



Northern Trust Global Securities Lending

Prepared for: **Employees' Retirement Fund of the City of Dallas**

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SECURITIES FINANCE

Optimizing your portfolio to enhance liquidity and drive alpha.

Securities Lending & Borrowing

Enhance returns through agency lending and efficiently cover your borrowing needs

Collateral Solutions

Outsource your collateral management needs and optimize margin obligations through collateral transformation

Financing & Liquidity

Access funding and optimize your liquidity program through bilateral and centrally cleared repo solutions

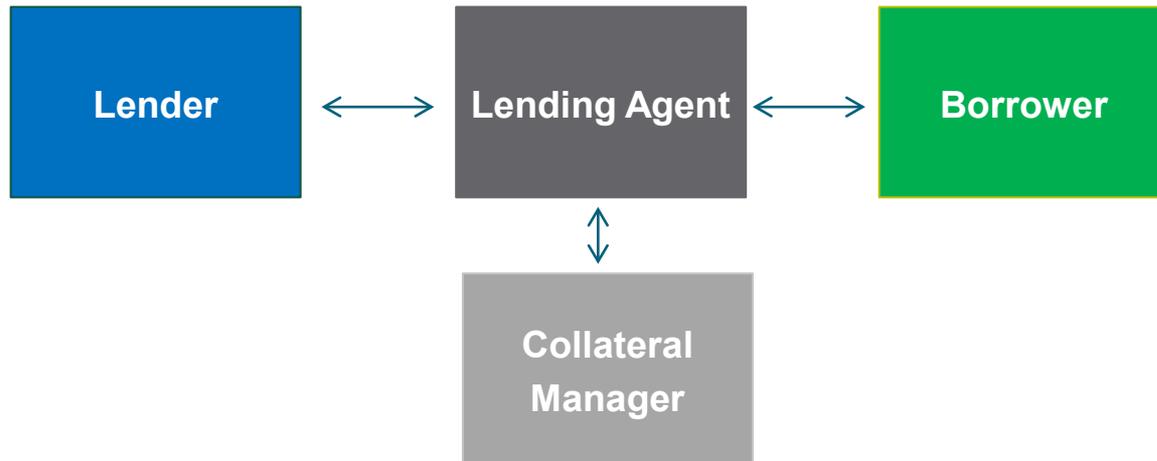


Inventory Optimization

Manage your inventory real-time and access analytical tools to drive optimal outcomes

SECURITIES LENDING DEFINED

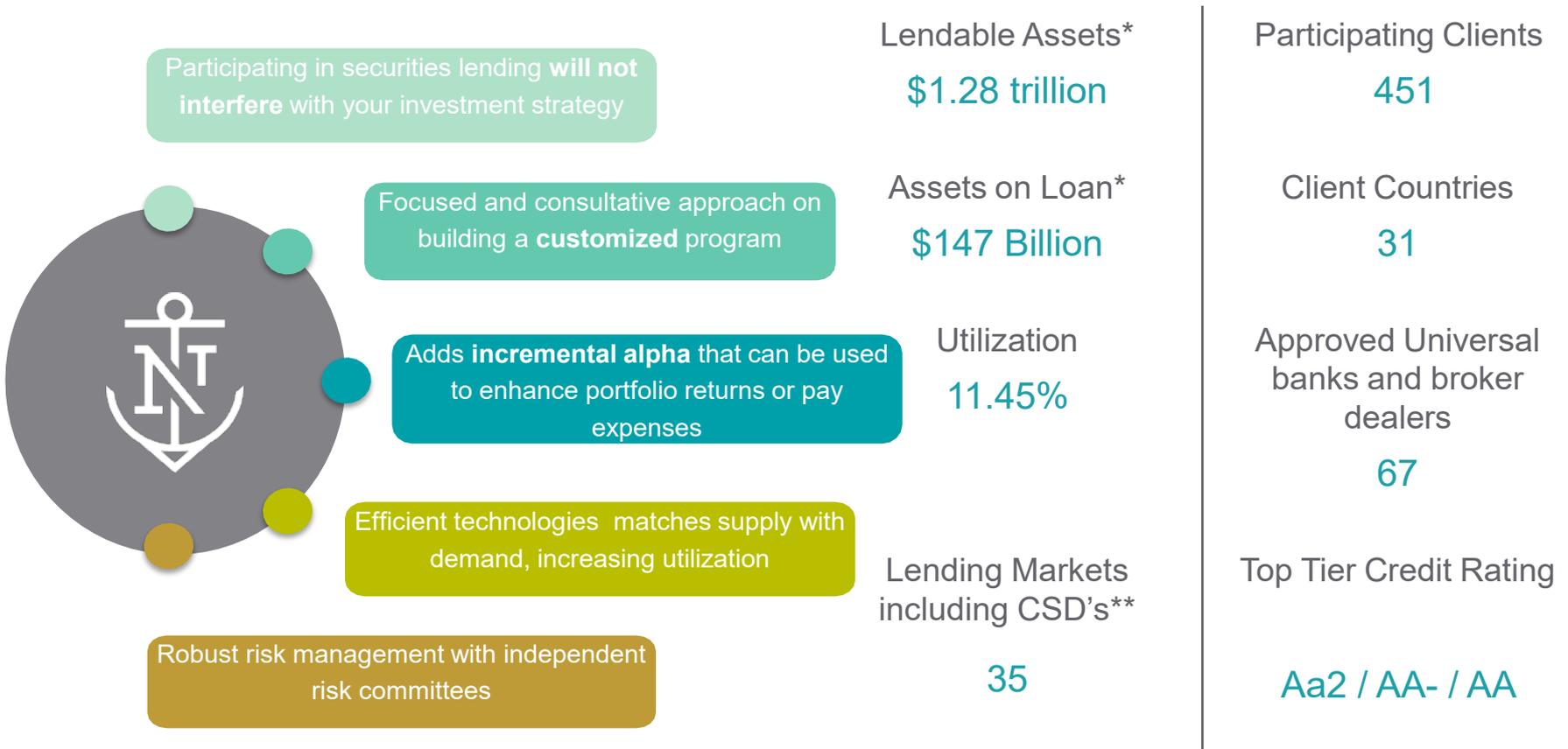
Securities transferred on a temporary basis from a lender to a borrower with the latter obliged to return the securities either on demand or at the end of a specific period



- **Parties to a loan:**
- Lender (Client) - beneficial owner of the securities
- Borrower - to whom the assets are being lent, usually a broker-dealer
- Lending Agent (Northern Trust) - the party negotiating and facilitating the loan
- Re-investment manager - portfolio manager/team who invests the cash collateral

NORTHERN TRUST'S AGENCY SECURITIES LENDING PROGRAM

We strive to extract the highest amount of intrinsic value from each loan, while mitigating risk for the benefit of our clients.



*Average for December 2022

**CSD Central Security Depository

SECURITIES LENDING TRADING STRATEGY

Objective: To maximize portfolio returns through superior trading whilst managing risks

Maximize Portfolio Returns

- Endeavour to maximize revenue across a portfolio in accordance with the beneficial owner's risk parameter settings
- Analyze and consider the optimum mix of available trade structures within any particular jurisdiction
- Demonstrate to clients where existing parameters are preventing the realization of enhanced returns

Superior Trading Performance

- Understand demand trends to deploy effective strategies to achieve outperformance
- Utilize industry data in internal variance reports to actively track our performance trends
- Coordinated lending and reinvestment approach

Manage Risks

- Maintain robust risk management policies that work in conjunction with our first two objectives
- In-built system flexibility to allow our clients to customize their own risk parameters
- Proactively generate solutions so that the underlying risk profile is not compromised

GLOBAL COVERAGE, LOCAL EXPERTISE

Northern Trust lends in 35 countries with a local presence in 9 locations and over 200 staff



Northern Trust Indemnification options

	Standard Indemnity	Enhanced Default Indemnity
	<p>Northern Trust indemnifies clients for direct losses they sustain if we are unable to recover borrowed securities or distributions from a borrower as a result of:</p> <ul style="list-style-type: none"> • Our failure to make a reasoned determination of the creditworthiness of a borrower before lending a security and during the term of the loan if the borrower becomes insolvent. • Our failure to: <ul style="list-style-type: none"> ○ Demand adequate and appropriate collateral; ○ Perfect a security interest or obtain equivalent rights in the collateral; ○ Maintain control of the collateral; ○ Make a reasoned determination of the quality and suitability of Collateral • Northern Trust's failure to perform its duties and responsibilities under the SLAA. 	<p>In the event of a filing or an "Event of Default" as defined under the borrowing agreement, Northern Trust would credit the client's account with any distributions payable and transfer into the client's account replacement securities, or credit the client's account with a transfer of cash and/or non-cash collateral equivalent to the value of the loaned securities at the date of default, to the extent there is sufficient Collateral.</p> <p>Under this option, the client bears the risk if there is any Collateral Shortfall*.</p>
	<p>Our borrower default indemnity provides clients with additional protection in a borrower default.</p> <p>Under this option, Northern Trust will credit the client's account with any distributions payable and transfer into the client's account replacement securities, or credit the client's account with a transfer of cash and/or non-cash collateral equivalent to the value of the loaned securities at the date of default even if there is a collateral shortfall.</p> <p>Under this option, Northern Trust bears the risk if there is any Collateral Shortfall*.</p>	
	<p>Clients are responsible for any losses resulting from cash collateral investments (if applicable)</p>	
Fee Split Implications	<p>A higher revenue split to the client</p>	<p>A lower revenue split to the client because Northern Trust will bear additional capital charges to support this indemnity</p>

* Collateral Shortfall is the insufficiency of Collateral, or its proceeds, to enable the purchasing of replacement securities in the event of a Borrower default

TRANSPARENCY AND INFORMATION DELIVERY

Customized reports to help monitor your securities lending activity

Daily reporting

- **Executive summary**
- **Securities loaned** – detail
- **Borrower utilization** – summary by borrower
- **Account utilization** – loan detail, summary by account
- **Collateral** – by security type, country and detail holdings

Monthly reporting

- **Performance scorecard:**
 - Account earnings and performance
 - Security level detail
 - Client by asset type and account earnings
 - Date range comparison
- **Historical statistics graph**
- **Earnings statement** – summary and detail

PERFORMANCE SCORECARD: LENDING & INVESTMENT BREAKDOWN

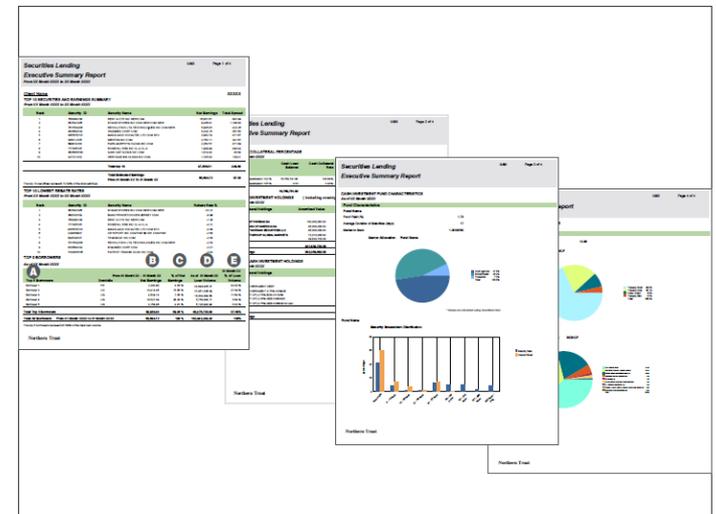
Securities Lending Performance Scorecard - Lending and Investment Breakdown For Month: XXXX (USD) **													
* Client Name													
Security Type	Market Value (USD)		% on Loan	Gross Earnings (USD)			Spread (bps)			Net Earnings (USD)			
	Avg. on Loan	Avg. Available		Lending	Investment	Total	Lending	Investment	Overall	Gross BP Return (bp) *	Lending	Investment	Total
US Treasuries	211,903,355	1,495,600,954	14.2%	48,962	1,119	50,100	26.9	0.6	27.5	3.9	42,614	973	43,587
US Agencies	0	267,258,503	0.0%	0	0	0	0.0	0.0	0.0	0.0	0	0	0
US Corp Bonds	12,753,975	1,065,955,926	1.2%	5,966	1,775	7,741	54.3	16.2	70.5	0.8	5,191	1,545	6,736
US Equities	322,832,262	5,716,414,795	5.6%	85,838	8,864	94,701	30.9	2.1	33.0	1.9	74,668	5,102	79,791
Global Sovereign	5,675,174	862,770,662	0.7%	5,196	862	6,058	102.7	17.6	120.3	0.6	4,520	776	5,296
Global Agencies	156,024	73,136,210	0.2%	87	33	120	64.7	24.9	89.5	0.2	76	29	105
Global Corp Bonds	6,407,433	542,876,166	1.2%	2,836	1,161	3,996	51.4	21.0	72.4	0.9	2,467	1,010	3,477
Global Equities	387,216,326	4,344,699,687	8.2%	436,046	10,542	446,588	141.8	3.4	145.2	11.9	379,376	9,173	388,549
Total	817,144,448	14,388,712,134											

When cash is taken as collateral on applicable loans, Rebates are 0
 * Gross Basis Point Return equals On Loan Spread multiplied by %
 ** Market Value and Earnings were converted using the month-end

Although this report has been prepared using information believed to be reliable, it may be subject to change without notice and should not be used as a basis for investment decisions. The Northern Trust Group is not liable for any loss or damage resulting from the use of this report. For more information, please contact your account manager.

Northern Trust

EXECUTIVE SUMMARY REPORT



Managing Risk

MANAGING RISK

Risk management is instrumental to our program

Borrower

Borrower defaults and collateral is not sufficient to cover

Mitigating factors:

- Credit review of borrowers
- Over-collateralization /Daily marking
- Indemnification
- Risk analytics

Trade Settlement

Fund sells securities and borrower doesn't return in time for trade to settle

Mitigating Factors:

- Timely communication
- Automated reallocations
- Trade settlement protection

Cash Collateral Reinvestment

Cash collateral investment becomes impaired or decreases in value

Mitigating Factors:

- Client approved guidelines
- Dedicated team of fixed income research analysis
- Daily automated compliance

Interest Rate

Loan rebate rate exceeds earnings on cash collateral investments

Mitigating Factors:

- Weekly gap analysis
- Shared risk
- Stress testing of portfolio

RISK MANAGEMENT OVERSIGHT

Risk management begins at the business level supported by senior level independent groups

Securities Finance Risk Council

- Provides senior management business oversight. Responsible for risk, compliance and control governance activities.
- Also monitors loan allocation process, cash collateral NAV, interest rate risk and loan/collateral stress testing.

Capital Markets Credit Committee

- Monitors the financial viability of borrowers
- Sets limits for Northern Trust's balance sheet and securities lending program
- Approves limits for counterparty groups, counterparties and specific products

Collateralized Product Risk Committee

- Approves all collateral types, margin levels, and credit risk factors. Reviews borrower exposures and risk profiles.
- Establishes loan/collateral product limits and undertakes periodic stress testing.

Credit & Liquidity Risk Management Committee, Securities Approval Group

- Approves cash investment credit issuers, counterparties, and instruments
- Provides guidance and oversight of investment risk associated with cash reinvestment activity

COLLATERAL MANAGEMENT

Loans and collateral are valued daily to determine proper collateralization

New Loans

Collateral is received simultaneously or prior to settlement of the loan.

- Same currency collateralized at 102%*
- Cross currency and global equities collateralized at 105%*

Program parameters

- Security loans are limited to program parameters including acceptable cash and noncash collateral, acceptable borrowers, acceptable markets and other restrictions.

*Subject to de minimus rules

Daily Monitoring

Collateral is monitored throughout the day based on new loan and mark to market activity.

Based on Borrower's collateralization level:

- NT requests additional collateral to cover the shortfall, or
- Borrowers request excess collateral to be returned

Collateral is monitored for maturing noncash collateral

- Swap out collateral prior to maturity
- Replace collateral on maturity date

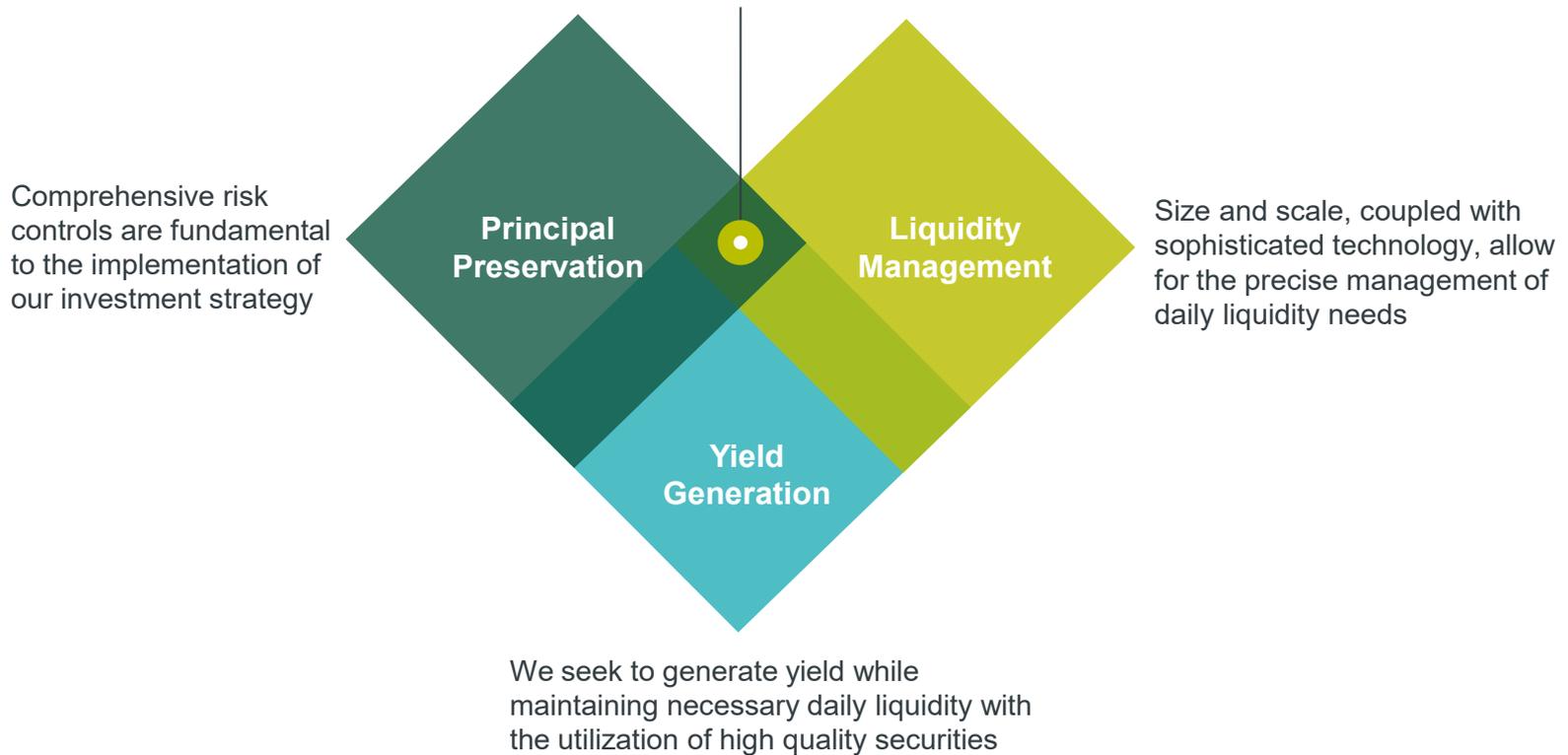
Cash collateral is monitored via Aladdin

- Intraday monitoring of portfolio holdings, credit structures, maturity profiles
- Weekly compliance on MV, maturities and diversification

CASH COLLATERAL MANAGEMENT

Objective: To generate a competitive yield while seeking to preserve principal and provide daily liquidity

Cash management philosophy



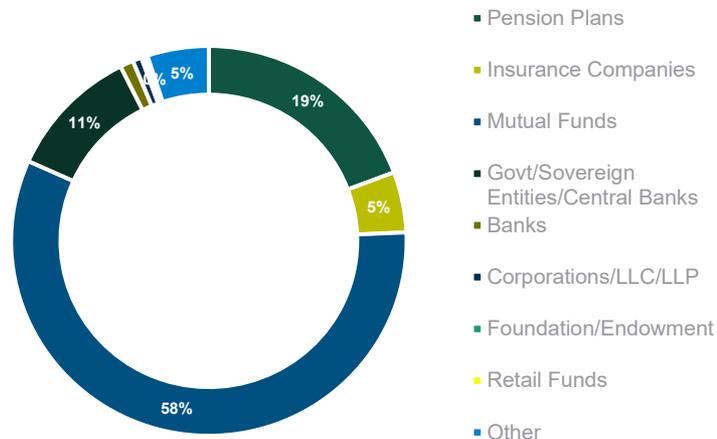
Current Market Environment

MARKET CONTEXT

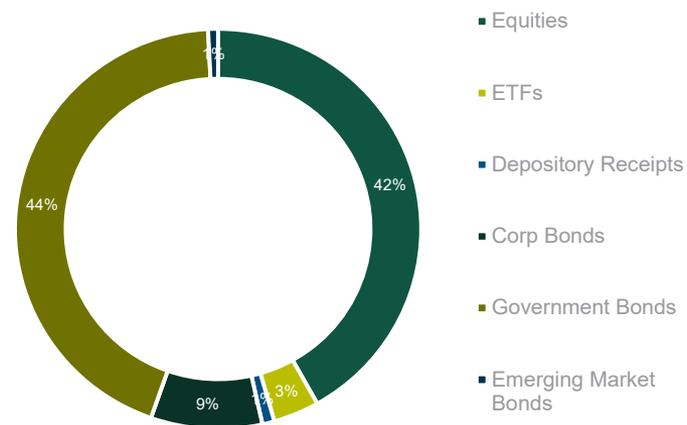
Key Industry Statistics Q3 2022

Lendable	US\$27.8 trillion assets globally
On Loan	US\$2.9 trillion on loan
Collateral	38% cash 62% non-cash globally
Revenue	US\$10 billion annual revenue stream

