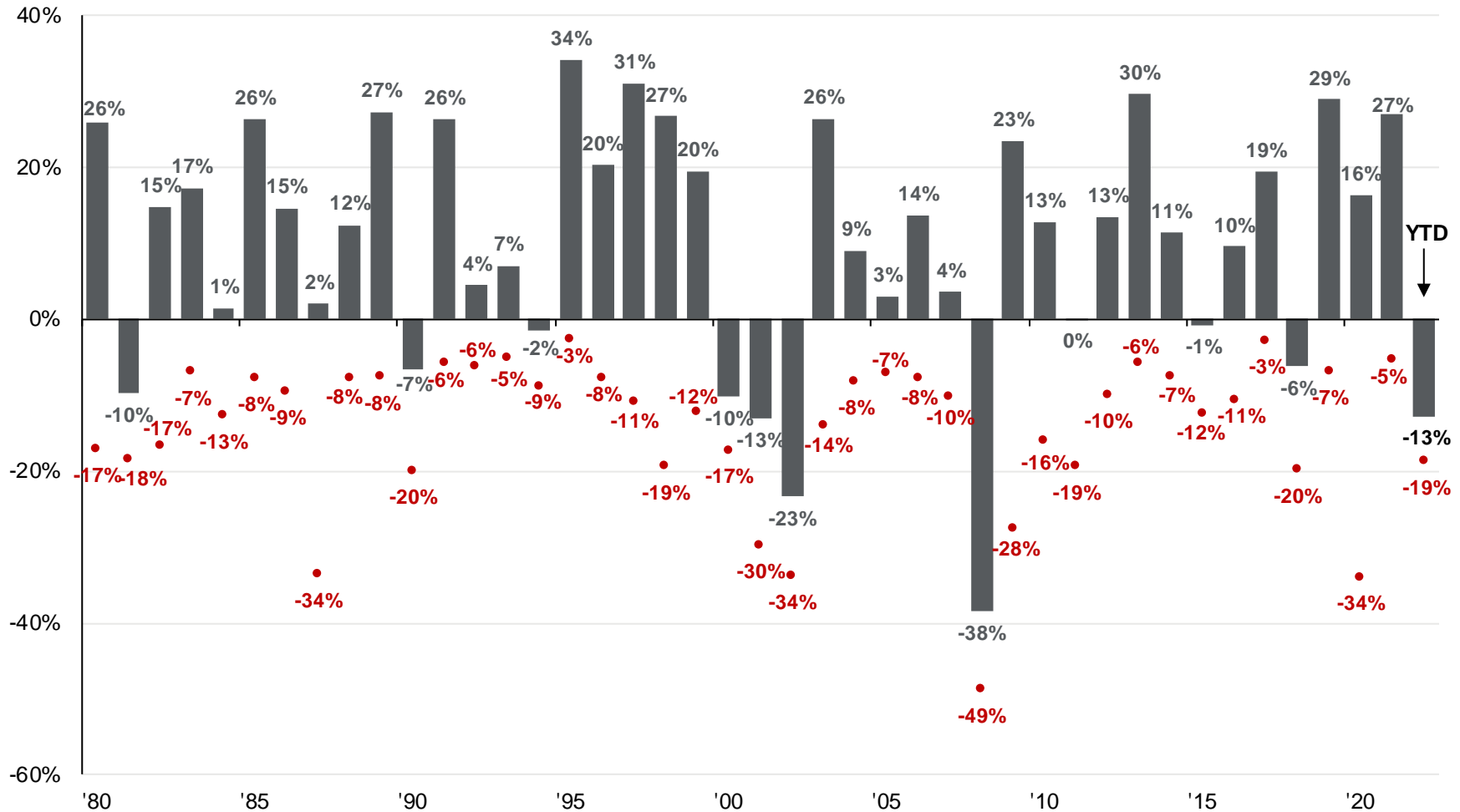
Source: Preliminary JP Morgan Custodial Data, Staff Estimates and Calculations. \$40M used for Global Alpha funding reflected in Cash as transaction in process.

Numbers may not foot due to rounding

S&P Intra-Year Declines

S&P intra-year declines vs. calendar year returns

Despite average intra-year drops of 14.0%, annual returns were positive in 32 of 42 years



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.

Returns are based on price index only and do not include dividends. Intra-year drops refers to the largest market drops from a peak to a trough during the year. For illustrative purposes only. Returns shown are calendar year returns from 1980 to 2021, over which time period the average annual return was 9.4%.

Guide to the Markets – U.S. Data are as of May 27, 2022.

Asset Class Returns – JPM Guide to the Markets

																2007 - 2021	
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	Ann.	Vol.
EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Small Cap 20.0%	REITs 41.3%	Comdty. 35.3%	Large Cap 10.6%	REITs 23.2%
Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	REITs 28.7%	EM Equity 18.7%	Large Cap 28.7%	Cash 0.1%	Small Cap 8.7%	EM Equity 22.9%
DM Equity 11.6%	Asset Alloc. -25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Small Cap 25.5%	Large Cap 18.4%	Comdty. 27.1%	Asset Alloc. -8.5%	REITs 7.5%	Small Cap 22.5%
Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	Asset Alloc. 10.6%	Small Cap 14.8%	Fixed Income -8.5%	High Yield 6.6%	Comdty. 19.1%
Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	DM Equity 8.3%	Asset Alloc. 13.5%	High Yield -10.1%	Asset Alloc. 6.1%	DM Equity 18.9%
Large Cap 5.5%	Comdty. -35.6%	Large Cap 25.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Fixed Income 7.5%	DM Equity 11.8%	DM Equity -11.1%	EM Equity 4.8%	Large Cap 16.9%
Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	High Yield 12.6%	High Yield 7.0%	High Yield 1.0%	REITs -11.9%	DM Equity 4.1%	High Yield 12.2%
High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Cash 0.5%	Cash 0.0%	Large Cap -12.2%	Fixed Income 4.1%	Asset Alloc. 11.7%
Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Comdty. -3.1%	Fixed Income -1.5%	EM Equity -14.6%	Cash 0.8%	Fixed Income 3.3%
REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	REITs -5.1%	EM Equity -2.2%	Small Cap -15.5%	Comdty. -2.6%	Cash 0.7%

Source: Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.

Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Global HY Index, Fixed Income: Bloomberg US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg 1-3m Treasury. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg US Aggregate, 5% in the Bloomberg 1-3m Treasury, 5% in the Bloomberg Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period from 12/31/2006 to 12/31/2021. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.

Guide to the Markets – U.S. Data are as of May 27, 2022.



2022 Board Investment Review Plan*

Staff presentations targeted for 15 minutes, Manager presentations 30 – 60 minutes.

July	<ul style="list-style-type: none"> • Natural Resources: Hancock Presentation
August	<ul style="list-style-type: none"> • Infrastructure: Staff review of AIRRO and JPM Maritime
September	<ul style="list-style-type: none"> • Staff review of Public Fixed Income managers
October	<ul style="list-style-type: none"> • Staff review of Public Equity managers
November	<ul style="list-style-type: none"> • Staff review of Private Equity and Debt

*Presentation schedule is subject to change.



DISCUSSION SHEET

ITEM #C7

Topic: **Meketa Market Update & Quarterly Performance Reports**

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: Leandro Festino, Managing Principal - Meketa Investment Group
Aaron Lally, Principal - Meketa Investment Group
Richard O'Neil, Managing Principal - Meketa Investment Group (by phone)

Discussion: Meketa will provide a presentation and commentary on the current market environment and then will review the First Quarter 2022 Investment Performance Analysis and Fourth Quarter 2021 Private Markets & Real Assets Review reports.

Regular Board Meeting – Thursday, June 2, 2022



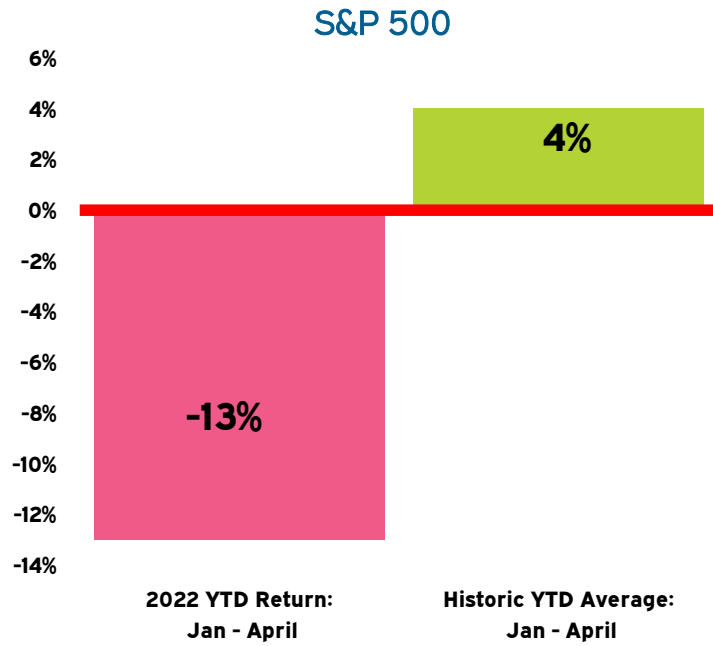
Dallas Police and Fire Pension System

June 2, 2022

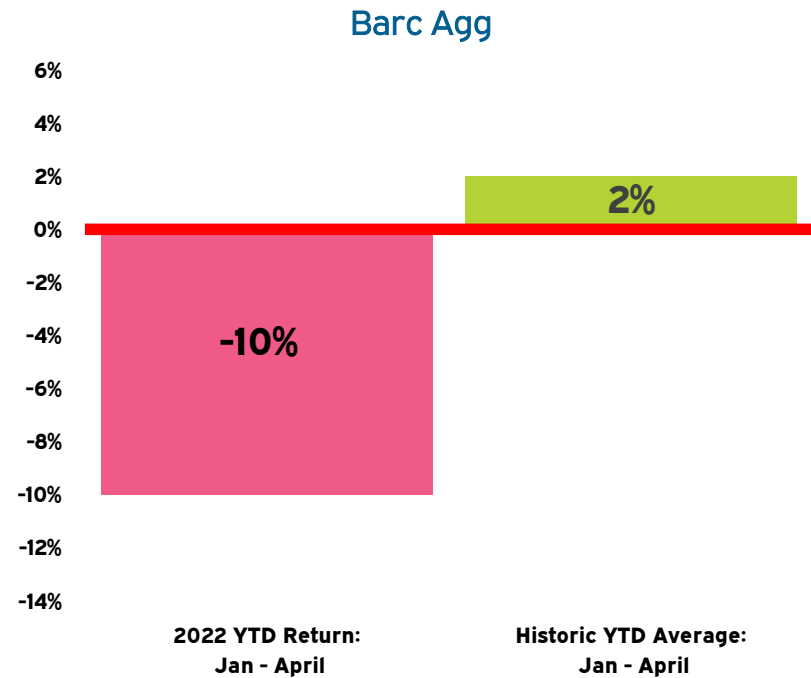
Macro Update



Terrible Start to the Year¹



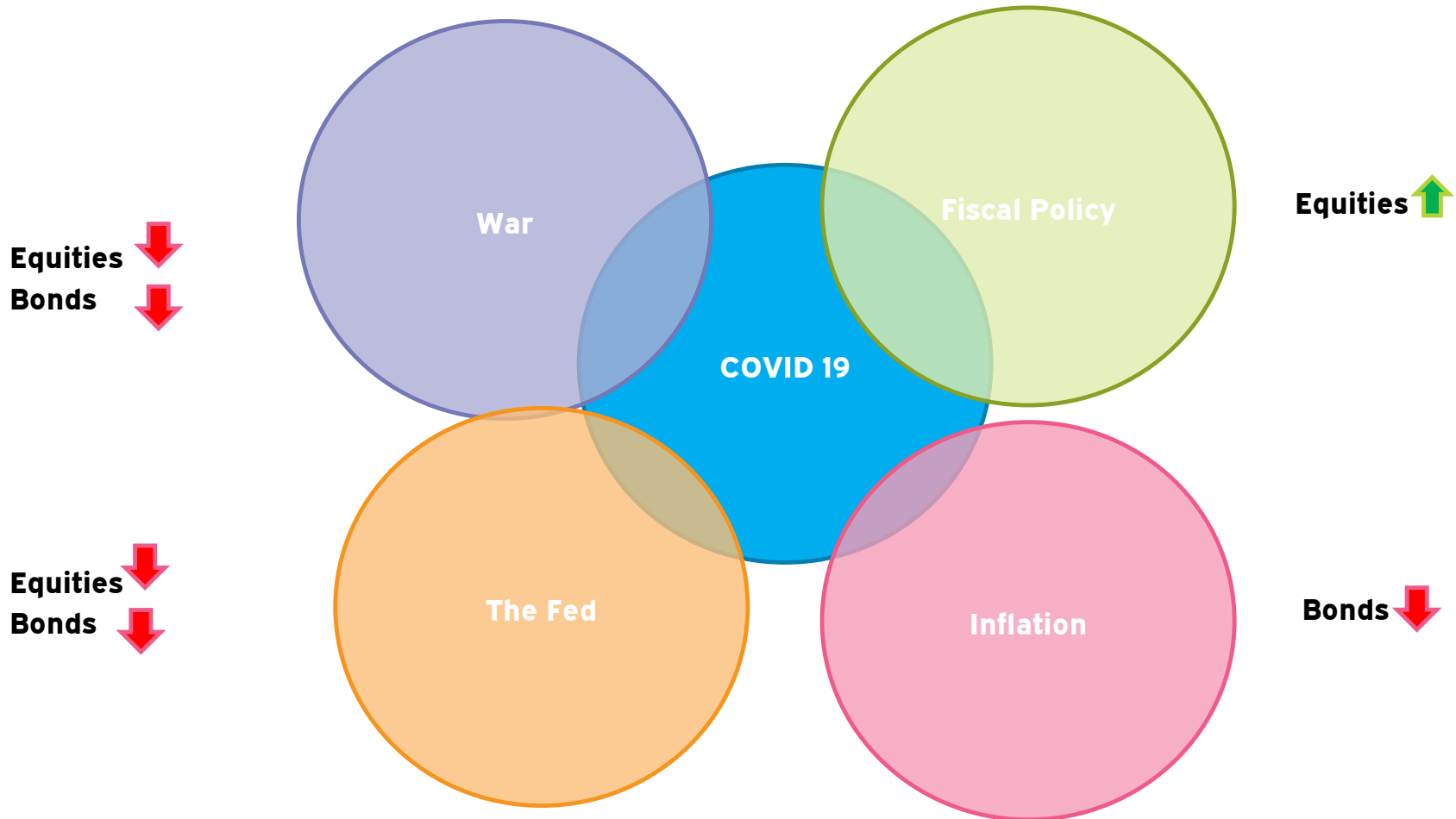
#3
worst S&P 500 start since 1928



#1
worst Barc Agg start since 1976

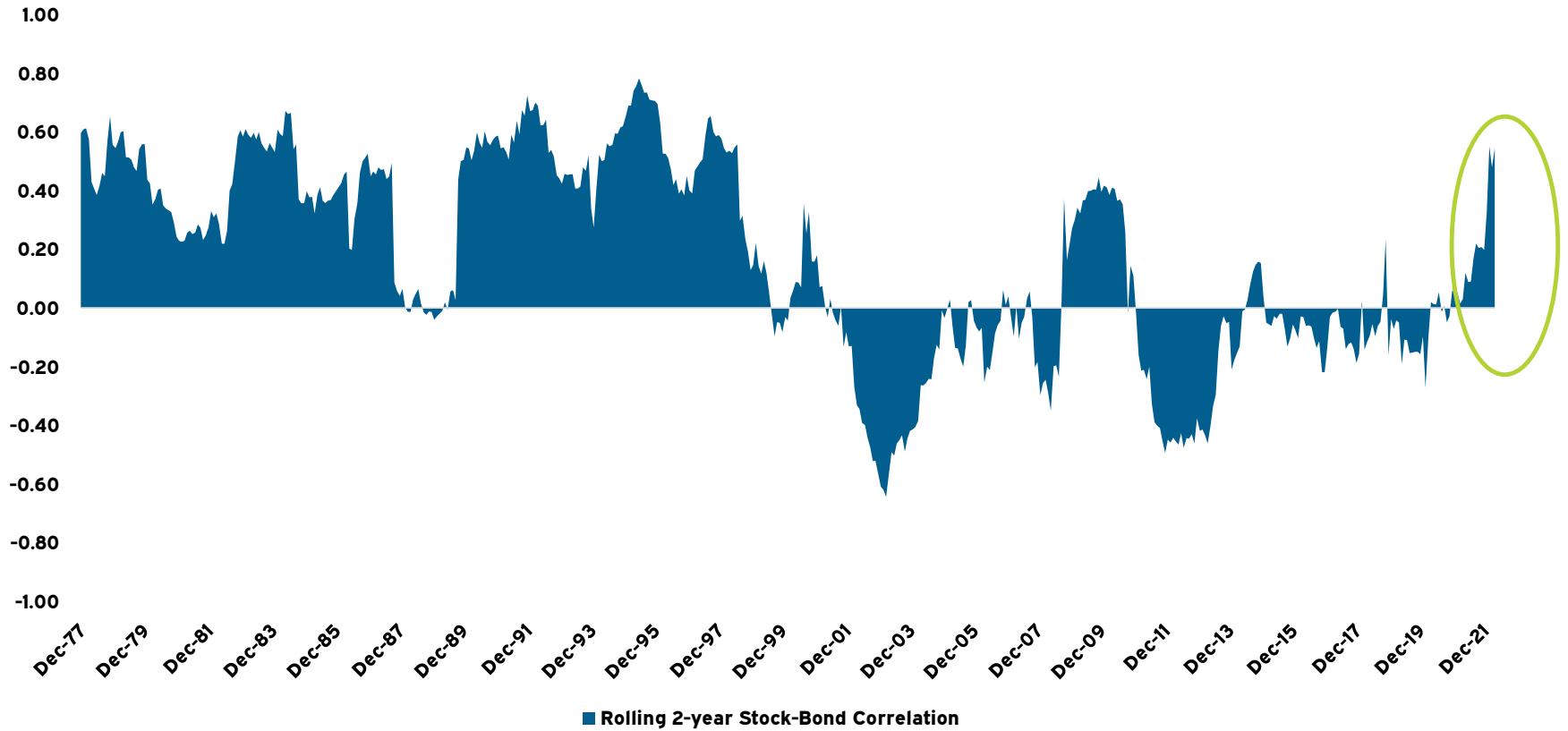
¹ Source: Bloomberg and InvestorForce. Data represents returns from January through April for each calendar year going back as far as data is available for each index.

What is Driving Markets?





Equity to Bond Correlations¹



→ Recent spike in equity-bond correlations, but not an outlier relative to historic correlations in 70's-90's.

¹ S&P 500 Index and Barclays Aggregate index rolling two year correlations since inception of Aggregate Index

Looking Forward?

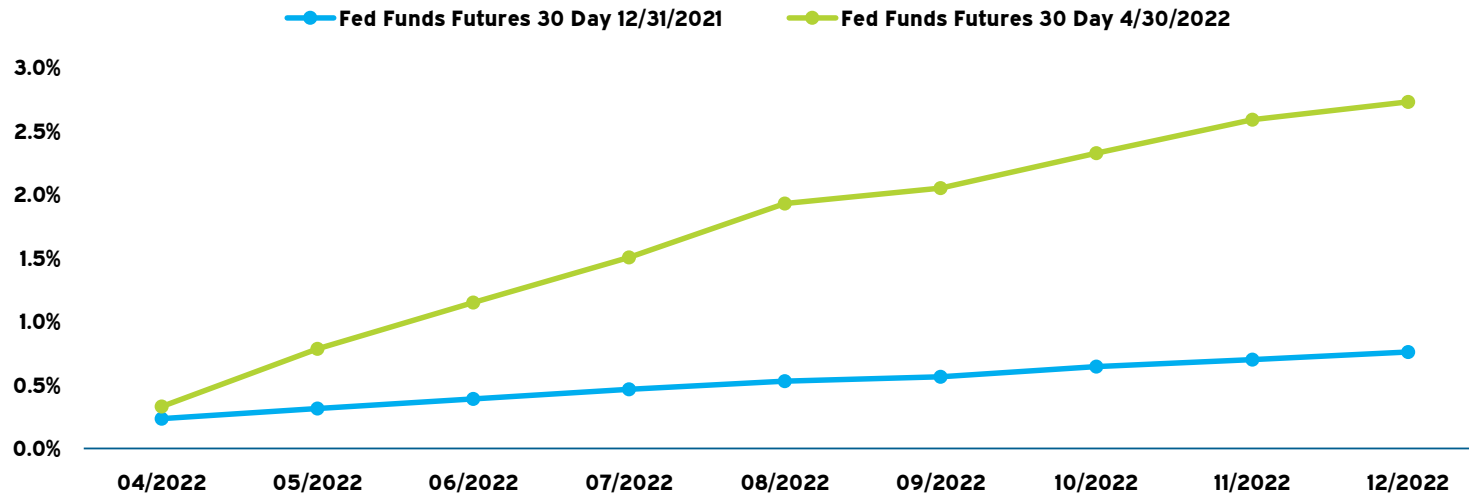
We have two classes of forecasters:

*Those who don't know –
and those who don't know
they don't know."*

- John Kenneth Galbraith



Federal Reserve Policy Expectations¹



- Predictions on the amount of tightening required have changed dramatically in the past four months.
- At the start of the year, 2022, expectations were for the Federal Reserve to raise interest rates 3 times, with a year-end rate of 0.75%.
- Now, the expectation for the pace of policy tightening has increased to roughly 2.75% by year-end.
- The Federal Reserve recently announced its first 50 basis point rate increase in 22 years, with several more expected at upcoming meetings.