Lendable Supply by Fund Type



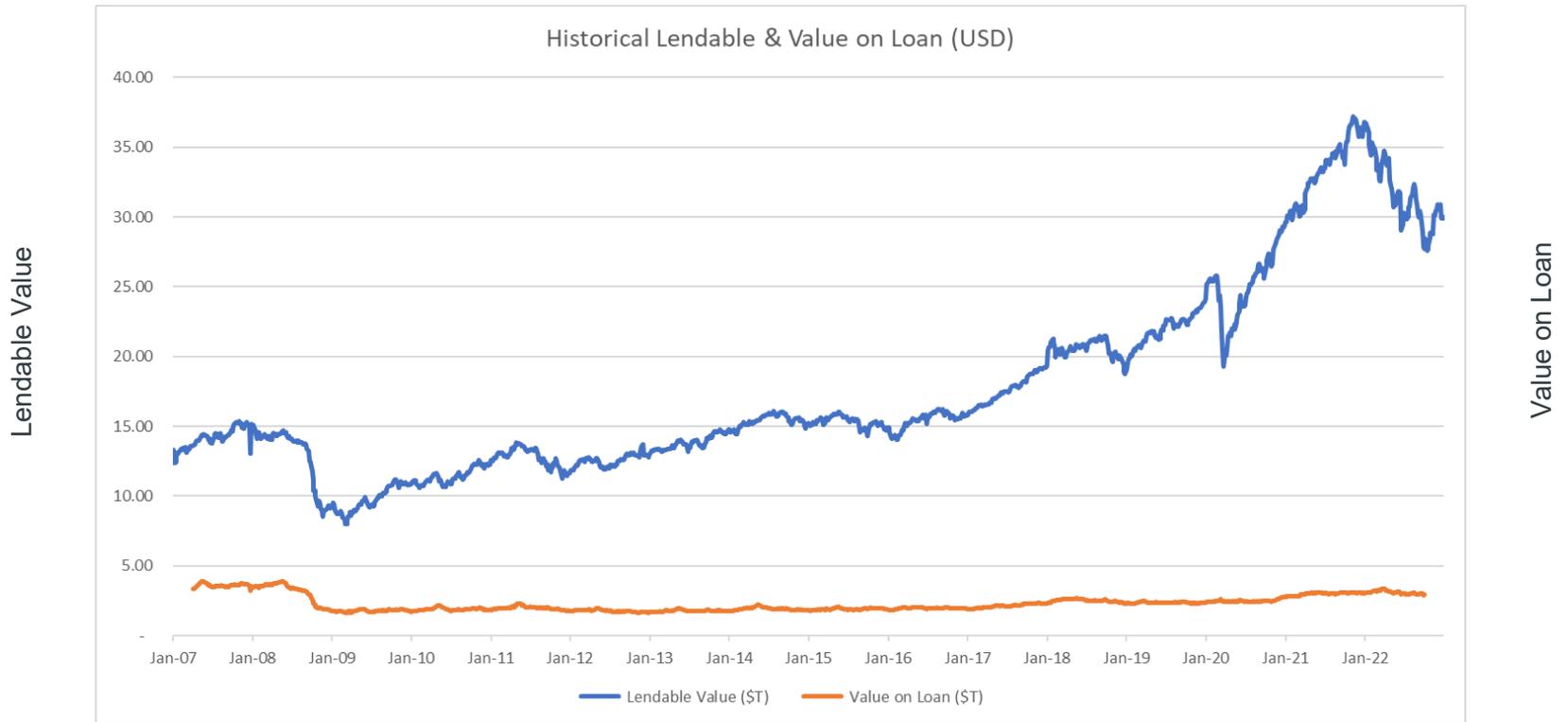
On Loan Value by Security Type



Source:  IHS Markit[®] now a part of  S&P Global

A CHALLENGING LENDING MARKET

While lendable assets have grown due to rising markets and increased participation from 2010-2022, demand is stagnant. Recent whipsaw market volatility has materially reduced lendable while on-loan remains mostly stable.

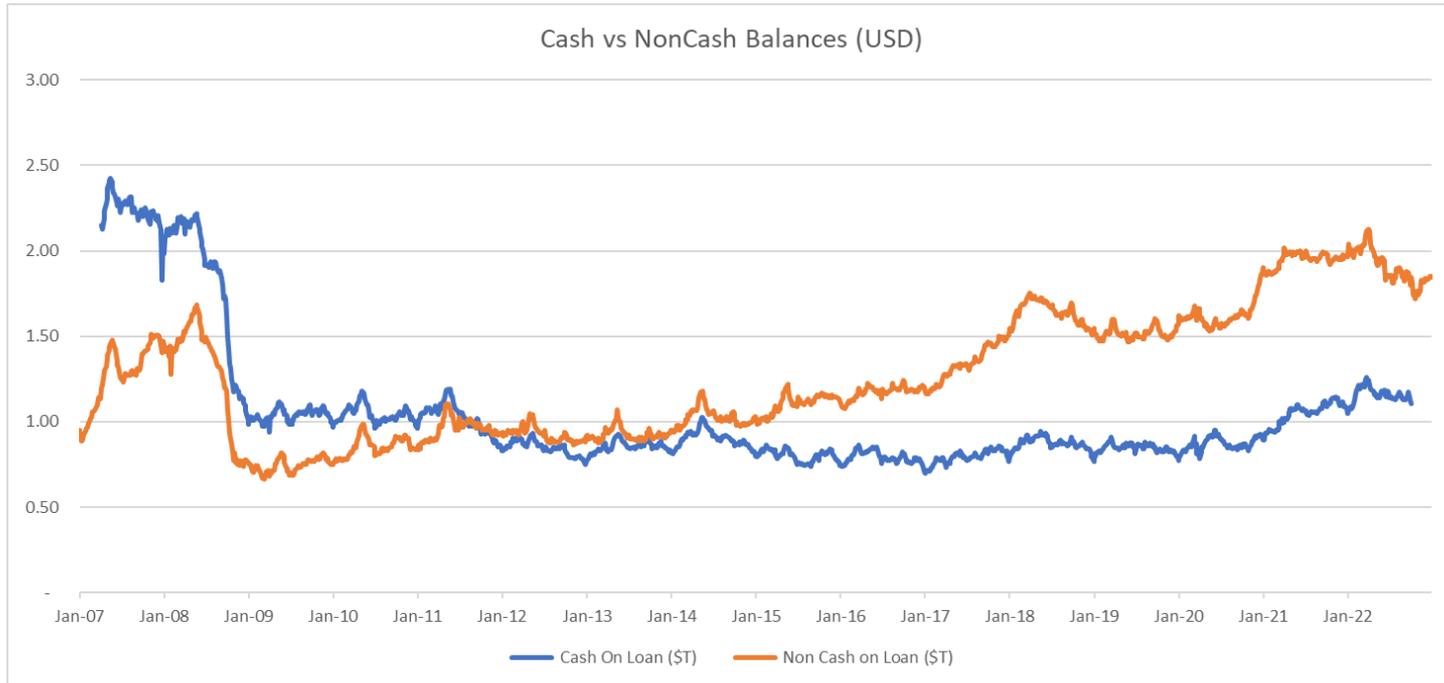


All securities
All currency in USD
Data through Dec 31, 2022



A CHANGING COLLATERAL MARKET

As regulatory capital rules changed, borrowers pledged more non-cash collateral than cash collateral.



All currency in USD
Data through Dec 31, 2022



SECURITIES LENDING



CASH COLLATERAL REINVESTMENT

- Inflation rates are coming down, but slowly, causing central banks to continue their hiking themes
- US interest rates firmly in economically restrictive territory
- Strong employment statistics continue to allow for rate increases
- Central banks are weighing the risks of causing a recessionary environment with the risk of losing containment on inflation – and choosing to control inflation above other concerns
- The Fed hiked 425 basis points in 2022, and Federal Funds futures expectations are indicating another 75 basis points of tightening in 2023
- Key uncertainty for the short duration markets is what the Fed's peak rate will get to, and more importantly how long they'll maintain that rate. The futures markets indicate a cut in rates later in 2023 while the Fed is saying they'll keep rates high for all of 2023.



EQUITY DEMAND

- Global stocks closed out 2022 with double-digit losses. Shares were under pressure for much of the year as investors battled with record inflation, aggressive monetary policy and an increased risk of recession. Geopolitical concerns and volatile economic data also contributed to keep markets on edge. The MSCI World closed down 4.8% for the month, and negatively for the year 19.7%.
- Inflation and rising interest rates have been a consistent theme throughout the year for both a market performance perspective and borrower demand. Whilst they have been the catalyst for much of the market volatility it has also provided some hedge fund demand themes in what has been a difficult year for equity specials. We continue to see good demand for those sectors most exposed to rising rates, costs and weakening consumer demand environment. This has been particularly felt in the tech, real estate and consumer discretionary sectors.
- In December, borrower focus switched to industry binding constraints throughout much of the month, as balance sheet and capital usage was rationalized over the regulatory sensitive reporting period. Hedge fund activity was cautious, as is typical at this time of year, with a risk off approach adopted running into year end. As a result, securities lending volumes globally saw some attrition.



FIXED INCOME DEMAND

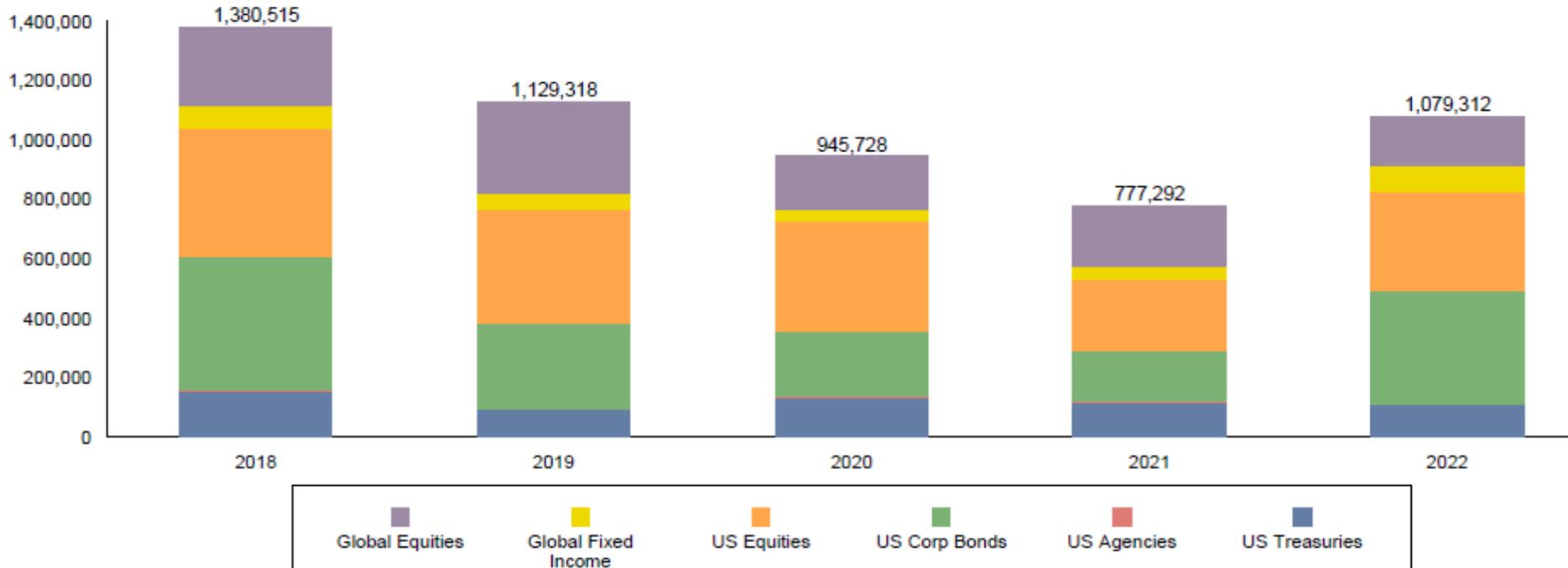
- United States: Inflation prints lower, though Fed hike 50bps and signal more to come. Current 20-year trades with deep specialness, though treasuries less sought in cross-currency exposures as BoJ lift 10-year JGB yield cap to 0.50%
- United Kingdom: MPC hike 50bps, though sound more dovish than other central banks suggesting inflation soon to hit a peak. Robust gilt demand into and over year-end, largely in term exposures versus equity collateral
- Europe: ECB also join the 50bps hike club, though warn of further half point hikes into 2023 as inflation to remain sticky. Collateral scarcity remains in European repo and financing markets prompting robust borrowing activity across sovereign issuance
- Emerging Markets: Easing of Chinese COVID controls and subsequent data weighing on activity and sentiment. Fees to borrow EM bonds remains elevated amid heightened industry utilization

Securities Lending Revenues

SUMMARY OF LENDING PROGRAM

Employees' Retirement Fund of the City of Dallas Net Earnings for 5 Years

Net Earnings



Gross Revenue

\$6,638,834

Fee Split*

80/20

Collateral Acceptance

Cash Collateral Only

Net Revenue

\$5,312,165

*Employees' Retirement Fund of the City of Dallas receiving 80% of the total revenue and Northern Trust receiving 20%
NTAC:3NS-20

PERFORMANCE SCORECARD JANUARY TO DECEMBER 2022

Security Type	Market Value (USD)		% on Loan	Gross	On Loan	Gross BP	Net
	Avg. on Loan	Avg. Available		Earnings (USD)	Spread (bp)	Return (bp) *	Earnings (USD)
US Treasuries	77,552,901	130,861,131	59.3%	136,761	17.4	10.3	109,414
US Agencies	0	1,151,663	0.0%	0	0.0	0.0	0
US Corp Bonds	145,255,173	389,576,315	37.3%	480,781	32.6	12.2	384,768
US Equities	129,901,844	857,055,746	15.2%	417,172	31.7	4.8	333,823
Global Fixed Income	23,916,118	96,073,533	24.9%	111,185	45.9	11.4	88,966
Global Equities	40,124,732	548,453,009	7.3%	202,893	49.9	3.6	162,342
Total	416,750,769	2,023,171,397	20.6%	1,348,793	31.9	6.6	1,079,312

- Highest earning asset class - **US Corp Bonds**
- Gross revenue from Cash loans was **\$1,348,793**
- Global Agencies and Equities had the highest lending spreads with 211.3 bps and 34.4 bps respectively

TOP 10 EARNINGS SUMMARY

TOP 10 SECURITIES AND EARNINGS SUMMARY

From 01 Jan 2022 to 30 Dec 2022

Rank	Security ID	Security Name	Net Earnings	Total Spread
1	464288513	MFC ISHARES IBOX \$ HIGH YIELD CORPORATE	24,102.25	264.40
2	78468R408	MFC SPDR SERIES TRUST BLOOMBERG SHORT	23,240.79	52.27
3	293792107	MLP ENTERPRISE PRODS PARTNERS L P COM	15,225.84	26.00
4	559080106	MLP MAGELLAN MIDSTREAM PARTNERS LP COM	15,028.06	75.74
5	29446M102	ADR EQUINOR ASA SPONSORED ADR	13,197.19	98.94
6	02406PBB5	AMERN AXLE & MFG 5% DUE 10-01-2029	10,106.66	242.66
7	13123XBD3	PVTPL CALLON PETE CO DEL 8.0% DUE	9,924.43	339.21
8	83001AAC6	PVTPL SIX FLAGS ENTMT CORP NEW SR NT 5.	9,291.90	190.64
9	594972AF8	MICROSTRATEGY INC 6.125% DUE 06-15-2028	8,790.22	647.62
10	912810RS9	UNITED STATES OF AMER TREAS BONDS DTD	7,772.00	13.85
Total top 10			136,679.34	63.64
Total Estimated Earnings			1,079,312.15	31.19
From 01 Jan 2022 To 30 Dec 2022				

The top 10 securities represent 12.66% of the total earnings

Exchange Traded Funds (ETFs) provided a good source of borrower demand, during the market volatility, with interest across Equity, Fixed Income and China-linked ETF's. ETFs provide an efficient means to either hedge or gain exposure to markets, with interest rate hikes, market volatility and slowing growth amongst the drivers of demand.

INVESTMENT PROFILE: CORE STIF CASH COLLATERAL FUND

DECEMBER 30, 2022

Characteristics

Total Book Value (in USD)	14,382,180,398
Weighted Average Maturity (Interest Reset Date)	15 Days
Weighted Average Maturity (Maturity Date)	93 Days
Average Equivalent Quality Rating	
Total Number of Issues	103
Quality Distribution	Percentage
A1+ (SHORT TERM)	68.55%
A1 (SHORT TERM)	30.78%

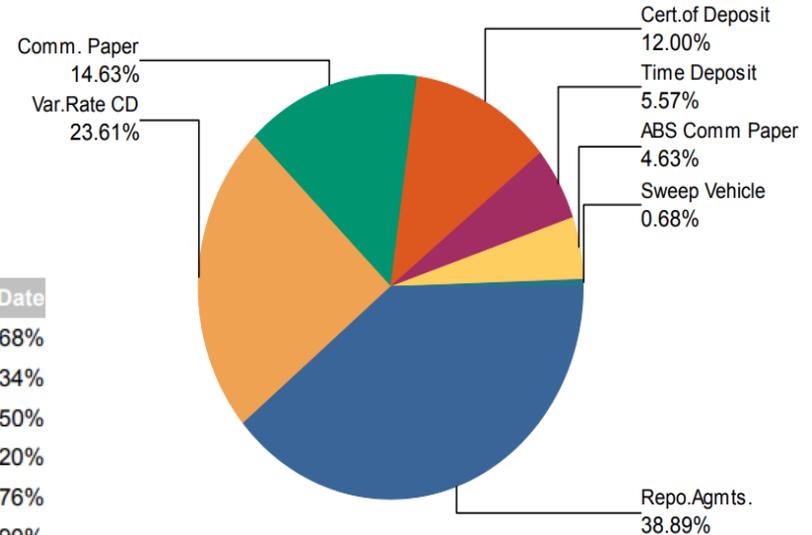
Maturity Breakdown Distribution

	Interest Reset	Maturity Date
Overnight	87.41%	0.68%
2 - 15 Days	0.52%	10.34%
16 - 30 Days	1.18%	1.50%
31 - 60 Days	2.42%	26.20%
61 - 97 Days	1.88%	12.76%
98 - 180 Days	3.81%	35.90%
181 - 270 Days	2.78%	11.31%
271 - 366 Days	0.00%	1.32%

Industry/Sector Distribution

	Percentage
Banking Ind.	53.75%
Broker/Dealer	40.06%
Finance & Ins	6.02%
Govt Agencies	0.17%

Cash Collateral Asset Class Breakdown



NOTE: This information was created using the best unaudited data available to us and may not be completely reliable, accurate, or timely. Data is prepared on a settled basis, which may differ from traded basis data on the Cash Collateral Holdings report. "Traded Basis" reflects pending trades.