¹ Source: Bloomberg. Data is as of April 30, 2022.



Twelve Month Returns after Worst Starts¹

(Subsequent 12 month returns following worst January through April drawdowns)

Year	S&P 500 Return
1932	55%
1939	18%
2022	?
1941	-11%
1970	32%
1942	61%
2020	46%
1973	-13%
1960	24%
1962	11%

Year	Bloomberg US Agg. Return
2022	?
1994	7%
1981	17%
2021	-9%
1996	7%
2018	5%
1990	15%
1987	7%
2006	7%
1992	13%

→ In the past, stocks and bonds have, on average, experienced strong returns after their worst starts to a year.

→ We will have to wait and see if history repeats itself this time.

¹ Source: Bloomberg and InvestorForce. Each number represents the twelve-month return for the respective index after the top ten worst starts to a year (January – April).



Stocks and Rising Rates: A Historical Perspective¹

Start Date	End Date	Length (months)	Change in Yield (%)	S&P 500 Change in Value (%)
12/27/1962	8/29/1966	44.7	1.7	18.4
3/20/1967	12/29/1969	33.8	3.6	1.2
3/23/1971	9/16/1975	54.6	3.2	-18.1
12/30/1976	9/30/1981	57.8	9.0	8.7
5/4/1983	5/30/1984	13.1	3.8	-7.9
8/29/1986	10/15/1987	13.7	3.3	17.9
10/15/1993	11/7/1994	12.9	2.9	-1.4
1/18/1996	6/12/1996	4.9	1.5	10.0
10/5/1998	1/20/2000	15.7	2.6	46.2
6/13/2003	6/28/2006	37.0	2.1	26.0
12/30/2008	6/10/2009	5.4	1.9	5.4
7/24/2012	9/5/2013	13.6	1.6	23.7
7/8/2016	11/8/2018	28.4	1.9	31.8
3/9/2020	4/30/2022	26.1 (so far)	2.4	50.4
Average		25.8	3.0	15.2

- Stocks usually do well when rates rise unless inflation is particularly high (above current levels).
- Overall, the US equity market return remains sharply positive since the interest rate lows at the start of the pandemic, but the recent acceleration in the pace of rate increases has particularly weighed on stocks.
- Despite the recent rise in rates, they remain relatively low, potentially supporting future economic growth.

¹ Source: Bloomberg. Change in yield represents the increase in the yield of the 10-year US Treasury bond. S&P 500 change in value represents the percent change in the index level.



Historic Quantitative Tightening Cycles¹

Period	# of Hikes	Starting Rate (%)	Ending Rate (%)	Total Increase (bps)	Length (months)	S&P 500 Return (%)	Bloomberg US Agg. Return (%)
Mar 1984 - Aug 1984	3	9.50	11.75	225	6	8.7	2.9
Mar 1988 - Feb 1989	11	6.50	9.75	325	12	11.9	3.7
Feb 1994 - Feb 1995	7	3.00	6.00	300	13	4.1	0.0
Jun 1999 - May 2000	6	4.75	6.50	175	12	10.5	2.1
Jun 2004 - Jun 2006	17	1.00	5.25	425	25	8.2	3.1
Dec 2016 - Dec 2018	8	0.50	2.50	200	25	8.6	1.8
Mar 2022 - Dec 2022 (<i>estimated</i>)	11	0.25	2.75	250	10	?	?

- Since the early 1980s, stocks and bonds have risen in periods of policy tightening with equities particularly doing well. This dynamic has clearly not continued so far this year.
- The planned pace of policy tightening in 2022 is the fastest we have seen in many years.
- The rate of expected increases creates concerns of a potential policy error, as over-tightening could depress economic growth.

¹ Source: Bloomberg. Data is as of April 30, 2022. Ending Rate and Total Increase columns for period starting March 2022 are estimates based on the recent FOMC Dot Plot.

Summary

The Bad

- The US is facing the highest inflationary environment since the early 1980s.
- In response the Fed is undertaking one of the fastest interest rate hiking cycles in history, with an expected 250 bps of tightening in a mere ten months.
- Markets have responded to the Fed's hawkish stance with broad selling of financial assets (stocks and bonds).

The *(Possible)* Good

- History has shown that stocks and bonds tend to rebound after sharp drawdowns, with an average gain of nearly 25% for stocks and nearly 8% for bonds in the twelve months following the worst ten starts to calendar years.
- And while the dramatic fall in bond prices has caused market value losses for investors, **expected future returns have increased due to higher bond yields.**
- There are some early indications that inflationary pressures are easing which could lead to a corresponding easing of pricing pressures within the stock and bond markets.



Dallas Police & Fire Pension System

March 31, 2022

Fund Evaluation Report



Dallas Police & Fire Pension System

Agenda

Agenda

1. Executive Summary
2. Performance Update as of March 31, 2022
3. Disclaimer, Glossary, and Notes

Executive Summary As of March 31, 2022



Dallas Police & Fire Pension System

Executive Summary

DPFP Trailing One-Year Flash Summary

Category	Results	Notes
Total Fund Performance Return	Negative	-1.1%
Performance vs. Policy Index	Underperformed	-1.1% vs. 4.5%
Performance vs. Peers ¹	Underperformed	-1.1% vs. 5.7% median (99th percentile in peer group)
Asset Allocation vs. Targets	Positive	Overweight Private Equity, Real Estate, and Infrastructure helped
Public Active Management	Mixed	5/10 public managers beat benchmarks
DPFP Public Markets vs. 60/40 ²	Underperformed	1.0% vs. 1.2%
DPFP Public Markets vs. Peers	Underperformed	1.0% vs. 5.7%
Safety Reserve Exposure	Sufficient	\$148.7 million (approximately 7.9%)
Compliance with Targets	Yes	All asset classes in compliance

¹ InvestorForce Public DB \$1-5 billion net.

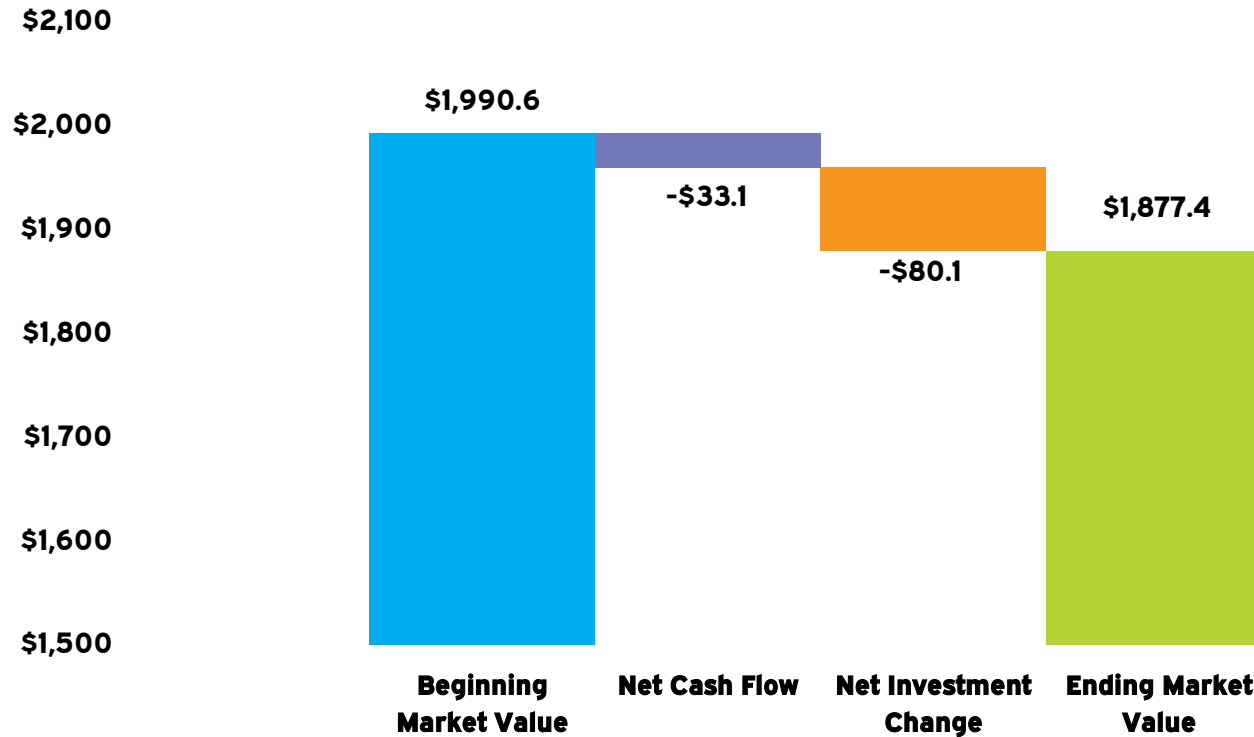
² Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.



Dallas Police & Fire Pension System

Executive Summary

Quarterly Change in Market Value



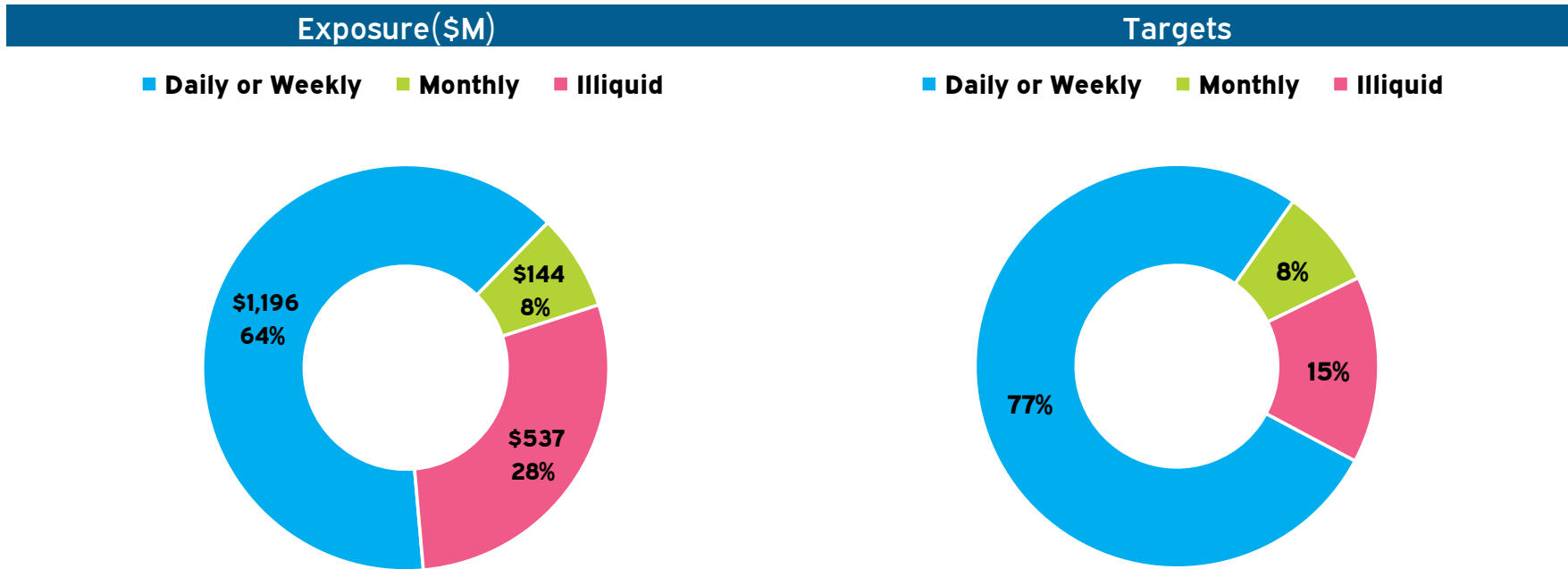
→ Total market value decreased due to negative investment performance and net outflows.



Dallas Police & Fire Pension System

Executive Summary

Liquidity Exposure
As of March 31, 2022



→ Approximately 28% of the DFPF's assets are illiquid versus 15% of the target allocation.



Dallas Police & Fire Pension System

Executive Summary

Quarterly Manager Scorecard

	1 Yr Outperformance vs. Benchmark	3 Yr Outperformance vs. Benchmark	5 Yr Outperformance vs. Benchmark
Boston Partners Global Equity Fund	No	No	NA
Manulife Global Equity Strategy	Yes	No	NA
Invesco (fka OFI) Global Equity	No	No	Yes
Walter Scott Global Equity Fund	Yes	No	Yes
Eastern Shore US Small Cap	NA	NA	NA
RBC Emerging Markets Equity	No	No	NA
IR&M 1-3 Year Strategy	Yes	Yes	NA
Longfellow Core Fixed Income	Yes	NA	NA
Pacific Asset Management (Bank) Loans	Yes	Yes	NA
Loomis High Yield Fund	No	NA	NA
Ashmore EM Blended Debt	No	No	NA

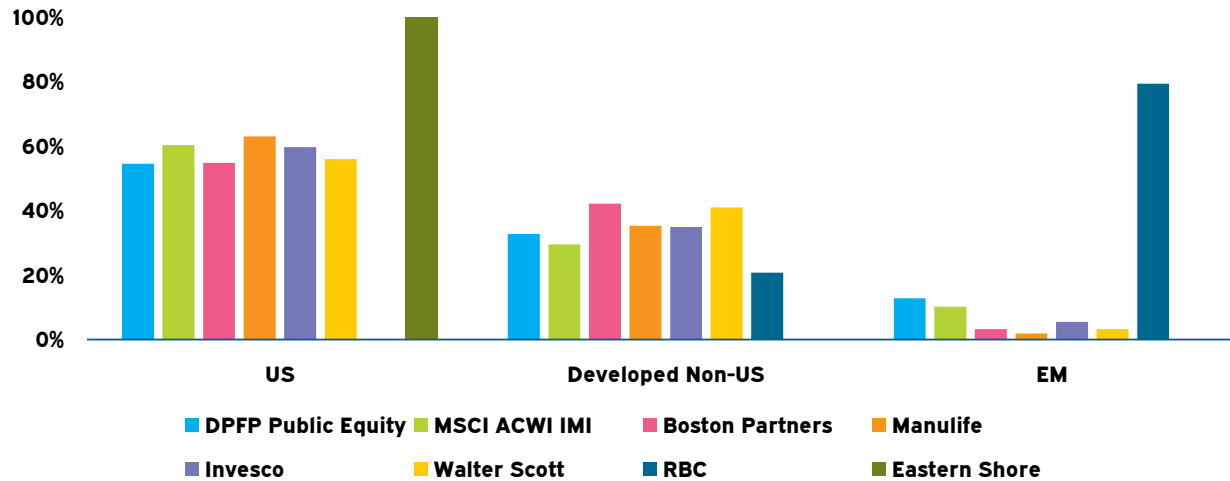


Dallas Police & Fire Pension System

Executive Summary

Equity Regional Exposure

	Market Value (\$)	% of DFPF Public Equity	US (%)	Developed Non-US (%)	EM (%)
NT MSCI ACWI IMI	233,702,060	26	60	30	10
Boston Partners	147,399,083	16	55	42	3
Manulife	139,050,577	15	63	35	2
Walter Scott	133,854,751	15	56	41	3
Invesco	120,088,274	13	60	35	6
RBC	92,006,516	10	0	21	79
Eastern Shore	36,272,612	4	100	0	0
Total DFPF Public Equity	902,373,873	100	54	33	13
<i>MSCI ACWI IMI</i>			60	30	10

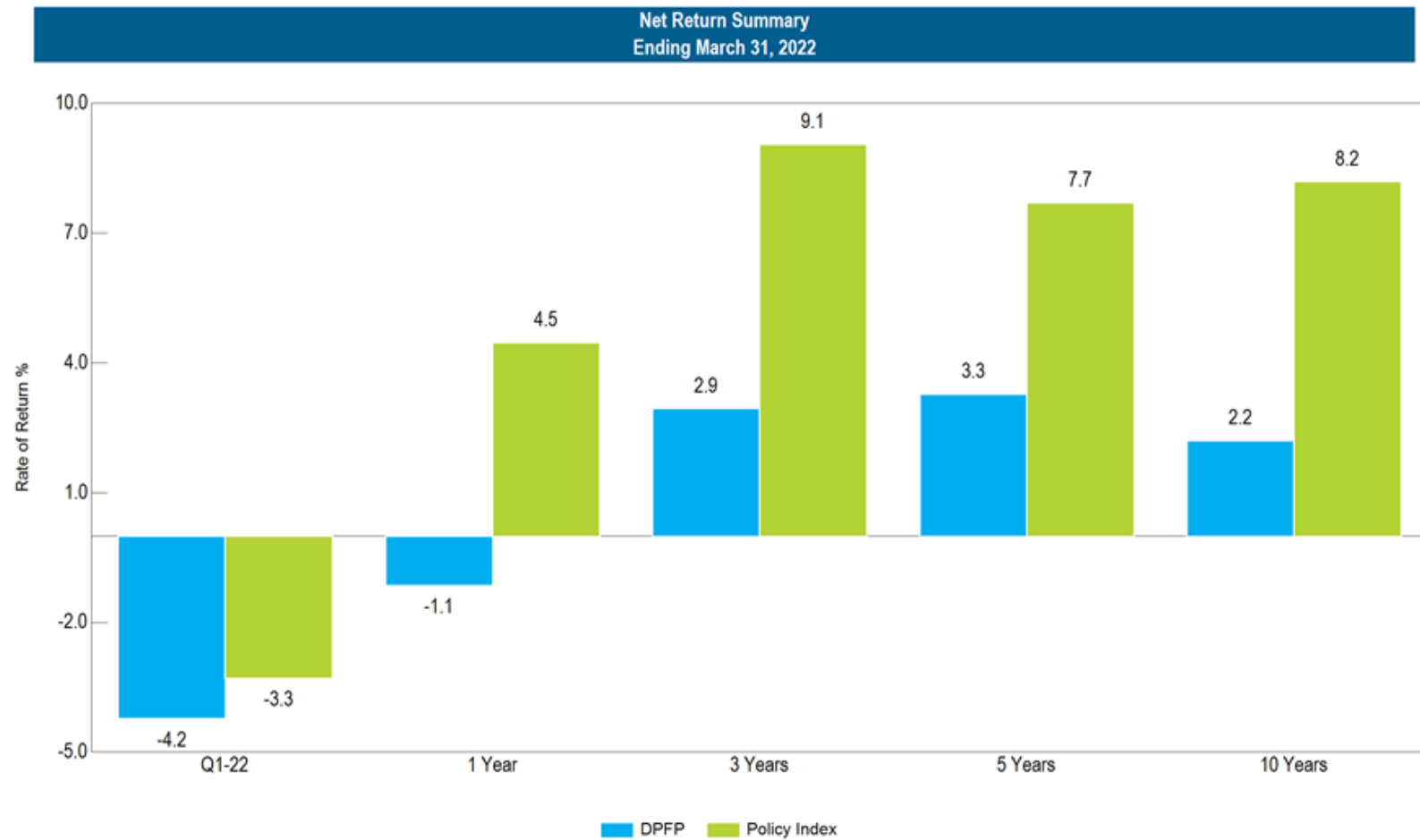


Performance Update
As of March 31, 2022



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

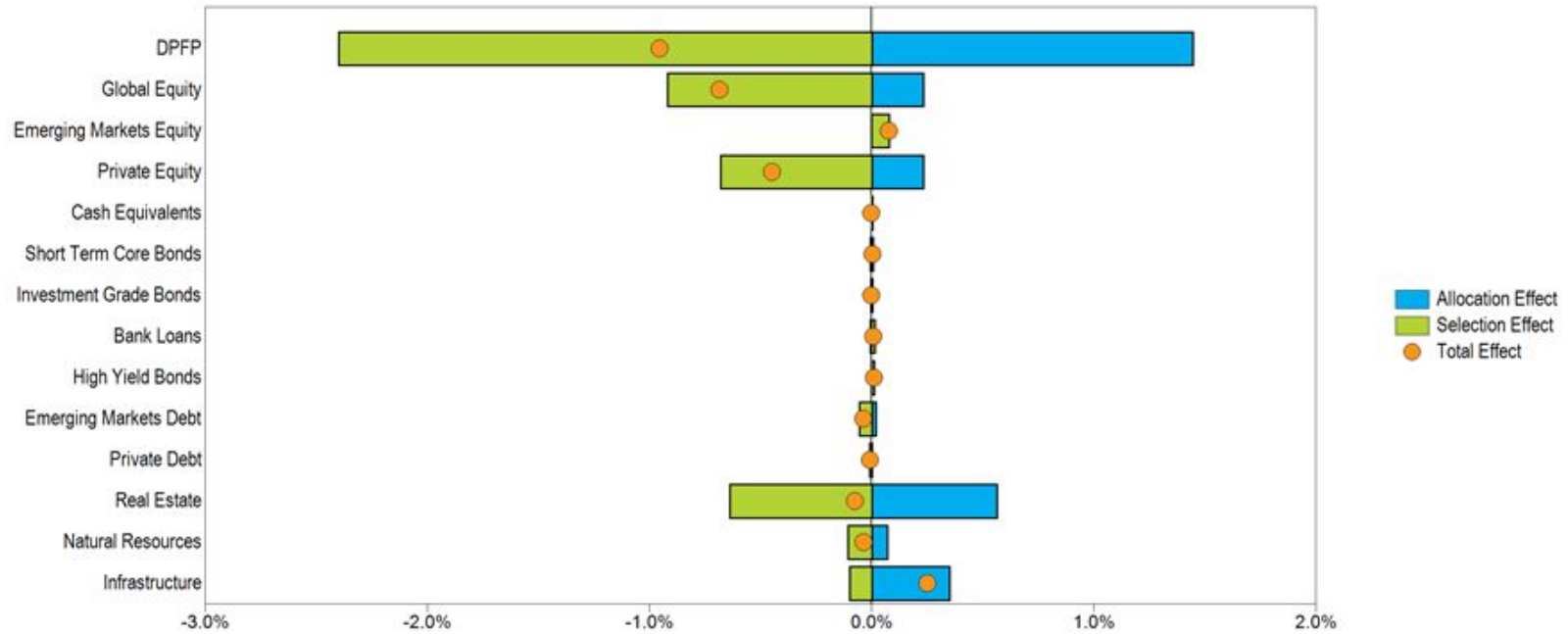




Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Attribution Effects vs. Policy Benchmark
3 Months Ending March 31, 2022



Attribution Summary 3 Months Ending March 31, 2022						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	-4.2%	-3.3%	-1.0%	-2.4%	1.4%	-1.0%

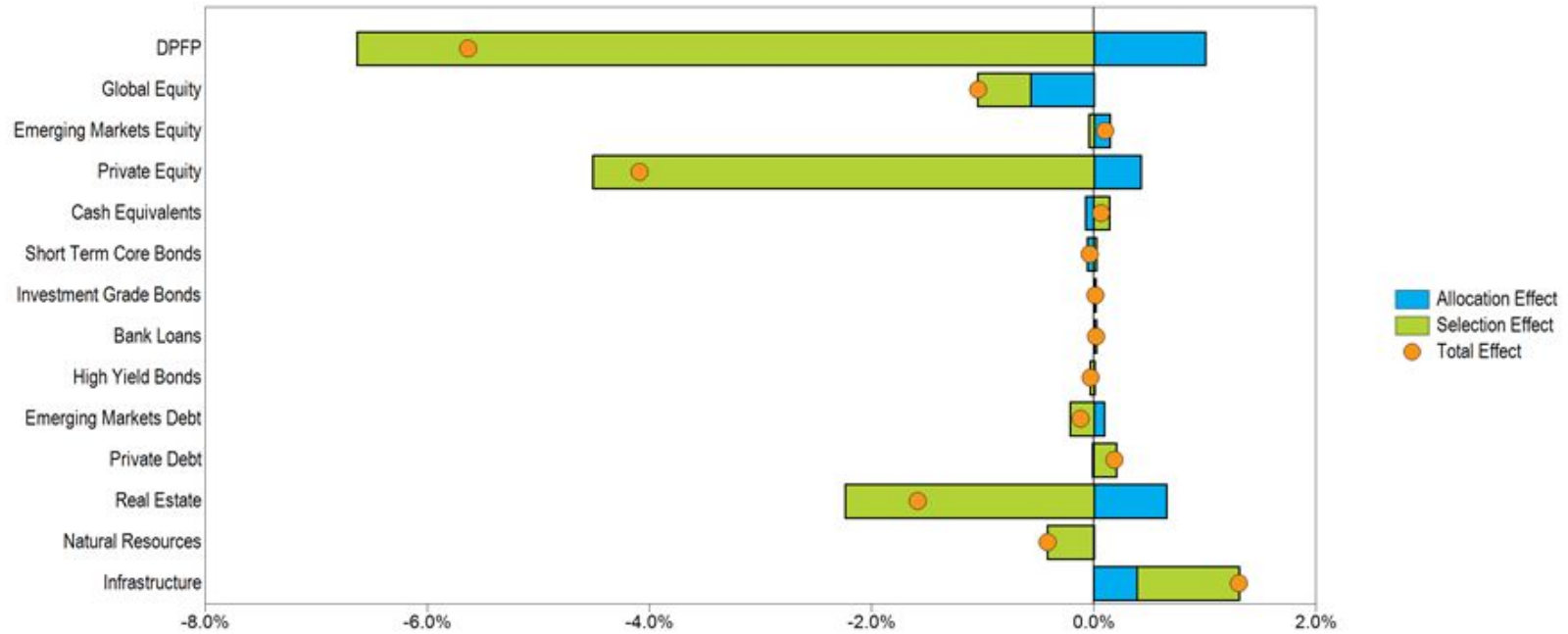
The performance calculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied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



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Attribution Effects vs. Policy Benchmark
1 Year Ending March 31, 2022



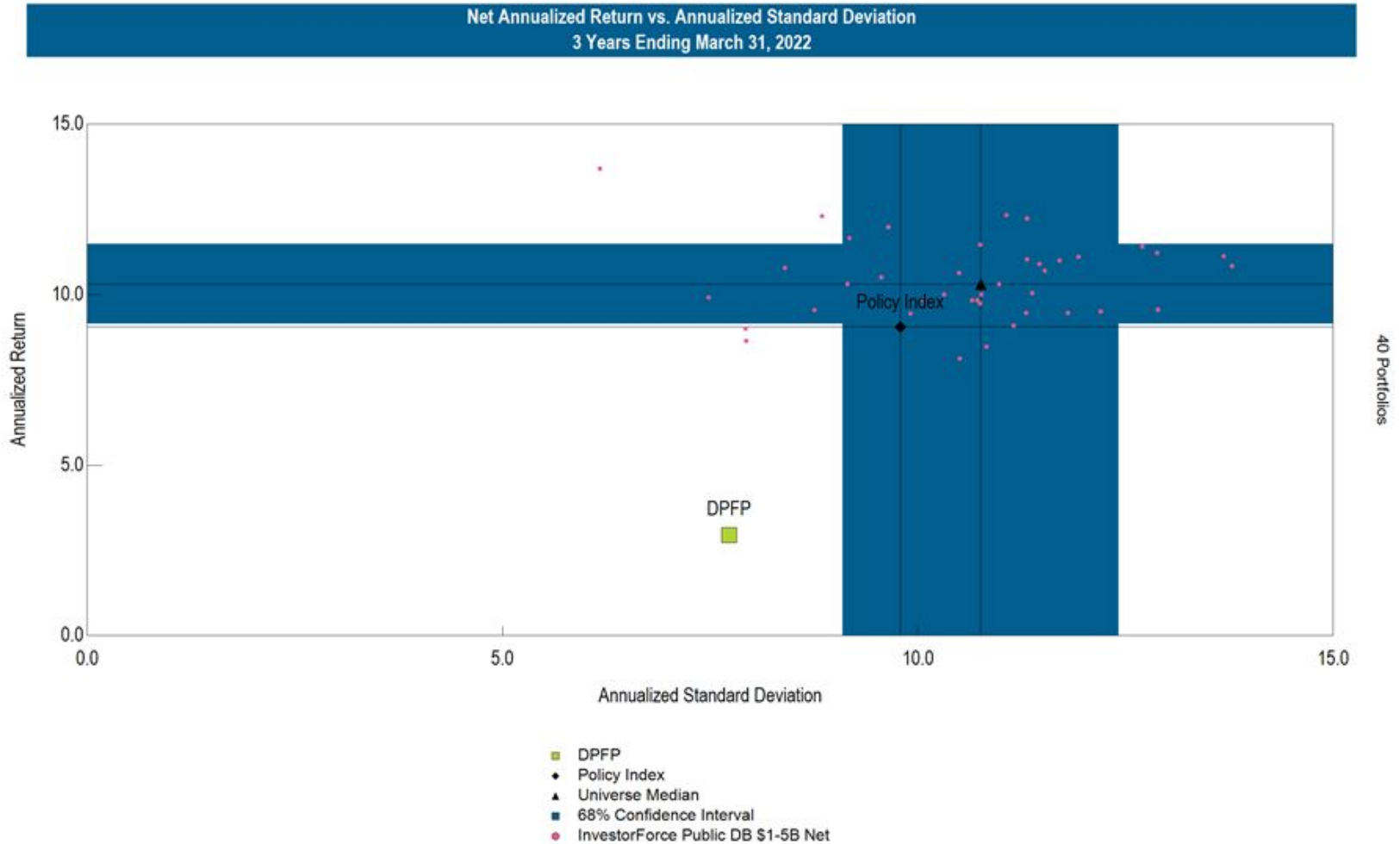
Attribution Summary 1 Year Ending March 31, 2022						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Total	-1.0%	5.0%	-6.0%	-6.6%	1.0%	-5.6%

The performance calculation 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 sum due to rounding.



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022





Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Asset Class Performance Summary (Net)										
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
DPFP	1,877,401,099	100.0	-4.2	-4.2	-1.1	2.9	3.3	2.2	5.5	Jun-96
<i>Policy Index</i>			-3.3	-3.3	4.5	9.1	7.7	8.2	--	Jun-96
<i>Allocation Index</i>			-2.3	-2.3	7.9	9.3	7.9	8.8	7.5	Jun-96
<i>Total Fund Ex Private Markets</i>			-6.1	-6.1	1.0	7.9	6.9	6.6	5.7	Jun-96
<i>60% MSCI ACWI IMI Net/40% Bloomberg Global Aggregate Index</i>			-5.7	-5.7	1.2	8.5	7.7	6.5	6.3	Jun-96
Global Equity	810,367,357	43.2	-7.6	-7.6	5.3	12.9	12.0	10.8	7.6	Jul-06
<i>MSCI ACWI IMI Net USD</i>			-5.5	-5.5	6.3	13.5	11.4	10.0	7.3	Jul-06
Emerging Markets Equity	92,006,516	4.9	-5.1	-5.1	-11.9	4.5	--	--	2.7	Jan-18
<i>MSCI Emerging Market IMI Net</i>			-6.6	-6.6	-9.5	5.7	6.2	3.6	2.3	Jan-18
Private Equity	134,137,620	7.1	-0.3	-0.3	-30.3	-16.8	-15.8	-9.3	-3.8	Oct-05
<i>Private Equity Custom Benchmark</i>			10.1	10.1	21.5	23.9	20.1	18.3	14.0	Oct-05
Cash Equivalents	33,260,854	1.8	0.0	0.0	0.2	0.9	1.2	--	1.1	Apr-15
<i>91 Day T-Bills</i>			0.0	0.0	0.1	0.7	1.1	0.6	0.8	Apr-15
Short Term Core Bonds	115,437,429	6.1	-2.4	-2.4	-2.7	1.5	--	--	1.7	Jun-17
<i>Bloomberg US Aggregate 1-3 Yr TR</i>			-2.5	-2.5	-2.9	0.9	1.2	1.1	1.2	Jun-17
Investment Grade Bonds	71,558,303	3.8	-6.0	-6.0	-4.1	--	--	--	0.5	Oct-19
<i>Bloomberg US Aggregate TR</i>			-5.9	-5.9	-4.2	1.7	2.1	2.2	-0.1	Oct-19
Bank Loans	77,167,178	4.1	0.2	0.2	3.6	4.5	4.3	--	4.2	Jan-14
<i>Credit Suisse Leveraged Loan</i>			-0.1	-0.1	3.2	4.1	4.1	--	4.0	Jan-14
High Yield Bonds	73,706,007	3.9	-4.6	-4.6	-1.6	3.3	3.5	4.8	5.5	Dec-10
<i>Bloomberg US Corporate High Yield TR</i>			-4.8	-4.8	-0.7	4.6	4.7	5.7	6.0	Dec-10
Emerging Markets Debt	66,555,776	3.5	-9.7	-9.7	-13.3	-4.6	-1.5	0.5	1.3	Dec-10
<i>50% JPM EMBI/50% JPM GBI-EM</i>			-8.2	-8.2	-8.0	-0.5	1.0	1.4	2.1	Dec-10
Private Debt	6,030,835	0.3	-5.8	-5.8	73.7	22.1	14.5	--	13.0	Jan-16
<i>Barclays Global High Yield +2%</i>			-5.2	-5.2	-1.9	4.6	5.4	--	7.5	Jan-16



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Asset Class Performance Summary (Net)										
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Real Estate	212,500,508	11.3	0.3	0.3	-1.8	-1.1	1.6	-3.1	3.4	Mar-85
<i>NCREIF Property (1 Qtr Lag)</i>			6.2	6.2	17.7	8.4	7.8	9.3	8.1	Mar-85
Natural Resources	116,721,075	6.2	2.0	2.0	1.1	1.3	-0.1	3.3	3.7	Dec-10
<i>NCREIF Farmland Total Return Index (1 Qtr Lag)</i>			3.8	3.8	7.8	5.2	5.7	9.7	10.5	Dec-10
Infrastructure	67,951,642	3.6	4.4	4.4	65.9	7.9	14.7	--	7.9	Jul-12
<i>S&P Global Infrastructure TR USD</i>			7.5	7.5	16.7	8.0	7.7	7.8	8.3	Jul-12

¹ Please see the Appendix for composition of the Custom Benchmarks. ²As of 03/31/2022, the Safety Reserve exposure was approximately \$148.7 million (7.9%).

³ All private market data is one quarter lagged, unless otherwise noted. ⁴Lone Star Funds 12/31/2020 valuation used ⁵ Museum Tower 12/31/2021 valuation used.



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Trailing Net Performance											
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
DPFP	1,877,401,099	100.0	--	-4.2	-4.2	-1.1	2.9	3.3	2.2	5.5	Jun-96
<i>Policy Index</i>				-3.3	-3.3	4.5	9.1	7.7	8.2	--	Jun-96
<i>Allocation Index</i>				-2.3	-2.3	7.9	9.3	7.9	8.8	7.5	Jun-96
<i>Total Fund Ex Private Markets</i>				-6.1	-6.1	1.0	7.9	6.9	6.6	5.7	Jun-96
<i>60% MSCI ACWI IMI Net/40% Bloomberg Global Aggregate Index</i>				-5.7	-5.7	1.2	8.5	7.7	6.5	6.3	Jun-96
<i>InvestorForce Public DB \$1-5B Net Rank</i>				63	63	99	99	99	99	99	Jun-96
Total Equity	1,036,511,493	55.2	55.2	-6.5	-6.5	-2.9	5.6	2.5	4.8	4.6	Dec-10
<i>MSCI ACWI IMI Net USD</i>				-5.5	-5.5	6.3	13.5	11.4	10.0	9.1	Dec-10
Public Equity	902,373,873	48.1	87.1	-7.3	-7.3	3.7	12.4	11.5	10.6	7.5	Jul-06
<i>MSCI ACWI IMI Net USD</i>				-5.5	-5.5	6.3	13.5	11.4	10.0	7.3	Jul-06
<i>eV All Global Equity Net Rank</i>				58	58	64	57	50	41	45	Jul-06
Global Equity	810,367,357	43.2	89.8	-7.6	-7.6	5.3	12.9	12.0	10.8	7.6	Jul-06
<i>MSCI ACWI IMI Net USD</i>				-5.5	-5.5	6.3	13.5	11.4	10.0	7.3	Jul-06
<i>eV All Global Equity Net Rank</i>				58	58	53	52	46	38	44	Jul-06
<i>Boston Partners Global Equity Fund</i>	147,399,083	7.9	18.2	-0.9	-0.9	7.9	12.4	--	--	8.7	Jul-17
<i>MSCI World Net</i>				-5.2	-5.2	10.1	15.0	12.4	10.9	12.2	Jul-17
<i>MSCI World Value</i>				-0.7	-0.7	10.6	9.8	7.9	8.4	7.7	Jul-17
<i>eV Global All Cap Value Eq Net Rank</i>				32	32	28	30	--	--	35	Jul-17
<i>Manulife Global Equity Strategy</i>	139,050,577	7.4	17.2	-6.9	-6.9	7.6	11.8	--	--	9.4	Jul-17
<i>MSCI ACWI Net</i>				-5.4	-5.4	7.3	13.8	11.6	10.0	11.3	Jul-17
<i>MSCI ACWI Value NR USD</i>				-1.0	-1.0	8.8	9.0	7.5	7.6	7.2	Jul-17
<i>eV Global Large Cap Value Eq Net Rank</i>				91	91	41	42	--	--	24	Jul-17

¹ All Private Equity market values are one quarter lagged unless otherwise noted.