POTENTIAL PROGRAM ENHANCEMENTS

Non-Cash Collateral

- *Increased demand for loans versus non-cash collateral in recent years*
- *NT Risk forums accepts US Treasuries & Agencies, Highly Rated OECD Debt rated AA- or better, Equities, and ETF's*
- *Accepting non-cash collateral is likely to help increase volumes, and revenue. Per earnings projection done a year ago, the program was projected to have net earnings higher by approx. \$100k*
- *NT Securities Lending Program can accept specific types of collateral based on client's risk appetite*



Appendix

CLIENT SERVICE TEAM

Executive:

Oversight of relationship for Securities Lending products

Relationship Manager:

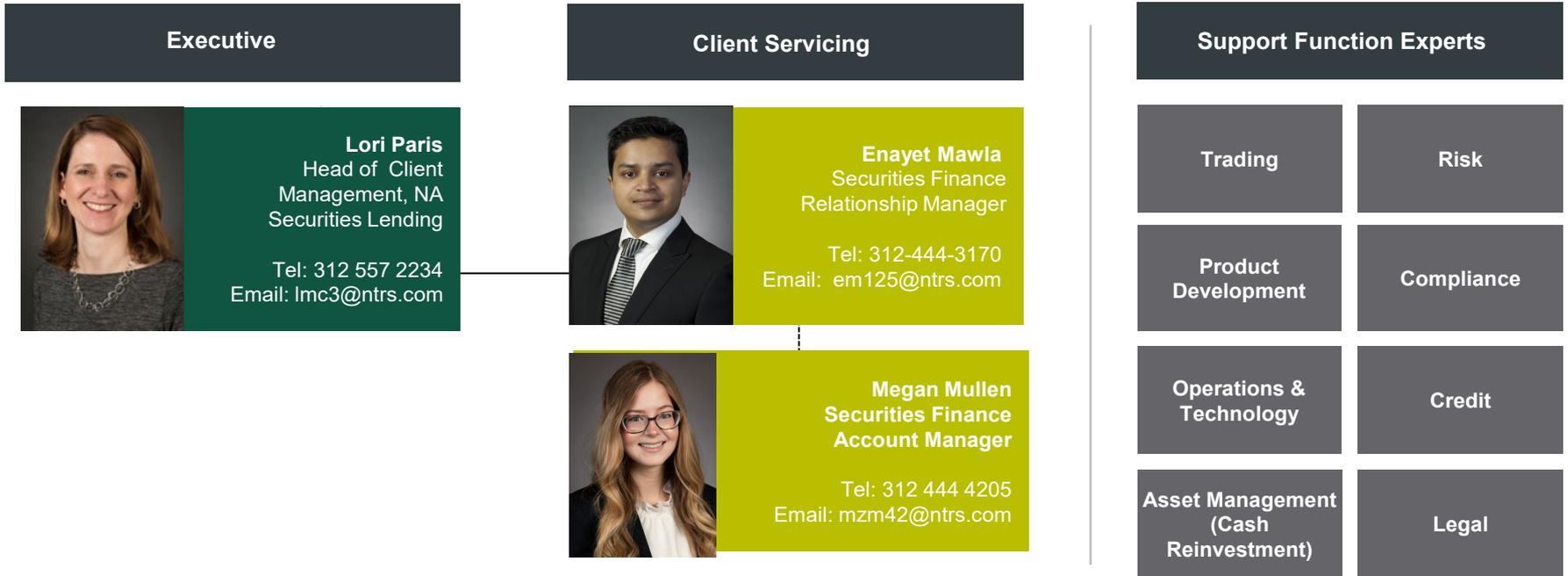
Coordinates all components of your securities lending program to ensure superior service, providing risk-adjusted returns, reviewing opportunities, and providing solutions where required

Account Manager:

Supports relationship manager by handling daily servicing and reporting needs for clients

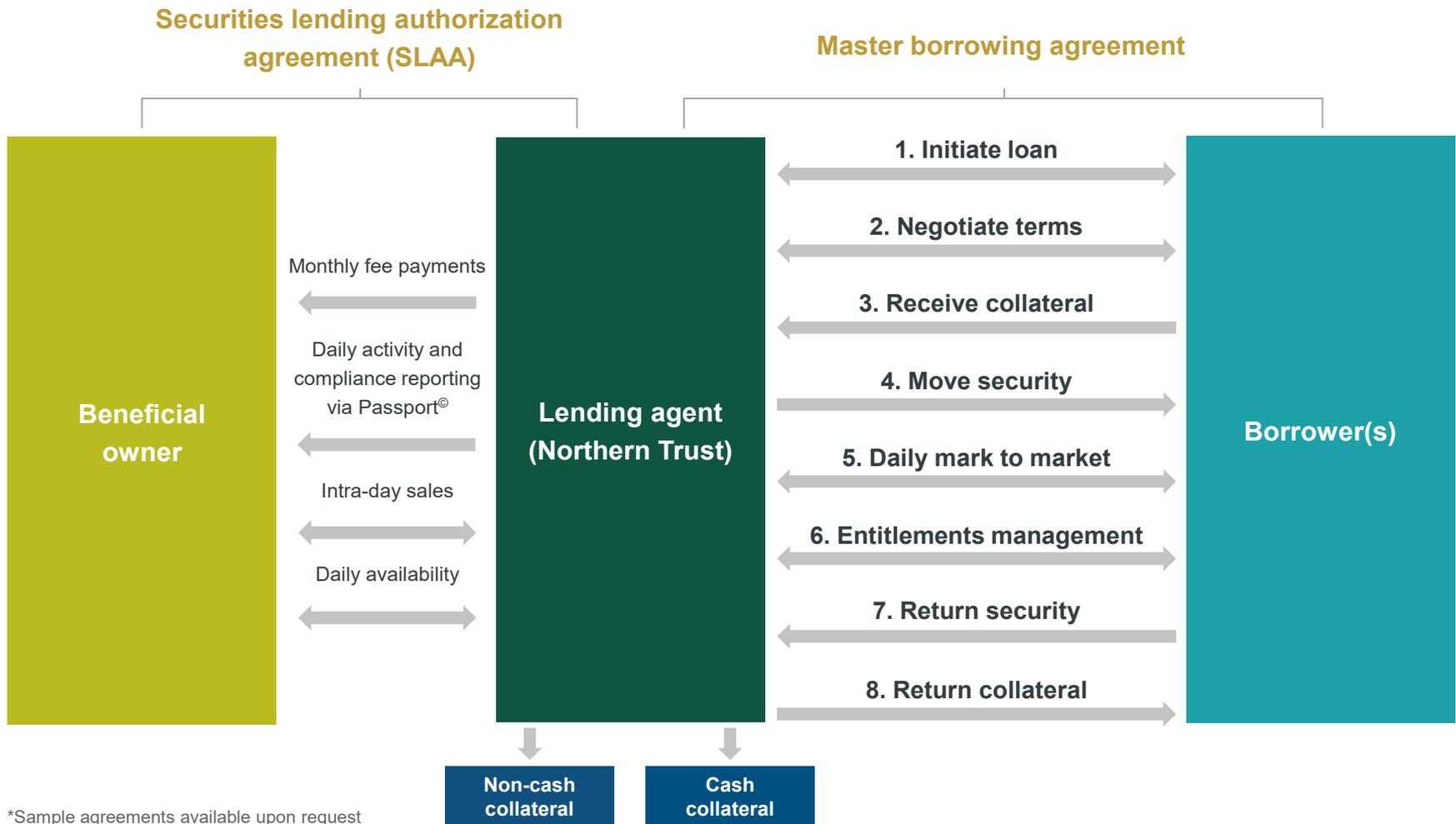
Support Function Experts:

Work together to achieve performance objectives within the risk framework and create customized solutions



SECURITIES LENDING TRANSACTION PROCESS

The life cycle of a loan



*Sample agreements available upon request

HOW REVENUE IS GENERATED

Example: Northern Trust lends \$25 million of US Equity

Non-Cash Loan

The \$25 million market value loan is for 30 days collateralized by a US Treasury.

1	Receive non-cash collateral valued at \$25,500,000 (102%)	
2	Fee charged to borrower on the value of the loan (20 bps)	\$4,167
3	Gross revenue (gross spread 20 bps) credited to client monthly	\$4,167
4	Monthly lender's fee (@ 20%)	<u>\$833</u>
5	Net client earnings	\$3,334

Gross Spread = Lending Spread + Investment Spread

Lending Spread = OBFR – Rebate Rate

Investment Spread = Reinvestment Yield – OBFR

Cash Loan

The \$25 million market value loan is for 30 days collateralized with cash (OBFR at 1.00%)

1	Receive cash collateral valued at \$25,500,000 (102%)	
2	Cash collateral invested in a collateral pool at yield of 1.10%	\$23,375
3	Rebate paid to borrower at rate of 0.80%	\$(17,000)
4	Gross Revenue (gross spread 30 bps)	\$6,375
5	Monthly lender's fee (@ 20%)	<u>\$1,275</u>
6	Net client earnings	\$5,100

SECURITIES LENDING PROMOTES EFFICIENCY AND LIQUIDITY IN FINANCIAL MARKETS



Promotes market liquidity!

- Allows price discovery and the arbitrage of pricing inefficiencies
- Supports the development of the capital markets by facilitating various investment strategies
- Important part of risk and liquidity management
- Integral component of developed securities market for investors



Who lends securities?

- Long-term, institutional investors of assets lend securities within their portfolio strategy
- Asset owners
- Asset managers



Why lend securities?

- Enhance portfolio returns
- Offset or eliminate costs of custody
- Benefit from well-managed risks



Who borrows securities?

- Investment banks
- Prime brokers
- Local brokers
- Other intermediaries
- Investment funds
- Prop traders
- Market makers



Why borrow securities?

- Hedging
- Directional trading
- Arbitrage strategies
- Fulfilling settlement obligations
- Financing trades

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**NORTHERN
TRUST**

Wilshire

Quarterly Market Review

December 31, 2022

Market Commentary

U.S. Equity

The U.S. stock market was up 7.1% for the fourth quarter but was down -19.0% for all of 2022. A majority of sectors were up for the quarter. The best performing were Energy (+19.9%), Industrials (+16.6%) and Materials (+14.6%). Consumer Discretionary was down -8.0%. From a size perspective, small-cap outperformed large-cap by 86 basis points. Growth stocks underperformed value for the quarter and also trailed meaningfully for the year.

The Federal Reserve's aggressive action to combat unacceptably high inflation is the story of 2022 with uncertainty around Fed policy poised to drive market volatility in 2023. The FOMC raised rates 4.25%, with increases becoming more dramatic in May. This marks the largest 12-month increase since 1981 (also a period of inflation near or above double-digits). Unsurprisingly, fixed income suffered but so did equities as investors repriced off a higher risk-free rate. The Fed is currently forecasting a rate 0.75% higher by the end of 2023. The open market does not agree – or perhaps doubts their credibility to continue tightening, with a modest change forecasted for the next year. How this disagreement plays out is likely to be a primary market driver this year.

Non-U.S. Equity

Europe faced similar headwinds as the United States in 2022 – surging inflation and aggressive central bank tightening – but also had to more directly contend with the ongoing war in Ukraine. The labor market remains tight in the eurozone and many businesses report that a labor shortage is limiting production. Despite China's zero-COVID policies, including lockdowns, infections continued to surge intermittently. Tension among the country's citizens continued to rise and led to protests not seen in decades. In early December, the central government took definitive steps to ease restrictions.

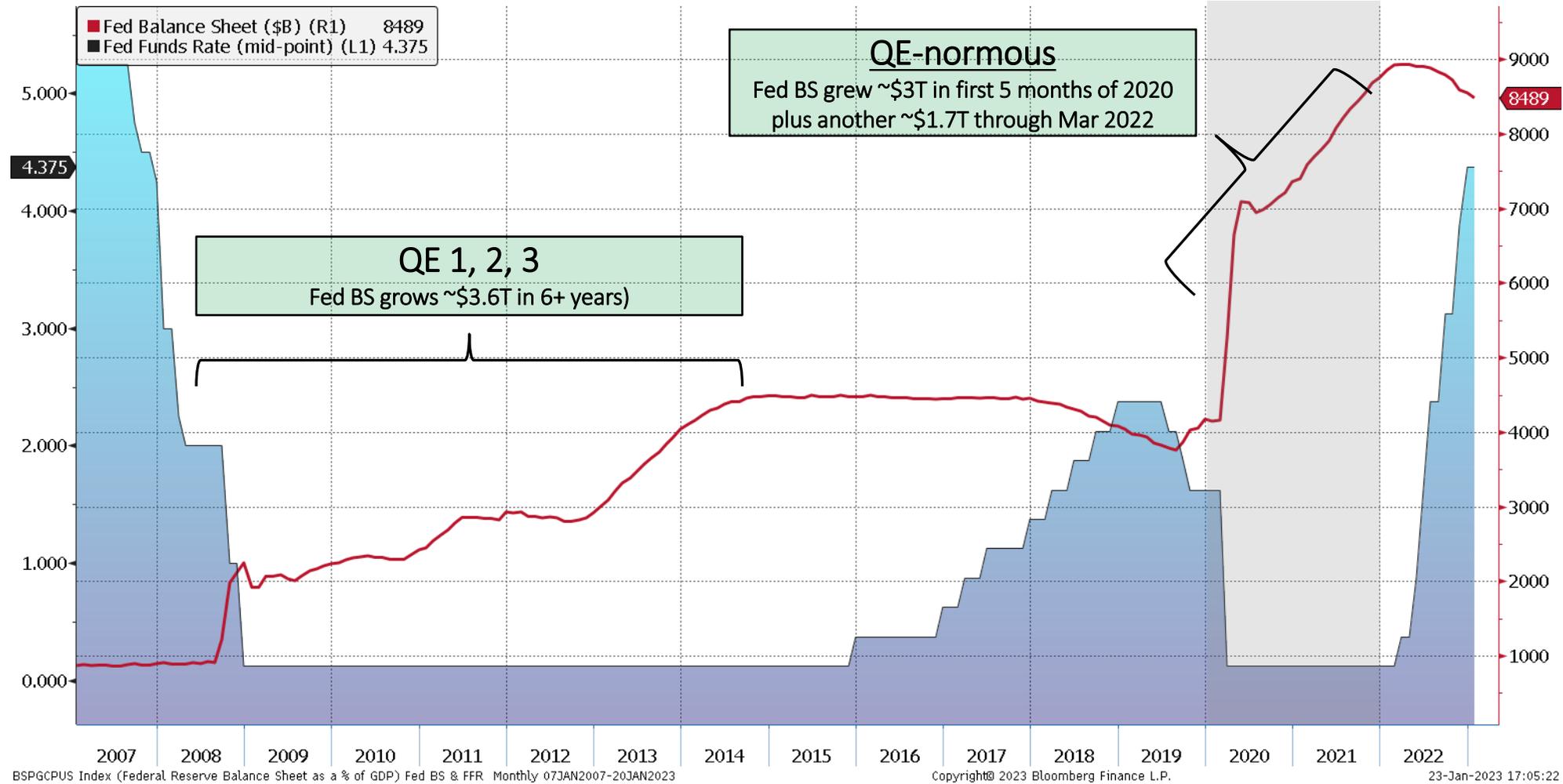
Fixed Income

The U.S. Treasury yield curve was up in the short-end (below 3-years) by 50-135 basis points but largely unchanged across the remainder of the curve. The 10-year Treasury yield ended the quarter at 3.88%, up just 5 basis points from September. The Fed increased the overnight rate by 0.75% in November and 0.50% in December, targeting a range of 4.25% to 4.50%. The Fed's "dot plot" is messaging that the current intent is for another 75 basis points in increases before the end of 2023.

December 2022 Asset Class Assumptions

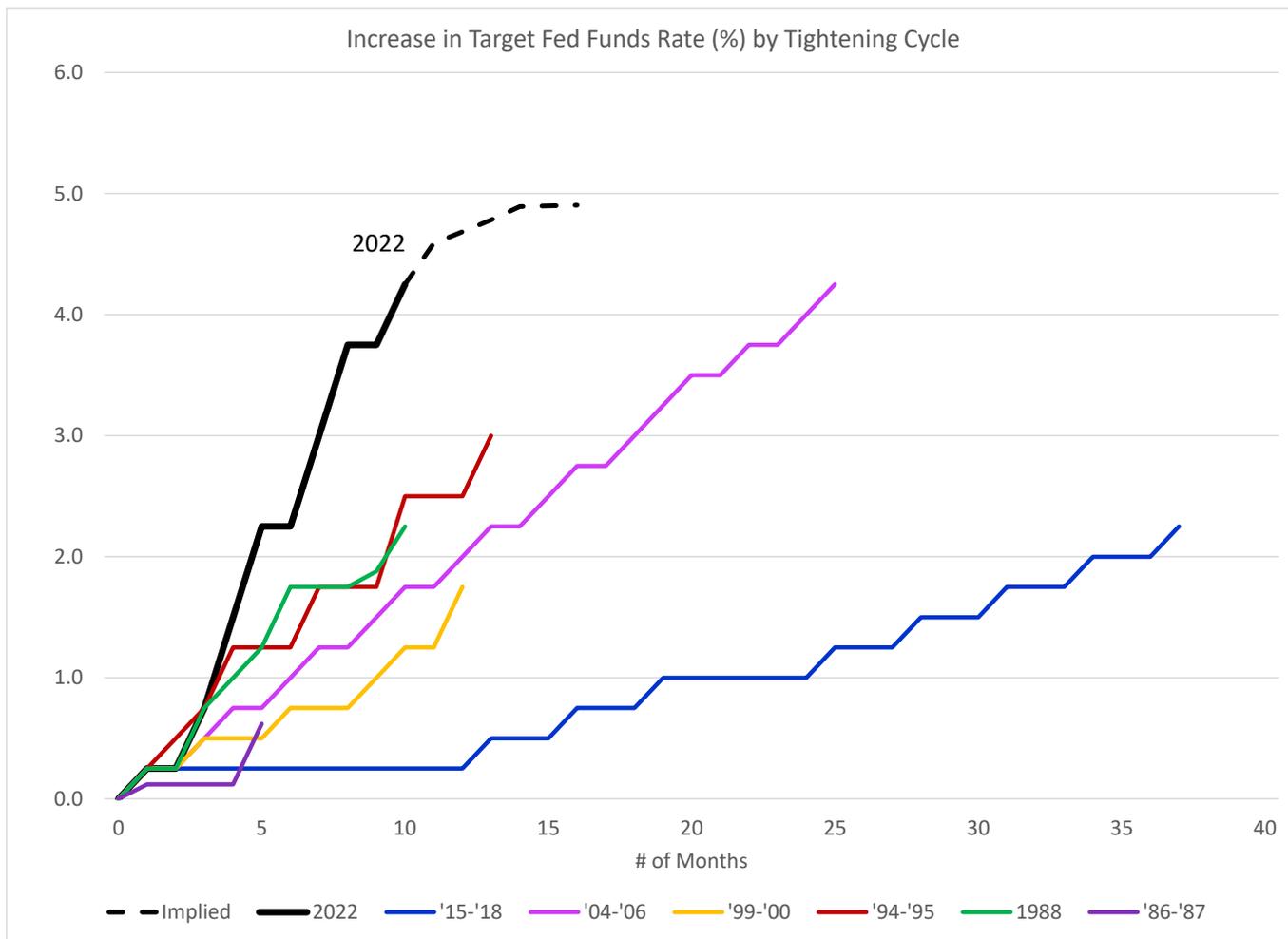
	Equity						Fixed Income						Real Assets						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Private Credit	Dev ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
Compound Return (%)	6.50	7.25	7.50	7.60	7.05	9.90	4.00	4.90	4.90	3.95	6.55	8.85	3.05	5.65	5.80	6.20	6.25	6.65	2.25
Expected Risk (%)	17.00	18.00	26.00	19.10	17.10	29.00	0.75	4.70	9.80	6.00	10.00	12.75	4.00	17.50	16.45	14.00	16.00	12.35	1.75
Cash Yield (%)	1.75	3.25	2.80	3.10	2.25	0.00	4.00	5.10	5.25	4.40	9.65	5.10	3.75	3.95	3.95	2.25	4.00	3.15	0.00
Growth Exposure	8.00	8.00	8.00	8.00	8.00	14.00	0.00	-0.95	-2.40	-3.00	4.00	5.10	-1.00	6.00	6.00	3.50	0.00	2.70	0.00
Inflation Exposure	-3.00	0.00	5.00	1.45	-1.30	-3.75	0.00	-2.50	-6.80	2.50	-1.00	-1.50	-3.00	1.00	1.80	1.00	12.00	5.25	1.00
Correlations																			
US Stock	1.00																		
Dev ex-US Stock (USD)	0.81	1.00																	
Emerging Mkt Stock	0.74	0.74	1.00																
Global ex-US Stock	0.84	0.95	0.89	1.00															
Global Stock	0.95	0.91	0.84	0.94	1.00														
Private Equity	0.72	0.63	0.61	0.67	0.73	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.06	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.08	0.20	0.30	0.18	1.00											
LT Core Bond	0.31	0.15	0.01	0.11	0.24	0.31	0.11	0.94	1.00										
TIPS	-0.05	0.00	0.15	0.06	-0.01	-0.03	0.20	0.60	0.48	1.00									
High Yield Bond	0.54	0.39	0.49	0.46	0.53	0.31	-0.10	0.24	0.32	0.05	1.00								
Private Credit	0.68	0.55	0.58	0.60	0.68	0.44	0.00	0.24	0.30	0.00	0.76	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.16	0.17	0.26	0.10	0.68	0.66	0.39	0.26	0.22	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.57	0.49	-0.05	0.17	0.22	0.10	0.56	0.62	0.05	1.00					
Global RE Securities	0.64	0.57	0.54	0.60	0.65	0.55	-0.05	0.17	0.21	0.11	0.61	0.68	0.04	0.96	1.00				
Private Real Estate	0.55	0.45	0.45	0.49	0.54	0.50	-0.05	0.19	0.25	0.09	0.58	0.63	0.05	0.79	0.78	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.28	0.00	-0.03	-0.03	0.25	0.29	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.62	0.63	0.65	0.69	0.67	0.57	-0.03	0.22	0.24	0.30	0.64	0.69	0.04	0.78	0.84	0.76	0.64	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	0.00	-0.08	0.05	0.04	0.05	0.44	0.22	1.00

The Fed: Zero Rates & QE to \$8T and Beyond...



Data Source: Bloomberg

The Shift to Tightening: Most Aggressive in Modern Era: Will “Bring Some Pain”



Data Source: Bloomberg

“While higher interest rates, slower growth, and softer labor market conditions will bring down inflation, they will also bring some pain to households and businesses. These are the unfortunate costs of reducing inflation. But a failure to restore price stability would mean far greater pain.”



Jerome Powell

August 2022, Jackson Hole

The Fed's Dashboard: Realized & Expected Inflation



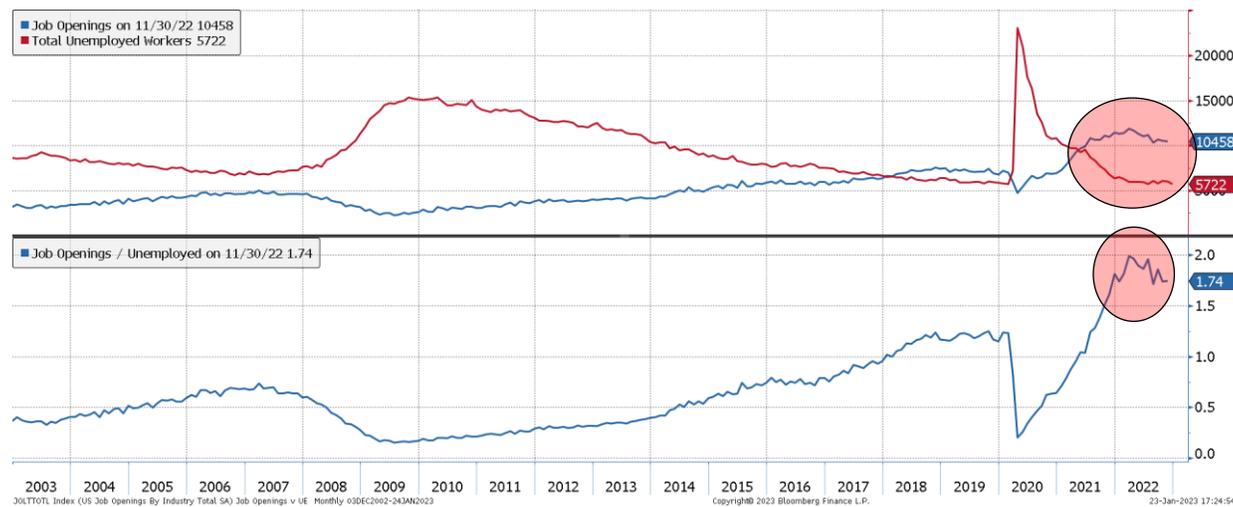
- Realized inflation has begun to ease off extreme levels
 - CPI 6.5% v. 9.1% in June 2022
 - Core CPI stabilizing ~5%
 - Wage inflation remains elevated (~6%)



- Inflation expectations remain well-anchored
 - Expectational anchoring at higher levels would make the Fed's job even more challenging
 - These expectations are likely at the heart of the divergence between market and Fed outlooks (i.e., the Fed would likely pause now if they believed these expectations would be realized)

Data Source: Bloomberg

The Fed's Dashboard: Economic Growth & Labor Market



Data Source: Bloomberg

The market seems a bit more confident in the prospects of a “soft landing” as inflation has subsided in recent months

- However, lots more liquidity to be drained
- Powell’s “Sully” Sullenberger moment...