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



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Walter Scott Global Equity Fund	133,854,751	7.1	16.5	-9.5	-9.5	7.9	13.3	14.2	11.4	10.7	Dec-09
<i>MSCI ACWI Net</i>				-5.4	-5.4	7.3	13.8	11.6	10.0	9.6	Dec-09
<i>MSCI ACWI Growth</i>				-9.7	-9.7	5.4	17.9	15.5	12.1	11.7	Dec-09
<i>eV Global Large Cap Growth Eq Net Rank</i>				32	32	15	79	73	71	75	Dec-09
Invesco (fka OFI) Global Equity	120,088,274	6.4	14.8	-15.6	-15.6	-4.3	12.0	12.1	11.1	7.3	Oct-07
<i>MSCI ACWI Net</i>				-5.4	-5.4	7.3	13.8	11.6	10.0	6.0	Oct-07
<i>MSCI ACWI Growth</i>				-9.7	-9.7	5.4	17.9	15.5	12.1	7.8	Oct-07
<i>eV Global Large Cap Growth Eq Net Rank</i>				78	78	73	94	95	78	66	Oct-07
NT ACWI Index IMI	233,702,060	12.4	28.8	-5.7	-5.7	6.3	--	--	--	6.3	Apr-21
<i>MSCI ACWI IMI Net USD</i>				-5.5	-5.5	6.3	13.5	11.4	10.0	6.3	Apr-21
<i>eV Global All Cap Equity Net Rank</i>				40	40	34	--	--	--	34	Apr-21
Eastern Shore US Small Cap	36,272,612	1.9	4.5	-11.0	-11.0	--	--	--	--	-4.7	Oct-21
<i>Russell 2000</i>				-7.5	-7.5	-5.8	11.7	9.7	11.0	-5.5	Oct-21
<i>eV US Small Cap Equity Net Rank</i>				72	72	--	--	--	--	66	Oct-21
Emerging Markets Equity	92,006,516	4.9	10.2	-5.1	-5.1	-11.9	4.5	--	--	2.7	Jan-18
<i>MSCI Emerging Market IMI Net</i>				-6.6	-6.6	-9.5	5.7	6.2	3.6	2.3	Jan-18
<i>eV Emg Mkts Equity Net Rank</i>				33	33	57	71	--	--	45	Jan-18
RBC Emerging Markets Equity	92,006,516	4.9	100.0	-5.1	-5.1	-11.9	4.5	--	--	2.7	Jan-18
<i>MSCI Emerging Market IMI Net</i>				-6.6	-6.6	-9.5	5.7	6.2	3.6	2.3	Jan-18
<i>eV Emg Mkts Equity Net Rank</i>				33	33	57	71	--	--	45	Jan-18



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Private Equity	134,137,620	7.1	12.9	-0.3	-0.3	-30.3	-16.8	-15.8	-9.3	-3.8	Oct-05
<i>Private Equity Custom Benchmark</i>				<i>10.1</i>	<i>10.1</i>	<i>21.5</i>	<i>23.9</i>	<i>20.1</i>	<i>18.3</i>	<i>14.0</i>	<i>Oct-05</i>
Total Fixed Income and Cash	443,716,382	23.6	23.6	-3.8	-3.8	-2.3	1.8	2.5	3.3	4.6	Jul-06
<i>Bloomberg Multiverse TR</i>				<i>-6.1</i>	<i>-6.1</i>	<i>-6.2</i>	<i>0.8</i>	<i>1.8</i>	<i>1.2</i>	<i>3.1</i>	<i>Jul-06</i>
<i>eV All Global Fixed Inc Net Rank</i>				<i>28</i>	<i>28</i>	<i>31</i>	<i>66</i>	<i>64</i>	<i>45</i>	<i>35</i>	<i>Jul-06</i>
Cash Equivalents	33,260,854	1.8	7.5	0.0	0.0	3.3	1.9	1.8	--	1.6	Apr-15
<i>91 Day T-Bills</i>				<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.7</i>	<i>1.1</i>	<i>0.6</i>	<i>0.8</i>	<i>Apr-15</i>
Public Fixed Income	404,424,693	21.5	91.1	-4.3	-4.3	-3.9	1.6	2.5	3.4	4.3	Dec-10
<i>Bloomberg Multiverse TR</i>				<i>-6.1</i>	<i>-6.1</i>	<i>-6.2</i>	<i>0.8</i>	<i>1.8</i>	<i>1.2</i>	<i>1.7</i>	<i>Dec-10</i>
<i>eV All Global Fixed Inc Net Rank</i>				<i>34</i>	<i>34</i>	<i>49</i>	<i>70</i>	<i>64</i>	<i>41</i>	<i>29</i>	<i>Dec-10</i>
Short Term Core Bonds	115,437,429	6.1	28.5	-2.4	-2.4	-2.7	1.5	--	--	1.7	Jun-17
<i>Bloomberg US Aggregate 1-3 Yr TR</i>				<i>-2.5</i>	<i>-2.5</i>	<i>-2.9</i>	<i>0.9</i>	<i>1.2</i>	<i>1.1</i>	<i>1.2</i>	<i>Jun-17</i>
<i>IR&M 1-3 Year Strategy</i>	115,437,429	6.1	100.0	-2.4	-2.4	-2.7	1.5	--	--	1.7	Jul-17
<i>Bloomberg US Aggregate 1-3 Yr TR</i>				<i>-2.5</i>	<i>-2.5</i>	<i>-2.9</i>	<i>0.9</i>	<i>1.2</i>	<i>1.1</i>	<i>1.2</i>	<i>Jul-17</i>
<i>eV US Short Duration Fixed Inc Net Rank</i>				<i>41</i>	<i>41</i>	<i>53</i>	<i>23</i>	<i>--</i>	<i>--</i>	<i>27</i>	<i>Jul-17</i>
Investment Grade Bonds	71,558,303	3.8	17.7	-6.0	-6.0	-4.1	--	--	--	0.5	Oct-19
<i>Bloomberg US Aggregate TR</i>				<i>-5.9</i>	<i>-5.9</i>	<i>-4.2</i>	<i>1.7</i>	<i>2.1</i>	<i>2.2</i>	<i>-0.1</i>	<i>Oct-19</i>
<i>eV US Core Fixed Inc Net Rank</i>				<i>70</i>	<i>70</i>	<i>59</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>32</i>	<i>Oct-19</i>
<i>Longfellow Core Fixed Income</i>	71,558,303	3.8	100.0	-6.0	-6.0	-4.1	--	--	--	-2.9	Jul-20
<i>Bloomberg US Aggregate TR</i>				<i>-5.9</i>	<i>-5.9</i>	<i>-4.2</i>	<i>1.7</i>	<i>2.1</i>	<i>2.2</i>	<i>-3.6</i>	<i>Jul-20</i>
<i>eV US Core Fixed Inc Net Rank</i>				<i>70</i>	<i>70</i>	<i>59</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>40</i>	<i>Jul-20</i>

¹ All Private Equity market values are one quarter lagged unless otherwise noted.

² Lone Star Funds 12/31/2020 valuation used.



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Bank Loans	77,167,178	4.1	19.1	0.2	0.2	3.6	4.5	4.3	--	4.2	Jan-14
<i>Credit Suisse Leveraged Loan</i>				-0.1	-0.1	3.2	4.1	4.1	--	4.0	Jan-14
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>				5	5	20	9	12	--	13	Jan-14
Pacific Asset Management Corporate (Bank) Loans	77,167,178	4.1	100.0	0.2	0.2	3.8	4.2	--	--	4.1	Aug-17
<i>Credit Suisse Leveraged Loan</i>				-0.1	-0.1	3.2	4.1	4.1	--	4.0	Aug-17
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>				5	5	19	21	--	--	17	Aug-17
High Yield Bonds	73,706,007	3.9	18.2	-4.6	-4.6	-1.6	3.3	3.5	4.8	5.5	Dec-10
<i>Bloomberg US Corporate High Yield TR</i>				-4.8	-4.8	-0.7	4.6	4.7	5.7	6.0	Dec-10
<i>eV US High Yield Fixed Inc Net Rank</i>				80	80	94	90	91	79	63	Dec-10
Loomis US High Yield Fund	73,706,007	3.9	100.0	-4.6	-4.6	-1.6	--	--	--	-0.9	Jan-21
<i>Bloomberg US High Yield 2% Issuer Cap TR</i>				-4.8	-4.8	-0.7	4.6	4.7	5.7	0.1	Jan-21
<i>eV US High Yield Fixed Inc Net Rank</i>				80	80	94	--	--	--	92	Jan-21
Emerging Markets Debt	66,555,776	3.5	16.5	-9.7	-9.7	-13.3	-4.6	-1.5	0.5	1.3	Dec-10
<i>50% JPM EMBI/50% JPM GBI-EM</i>				-8.2	-8.2	-8.0	-0.5	1.0	1.4	2.1	Dec-10
<i>eV All Emg Mkts Fixed Inc Net Rank</i>				88	88	98	99	99	77	74	Dec-10
Ashmore EM Blended Debt	66,555,776	3.5	100.0	-9.7	-9.7	-13.3	-4.6	--	--	-2.9	Dec-17
<i>Ashmore Blended Debt Benchmark</i>				-8.0	-8.0	-7.3	-0.5	1.0	1.6	-0.1	Dec-17
<i>eV All Emg Mkts Fixed Inc Net Rank</i>				88	88	98	99	--	--	99	Dec-17
Private Debt	6,030,835	0.3	1.4	-5.8	-5.8	73.7	22.1	15.0	--	8.4	Jan-16
<i>Bloomberg US High Yield+2%</i>				-4.4	-4.4	1.3	6.7	6.8	7.9	9.0	Jan-16



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Total Real Assets	397,173,225	21.2	21.2	1.4	1.4	6.1	1.1	3.8	-0.5	-1.0	Dec-10
<i>Total Real Assets Policy Index</i>				5.0	5.0	12.7	6.8	6.7	9.5	10.3	Dec-10
Real Estate	212,500,508	11.3	53.5	0.3	0.3	-1.8	-1.1	1.6	-3.1	3.4	Mar-85
<i>NCREIF Property (1 Qtr Lag)</i>				6.2	6.2	17.7	8.4	7.8	9.3	8.1	Mar-85
Natural Resources	116,721,075	6.2	29.4	2.0	2.0	1.1	1.3	-0.1	3.3	3.7	Dec-10
<i>NCREIF Farmland Total Return Index (1 Qtr Lag)</i>				3.8	3.8	7.8	5.2	5.7	9.7	10.5	Dec-10
Infrastructure	67,951,642	3.6	17.1	4.4	4.4	65.9	7.9	14.7	--	7.9	Jul-12
<i>S&P Global Infrastructure TR USD</i>				7.5	7.5	16.7	8.0	7.7	7.8	8.3	Jul-12

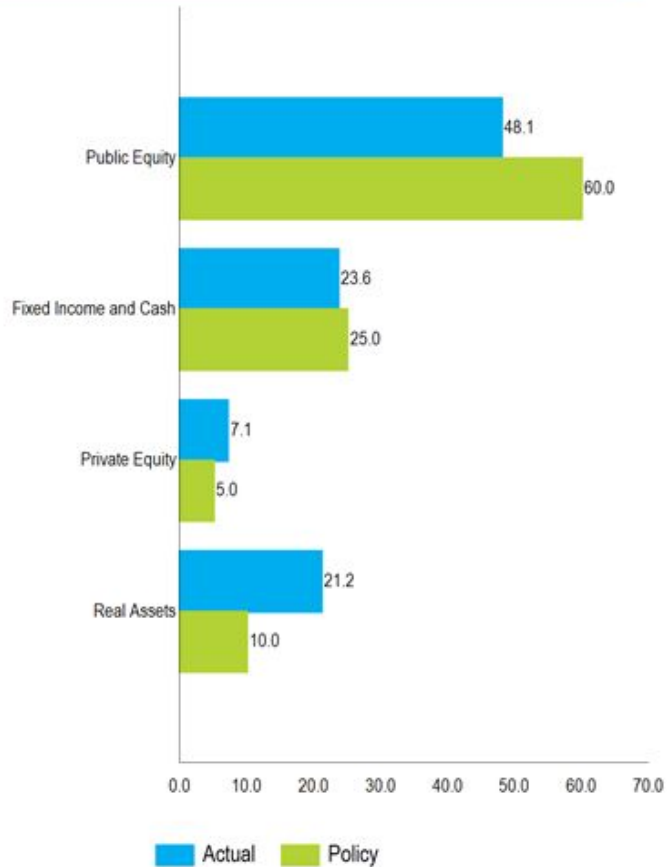
¹ All Private Market market values are one quarter lagged unless otherwise noted.



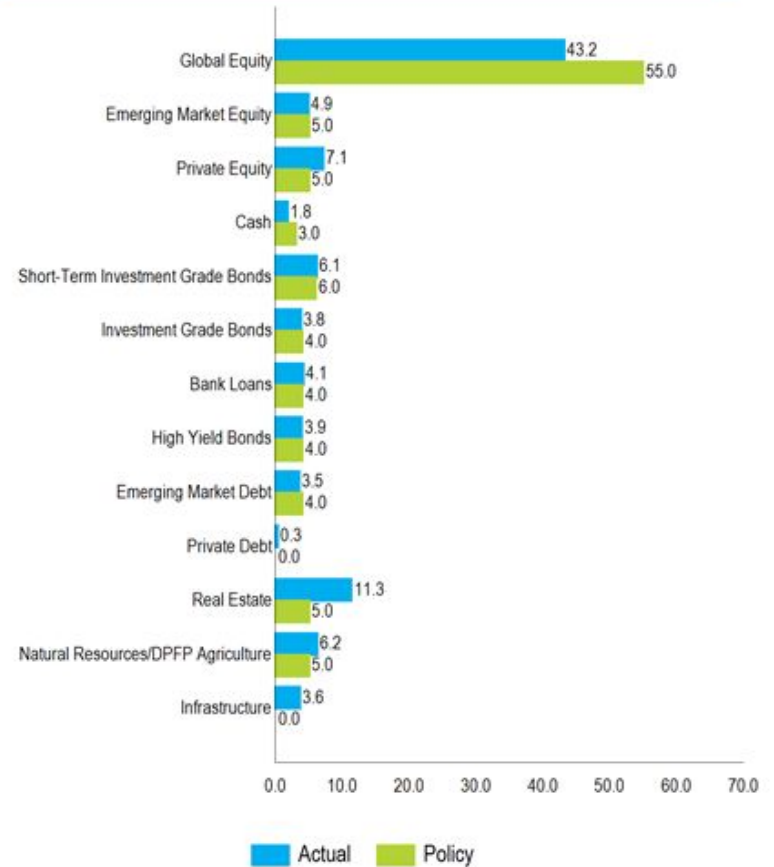
Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Asset Category Actual vs Target Allocation (%)
As of March 31, 2022



Asset Classes Actual vs Target Allocation (%)
As of March 31, 2022





Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
Equity	\$1,036,511,493	55%	65%		
Global Equity	\$810,367,357	43%	55%	36% - 60%	Yes
Emerging Market Equity	\$92,006,516	5%	5%	3% - 7%	Yes
Private Equity	\$134,137,620	7%	5%		
Fixed Income and Cash	\$443,716,382	24%	25%		
Cash	\$33,260,854	2%	3%	0% - 6%	Yes
Short-Term Investment Grade Bonds	\$115,437,429	6%	6%	0% - 9%	Yes
Investment Grade Bonds	\$71,558,303	4%	4%	2% - 6%	Yes
Bank Loans	\$77,167,178	4%	4%	2% - 6%	Yes
High Yield Bonds	\$73,706,007	4%	4%	2% - 6%	Yes
Emerging Market Debt	\$66,555,776	4%	4%	2% - 6%	Yes
Private Debt	\$6,030,835	0%	0%		
Real Assets	\$397,173,225	21%	10%		
Real Estate	\$212,500,508	11%	5%		
Natural Resources/DPFP Agriculture	\$116,721,075	6%	5%		
Infrastructure	\$67,951,642	4%	0%		
Total	\$1,877,401,099	100%	100%		

¹ As of 3/31/2022, the Safety Reserve exposure was approximately \$148.7 million (7.9%).

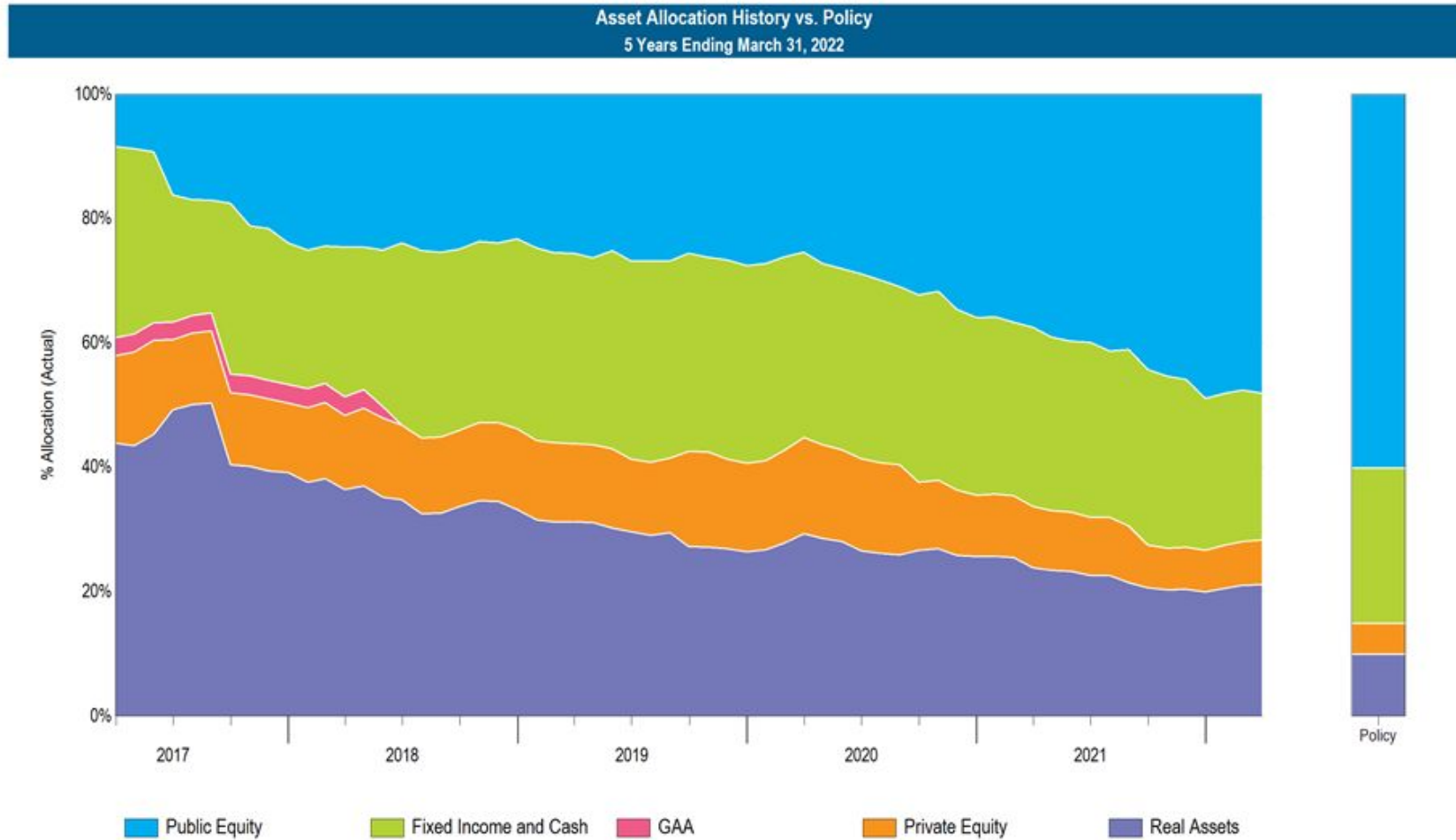
² Global equity consists of 26% US, 15% Developed Non-US, and 2% Emerging Markets.

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, 2022





Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Statistics Summary						
5 Years Ending March 31, 2022						
	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
DPFP	3.3%	6.3%	-0.9	0.6	0.3	5.0%
Policy Index	7.7%	8.6%	--	1.0	0.8	0.0%
Public Equity	11.5%	15.2%	0.1	1.0	0.7	2.3%
MSCI ACWI IMI Net USD	11.4%	15.5%	--	1.0	0.7	0.0%
Global Equity	12.0%	15.7%	0.3	1.0	0.7	2.3%
MSCI ACWI IMI Net USD	11.4%	15.5%	--	1.0	0.7	0.0%
Private Equity	-15.8%	28.1%	-1.2	0.2	-0.6	30.5%
Private Equity Custom Benchmark	20.1%	16.1%	--	1.0	1.2	0.0%
Bank Loans	4.3%	4.4%	0.1	0.6	0.7	2.8%
Credit Suisse Leveraged Loan	4.1%	6.8%	--	1.0	0.4	0.0%
High Yield Bonds	3.5%	8.4%	-0.7	1.1	0.3	1.8%
Bloomberg US Corporate High Yield TR	4.7%	7.5%	--	1.0	0.5	0.0%
Emerging Markets Debt	-1.5%	12.9%	-0.6	1.3	-0.2	4.3%
50% JPM EMBI/50% JPM GBI-EM	1.0%	9.6%	--	1.0	0.0	0.0%



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Statistics Summary						
5 Years Ending March 31, 2022						
	Anlzd Return	Anlzd Standard Deviation	Information Ratio	Beta	Sharpe Ratio	Tracking Error
Real Estate	1.6%	3.4%	-1.2	0.1	0.1	5.3%
NCREIF Property (1 Qtr Lag)	7.8%	4.3%	--	1.0	1.5	0.0%
Natural Resources	-0.1%	6.7%	-0.9	0.9	-0.2	6.2%
NCREIF Farmland Total Return Index (1 Qtr Lag)	5.7%	3.0%	--	1.0	1.6	0.0%
Infrastructure	14.7%	32.6%	0.2	0.1	0.4	35.9%
S&P Global Infrastructure TR USD	7.7%	16.7%	--	1.0	0.4	0.0%



Dallas Police & Fire Pension System

DPFP | As of March 31, 2022

Benchmark History		
As of March 31, 2022		
DPFP		
10/1/2021	Present	55% MSCI ACWI IMI Net USD / 5% MSCI Emerging Market IMI Net / 5% Russell 3000 +3% 1-Quarter Lag / 6% Bloomberg US Aggregate 1-3 Yr TR / 4% Bloomberg US Corporate High Yield TR / 4% Bloomberg US Aggregate TR / 4% S&P/LSTA Leveraged Loan / 4% 50% JPM EMBI/50% JPM GBI-EM / 5% NCREIF Farmland Total Return Index (1 Qtr Lag) / 5% NCREIF Property (1 Qtr Lag) / 3% 91 Day T-Bills
8/1/2021	9/30/2021	55% MSCI ACWI IMI Net USD / 5% MSCI Emerging Market IMI Net / 5% Cambridge Associates US All PE (1 Qtr Lag) / 6% Bloomberg US Aggregate 1-3 Yr TR / 4% Bloomberg US Corporate High Yield TR / 4% Bloomberg US Aggregate TR / 4% S&P/LSTA Leveraged Loan / 4% 50% JPM EMBI/50% JPM GBI-EM / 5% NCREIF Farmland Total Return Index (1 Qtr Lag) / 5% NCREIF Property (1 Qtr Lag) / 3% 91 Day T-Bills
1/1/2019	7/31/2021	40% MSCI ACWI IMI Net USD / 10% MSCI Emerging Market IMI Net / 5% Cambridge Associates US All PE (1 Qtr Lag) / 12% Bloomberg US Aggregate 1-3 Yr TR / 4% Bloomberg Global Aggregate TR / 4% Bloomberg US Corporate High Yield TR / 4% Bloomberg US Aggregate TR / 4% S&P/LSTA Leveraged Loan / 4% 50% JPM EMBI/50% JPM GBI-EM / 5% NCREIF Farmland Total Return Index (1 Qtr Lag) / 5% NCREIF Property (1 Qtr Lag) / 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% Bloomberg US Aggregate 1-3 Yr TR / 4% Bloomberg Global Aggregate TR / 4% Bloomberg US High Yield 2% Issuer Cap TR / 4% S&P/LSTA Leveraged Loan / 4% Bloomberg 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% Bloomberg US Aggregate 1-3 Yr TR / 3% Bloomberg Global Aggregate TR / 5% Bloomberg 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
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 Qtr Lag) / 50% NCREIF Farmland Total Return Index (1 Qtr Lag)
Private Equity		
10/1/2021	Present	Russell 3000 +3% 1-Quarter Lag

Disclaimer, Glossary, and Notes



Disclaimer, Glossary, and Notes

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.



Disclaimer, Glossary, and Notes

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. $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} \times (\text{market return} - \text{Risk Free Rate})]$.

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.



Disclaimer, Glossary, and Notes

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 its 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.

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.

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.

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.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.



Disclaimer, Glossary, and Notes

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%.

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

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

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

The Russell Indices®, TM, SM are trademarks/service marks of the Frank Russell Company.

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.



Dallas Police & Fire Pension System

As of December 31, 2021

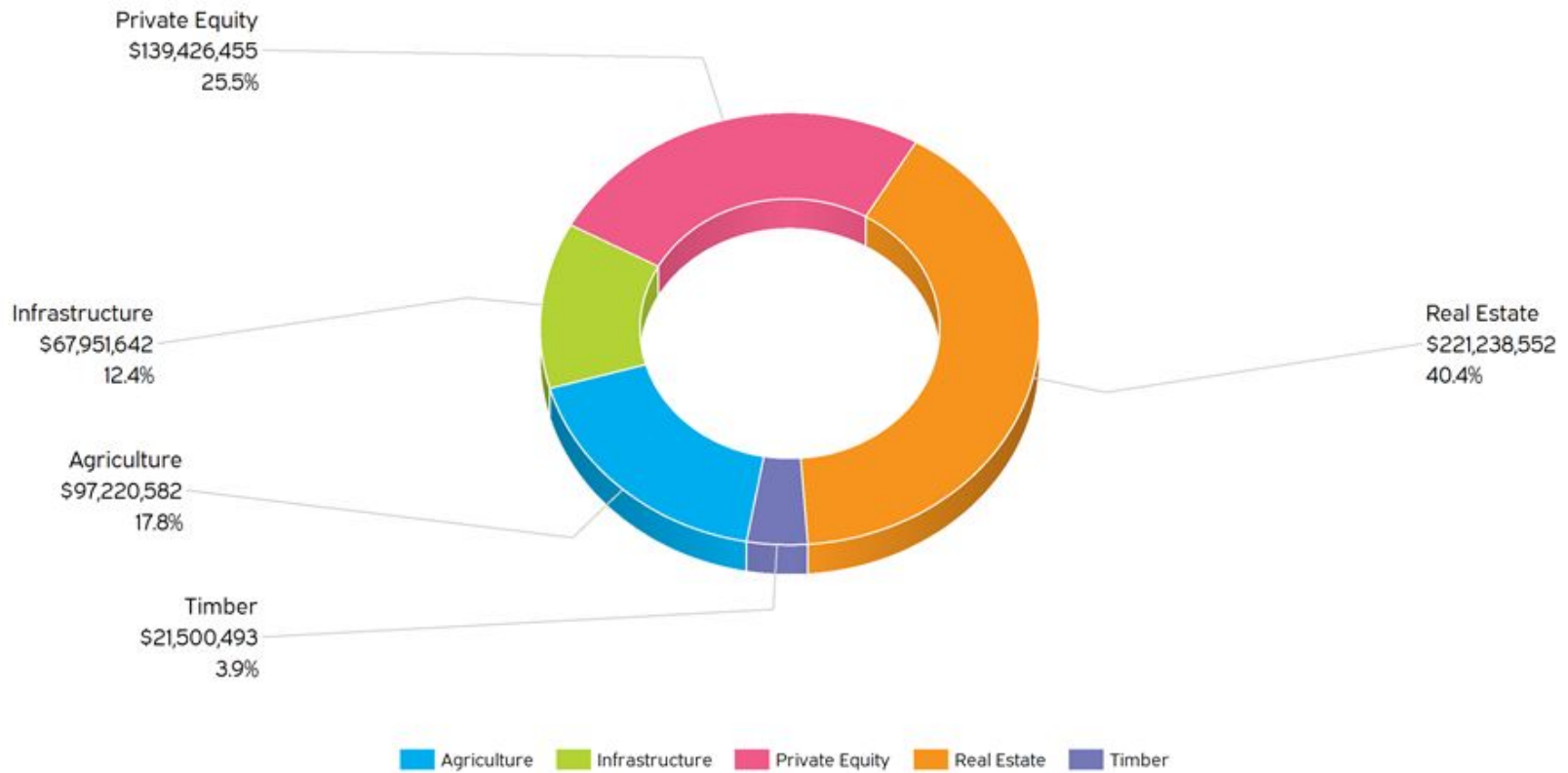
Private Markets Review



Dallas Police & Fire Pension System

Private Markets Review | As of December 31, 2021

Private Market Investments as of December 31, 2021
Market Value Allocation by Asset Class



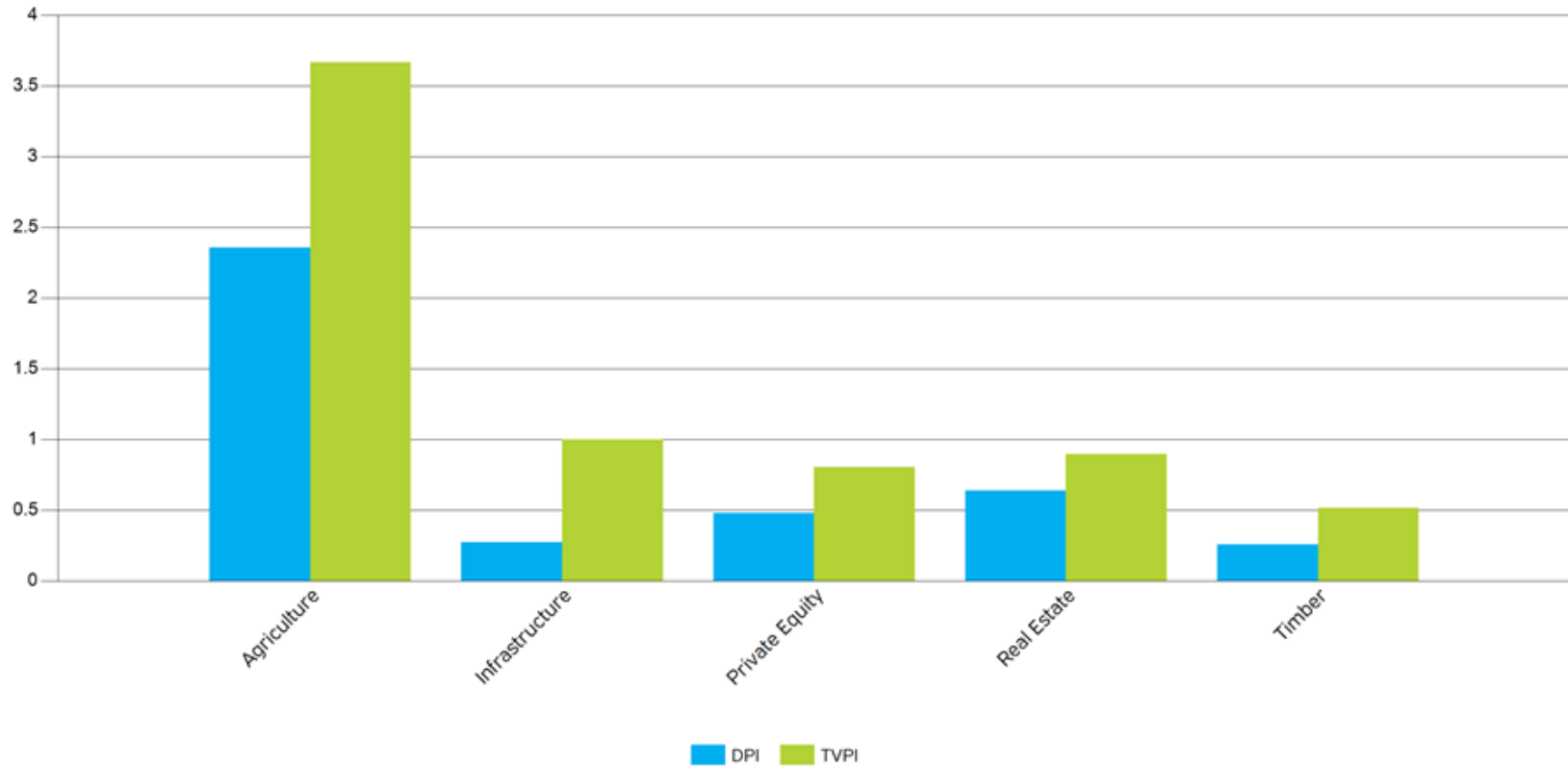
1. Private Equity is composed of Private Equity and Private Debt.



Dallas Police & Fire Pension System

Private Markets Review | As of December 31, 2021

Private Market Investments as of December 31, 2021
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, 2021

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	175,592,840	97,220,582	272,813,422	198,393,421	1.00	2.36	3.67	14.73
Total Infrastructure	97,000,000	93,901,460	24,232,056	67,951,642	92,183,698	-1,717,762	0.97	0.26	0.98	0.00
Total Private Equity	409,251,115	445,179,631	207,233,705	139,426,455	346,660,160	-98,519,471	1.09	0.47	0.78	-4.32
Total Real Estate	806,913,998	796,277,053	481,334,147	221,238,552	702,572,699	-93,704,354	0.99	0.60	0.88	-1.50
Total Timber	83,032,622	83,032,622	21,150,000	21,500,493	42,650,493	-40,382,129	1.00	0.25	0.51	-8.09
Total	1,470,617,736	1,492,810,767	909,542,747	547,337,724	1,456,880,471	-35,930,295	1.02	0.61	0.98	0.23

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, 2021

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	37,955,201	2,484,199
TRG AIRRO II	2013	10,000,000	7,304,402	2,283,286
JPM Maritime Fund, LP	2009	50,000,000	48,641,857	1,365,941
Total Infrastructure		97,000,000	93,901,460	6,133,426
Private Equity				
Industry Ventures Partnership IV	2016	5,000,000	3,754,985	700,000
Riverstone Credit Partners LP	2016	10,000,000	12,242,390	514,296
Total Private Equity		15,000,000	15,997,375	1,214,296
Real Estate				
Hearthstone MS II Homebuilding Investors	1999	10,000,000	7,973,058	1,005,708
Hearthstone MS III Homebuilding Investors	2003	10,000,000	1,221,446	1,997,675
Total Real Estate		20,000,000	9,194,504	3,003,383
Total		132,000,000	119,093,338	10,351,105

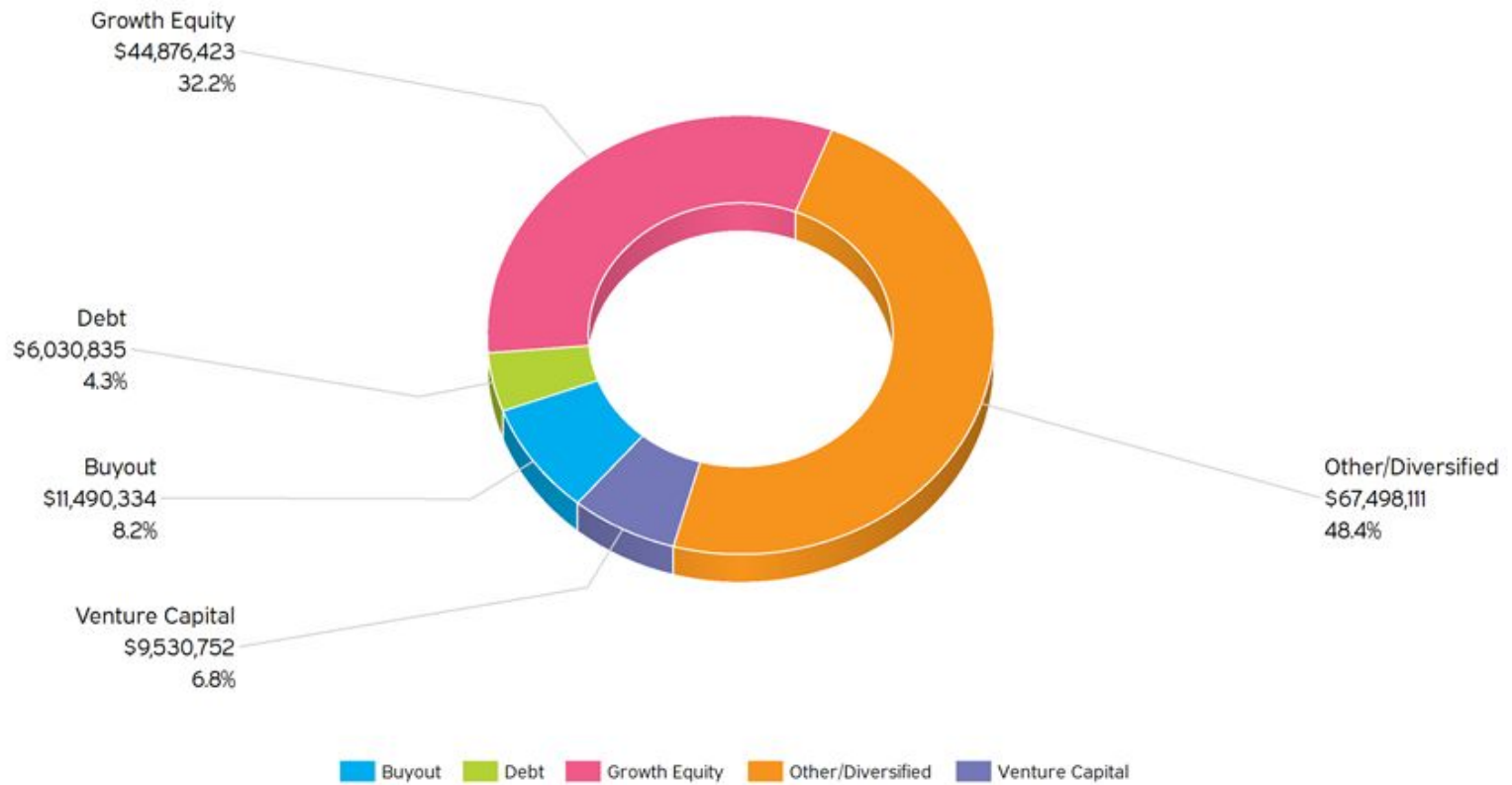
1. Private markets performance reflected is composed of active investments only.
2. The funds and figures above represent investments with unfunded capital commitments.



Dallas Police & Fire Pension System

Private Equity and Debt | As of December 31, 2021

Private Equity and Debt Investments as of December 31, 2021
Market Value Allocation by Strategy

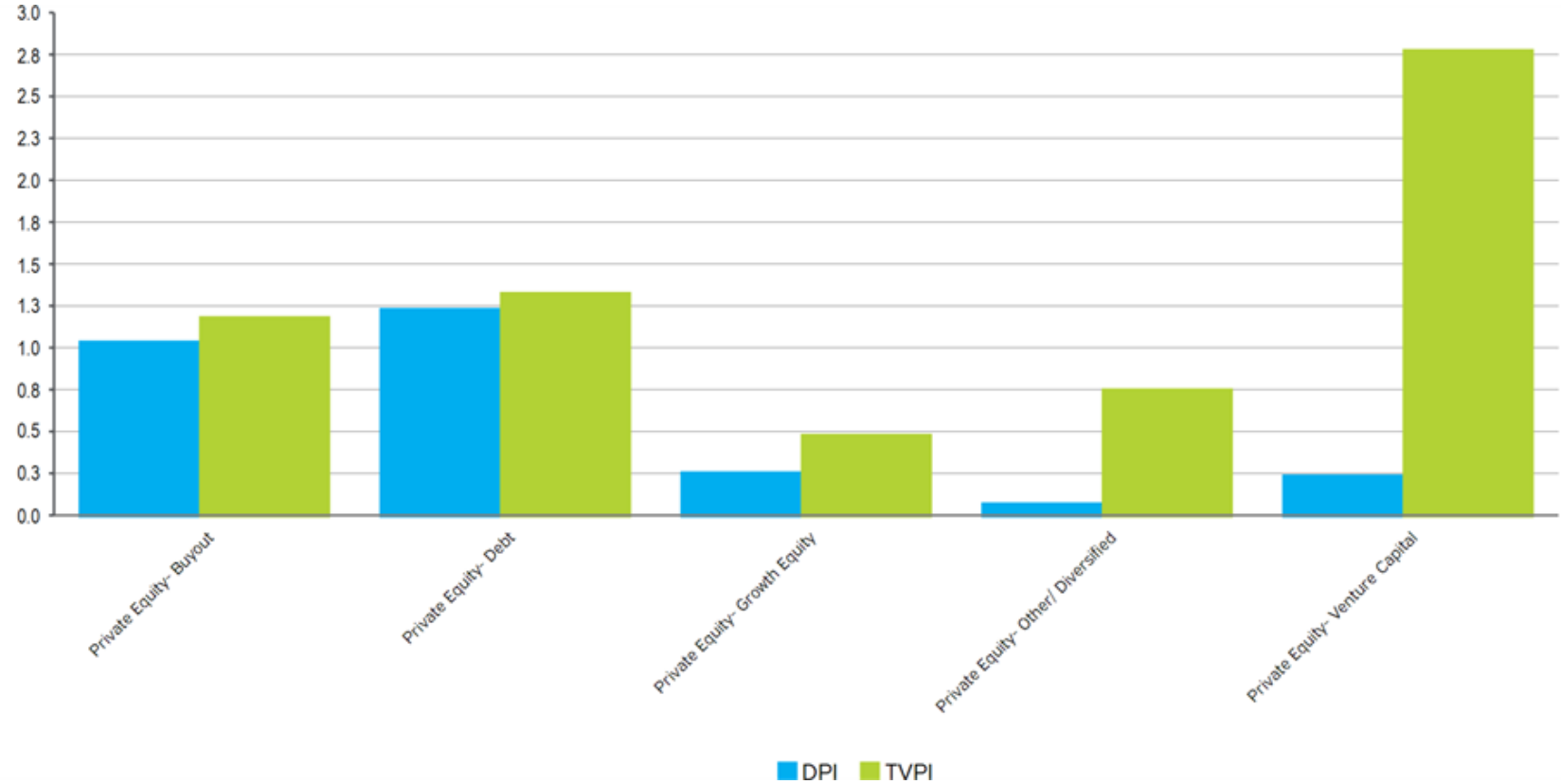




Dallas Police & Fire Pension System

Private Equity and Debt | As of December 31, 2021

Private Equity and Debt Investments as of December 31, 2021
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, 2021