“We’re going to be in the Hudson”

Chesley Burnett "Sully" Sullenberger III
Pilot of US Airways 1549, January 15, 2009

Labor markets remain tight

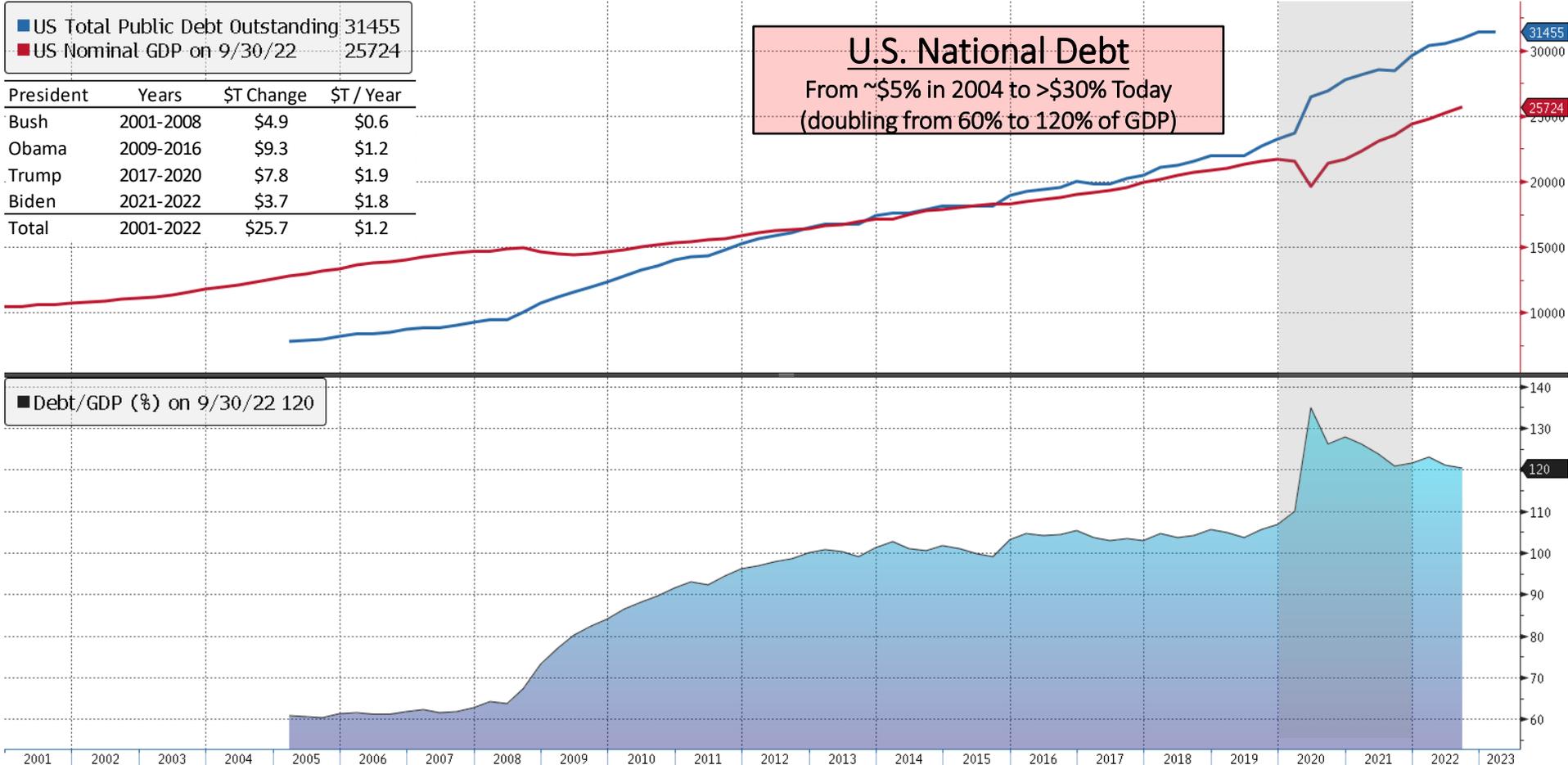
- Difficult to see inflation pressures return to Fed target without these tensions reversing
- Recent jobs reports remain strong (good news for economic resilience but challenges the market’s benign inflation expectations)

A Secular Explosion in National Debt: “We’re Not in Kansas Anymore”

■ US Total Public Debt Outstanding 31455
 ■ US Nominal GDP on 9/30/22 25724

President	Years	\$T Change	\$T / Year
Bush	2001-2008	\$4.9	\$0.6
Obama	2009-2016	\$9.3	\$1.2
Trump	2017-2020	\$7.8	\$1.9
Biden	2021-2022	\$3.7	\$1.8
Total	2001-2022	\$25.7	\$1.2

U.S. National Debt
 From ~\$5% in 2004 to >\$30% Today
 (doubling from 60% to 120% of GDP)



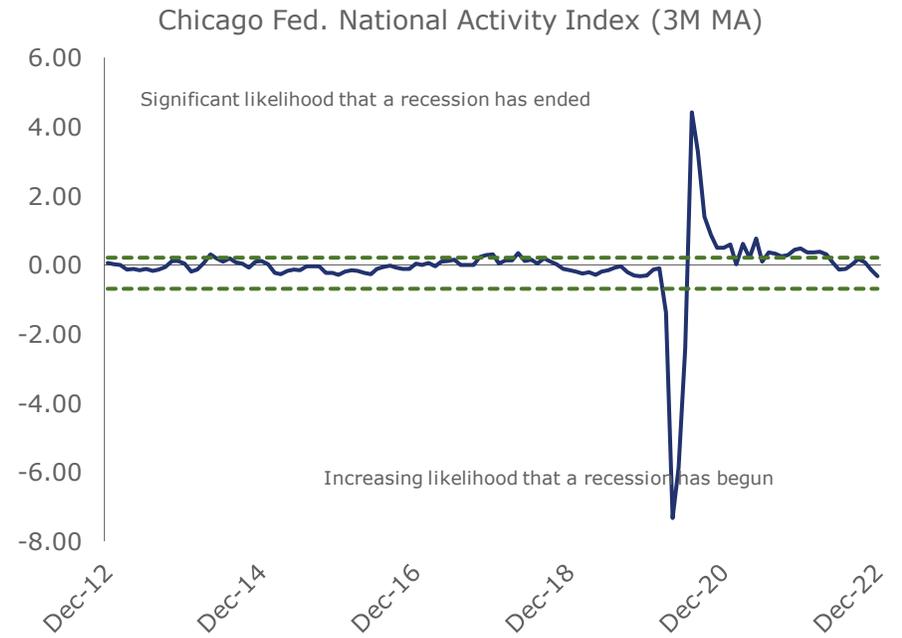
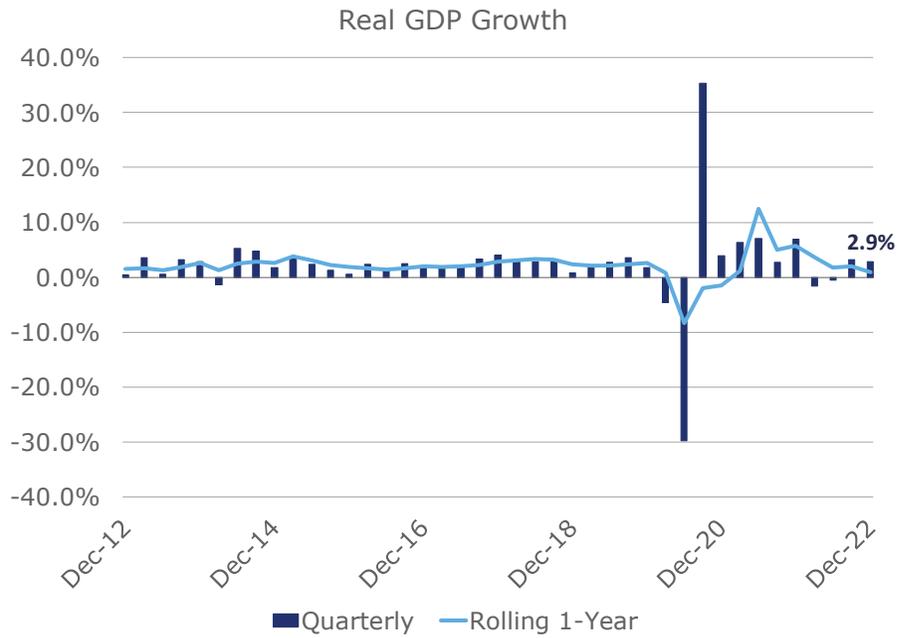
■ Debt/GDP (%) on 9/30/22 120

PUBLDEBT Index (US Treasury Total Public Debt Outstanding) US Public Debt Quarterly 31DEC2000-19JAN2023 Copyright © 2023 Bloomberg Finance L.P. 22-Jan-2023 08:54:42

Data Source: Bloomberg

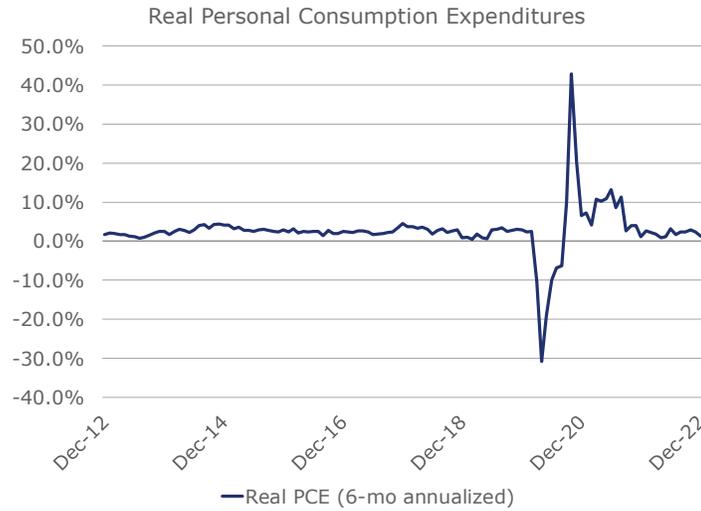
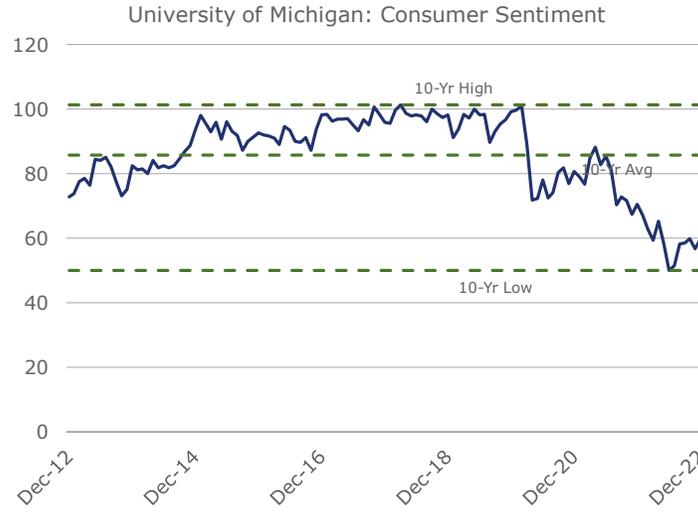
Economic/Market Activity

Economic Growth



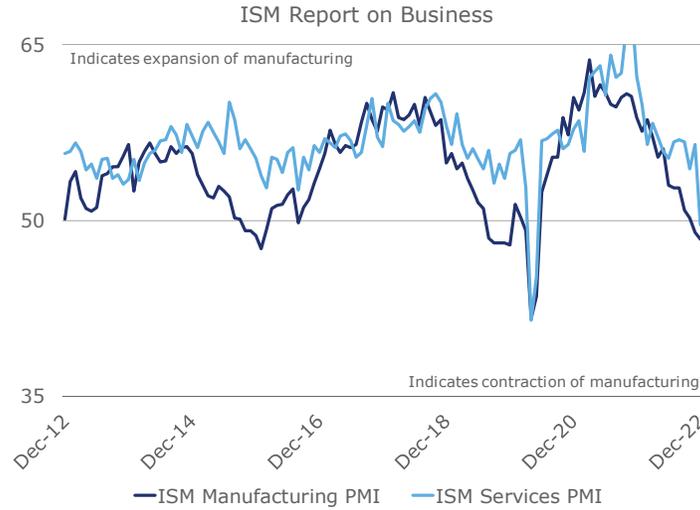
Data Sources: Bloomberg

Consumer Activity



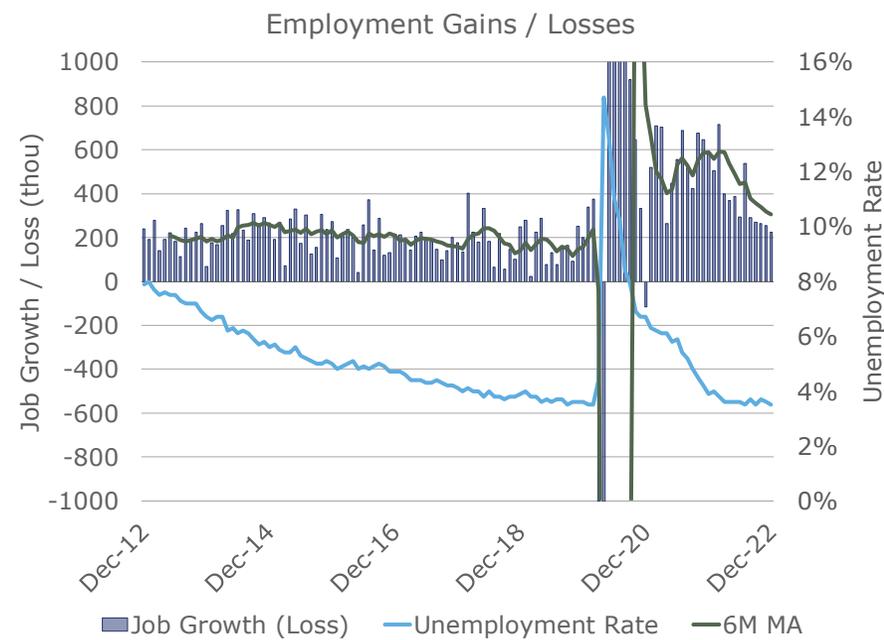
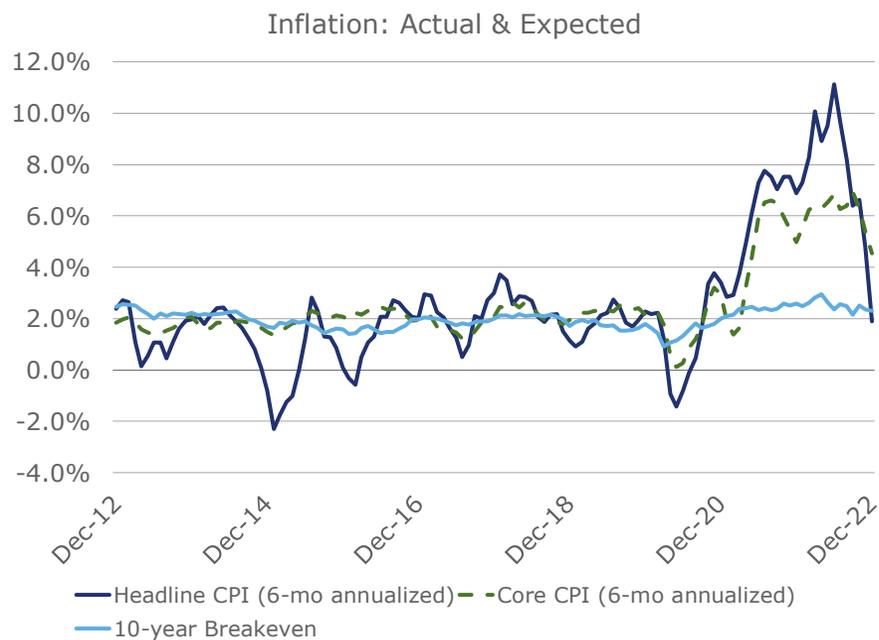
Data Sources: Bloomberg

Business Activity



Data Sources: Bloomberg

Inflation and Employment

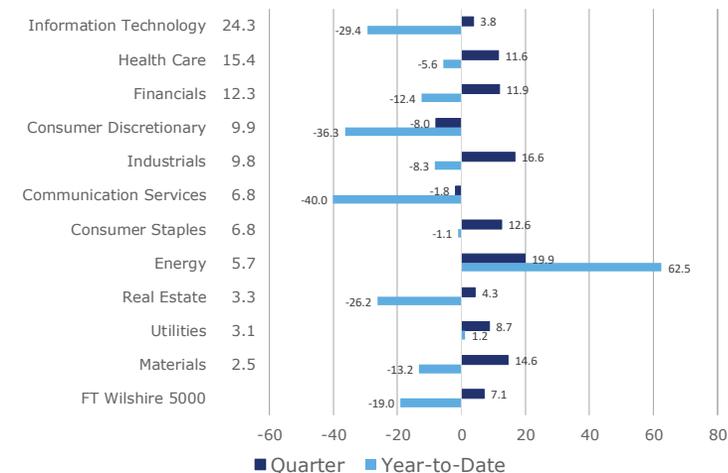


Data Sources: Bloomberg

U.S. Equity Market

As of 12/30/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
FT Wilshire 5000	7.1	-19.0	-19.0	7.4	9.0	12.3
Wilshire U.S. Large Cap	7.1	-19.0	-19.0	7.7	9.4	12.6
Wilshire U.S. Small Cap	7.9	-18.7	-18.7	4.4	5.1	9.7
Wilshire U.S. Large Growth	0.8	-29.5	-29.5	7.1	10.0	13.6
Wilshire U.S. Large Value	13.8	-5.5	-5.5	8.1	8.7	11.5
Wilshire U.S. Small Growth	7.1	-23.1	-23.1	3.2	5.1	9.9
Wilshire U.S. Small Value	8.7	-14.2	-14.2	5.6	5.0	9.3
Wilshire REIT Index	4.0	-26.8	-26.8	-0.5	3.4	6.3
MSCI USA Min. Vol. Index	9.8	-9.2	-9.2	5.1	8.6	11.9
FTSE RAFI U.S. 1000 Index	12.5	-7.4	-7.4	9.6	9.1	12.2

U.S. Sector Weight and Return (%)



Large Cap vs Small Cap



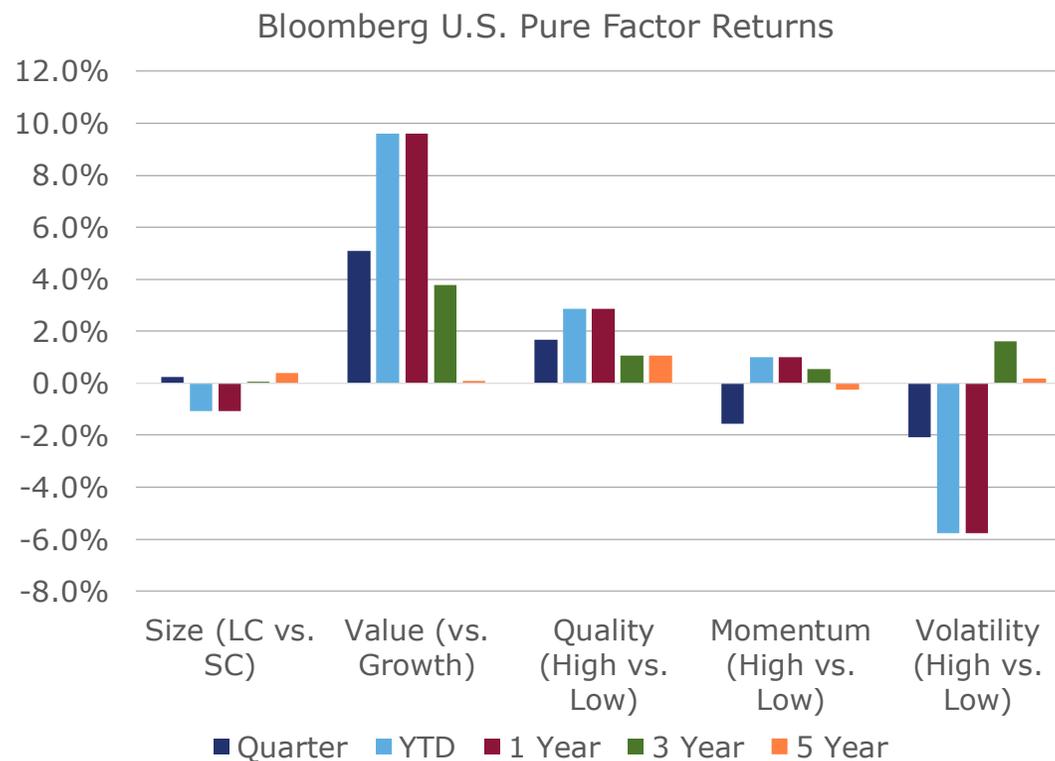
Large Growth vs Large Value



Data Sources: Bloomberg, Wilshire Atlas

U.S. Factor Returns

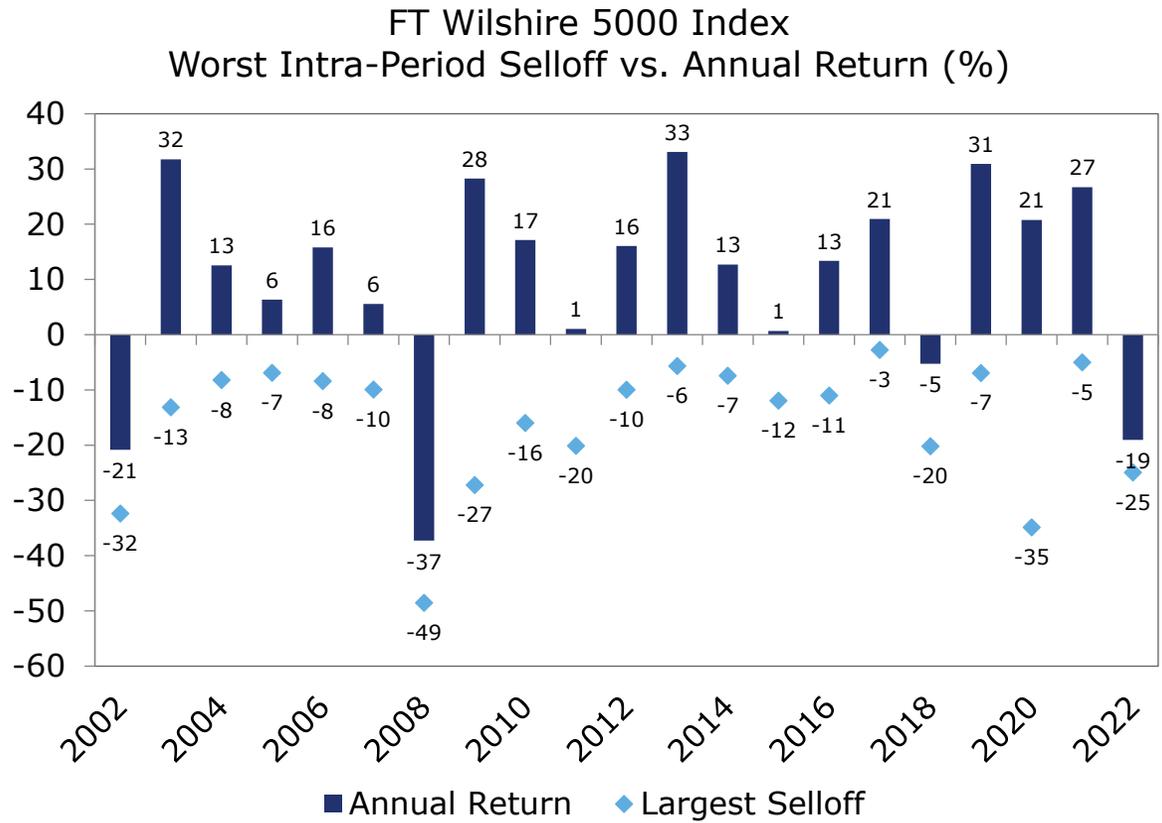
- Factor returns represent the contribution from large cap, value, etc. stocks within Bloomberg’s Portfolio & Risk Analytics module
- Value and low volatility have mostly outperformed this year