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	78,833,017	79,706,991	11,490,334	91,197,325	12,364,308	1.18	1.01	1.16	1.72
Total Buyout		66,795,718	78,833,017	79,706,991	11,490,334	91,197,325	12,364,308	1.18	1.01	1.16	1.72
Debt											
Highland Crusader Fund	2003	50,955,397	50,955,397	66,721,549	1,554,398	68,275,947	17,320,550	1.00	1.31	1.34	4.77
Riverstone Credit Partners LP	2016	10,000,000	12,242,390	9,483,689	4,476,437	13,960,126	1,717,736	1.22	0.77	1.14	5.56
Total Debt		60,955,397	63,197,787	76,205,238	6,030,835	82,236,073	19,038,286	1.04	1.21	1.30	4.82
Growth Equity											
Hudson Clean Energy	2009	25,000,000	24,994,470	4,732,352	730,638	5,462,990	-19,531,480	1.00	0.19	0.22	-22.42
Lone Star CRA	2008	50,000,000	60,703,798	18,811,051	39,849,647	58,660,698	-2,043,100	1.21	0.31	0.97	-1.08
Lone Star Growth Capital	2006	16,000,000	26,679,375	12,800,000	0	12,800,000	-13,879,375	1.67	0.48	0.48	-52.00
Lone Star Opportunities V	2012	75,000,000	75,153,125	531,444	0	531,444	-74,621,681	1.00	0.01	0.01	-99.30
Lone Star Bridge Loan	2020	500,000	2,450,000	0	2,691,308	2,691,308	241,308	4.90	0.00	1.10	13.06
North Texas Opportunity Fund	2000	10,000,000	10,000,000	9,127,239	1,604,830	10,732,069	732,069	1.00	0.91	1.07	0.77
Total Growth Equity		176,500,000	199,980,768	46,002,086	44,876,423	90,878,509	-109,102,259	1.13	0.23	0.45	-19.51
Other/Diversified											
Huff Energy Fund LP	2006	100,000,000	99,210,178	4,477,394	67,498,111	71,975,505	-27,234,673	0.99	0.05	0.73	-2.78
Total Other/Diversified		100,000,000	99,210,178	4,477,394	67,498,111	71,975,505	-27,234,673	0.99	0.05	0.73	-2.78
Venture Capital											
Industry Ventures Partnership IV	2016	5,000,000	3,754,985	796,796	9,530,752	10,327,548	6,572,563	0.75	0.21	2.75	31.78
Total Venture Capital		5,000,000	3,754,985	796,796	9,530,752	10,327,548	6,572,563	0.75	0.21	2.75	31.78
Unclassified											
Miscellaneous Private Equity Expenses	2016		202,896	45,200							
Total Unclassified			202,896	45,200							
Total		409,251,115	445,179,631	207,233,705	139,426,455	346,660,160	-98,519,471	1.09	0.47	0.78	-4.32

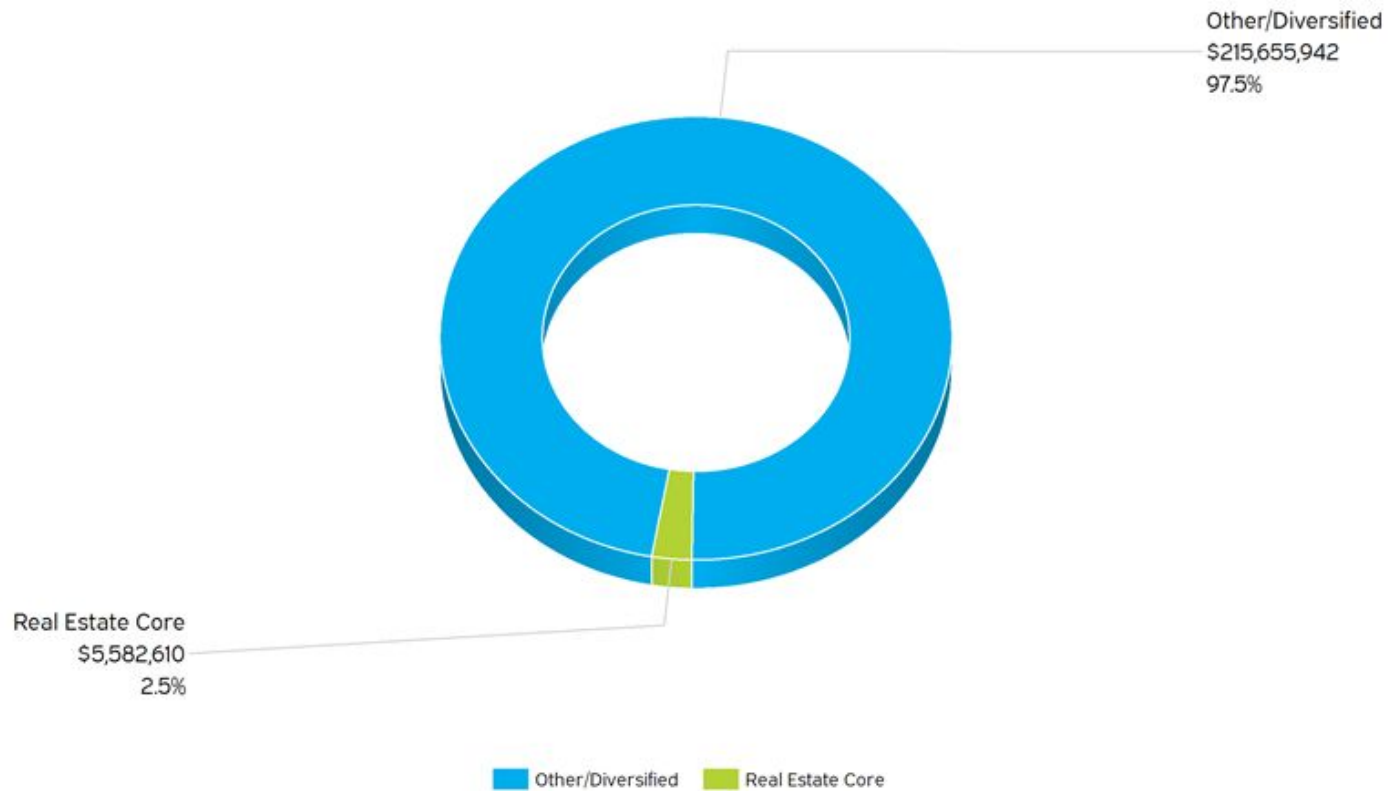
1. Private Markets performance reflected is composed of active investments only.
2. Lone Star valuations are as of 12/31/20, provided by Conway Mackenzie.
3. The "IRRs" listed for Lone Star Growth Capital and Lone Star Opportunities Fund V are since inception total return figures.
4. Huff Alternative, Hudson Clean Energy, and Industry Ventures Partnership IV show 9/30/2021 NAVs cash flow adjusted through 12/31/2021.
5. Huff Energy Fund valuations are as of 12/31/20.
6. The North Texas Opportunity Fund Valuation shows a 6/30/2021 NAV cash flow adjusted through 12/31/2021.



Dallas Police & Fire Pension System

Real Estate | As of December 31, 2021

Real Estate Investments as of December 31, 2021 Market Value Allocation by Strategy



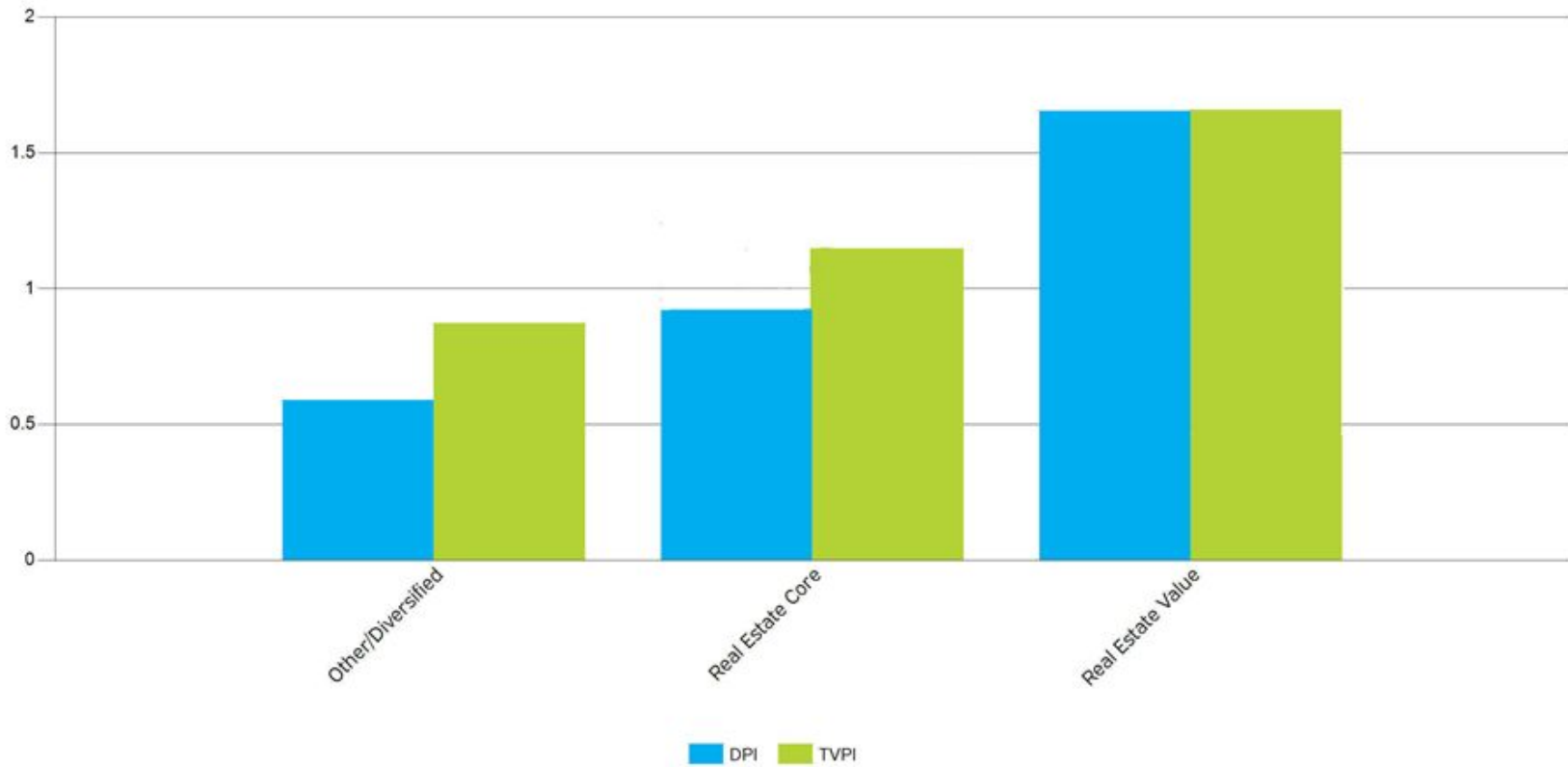
1. Other/Diversified is composed of direct real estate investments made by the fund.



Dallas Police & Fire Pension System

Real Estate | As of December 31, 2021

Real Estate Investments as of December 31, 2021
DPI and TVPI 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, 2021

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	767,595,151	767,595,151	448,392,796	215,655,942	664,048,738	-103,546,413	1.00	0.58	0.87	-1.84
Real Estate Core										
Total Real Estate Core	19,318,847	19,318,847	16,975,857	5,582,610	22,558,467	3,239,620	1.00	0.88	1.17	3.17
Real Estate Value										
Total Real Estate Value	20,000,000	9,194,504	15,206,576	0	15,206,576	6,012,072	0.46	1.65	1.65	25.93
Total	806,913,998	796,277,053	481,334,147	221,238,552	702,572,699	-93,704,354	0.99	0.60	0.88	-1.50

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

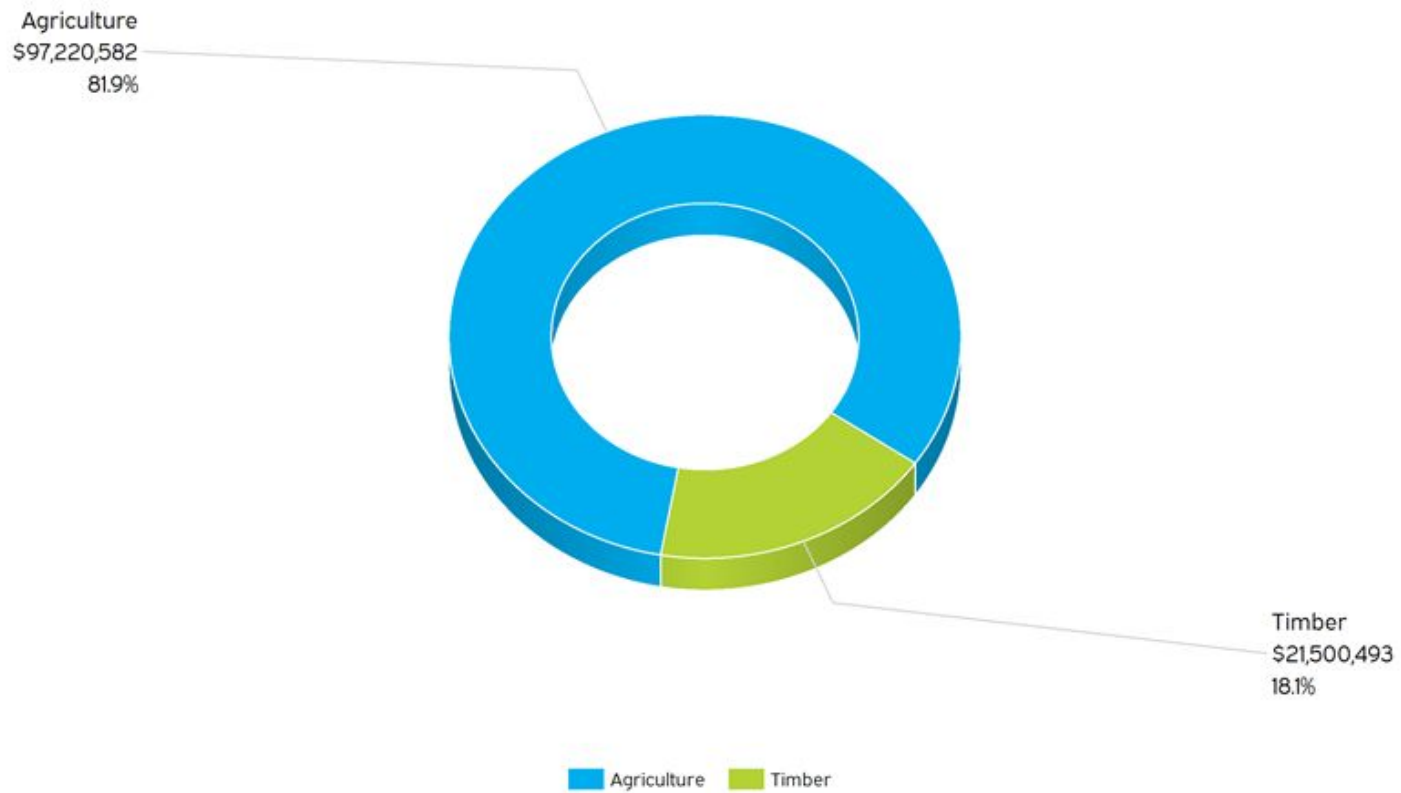
2. Commitment value is equal to paid in capital for direct investments made outside of a traditional Limited Partnership fund structure.



Dallas Police & Fire Pension System

Natural Resources | As of December 31, 2021

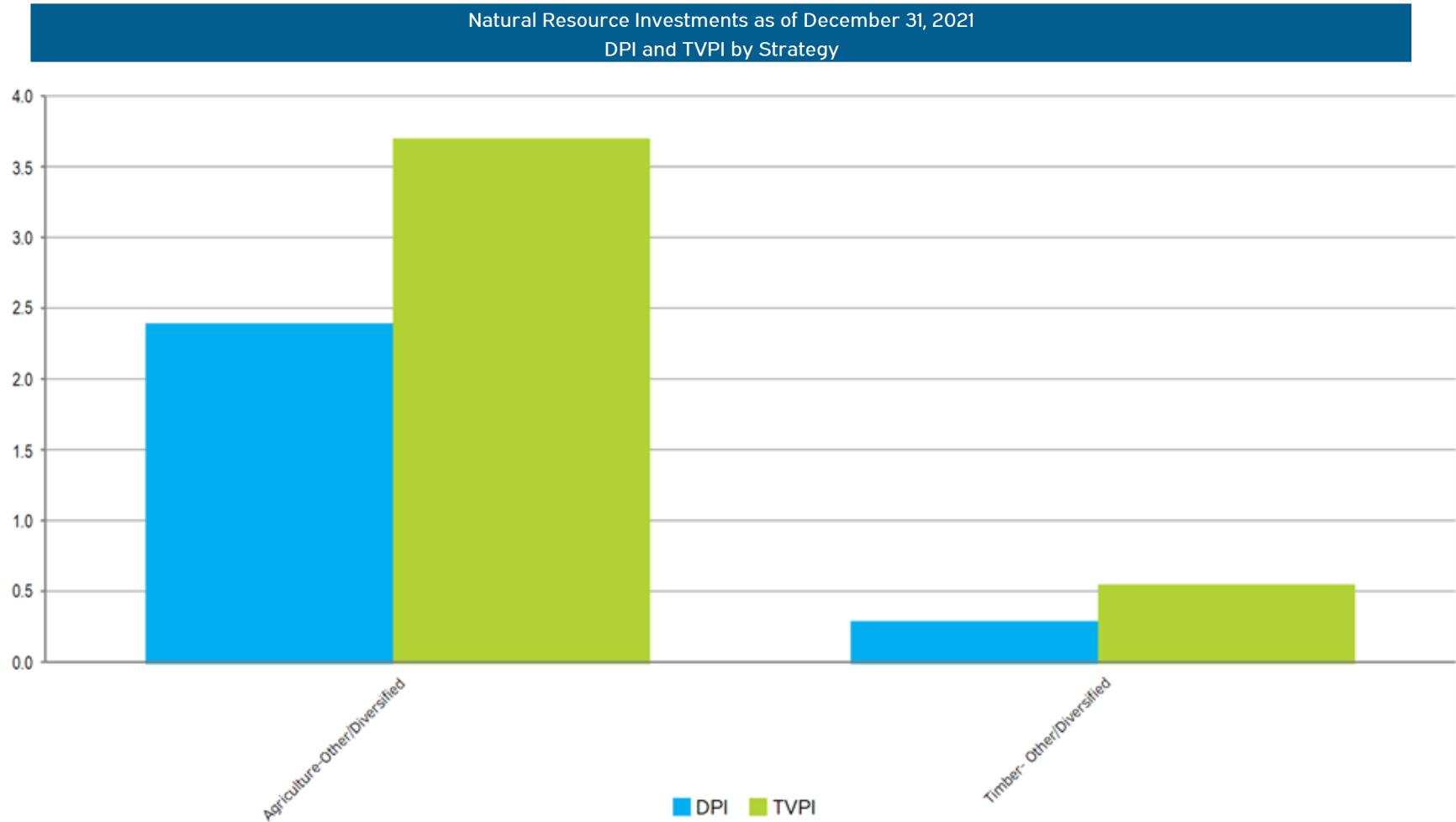
Natural Resources Investments as of December 31, 2021
Market Value Allocation by Asset Class





Dallas Police & Fire Pension System

Natural Resources | As of December 31, 2021



- 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, 2021

Natural Resource Investments Overview											
Active Funds		Commitments		Valuations				Performance			
Investment Name	Vintage Year	Commitment (\$)	Paid In Capital (\$)	Distributions (\$)	Valuation (\$)	Total Value (\$)	Unrealized Gain/Loss (\$)	Call Ratio	DPI	TVPI	IRR (%)
Agriculture											
Hancock Agricultural	1998	74,420,001	74,420,001	175,592,840	97,220,582	272,813,422	198,393,421	1.00	2.36	3.67	14.73
Total Agriculture		74,420,001	74,420,001	175,592,840	97,220,582	272,813,422	198,393,421	1.00	2.36	3.67	14.73
Timber											
BTG Pactual	2006	82,985,536	82,381,533	21,150,000	21,500,493	42,650,493	-40,428,102	0.99	0.26	0.52	-8.09
Total Timber		82,985,536	82,381,533	21,150,000	21,500,493	42,650,493	-40,428,102	0.99	0.26	0.52	-8.09
Total		157,405,537	175,613,990	196,742,840	118,721,075	315,463,915	157,965,319	1.00	1.25	2.00	8.61

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.



Dallas Police & Fire Pension System

Infrastructure | As of December 31, 2021

Infrastructure Investments as of December 31, 2021 Market Value Allocation by Strategy



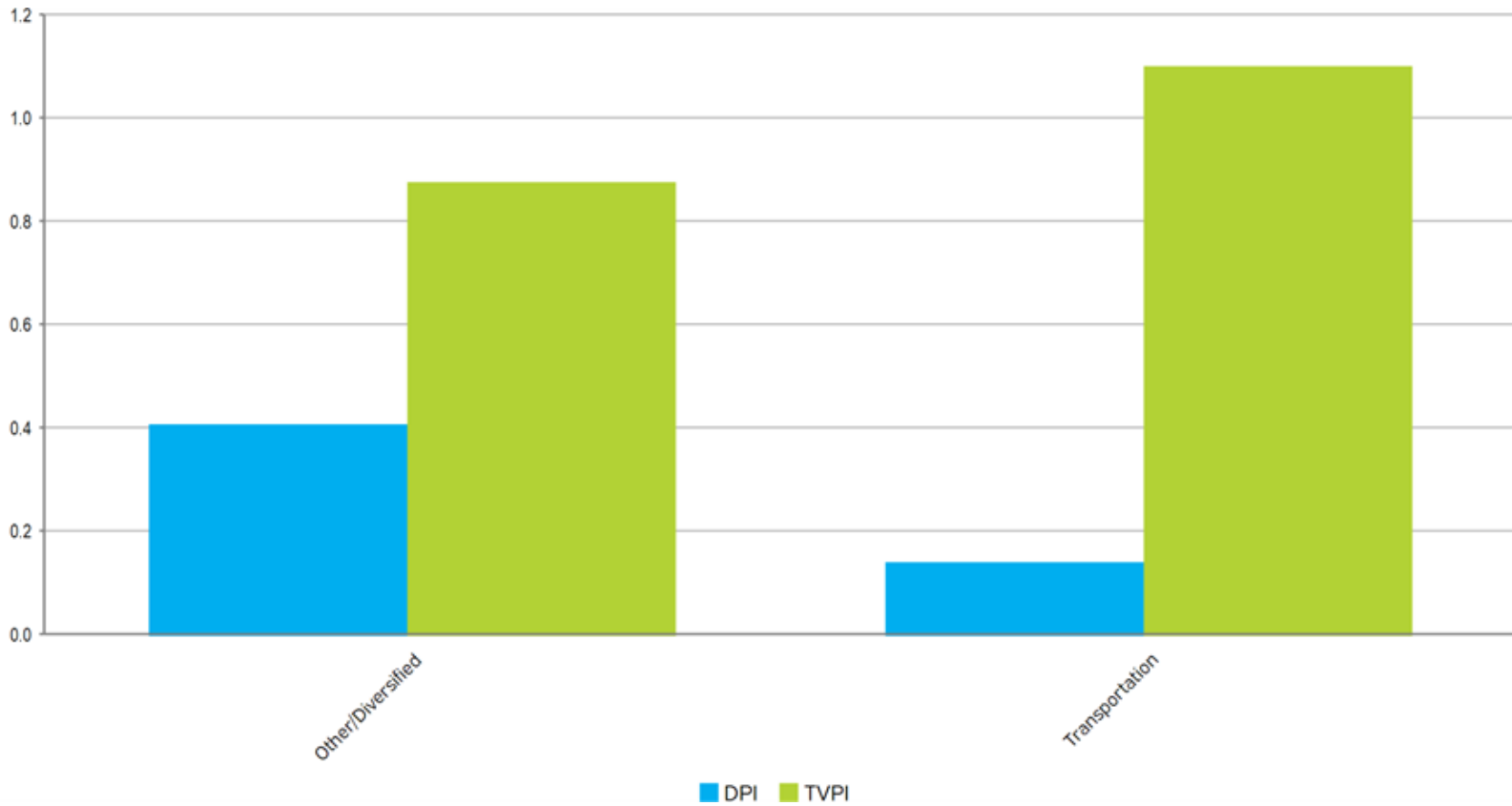
¹'Other/Diversified' is composed of various operating and developing infrastructure project exposure.



Dallas Police & Fire Pension System

Infrastructure | As of December 31, 2021

Infrastructure Investments as of December 31, 2021
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, 2021

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	37,955,201	17,873,234	16,943,420	34,816,654	-3,138,547	1.03	0.47	0.92	-1.24
TRG AIRRO II	2013	10,000,000	7,304,402	58,731	4,289,433	4,348,164	-2,956,238	0.73	0.01	0.60	-6.52
JPM Maritime Fund, LP	2009	50,000,000	48,641,857	6,300,091	46,718,789	53,018,880	4,377,023	0.97	0.13	1.09	1.79
Total Infrastructure		97,000,000	93,901,460	24,232,056	67,951,642	92,183,698	-1,717,762	0.97	0.26	0.98	0.00

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, 2021

Total Real Assets Program												
Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Addtl 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
Barings Lake Luciana	2006	95,025,191	95,025,191	0	0	17,872,293	0	17,872,293	-77,152,898	0.19	0.19	-19.89%
Barings Lake P&F Real Estate	2010	18,112,486	18,112,486	0	0	4,227,991	0	4,227,991	-13,884,495	0.23	0.23	-15.79%
Benfall Green Oak	2004	20,269,554	20,269,554	0	0	34,650,146	0	34,650,146	14,380,592	1.71	1.71	5.63%
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%
Clarion The Tribute	2007	29,929,676	29,929,676	0	0	47,138,778	0	47,138,778	17,209,102	1.57	1.57	4.84%
Forest Investment Associates	1992	59,649,696	59,649,696	0	0	104,895,920	0	104,895,920	45,246,224	1.76	1.76	7.41%
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 Advisors 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		1,022,583,737	#####	0	840,631	1,000,707,128	0	1,000,707,128	39,179,574	1.04	1.04	



Dallas Police & Fire Pension System

Private Markets Review | As of December 31, 2021

Private Equity & Debt Funds												
Completed Funds	Vintage Year	Commitment Amount	Paid in Capital	Capital to be Funded	Addtl 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, LP	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, LP	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, LP	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.), LP	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.), LP	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.), LP	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, LP	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%
Yellowstone Capital	2008	5,283,254	5,112,307	0	0	1,465,725	0	1,465,725	-3,646,582	0.29	0.29	-31.26%
Total Completed Funds		869,434,011	786,475,506	0	14,917,109	907,459,599	0	907,459,599	106,066,984	1.13	1.13	



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 #C8

- 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 or any other legal matter in which the duty of the attorneys to DFPF 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.**

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

ITEM #C9

Topic: Closed Session - Board serving as Medical Committee

Discussion of the following will be closed to the public under the terms of Section 551.078 of the Texas Government Code:

Disability application 2022-2

Discussion: Staff will update the Board on the status of this application.

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

ITEM #D1

Topic: Public Comment

Discussion: Comments from the public will be received by the Board.

Regular Board Meeting – Thursday, June 2, 2022



DISCUSSION SHEET

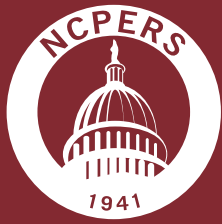
ITEM #D2

Topic: Executive Director's report

- a. Associations' newsletters
 - NCPERS PERSist (Spring 2022)
- b. Open Records
- c. Non-member Trustee Election Update

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

Regular Board Meeting – Thursday, June 2, 2022



PERSIST

The Voice for Public Pensions

Spring 2022 | Volume 35 | Number 2



NCPERS Message



Inaugural Compensation Survey Needs Broad Participation by NCPERS Members

Competition for top talent is heating up in virtually every sector of the U.S. economy, and public pensions are no exception. Confronting this trend, members have turned to NCPERS to seek new tools and resources. To help you navigate recruiting and retention, we are pleased to undertake our first-ever compensation survey.

By now, your compensation survey questionnaire should have arrived via U.S. Mail. We've kept it to a succinct four pages to ensure that completing the questionnaire won't burden you. Members can fill it out and mail it back in or complete it online—the choice is yours. All participants will get a free hard copy of the survey results, plus access to a survey dashboard.

Our one vital request is that you participate. We are excited about the opportunity to collect robust data and build meaningful benchmarks about public pension system compensation. Broad member input is essential for us to create data that can provide insights into how your pay and benefits compare to your peer group.

In completing the survey, rest assured that you will enjoy complete confidentiality. Cobalt Community Research will collect and tabulate surveys, which has partnered with NCPERS on several other high-level research projects.

The survey instrument consists of 17 questions and covers nine distinct jobs. These positions are:

[CONTINUED ON PAGE 8](#)

In This Issue

2 Actuary: In December 2021, after three rounds of exposure drafts and stakeholder commentary, the Actuarial Standards Board finalized and adopted changes to Actuarial Standard of Practice No. 4 on measuring pension obligations and determining plan costs, including the introduction of a new market-based liability measurement. Learn what's applicable and notable about these changes for your plans, what are the primary concerns with implementation, and potentially how to interpret the measure in a practical and reasonable way.

3 Asset Manager: When it comes to tackling climate change, there is a case to be made that resources companies are part of the solution—not the problem.

4 Investment Consultant: Clearwater Analytics began a new series of flash polls this year designed to provide timely insights from a large sample of institutional asset owners and managers. Our latest poll about alternative investing received 110 responses, revealing the top alternative asset classes, what's driving alternative investing, and the challenges institutional investors face when adding alternatives to their portfolios.

5 Legal: This article concerns a recent development in bankruptcy case law that, in a break from long-established precedent, suggests courts may start treating pension plan loans as “debts” in the participant's bankruptcy case, thereby increasing the potential for litigation.

6 Pension Administration: Security today is everyone's job, from leader's setting the tone to staff logging into the PAS and including members and employers logging into their portals.

7 Research: NCPERS Pension Accounting Working Group Report preview.

Revisions to Actuarial Standard of Practice No. 4 Expand Disclosure Requirements for Public Pension Plan Valuations

By: Brad Ramirez

In December 2021, after three rounds of exposure drafts and stakeholder commentary, the Actuarial Standards Board finalized and adopted changes to an Actuarial Standard of Practice (ASOP) called ASOP No. 4, *Measuring Pension Obligations and Determining Plan Costs or Contributions*. ASOP No. 4 adds significant disclosure requirements for all actuarial valuations issued on or after February 15, 2023.



Photo illustration © 2022 Shutterstock.com

What Are ASOPs?

ASOPs are the professional guidelines that govern work done by actuaries. The self-governed Actuarial Standards Board issues them after seeking input from practicing actuaries. Actuaries are required to follow ASOPs as part of membership in professional organizations, such as the Society of Actuaries and the American Academy of Actuaries.

Which New Disclosure Requirements Are Notable?

Some new disclosures relate to calculating a “reasonable” actuarial determined contribution (regardless of whether it was actually contributed) and related assessments of actual contributions. A particularly conspicuous change is a requirement to calculate and disclose a new market-based liability measurement called the Low-Default-Risk Obligation Measure (LDROM).

Under the revised ASOP, the LDROM may be determined in a manner similar to the Actuarial Accrued Liability (AAL) that’s commonly used in public sector plan funding, but with a key difference: instead of basing the discount rate on the plan’s expected rate of return (as is done in determining the AAL), the LDROM must use discount rates derived from “low-default-risk fixed income securities.” Examples of these rates include U.S. Treasury yields and yields on high-rated corporate or tax-exempt general obligation municipal bonds.

Conceptually, when determined using the same AAL basis as used for funding, the LDROM represents what a plan’s funding liability would be if the plan invested entirely in low-default-risk fixed income securities. For that reason, in most cases, the LDROM will be significantly higher than the funding AAL, simply because most plans are invested in assets with higher expected returns than a bonds-only portfolio.

CONTINUED ON PAGE 8

Brad Ramirez, FSA, MAAA, FCA, EA is a Vice President and Consulting Actuary in Segal’s Denver office. He has over 25 years of public sector consulting experience working with public institutions to help manage the financial risks of providing stable retirement income to their employees. He is a member of Segal’s National Public Sector Retirement Practice and serves as consultant and actuary to many clients including the Colorado Public Employees’ Retirement Association, the North Dakota Teachers’ Fund for Retirement and the Public Employees’ Retirement System of the State of Nevada.

Natural Resources: Bridging the Gap to a Cleaner Future

By: Clive Burstow



Photo illustration © 2022 Shutterstock.com

When it comes to tackling climate change, there is some consensus around **what** needs to be done—but solving for the **how** is much more complicated. In some ways, the urgency around this question has intensified amid the conflict between Russia and Ukraine. While extremely concerning from a humanitarian perspective, the conflict has also accelerated the thinking around energy security and energy independence.

Efforts to achieve ‘net zero’ emissions by 2050 have primarily targeted carbon, given that it is the largest single emitter of greenhouse gases. As a result, resources-intensive mining, steel and energy industries have come under fire, as they produce large amounts of carbon through coal mining, oil and natural gas extraction, and steel production. However, we believe there is a strong case to be made that resources companies are part of the solution—not the problem—when it comes to tackling climate change.

Why Resources?

Reaching ‘net zero’ requires a complete transformation of the global energy grid. As part of that, wind and solar will need to account for roughly 55% of total global energy supply, up from just 6-7% today.¹ This requires massive investment in renewable power, which is heavily resource-intensive. For example, an offshore wind farm needs roughly five times more steel, on average, than an onshore fossil fuel power plant producing the same amount of power.²

Many wind turbines also require lubricants made from petroleum, and concrete platforms that come from construction materials companies. To put this another way, we are at the precipice of a global mega-demand trend, and resources are at the heart of the solution.

[CONTINUED ON PAGE 9](#)

Clive Burstow is an Investment Manager, Head of Barings Global Resources Team and is co-manager on the Barings’ Global Resources, Barings’ Global Agriculture and Barings’ Australia Funds. Clive specializes in the analysis and investment management of materials companies. Clive has worked in the industry since 2004. Prior to re-joining the firm in 2011, he worked for BlackRock and AllianceBernstein, where he was responsible for mining stock analysis. Clive initially joined Barings in 2004 as an Investment Analyst in the Global Resources team. Before that, he worked for six years as a Senior Metals Analyst at Metal Bulletin Research (MBR) and three years as a Senior Database Analyst for Mining Journal Ltd. Clive holds a B.Eng. (Hons.) in Mineral Surveying and Resource Management from the Camborne School of Mines in Cornwall.

NCPERS Investment Consultants/Services

Survey: Alternative Investing is Going Mainstream

By: Jonathan Flitt



Clearwater Analytics began a new series of flash polls this year designed to provide timely insights from a large sample of institutional asset owners and managers. For our latest poll, we turned the focus to alternative investing, a topic of interest to public pension plans.

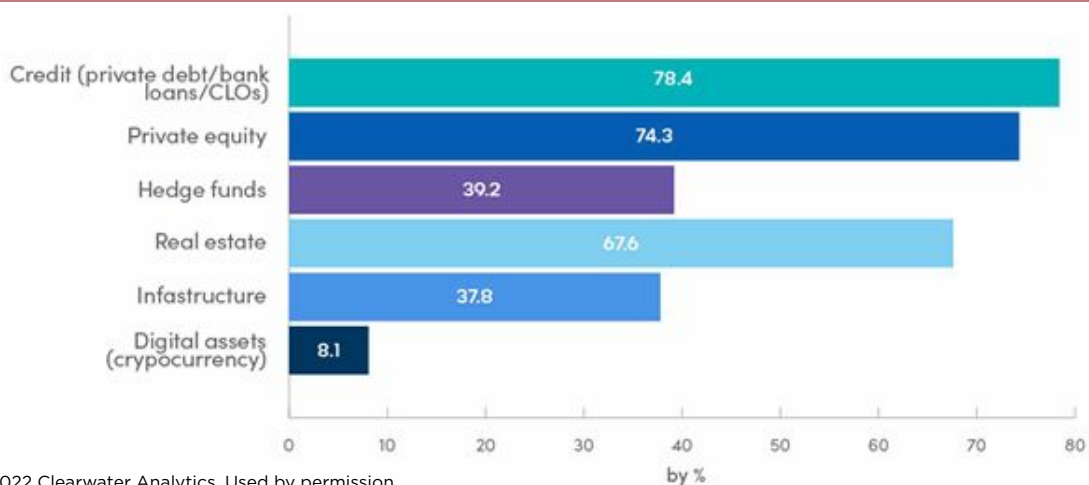
We received 110 responses representing more than \$5 trillion in AUM. The responses revealed the top alternative asset classes,

what's driving alternative investing, and the challenges institutional investors face when adding alternatives to their portfolios.

The survey showed alternative investing is dominated by private credit and private equities, with over 70% of respondents reporting some allocation. That was followed closely by real estate, with 68% reporting allocation. Investors who plan to add to their alternative allocation largely planned to stick to these same asset classes. Our

[CONTINUED ON PAGE 9](#)

FIGURE 1: What alternatives/private strategies do you invest in or manage? Check all that apply.



Source: © 2022 Clearwater Analytics. Used by permission.

Changing Views on Pension Plan Loans in Bankruptcy— Is it a “Debt”?

By: Robert Gauss & Tyson Crist

In the event a plan participant files bankruptcy—typically chapter 7 or 13—a number of issues can arise for a pension plan. Since the modern Bankruptcy Code¹ of 1978 was enacted,⁵ many courts have taken the view that a pension plan loan does not create a “debt” for purposes of the bankruptcy. This view, which avoids various thorny issues that could otherwise arise for both the pension plan and participant, emanates from a decision by the United States Court of Appeals for the Second Circuit, *In re Villarie*, 648 F.2d 810 (2d Cir. 1981). Recently, however, a bankruptcy court has challenged this seemingly well established concept, which could have ramifications for pension plans. This article will provide further background, an explanation of the recent decision, and identify one potential effect.

The *Villarie* decision concerned a loan from the New York City



Photo illustration © 2022 Shutterstock.com

Employees’ Retirement System (NYCERS) to a member who later filed chapter 7 bankruptcy. The Second Circuit ruled that because NYCERS could not sue the member to recover the advance (it could only recoup from future benefits), the loan did not create a

[CONTINUED ON PAGE 11](#)

Robert Gauss is a Partner at Ice Miller LLP and has been practicing law for over twenty-seven years. Rob is active in NCPERS and is a regular presenter on tax, compliance and fiduciary matters affecting governmental retirement plans. In particular, Rob helps governmental plans and retirement boards with compliance concerns, corrections, including correction filings with the IRS, and private letter rulings on various matters, including the special tax treatment for certain death and disability benefits for public safety employees. Having started his legal career as an officer in the United States Marine Corps, Rob takes great pride in the fact that he and Ice Miller work with plans across the country which are dedicated to providing retirement security for governmental and public safety employees.

Tyson Crist is a Partner at Ice Miller LLP, practicing bankruptcy, receivership, and debtor-creditor law, which have been the focus of his 20+ year legal career since he began as a bankruptcy judge’s law clerk. He represents both public and private clients that need assistance in navigating the complexities of insolvency matters, providing advisory services and litigating a variety of significant matters at both the trial and appellate levels in the federal courts. Further, he regularly writes and speaks on current developments in bankruptcy and commercial law, having authored previous articles for NCPERS and other pension-focused publications.

Mr. Crist received a B.A., Political Science, from The College of Wooster in 1996 and his J.D. from The Ohio State University Moritz College of Law in 1999.

NCPERS Pension Administration/ Database

Top 9 Security Considerations for Your PAS Database

By: Brandon Winningham



Photo illustration © 2022 shutterstock.com

Protecting your data requires common sense, vigilance and excellent security practices. Keeping these considerations front-and-center will ensure that everyone supporting your PAS is focused and ready.

Your People

Your people are your best defense. Their commitment to staying knowledgeable, being alert, and applying rigorous security practices (including tabletop scenarios) is a game changer for your PAS data security. Investments in staff training, rewarding success and being committed to their overall well-being cannot be overstated. Retaining quality staff and minimizing turnover ensures better oversight of your data.

Firewalls & Network Controls

Layer your security using a defense-in-depth approach. At your perimeter, implement web-application and next-gen firewalls that apply regularly updated threat and vulnerability signatures. At the internal network layer, create segmentation to help identify and prevent threats before they get to your PAS infrastructure. For your database connections, require TLSv1.2 with AES-128 or stronger ciphers. Encrypting traffic minimizes risk to sensitive information when data is in transit.

Database Service Hardening

Avoid using default database configurations. Work with your database vendor to use published best practice benchmarks and guidelines from agencies such as the Center for Internet Security (CIS) or the Defense Information Systems Agency (DISA).