Data Sources: Bloomberg

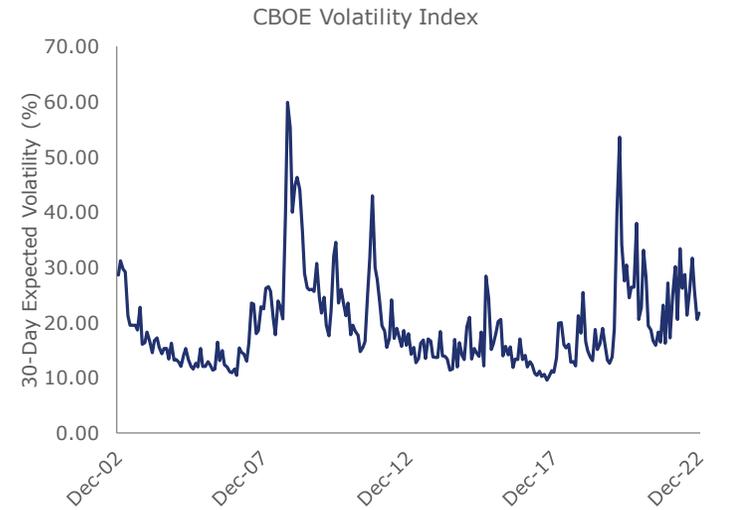
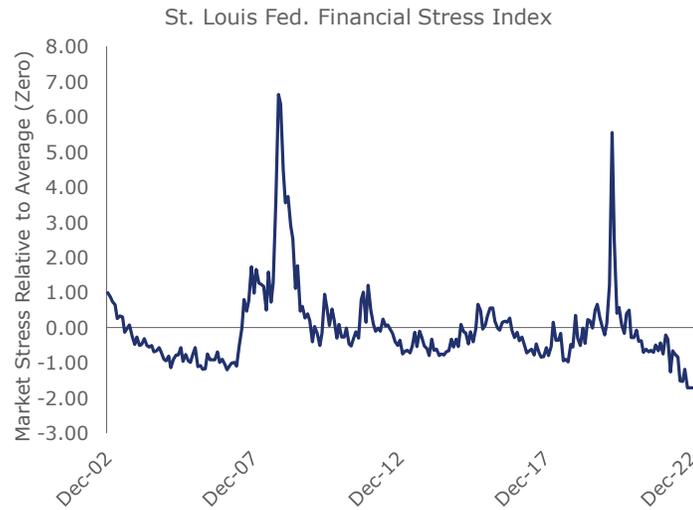
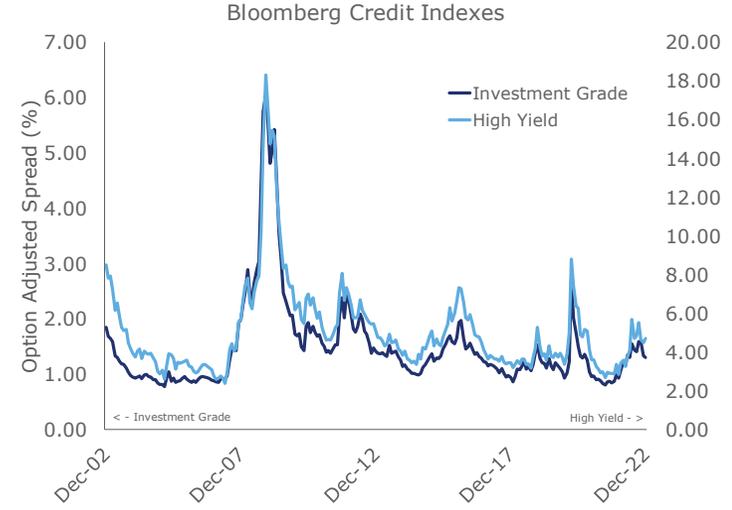
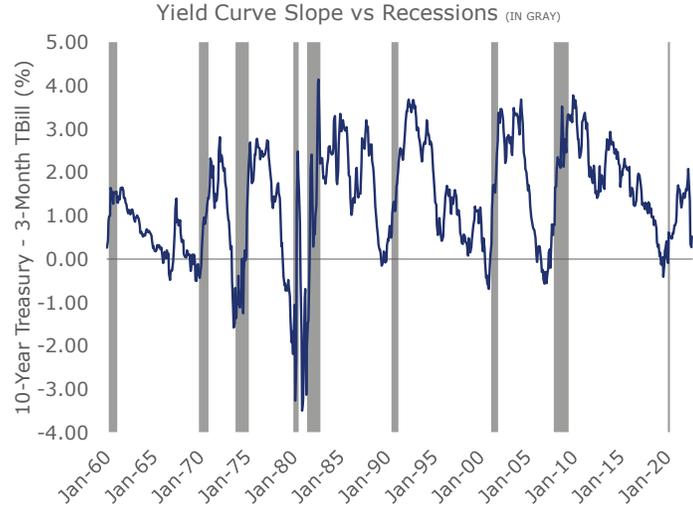
Annual Equity Market Selloffs

U.S. equity suffered its worse year since the 2008 global financial crisis



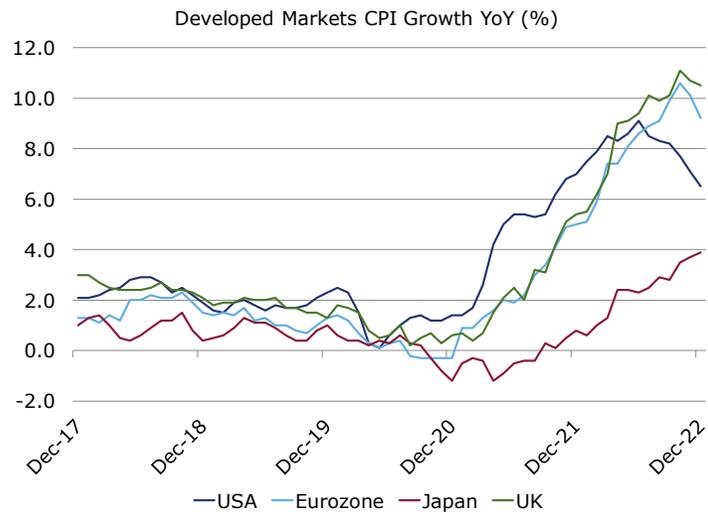
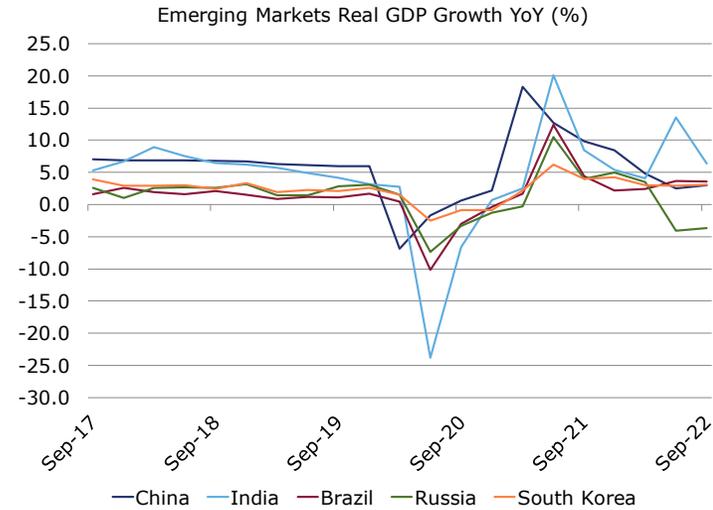
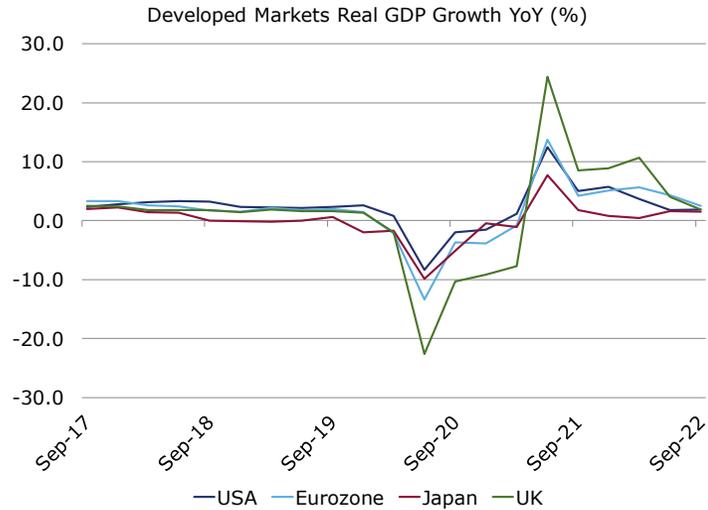
Data Sources: Wilshire Web, Bloomberg

Risk Monitor



Data Sources: Bloomberg

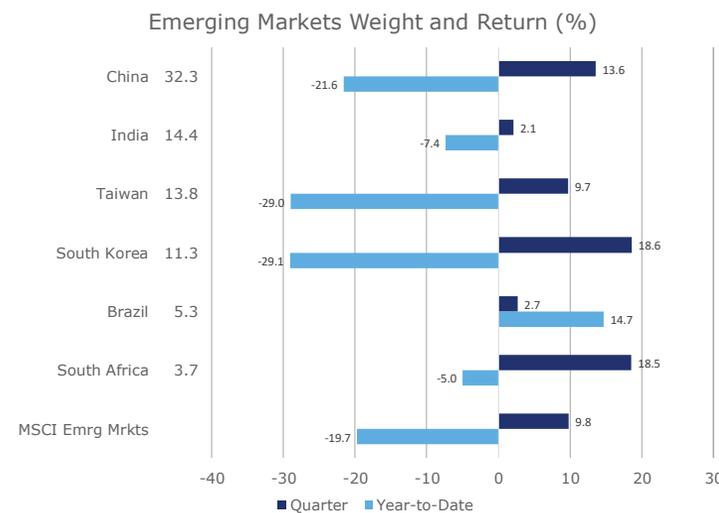
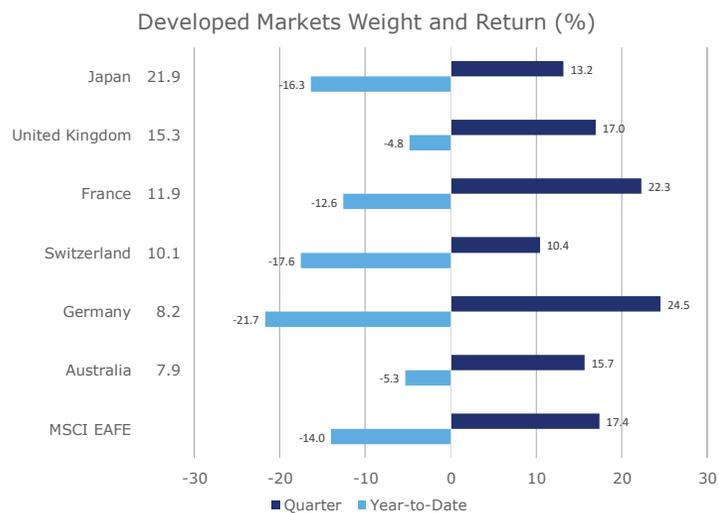
Non-U.S. Growth and Inflation



Data Sources: Bloomberg

Non-U.S. Equity Market

As of 12/30/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
MSCI ACWI ex-US (\$G)	14.4	-15.6	-15.6	0.5	1.4	4.3
MSCI EAFE (\$G)	17.4	-14.0	-14.0	1.3	2.0	5.2
MSCI Emerging Markets (\$G)	9.8	-19.7	-19.7	-2.3	-1.0	1.8
MSCI Frontier Markets (\$G)	9.2	-17.8	-17.8	-5.7	-3.8	0.2
MSCI ACWI ex-US Growth (\$G)	12.9	-22.8	-22.8	-0.1	1.8	5.0
MSCI ACWI ex-US Value (\$G)	15.7	-8.7	-8.7	0.8	0.6	3.6
MSCI ACWI ex-US Small (\$G)	13.4	-19.6	-19.6	1.5	1.1	5.6
MSCI ACWI Minimum Volatility	8.6	-9.8	-9.8	2.2	5.2	8.4
MSCI EAFE Minimum Volatility	12.5	-14.6	-14.6	-2.6	0.6	5.1
FTSE RAFI Developed ex-US	18.3	-9.0	-9.0	2.7	1.7	4.9
MSCI EAFE LC (G)	8.8	-6.5	-6.5	4.1	4.3	8.1
MSCI Emerging Markets LC (G)	6.7	-15.2	-15.2	0.5	1.7	5.0

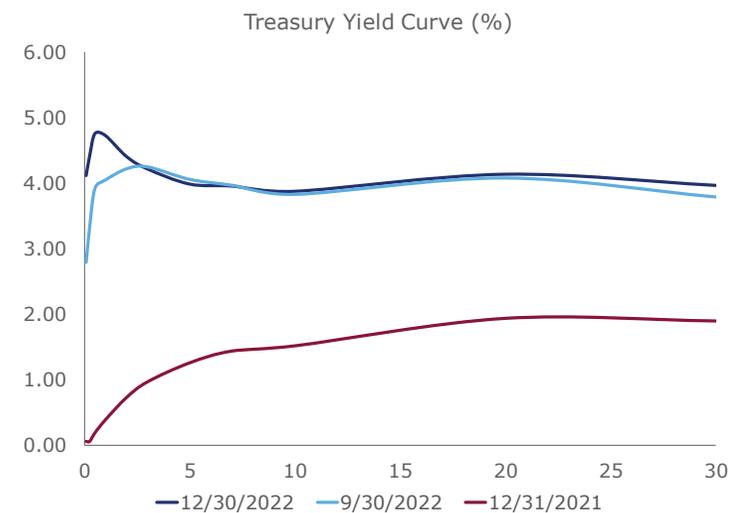
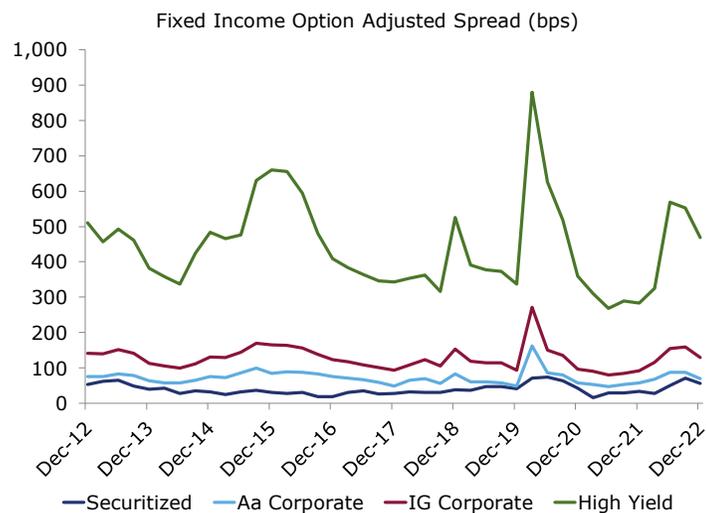


Data Sources: Bloomberg

U.S. Fixed Income

As of 12/30/2022	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg Aggregate	4.7	6.2	1.9	-13.0	-13.0	-2.7	0.0	1.1
Bloomberg Treasury	4.2	6.1	0.7	-12.5	-12.5	-2.6	-0.1	0.6
Bloomberg Gov't-Rel.	4.8	5.2	1.9	-11.1	-11.1	-2.4	0.3	1.1
Bloomberg Securitized	4.8	5.7	2.0	-11.7	-11.7	-3.1	-0.4	0.8
Bloomberg Corporate	5.4	7.1	3.6	-15.8	-15.8	-2.9	0.5	2.0
Bloomberg LT Gov't/Credit	4.9	14.3	2.6	-27.1	-27.1	-6.2	-1.2	1.6
Bloomberg LT Treasury	4.1	16.2	-0.6	-29.3	-29.3	-7.4	-2.2	0.6
Bloomberg LT Gov't-Rel.	5.5	11.6	4.2	-22.7	-22.7	-5.9	-0.8	1.6
Bloomberg LT Corporate	5.6	13.0	5.4	-25.6	-25.6	-5.7	-0.8	2.2
Bloomberg U.S. TIPS *	3.8	7.6	2.0	-11.8	-11.8	1.2	2.1	1.1
Bloomberg High Yield	9.0	3.9	4.2	-11.2	-11.2	0.0	2.3	4.0
S&P/LSTA Leveraged Loan	9.1	0.3	2.7	-0.6	-0.6	2.5	3.3	3.7
Treasury Bills	4.4	0.3	0.9	1.3	1.3	0.7	1.2	0.8

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

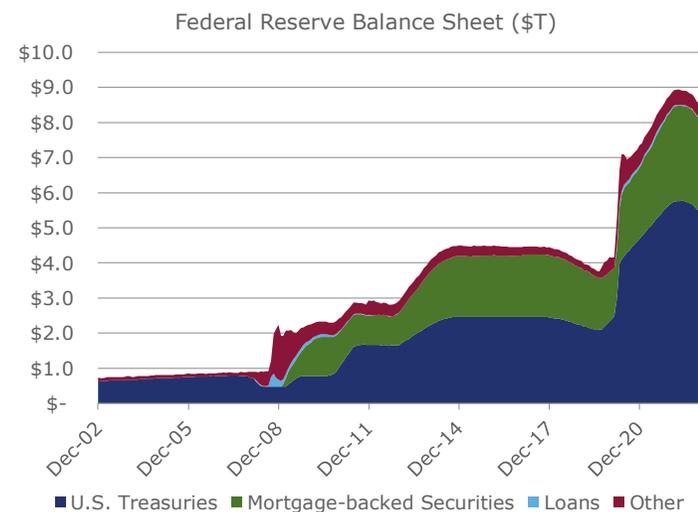
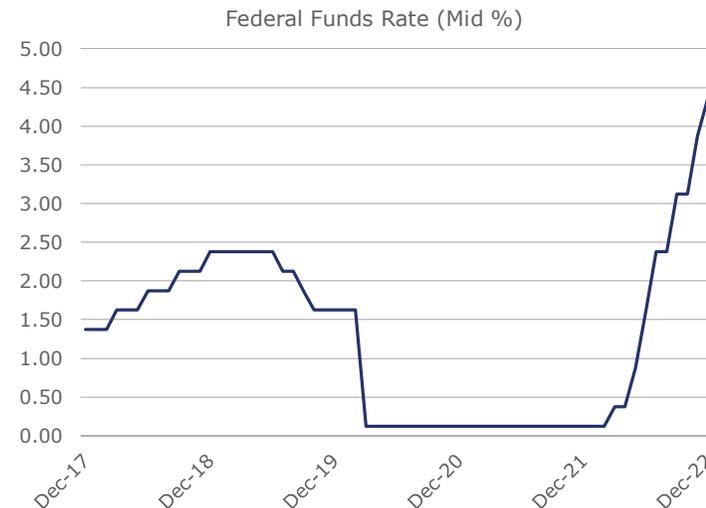


Data Sources: Bloomberg

Federal Reserve

- After 300 basis point increase in the Fed-funds rate through September, the FOMC increased the rate an additional 125 basis points during Q4
- Federal Reserve has added more than \$4.5 trillion in assets to their balance sheet during the past two years
- QE4 was larger than the 3 phases of quantitative easing – combined – following the global financial crisis