Encryption

Beyond encryption when data is in motion, you can further protect data by encrypting the data within your database and the systems and credentials accessing it. Encrypting data at rest helps ensure that an attacker cannot read the sensitive information stored in your database.

Patching

Software vendors regularly release patches to address zero-day and other vulnerabilities within their products. Maintain a patching cadence and stay current by subscribing to newsletters and Common Vulnerabilities and Exposures (CVE) feeds. When designing your overall PAS system, remember:

[CONTINUED ON PAGE 12](#)

Pension Accounting Working Group Report (to be) Released

By: Tom Sgouros



Photo illustration © 2022 Shutterstock.com

A pension system is a complex organism. As a result, any accounting inevitably embodies choices about which aspects of measuring, how to measure them, and how much emphasis to give each measurement. On the theory that any enterprise benefits from the regular examination of its assumptions and conventions, NCPERS hosted the Pension Accounting Working Group project with the support of Arnold Ventures. The group, composed of public pension experts from across the country, met to discuss the existing accounting rules, suggest new metrics for assessing a pension system's health, and consider new ways to think about old metrics.

The report, due out in June, describes three new metrics of varying degrees of novelty:

- The Scaled Liability is a standardized measurement of pension liabilities against the size of the economy that supports it. Similar metrics that use economic strength as a proxy for tax capacity are already widely used to assess sustainability. Nonetheless, it is helpful to identify a standard comparison, especially for smaller governments where some economic statistics are not readily available.

- The UAL Stabilization Payment (USP) is an objectively defined cash flow policy standard comparable to the funding ratio, an objectively defined balance sheet policy standard. This is not a statement of what is good policy, simply a benchmark against which to measure actual contributions or an ADC.

[CONTINUED ON PAGE 11](#)

Tom Sgouros is a public policy consultant, working with cities, counties, and states across the country on issues of public finance, tax policy, and budgeting. He was Senior Policy Advisor to the Rhode Island General Treasurer, 2015-2016, where he helped to establish the state's new infrastructure bank, created ways to invest the state's cash balance in local small businesses, and worked to improve management of the state's debt. He is the author of the 2019 NCPERS report, "The Case for New Pension Accounting Standards." He is a fellow at The Policy Lab at Brown University and is also a member of the research faculty in Computer Science, where he works on data science, visualization, and information theory.

NCPERS MESSAGE CONTINUED FROM PAGE 1

- Executive Director/CEO
- Deputy Executive Director/Deputy CEO/COO
- Chief Financial Officer/CFO
- Chief Technology Officer/CTO
- General Counsel
- Chief Investment Officer/CIO
- Deputy Chief Investment Officer/Deputy CIO
- Chief Compliance Officer
- Member Services Director/Benefits Administrator

Eight key questions are asked about each of these positions, including:

- What is the current base annual salary?
- What is the maximum annual bonus?
- How many years has the incumbent held this position?
- Is it a full-time or part-time position?
- Is it a union or non-union role?
- Does the incumbent play multiple roles? If so, what are they?

Most pension systems should be able to complete the survey in an hour or two. Therefore, it is important to block out time and access the organization's latest compensation information to prepare.

In addition to the specific questions about position compensation, the survey also includes a series of "census" questions that map the size and scope of the participating pension systems. In these questions, participants will be asked to check what type of employees and beneficiaries the funds serve, the number of plan participants, staff positions, retirement systems administered, and total actuarial assets.

The survey also drills into the investment framework, asking participants to indicate whether funds are managed in-house or externally and which entities oversee specific types of policies and practices. It also asks for participants to check off the types of benefits offered and to offer observations on which ones are the most popular with employees. And it asks pension systems to characterize their current challenges in attracting and retaining skilled employees. To simplify responses—and ensure that answers can easily be compared—the majority of the data points will be collected by checking a box rather than writing out a response.

Participating in NCPERS' inaugural compensation survey is an opportunity for members to build a valuable repository of actionable data that can help members understand what it takes to compete for talent. So please be sure to send in your survey by June 3, 2022. And please don't hesitate to contact us if you have any questions! ♦

ACTUARY CONTINUED FROM PAGE 2

An important note is that the LDROM **will only be required as a disclosure item**. Public plans will continue to use the AAL for funding in accordance with existing policies.

Supporters of the LDROM claim that this disclosure will present to the public a more accurate measure of plan liabilities.

What Are the Concerns About LDROM?

Critics of the LDROM have long opposed mandatory disclosure of market-based liability measures for public pension plans. Some of the criticisms that were raised during the comment periods for the ASOP No. 4 revisions include:

- The measure is not relevant and/or useful to public pension plan funding.
- Calculations of risk-related disclosures, such as the LDROM, are already governed by *ASOP No. 51, Assessment of Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*, so a new specific measure isn't needed.

- The LDROM measure could cause public confusion, especially if it's used to mischaracterize the financial standing of public sector plans.

Potential Application for the LDROM

ASOP No. 4 also states that the actuary should provide commentary to help the intended user understand the significance of the LDROM with respect to the funded status of the plan, plan contributions and the security of participant benefits. One viable interpretation of the relationship between the LDROM and the funding AAL is that the difference between the two values shows the expected reduction in the taxpayer's funding liability from having the plan's assets invested in a diversified investment portfolio.

Public plans will have significant flexibility in how and where this measure is disclosed. Consequently, pension plan sponsors should discuss with their actuaries how to satisfy these requirements well before the implementation date so that the public will have a clear understanding of what the LDROM does — and does not — represent. ♦

ASSET MANAGER CONTINUED FROM PAGE 3

At the same time, many resources companies have been taking steps, in some cases for years, to implement cleaner and safer processes. For example, while there are indeed bad actors in the mining industry, there are also good companies that are [aiding in the transition](#) to a more sustainable, safe and efficient industry, through the use of tools such as innovative technologies and alternate fuel sources. Many steel producers are also moving toward low carbon steel through the introduction of hydrogen into the process, while a number of the big oil refiners and producers are taking their cash flows from oil and making significant investments in wind, solar, electric vehicle (EV) charging, hydrogen and more.

“We are at the precipice of a global mega-demand trend, and resources are at the heart of the solution.”

Why Now?

Climate-mitigating solutions require time. For instance, to accommodate the estimated 30-40% increase in EVs between now

and 2030, an extra four million tons of copper will be required.³ However, it can take up to a decade to find, build and commission a copper mine of the scale needed.

While the size of the challenge is indeed enormous, the problems are solvable by taking a pragmatic approach to both investing in, and divesting from, natural resources. Many of these companies face challenges with the costs of transitioning to cleaner practices, and will require incentives—from a price and regulation perspective, as well as from financial markets—to continue on their positive trajectory. For this reason, we believe now is the time to engage with companies to help drive positive change, rather than broadly exclude certain industries. With the right support in place, it is not outside the realm of possibility that some of the worst carbon emitters today could indeed become some of the cleaner industries by 2050. ♦

¹ Source: IPCC, BP. As of September 2020.
² Source: Arcelor Mittal. As of December 2020.
³ Source: Deutsche Bank Research. As of September 2021.

INVESTMENT CONSULTANTS CONTINUED FROM PAGE 4

survey also showed an interest in adding infrastructure, with 44% looking to add. About 7% of the investors surveyed plan to add crypto.

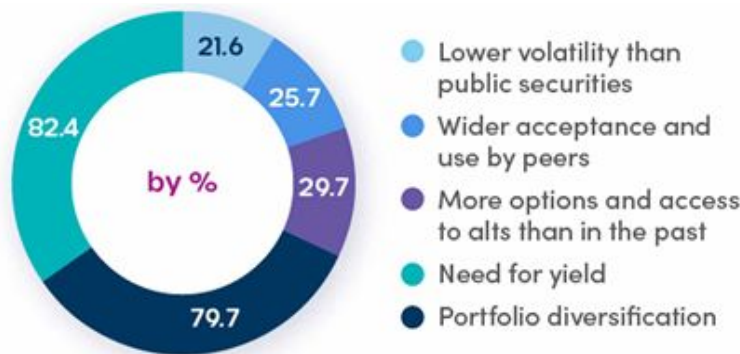
When asked if current and expected market conditions like inflation and a potential recession will impact their allocations to alternatives, 36% said yes while 42% said they would stay the course. The remaining 22% planned to move alternative allocations of various types.

What’s driving investors to alternatives? The top reason, at 82%, is diversification, closely followed by yield and returns. One of the appeals of alternatives is that they provide strategies, exposures, and names not available in the public markets, which our survey respondents clearly considered.

Investing in alternative assets can also come with challenges around reporting and managing these investments. Investors we surveyed

[CONTINUED ON PAGE 10](#)

FIGURE 2: What has driven you to allocate to alternatives? Check all that apply.



Source: © 2022 Clearwater Analytics. Used by permission.

INVESTMENT CONSULTANTS CONTINUED FROM PAGE 9

cited data-related issues as the top concern. This includes availability, quality, combining public and private data, and lack of automation.

More than half of our survey respondents said they want more transparency for alternatives, specifically around client, management, and regulatory reporting. For pensions that invest in

alternatives, this lack of transparency puts them at risk for costly errors and inaccurate reporting.

Clearwater is dedicated to helping investors overcome these challenges. In my upcoming session on May 24 at NCPERS Annual Conference & Exhibition, I will dive into the critical need for investment data transparency and why it's the key to unlocking success for pension funds. We will also explore how to address these issues, even as they grow more complex. ♦

***Jonathan Flitt**, is an experienced operating executive. Jonathan has held positions across brokerage, wealth management, asset management, alternatives including, hedge fund, credit fund, private equity and private debt administration and middle office servicing. His experience includes leading global operations, product management and product development, leading large scale technology development projects and implementations, building partnerships and managing client relationships.*

Jonathan is currently the Global Head of Alternative Investments for Clearwater Analytics. In this role, Jonathan leads product management, strategy and execution and works to design and implement innovative solutions that drive digitization, operational efficiency and enhance service capabilities for clients.

Prior to this role Jonathan was the Head of Credit Fund and Private Debt Fund Services within BNY Mellon's Alternative Investment Services business. In this role, Jonathan led strategy and execution, designed, and implemented innovative solutions that drove digitization, operational efficiency and enhance service capabilities for clients. Prior to this role, Jonathan held several leadership positions at BNY Mellon across Alternatives and Middle Office Services

As an industry veteran, Jonathan also held a senior Product Management and Operations roles across Citigroup's wealth management, asset management and securities services businesses. Based in New Jersey, Jonathan holds a Master of Business Administration from New York University, The Leonard N. Stern School of Business and a Bachelor of Science in Business Administration from the University at Albany.



CHIEF OFFICERS SUMMIT

Where Leaders Engage

JUNE 27 - 29, 2022
JW MARRIOTT SAN FRANCISCO UNION SQUARE
SAN FRANCISCO, CA

LEGAL CONTINUED FROM PAGE 5

“debt” for purposes of the Bankruptcy Code. The landmark 2005 amendments to the Bankruptcy Code³ and subsequent case law largely followed this approach, at least to the extent of ensuring that bankruptcy does not impact the repayment of an outstanding plan loan.⁴ The United States Court of Appeals for the Ninth Circuit later echoed this position. See *Egebjerg v. Anderson (In re Egebjerg)*, 574 F.3d 1045 (9th Cir. 2009).

Notwithstanding this established treatment of plan loans in bankruptcy, a court in New Mexico, within the Tenth Circuit, has recently challenged the status quo. See *Montoya v. Dubbin (In re Dubbin)*, Adv. No. 21 1004 t, 2021 WL 3476959 (Bankr. D.N.M. Aug. 6, 2021). Although the court acknowledged “[t]here is substantial support for Defendant’s position that pension plan loans are not debts under the Bankruptcy Code,” the court went on to hold that “[p]ension plan loans are bona fide debts outside of bankruptcy and are recognized as such by the Bankruptcy Code.” *Id.* at *2, 8. This opinion adopts the view that the Supreme Court undercut the *Villarie* analysis when it held, a decade later, that nonrecourse secured obligations, such as plan loans, are both debts and claims under the Bankruptcy Code. *Id.* (discussing *Johnson v. Home State Bank*, 501 U.S. 78, 84 (1991)). And this approach has gained traction in one of the nation’s busiest bankruptcy courts.⁵

The *Dubbin* ruling highlights two main points for governmental

plans. First, case law dealing with private retirement plans, such as 401(k)’s, can have precedential effects for public retirement plans. Second, if pension plan loans are treated as “debts” (more specifically “nonrecourse secured debts”) by more bankruptcy courts, then pension plans may face increased litigation arising from participant bankruptcies. This could include, as it did in *Dubbin*, efforts by a chapter 7 trustee to claw back loan repayments made prior to bankruptcy, within certain windows of time—typically 90 days or, sometimes, up to 1 year. ♦

This publication is intended for general informational purposes only and does not, and is not intended to, constitute legal advice. The reader should consult with legal counsel to determine how laws or decisions discussed herein apply to the reader’s specific circumstance.

¹ Title 11 of the United States Code (11 U.S.C. §§ 101 1532).

² The Bankruptcy Code of 1978 replaced the Bankruptcy Act of 1898.

³ Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) of 2005.

⁴ See, e.g., 11 U.S.C. §§ 362(b)(19) (the automatic stay does not apply to wage withholdings to repay plan loans), 523(a)(18) (excepting from discharge debts owed to pensions for permitted plan loans), 1322(f) (a chapter 13 plan may not materially alter the terms of a plan loan).

⁵ See *In re Livingston*, Case No. 21 10879 (LSS), 2022 WL 951339 (Bankr. D. Del. March 29, 2022) (quoting *In re Dubbin*, 2021 WL 3476959 at *7).

RESEARCH CONTINUED FROM PAGE 7

- A Risk-Weighted Asset Value is a measure of asset value that considers a plan’s capacity to endure the downside risk it has taken on by its allocation of investments.

The report also includes an extended discussion of stress testing, a widely-used technique for risk assessment, with new guidelines to suggest how tests are conducted. In addition, the discussion includes recommendations about increasing the comparability of stress tests and how such tests may (or may not) acquire meanings practical to plan managers and policymakers.

Finally, the report presents a “scorecard,” a standardized summary of important pension measurements. Of course, pension systems are complex, but the complex presentation of a valuation report encourages readers to make their summary, with the result that observers — reporters and the public, but even some trustees and

managers — will typically pick one or two metrics they think are most important and ignore the rest.

The working group defined a succinct standard presentation of a set of essential metrics to encourage users to consider the fuller picture in evaluating a pension plan. Such a display illustrates that a system’s health depends on its condition, the policies in place, and the actions taken by its management. Moreover, they can do it in a compact, standard, and readily digestible fashion.

The working group report is not designed to upset any applecarts, only to offer a selection of novel metrics that we hope will provide novel insights about the management of public pension systems, to policymakers, trustees, and the public, to protect these valuable institutions for generations more. ♦

PENSION ADMINISTRATION CONTINUED FROM PAGE 6

Design Simplicity = Management & Security Simplicity.

By minimizing the number of vendors in play in your PAS environment, you reduce the number of attack vectors. This also reduces the overhead for patching and securing your environment and streamlines your patching cadence.

Security Audits & Penetration Testing

Partner with an independent 3rd party for regular security audits and penetration testing. These exercises can reveal potential security vulnerabilities before attackers do and provide a clear roadmap for keeping your environment safe.

Leverage Your Log Files

Log files will help enormously when researching system incursions. Leverage them by ensuring that your database service configurations are set to record key activities in a centralized logging system. Examples of activities to log include authentication attempts, database permissions changes, database deletions, and administration tasks. Take this further by configuring actionable alerts whenever suspicious log entries are recorded.

Backup

Your backups need to be immutable and geographically independent from your production environment to protect against today's highly sophisticated ransomware and ensure a clean, accurate recovery.

Identity Governance

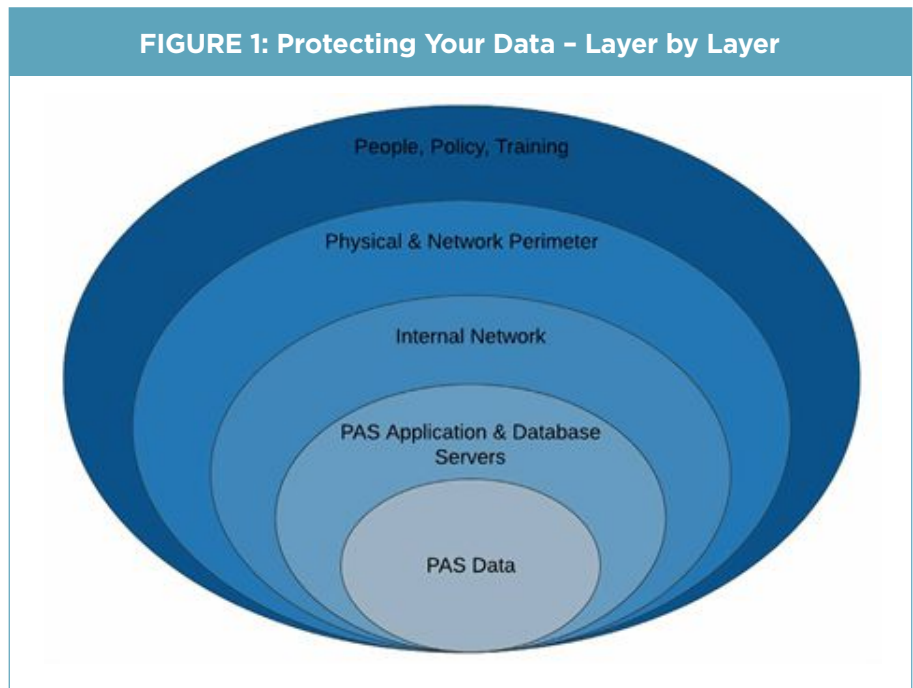
Incorporate the following identity technologies and principles:

- Require Multi-factor authentication for all logins.
- Follow the least-privilege principle.
- Restrict access by privileged users (superusers) to trusted devices.
- Regularly audit assigned roles and access, removing access that is no longer needed.
- Use access control systems to protect your physical infrastructure. ◆

Brandon Winingham is the Director, Information Security & Technology for Tegrit and is responsible for the review, design and implementation of security controls and architecture within Tegrit's internal and hosted Arrivos environments. Having worked for Google, Toyota's autonomous vehicle organization and within the managed IT services space, Brandon has over a decade of experience in IT consulting, network & systems architecture, identity systems and cybersecurity. Recent projects include design and deployment of distributed next-generation firewalls using an identity-centric approach to policy creation, Secure Access Service Edge architecture, cross-organization identity systems, and Security Information and Event Management solution deployment.

Brandon's strong background makes him ideal for watching over your data and ensuring that best practices are in place at Tegrit and with our hosting partner. As the pension world continues to grapple with the attractiveness of its data to bad actors, Tegrit is committed to staying in front of those actors.

FIGURE 1: Protecting Your Data - Layer by Layer



Don't Miss NCPERS' Social Media



The Voice for Public Pensions

Calendar of Events 2022

May

Trustee Educational Seminar (TEDS)
May 21 - 22
Washington, DC

Program for Advanced Trustee Studies (PATS)
May 21 - 22
Washington, DC

NCPERS Accredited Fiduciary (NAF) Program
May 21 - 22
Washington, DC

Annual Conference & Exhibition (ACE)
May 22 - 25
Washington, DC

June

Chief Officers Summit
June 27 - 29, 2022
San Francisco, CA

August

Public Pension Funding Forum
August 21 - 23
Los Angeles, CA

October

NCPERS Accredited Fiduciary (NAF) Program
October 22 - 23
Nashville, TN

Public Safety Conference
October 25 - 28
Nashville, TN

2021-2022 Officers

Kathy Harrell
President

Dale Chase
First Vice President

James Lemonda
Second Vice President

Carol G. Stukes-Baylor
Secretary

Will Pryor
Treasurer

Daniel Fortuna
Immediate Past President

Executive Board Members

State Employees Classification
Stacy Birdwell
John Neal

County Employees Classification
Teresa Valenzuela

Local Employees Classification
Sherry Mose
Thomas Ross
Ralph Sicuro

Police Classification
Kenneth Hauser
James Sklenar

Fire Classification
Dan Givens
Emmit Kane

Educational Classification
David Kazansky

Protective Classification
Peter Carozza, Jr.
Ronald Saathoff

Canadian Classification
Frank Ramagnano



The Voice for Public Pensions

PERSist is published by the National Conference on Public Employee Retirement Systems.
Website: www.NCPERS.org • E-mail: Amanda@ncpers.org