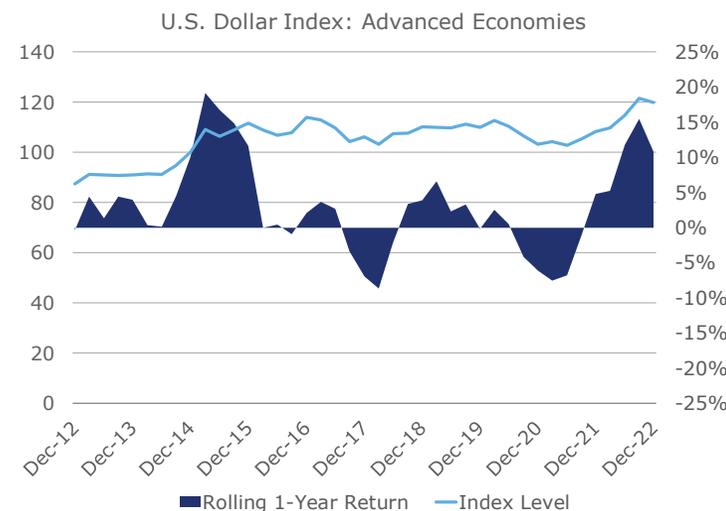
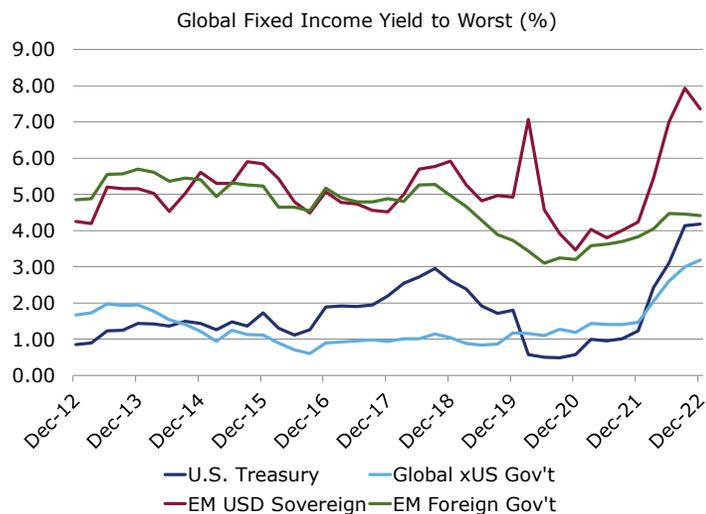
	Announced	Closed	Amount (bil)
QE1	11/25/2008	3/31/2010	\$1,403
QE2	11/3/2010	6/29/2012	\$568
QE3	9/13/2012	10/29/2014	\$1,674
QE4	3/23/2020	3/15/2022	\$4,779



Non-U.S. Fixed Income

As of 12/30/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Developed Markets						
Bloomberg Global Aggregate xUS	6.8	-18.7	-18.7	-5.9	-3.1	-1.6
Bloomberg Global Aggregate xUS *	0.2	-9.8	-9.8	-2.6	0.5	2.1
Bloomberg Global Inflation Linked xUS	5.8	-29.6	-29.6	-7.0	-4.0	-0.9
Bloomberg Global Inflation Linked xUS *	-1.7	-21.1	-21.1	-3.5	-0.4	2.7
Emerging Markets (Hard Currency)						
Bloomberg EM USD Aggregate	6.6	-15.3	-15.3	-3.9	-0.4	1.7
Emerging Markets (Foreign Currency)						
Bloomberg EM Local Currency Gov't	5.9	-8.4	-8.4	-1.7	0.1	0.2
Bloomberg EM Local Currency Gov't *	1.9	-2.7	-2.7	-0.3	2.0	1.9
Euro vs. Dollar	9.2	-5.8	-5.8	-1.5	-2.3	-2.1
Yen vs. Dollar	10.4	-12.2	-12.2	-6.1	-3.0	-4.0
Pound vs. Dollar	8.2	-10.7	-10.7	-3.0	-2.2	-2.9

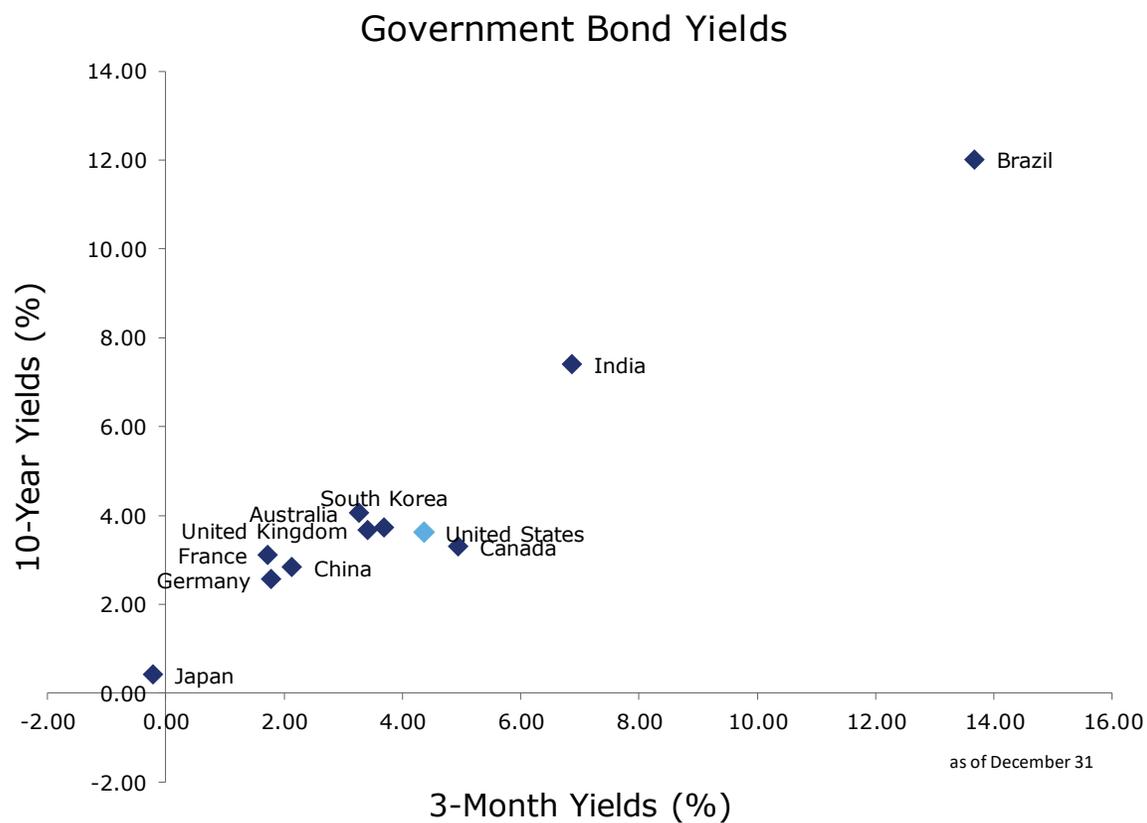
* Returns are reported in terms of local market investors, which removes currency effects.



Data Sources: Bloomberg

Global Interest Rates

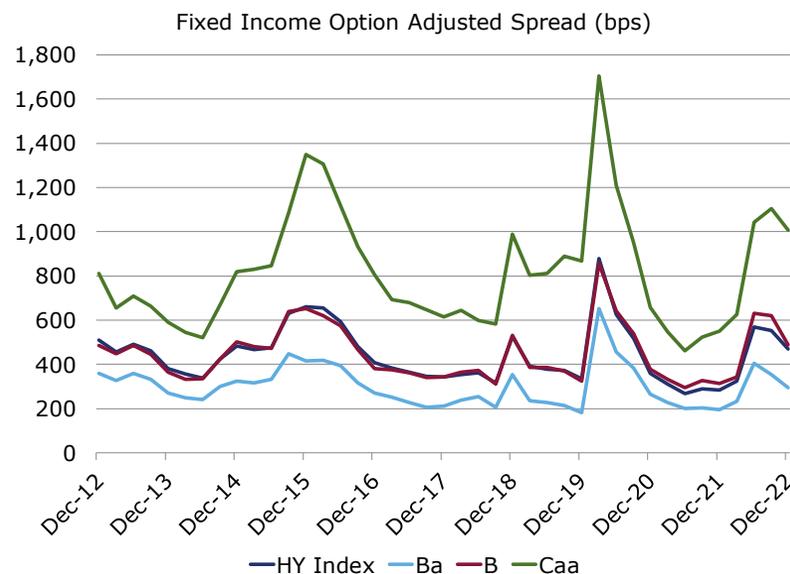
Short-term rates have turned positive in most larger countries; longer-term rates around 4% in the U.K., Australia, South Korea and the U.S.



Data Sources: Bloomberg

High Yield Bond Market

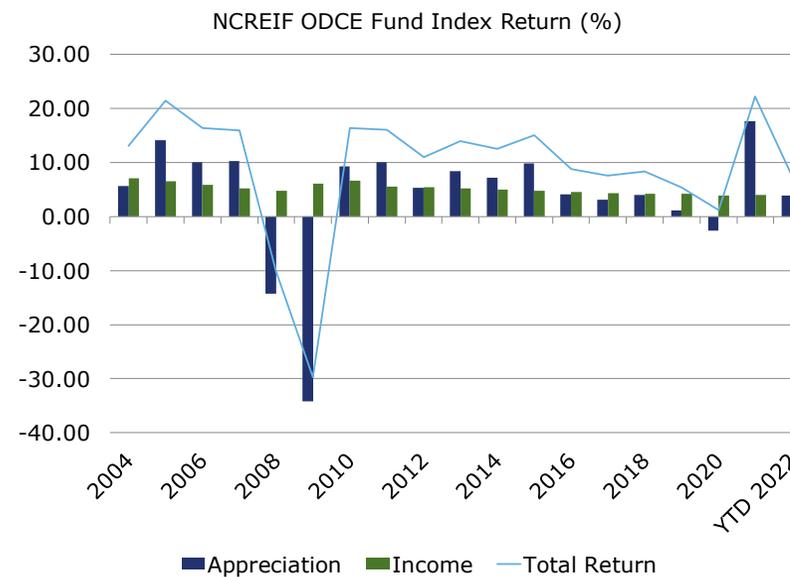
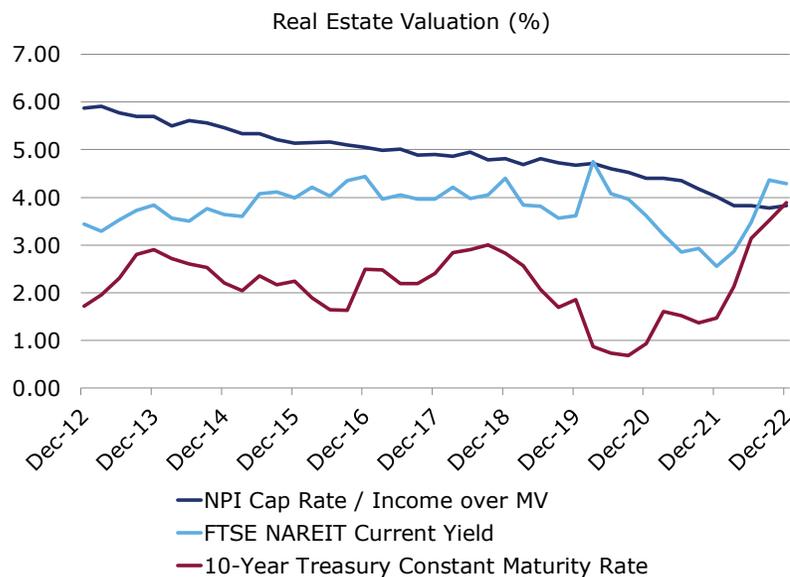
As of 12/31/2022		YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg High Yield		9.0	4.2	-11.2	-11.2	0.0	2.3	4.0
S&P LSTA Leveraged Loan		9.1	3.8	-0.6	-0.6	1.9	3.1	3.2
High Yield Quality Distribution	Weight							
Ba U.S. High Yield	49.9%	7.2	4.3	-10.8	-10.8	0.9	3.0	4.4
B U.S. High Yield	38.6%	9.2	4.9	-10.3	-10.3	-0.5	2.2	3.6
Caa U.S. High Yield	10.7%	14.3	0.5	-16.3	-16.3	-2.4	-0.4	3.5
Ca to D U.S. High Yield	0.7%	36.3	13.8	-10.4	-10.4	1.1	0.4	-5.0



Data Sources: Bloomberg

Real Assets

As of 12/30/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg U.S. TIPS	2.0	-11.8	-11.8	1.2	2.1	1.1
Bloomberg Commodity Index	2.2	16.1	16.1	12.7	6.4	-1.3
Bloomberg Gold Index	9.5	-0.7	-0.7	4.7	5.7	0.0
Wilshire Global RESI Index	6.4	-24.9	-24.9	-2.7	1.6	4.8
NCREIF ODCE Fund Index	-5.0	7.5	7.5	9.9	8.7	10.1
NCREIF Timberland Index	4.9	12.9	12.9	7.5	5.4	5.8
FTSE Global Core Infrastructure 50/50	9.2	-4.1	-4.1	2.3	5.5	7.9
Alerian Midstream Energy	8.4	21.5	21.5	8.8	6.8	n.a.
Bitcoin	-14.9	-64.3	-64.3	32.2	3.3	103.6



Data Sources: Bloomberg, National Council of Real Estate Investment Fiduciaries

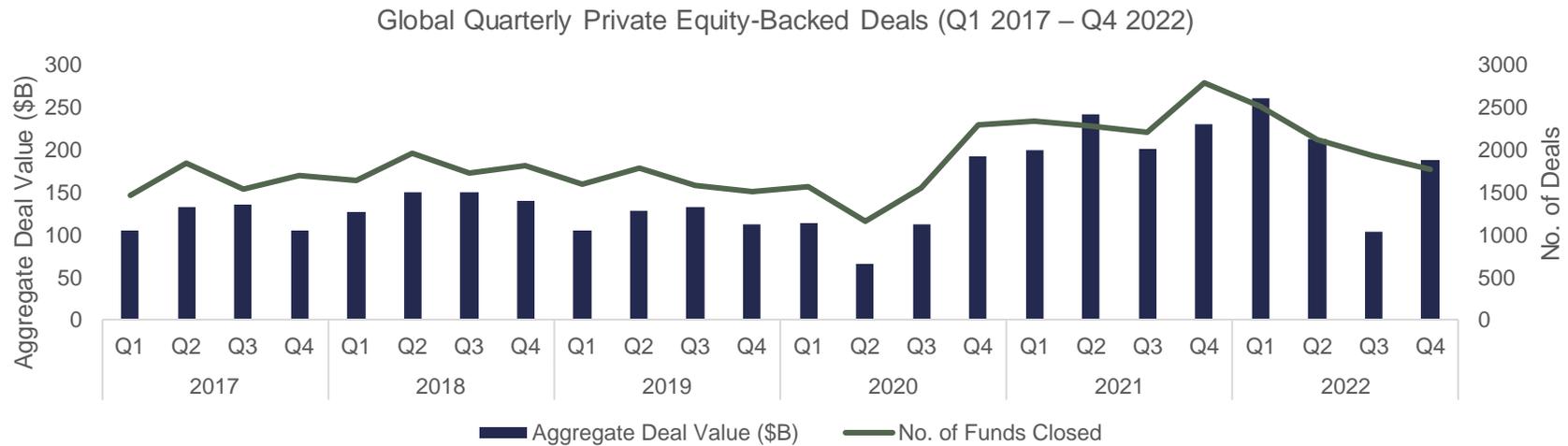
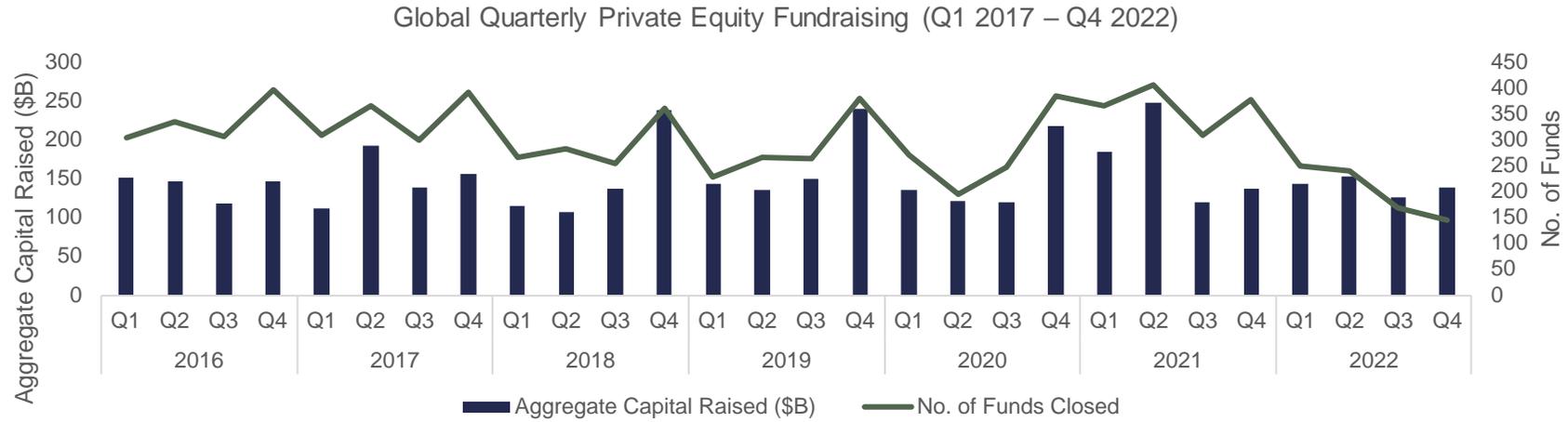
Asset Class Performance

Asset Class Returns - Best to Worst						Annualized 5-Year as of 12/22
2017	2018	2019	2020	2021	2022 YTD	
Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	Commodities 16.1%	U.S. Equity 9.0%
Developed 25.6%	Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	T-Bills 1.3%	Commodities 6.4%
U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	High Yield -11.2%	REITs 3.4%
High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	U.S. TIPS -11.8%	High Yield 2.3%
REITs 4.2%	REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	Core Bond -13.0%	U.S. TIPS 2.1%
Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	Developed -14.0%	Developed 2.0%
U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	U.S. Equity -19.0%	T-Bills 1.2%
Commodities 1.7%	Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Emrg Mrkts -19.7%	Core Bond 0.0%
T-Bills 0.8%	Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	REITs -26.8%	Emrg Mrkts -1.0%

Data Sources: Bloomberg Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

Appendix: Private Market Trends

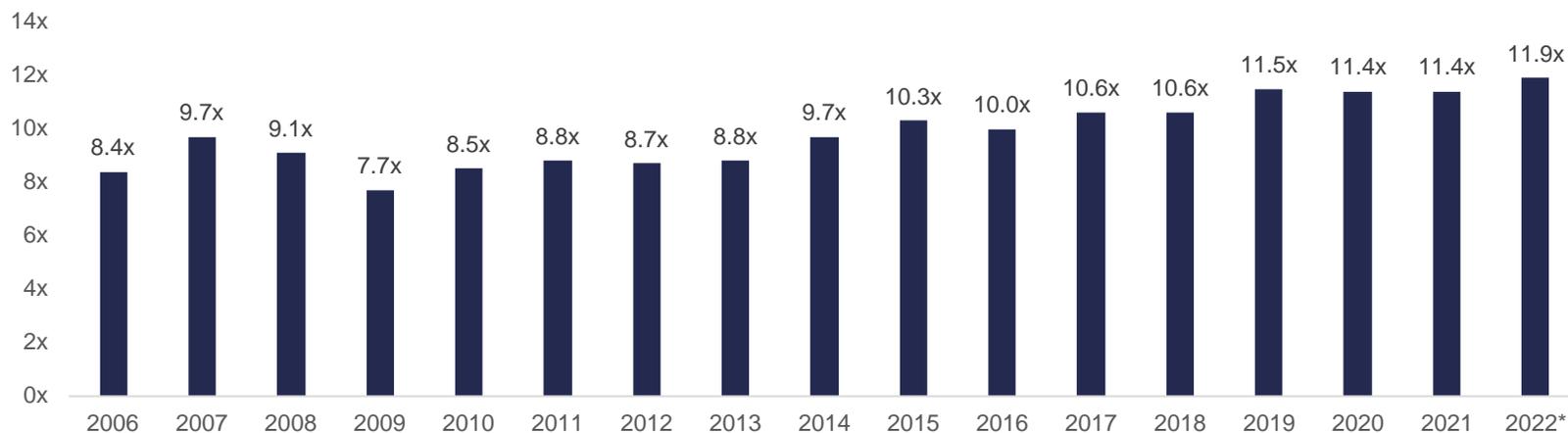
Private Equity – Fundraising & Investment Activity



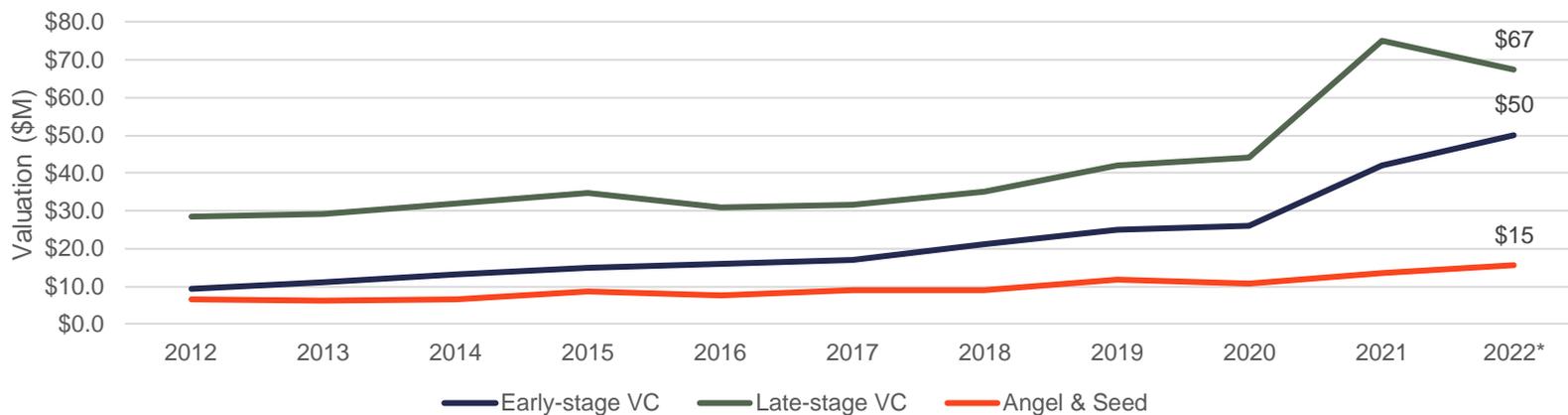
Source: Preqin, as of December 31, 2022.

Private Equity – Pricing & Valuations

LBO Purchase Price Multiples (2006 – Q4 2022)

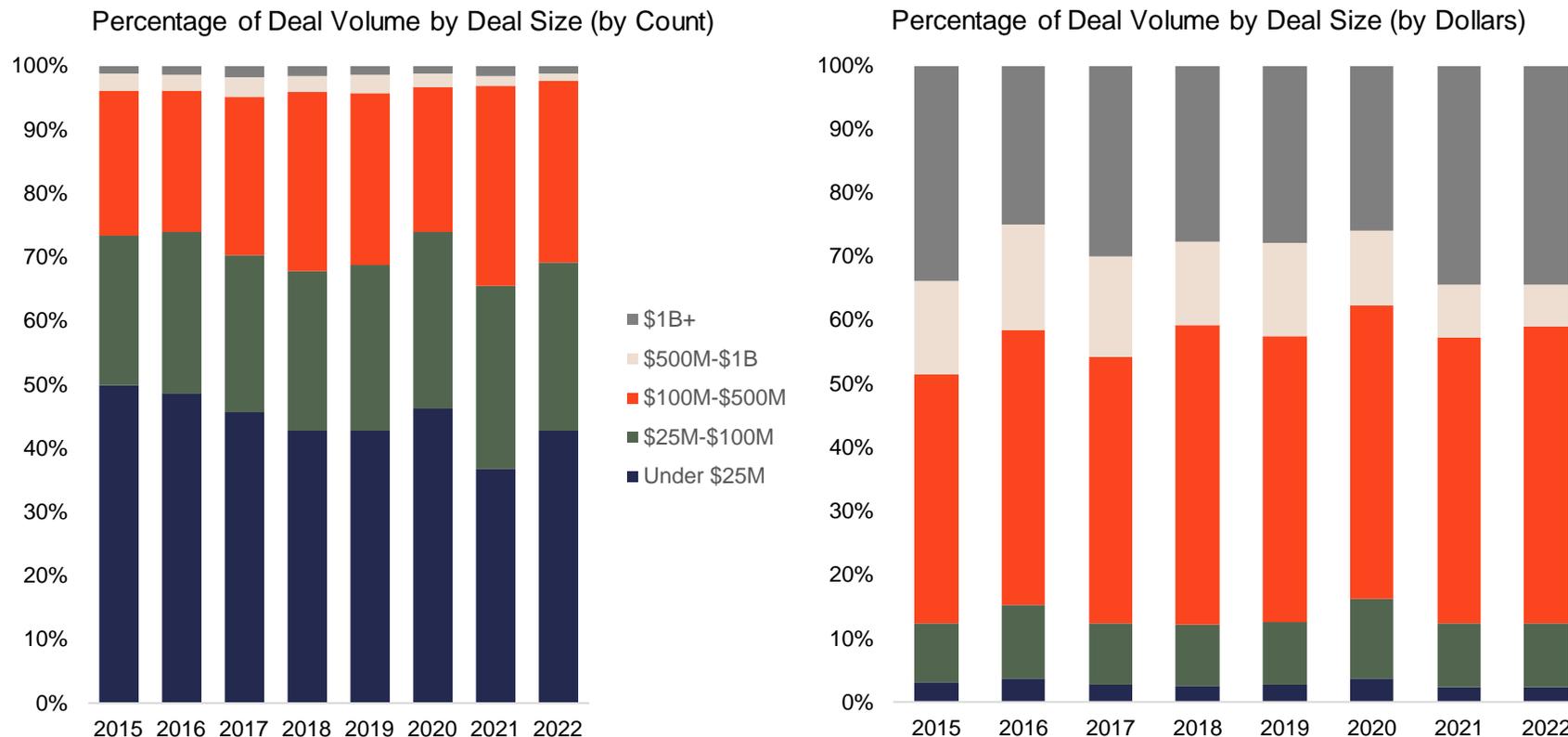


U.S. Median Pre-Value by Stage (2012 – Q4 2022)



Source: S&P LBO; Pitchbook, *as of December 31, 2022.

U.S. Investment Activity by Deal Size

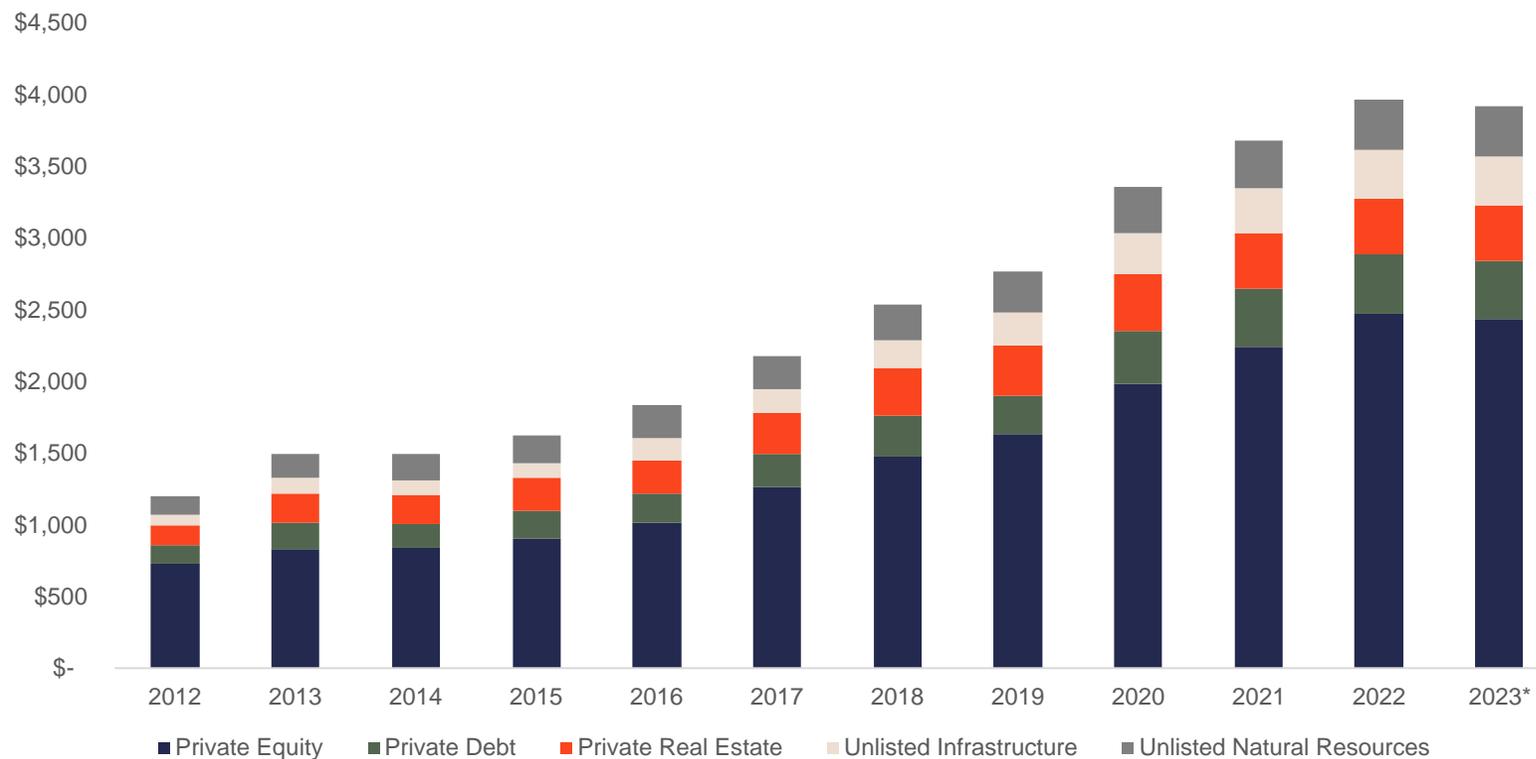


- Deal volume has shifted to be dominated by middle-market deals with investment sizes between \$100-500 million through the end of 2022
- Deals with below \$100 million check sizes comprised only 12% of all deal volume by amount of capital invested during 2022

Source: Pitchbook, *as of December 31, 2022.

Private Capital Dry Powder

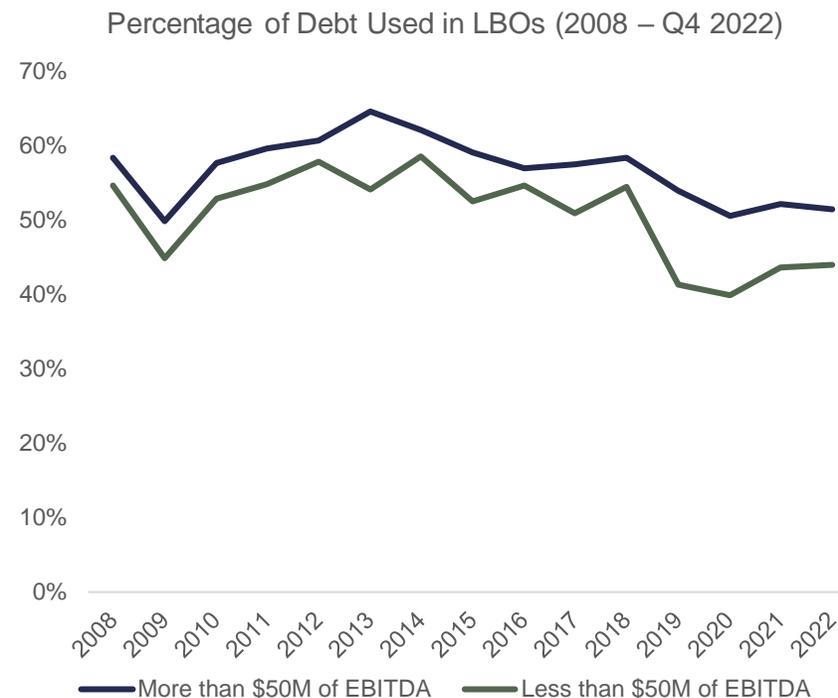
Private Capital Dry Powder by Fund Type (2012 – February 2023)



- Global private capital dry power continues to increase, topping \$3.9 trillion across all fund types
- Private equity comprises just under 62% of total dry powder in the market as of February 2023

Source: Preqin, *as of February 2, 2022.

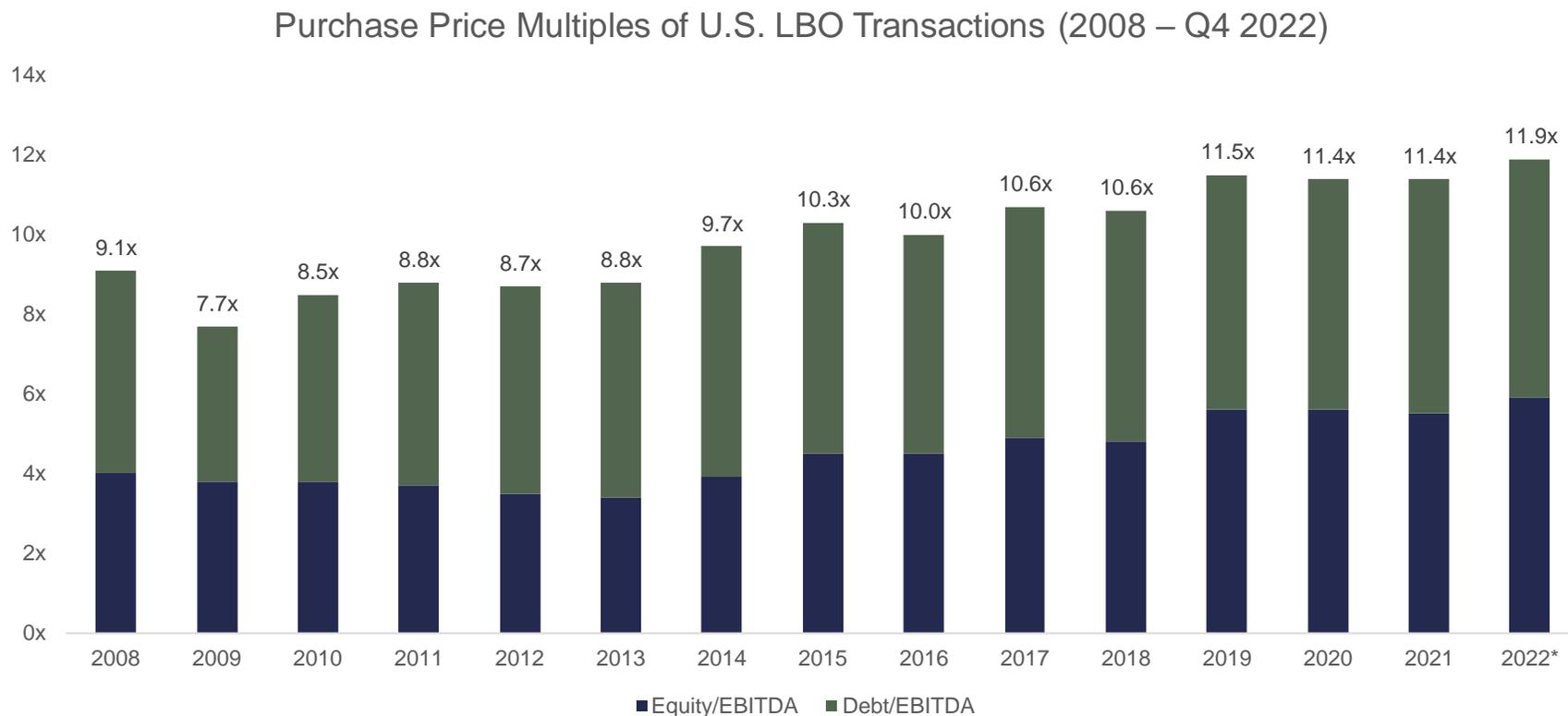
Private Equity – U.S. Debt Markets



- 2022 has generated approximately \$91 billion in loan volume as of Q4 2022, which has slowed down comparatively to the 2021 pace of \$173 billion
- As debt multiples have increased, the percentage of debt used to finance leveraged buyouts through Q4 2022 has increased from the 2021 marks

Source: S&P LBO, *as of December 31, 2022. "Less than \$50M of EBITDA" data for 2020 and 2022 not yet available.

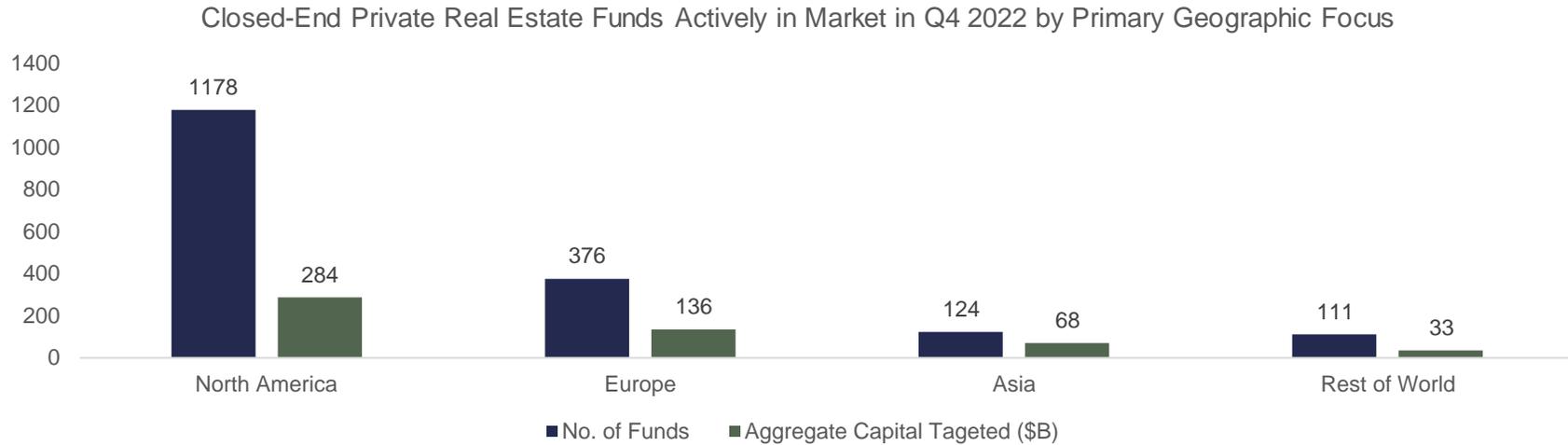
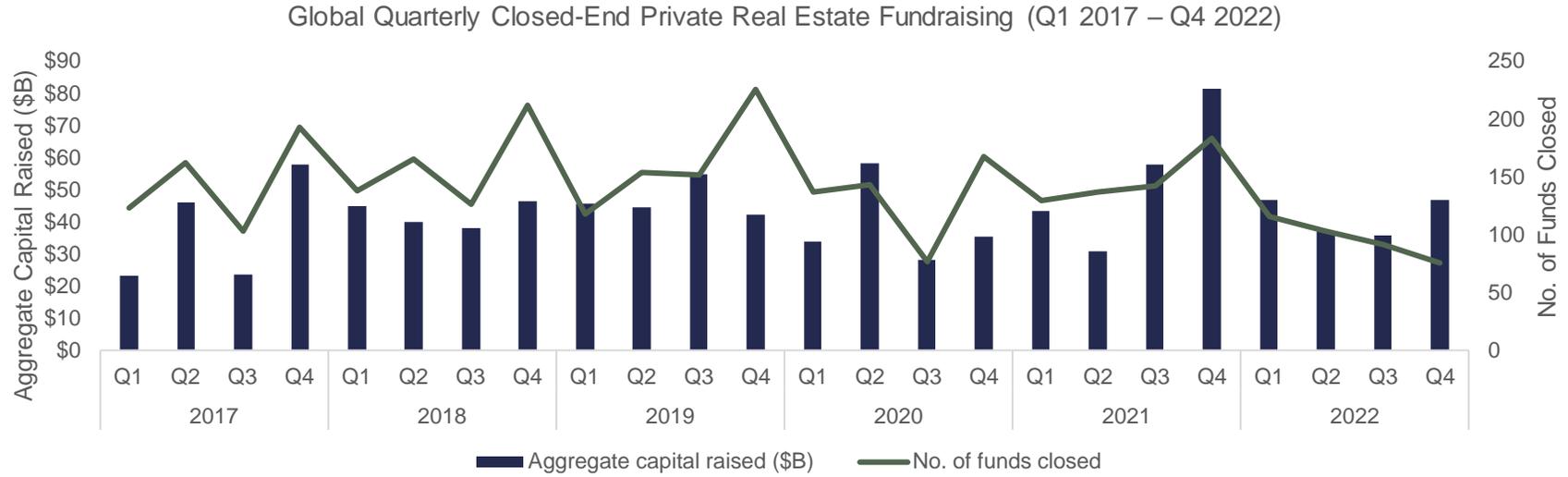
Private Equity – U.S. LBO Purchase Price Multiples



- Purchase price multiples for U.S. LBOs have remained steady from 2019 to 2021 and have increased through Q4 2022 compared to previous years.

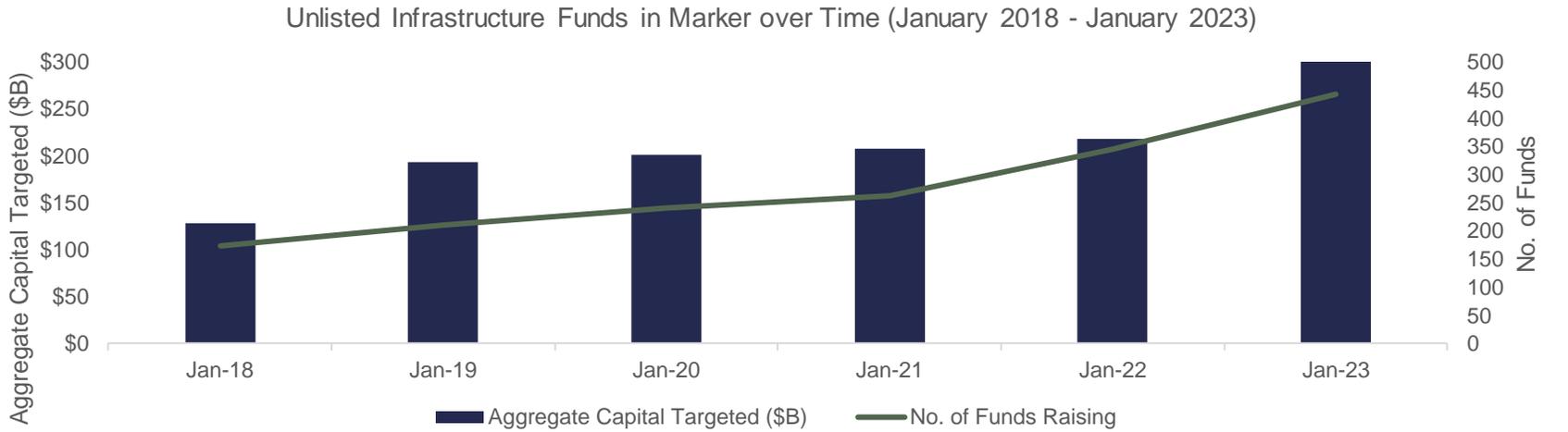
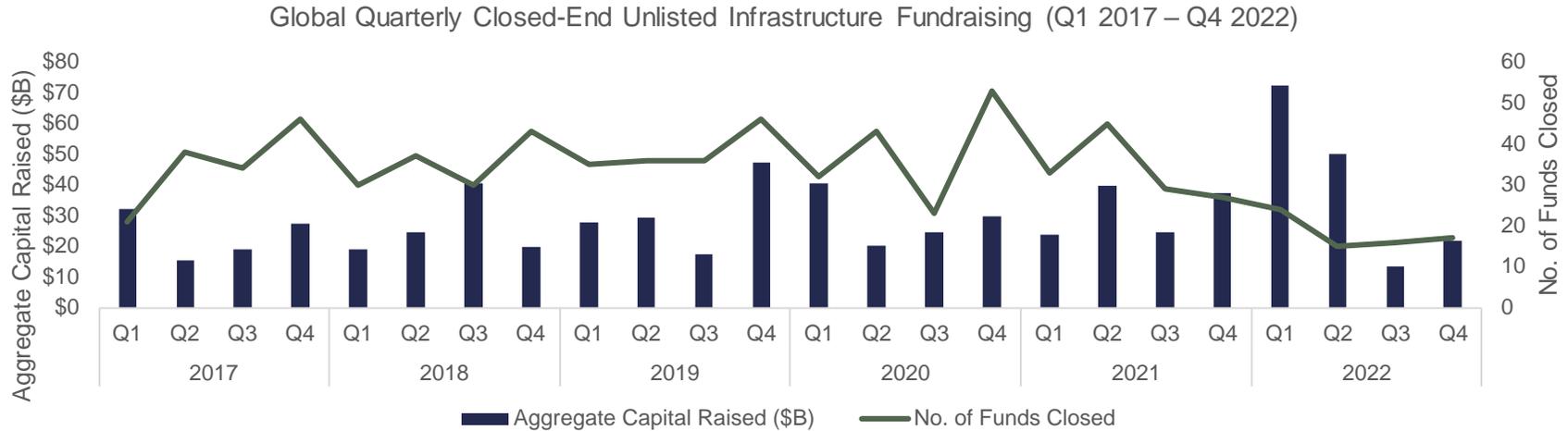
Source: S&P LBO, *as of December 31, 2022.

Private Real Estate – Fundraising Activity



Source: Preqin, as of December 31, 2022.

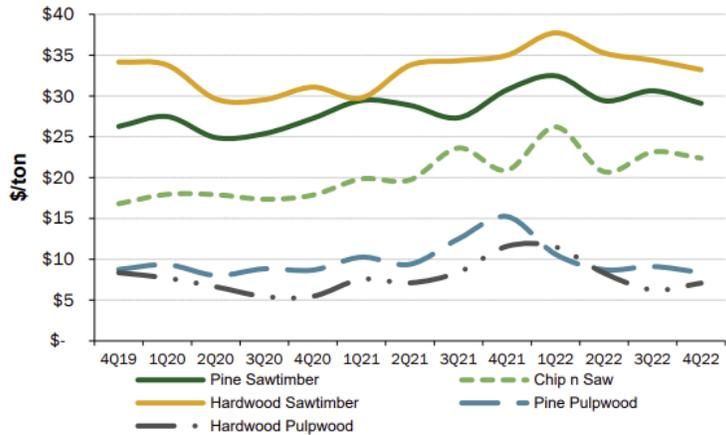
Unlisted Infrastructure – Fundraising & Investment Activity



Source: Preqin, as of January 31, 2023.

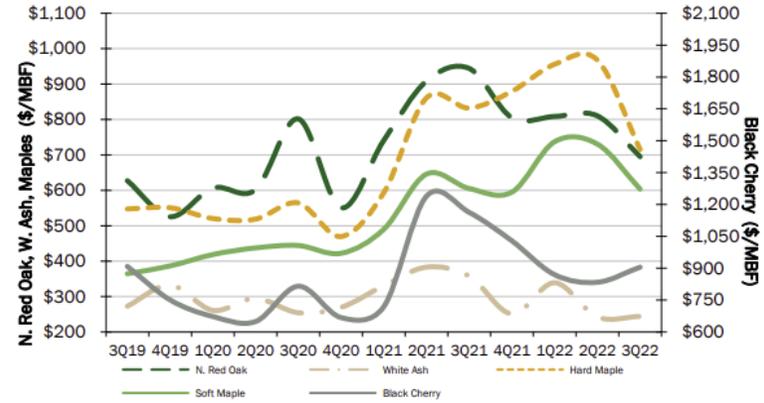
Timber Investments

Southeastern Timber Prices



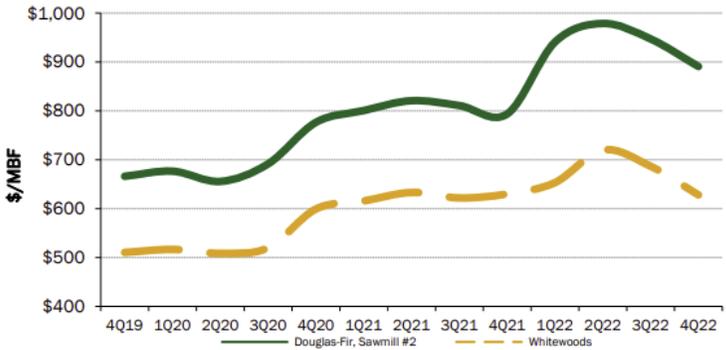
Source: Forest2Market®

Northeastern Hardwood Timber Prices



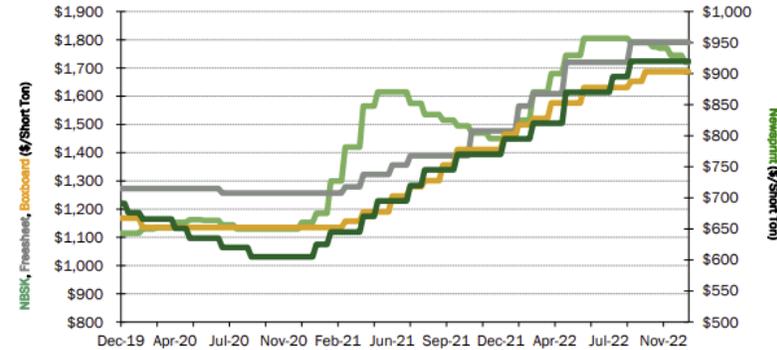
Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Fastmarkets RISI - Log Lines®

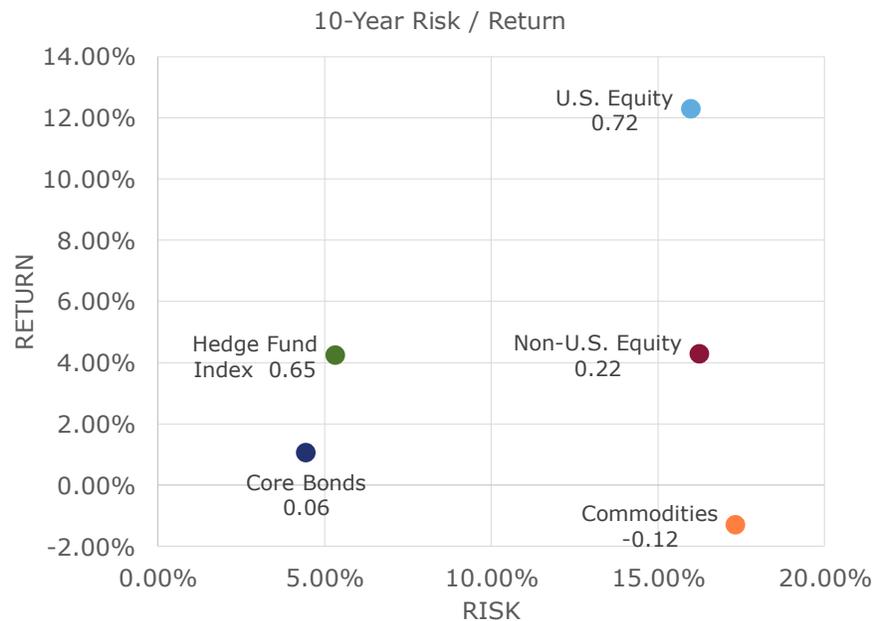
Pulp and Paper



Source: Fastmarkets RISI

Hedge Fund Performance

As of 12/31/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Credit Suisse Hedge Fund Index	0.9	1.1	1.1	5.2	4.2	4.2
Event Driven	1.7	-6.8	-6.8	4.0	3.2	3.4
Global Macro	-6.8	15.9	15.9	10.6	8.3	5.5
Long/Short Equity	5.6	-5.8	-5.8	3.3	3.3	5.2
Multi-Strategy	2.1	1.3	1.3	4.6	4.0	5.2
FT Wilshire 5000	7.1	-19.0	-19.0	7.4	9.0	12.3
MSCI ACWI ex-US (\$G)	14.4	-15.6	-15.6	0.5	1.4	4.3
Bloomberg Aggregate	1.9	-13.0	-13.0	-2.7	0.0	1.1
Bloomberg Commodity Index	2.2	16.1	16.1	12.7	6.4	-1.3



Note: Sharpe Ratio is included for each market segment

Data Source: Bloomberg

Wilshire

Dallas Employees' Retirement Fund

Quarterly Investment Summary

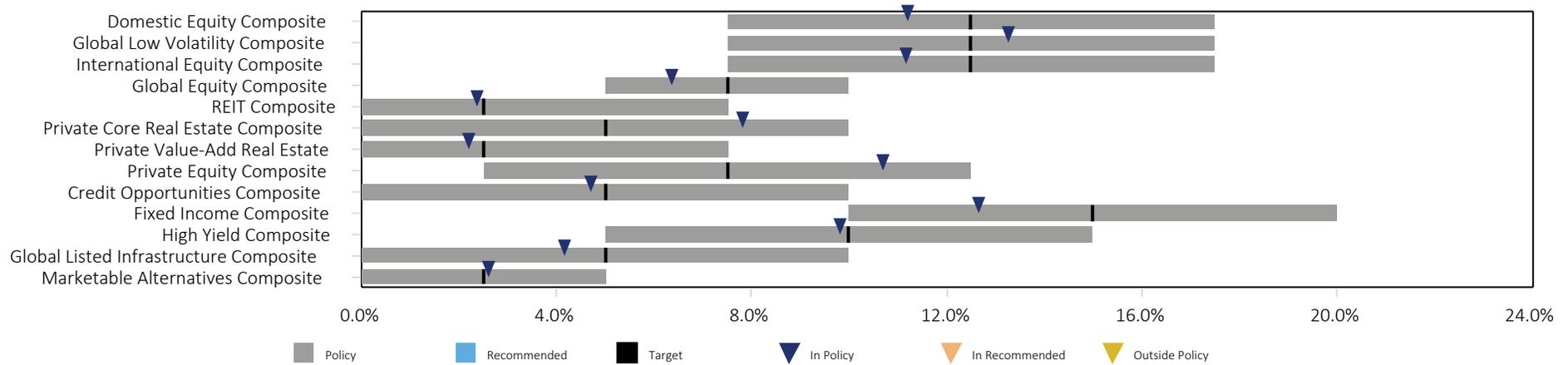
December 2022

Asset Allocation Compliance

Dallas Total Fund

Periods Ended As of December 31, 2022

Executive Summary



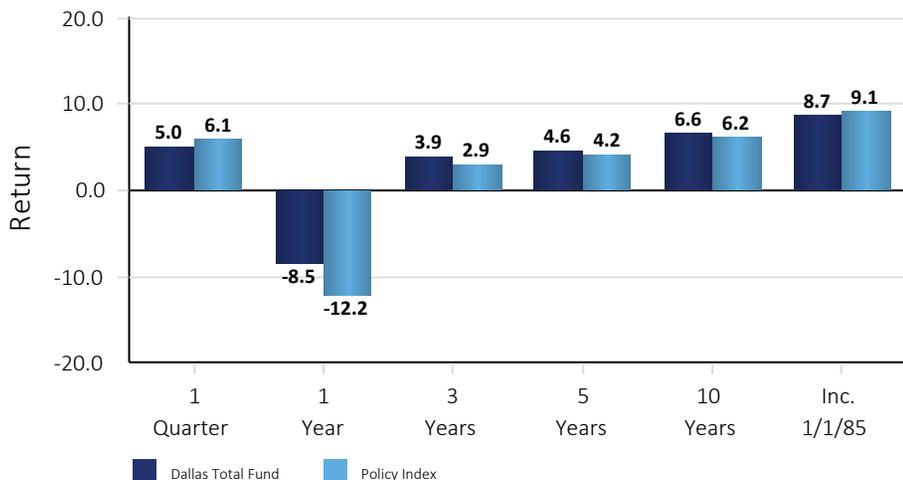
	Asset Allocation \$	Asset Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Rebalance \$
Dallas Total Fund	3,511,283,533	100.0	100.0			
Domestic Equity Composite	393,055,510	11.2	12.5	7.5	17.5	45,854,932
Global Low Volatility Composite	466,253,648	13.3	12.5	7.5	17.5	-27,343,206
International Equity Composite	392,554,829	11.2	12.5	7.5	17.5	46,355,613
Global Equity Composite	223,200,255	6.4	7.5	5.0	10.0	40,146,010
REIT Composite	83,192,091	2.4	2.5	0.0	7.5	4,589,997
Private Core Real Estate Composite	273,986,991	7.8	5.0	0.0	10.0	-98,422,815
Private Value-Add Real Estate	77,205,094	2.2	2.5	0.0	7.5	10,576,994
Private Equity Composite	375,084,937	10.7	7.5	2.5	12.5	-111,738,672
Credit Opportunities Composite	164,904,532	4.7	5.0	0.0	10.0	10,659,644
Fixed Income Composite	444,418,382	12.7	15.0	10.0	20.0	82,274,148
High Yield Composite	344,544,342	9.8	10.0	5.0	15.0	6,584,012
Global Listed Infrastructure Composite	146,756,055	4.2	5.0	0.0	10.0	28,808,122
Marketable Alternatives Composite	91,010,234	2.6	2.5	0.0	5.0	-3,228,146

Composite Performance Summary

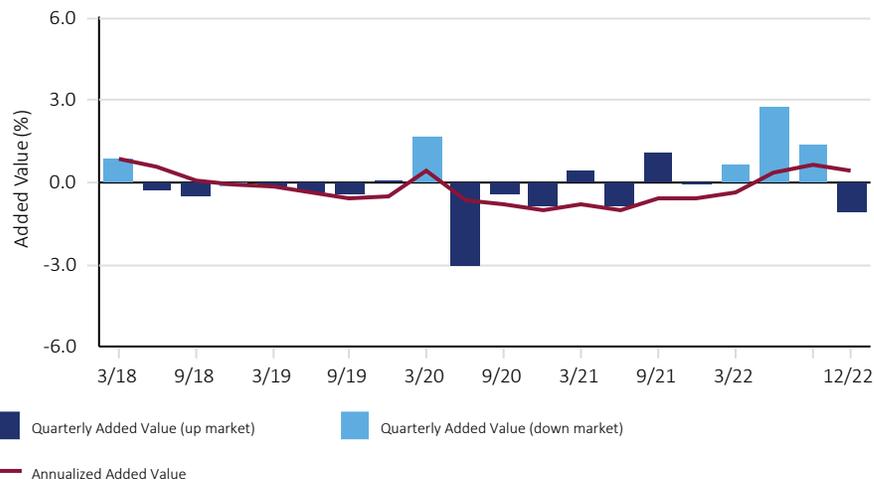
Dallas Total Fund

Periods Ended December 31, 2022

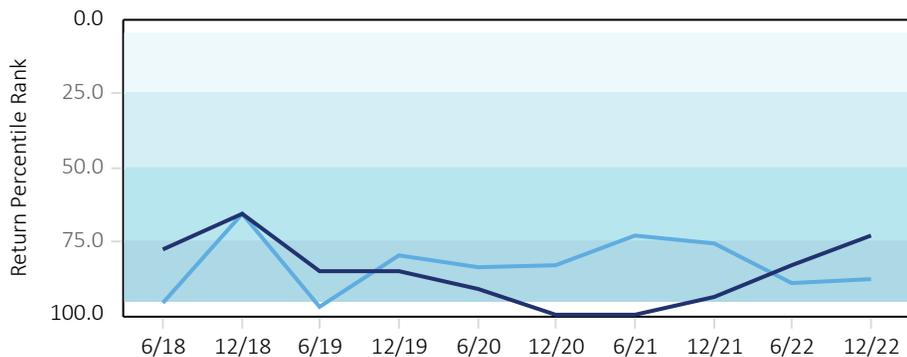
Comparative Performance



Added Value History

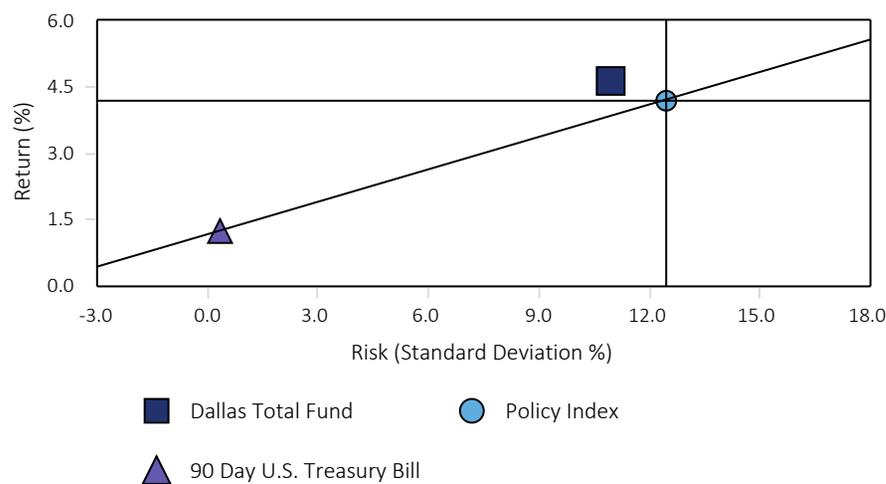


Rolling Percentile Rank: All Public Plans > \$1B-Total Fund



	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
— Dallas Total Fund	10	0 (0%)	0 (0%)	2 (20%)	8 (80%)
— Benchmark	10	0 (0%)	0 (0%)	2 (20%)	8 (80%)

Risk and Return 01/1/18 - 12/31/22

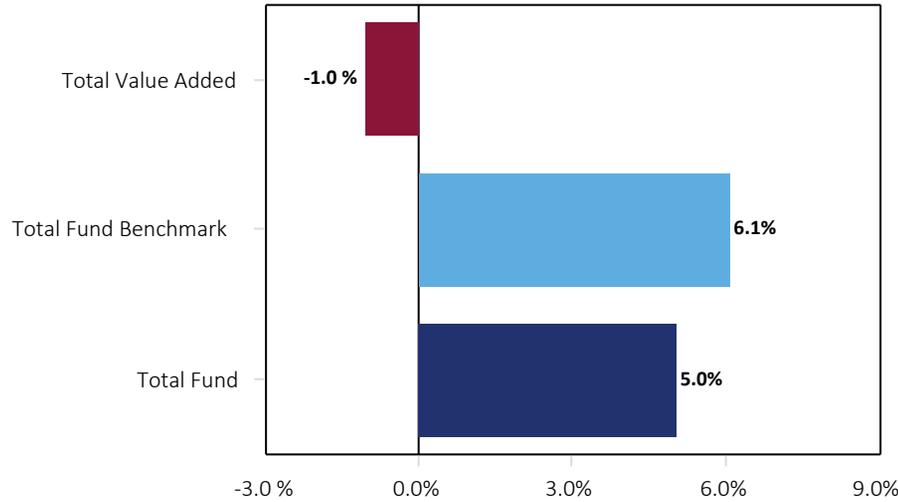


Total Fund Attribution

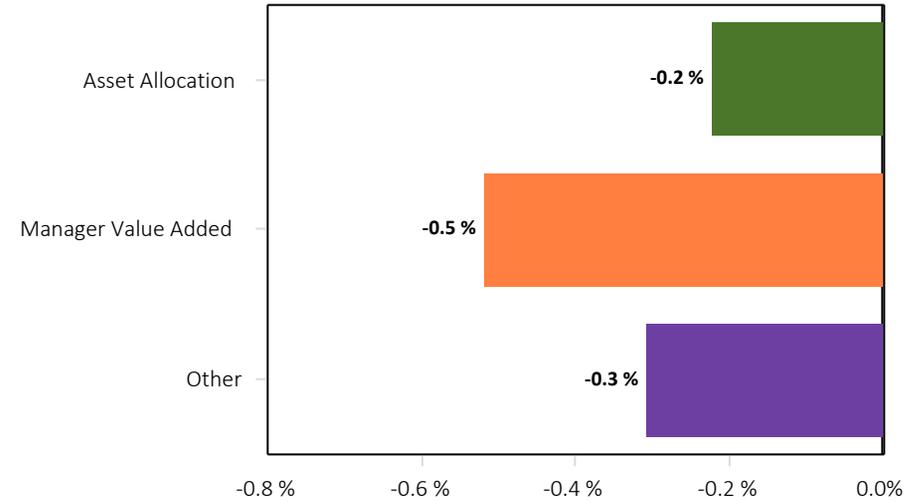
Dallas Total Fund

Periods Ended 1 Quarter Ending December 31, 2022

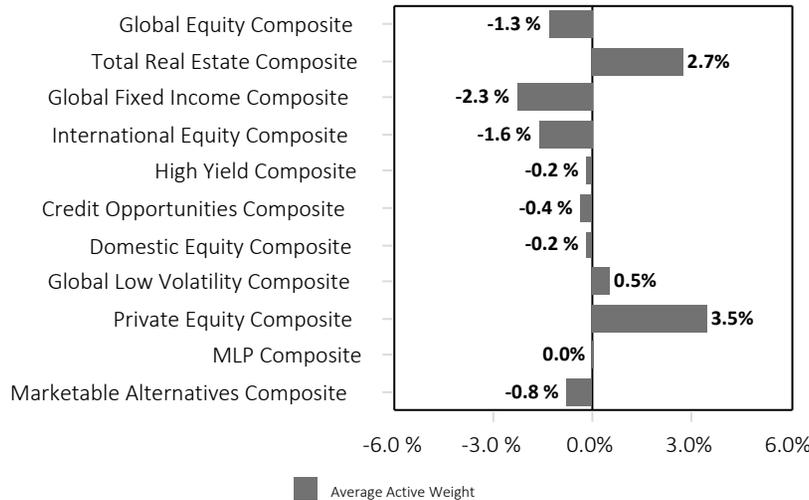
Total Fund Performance



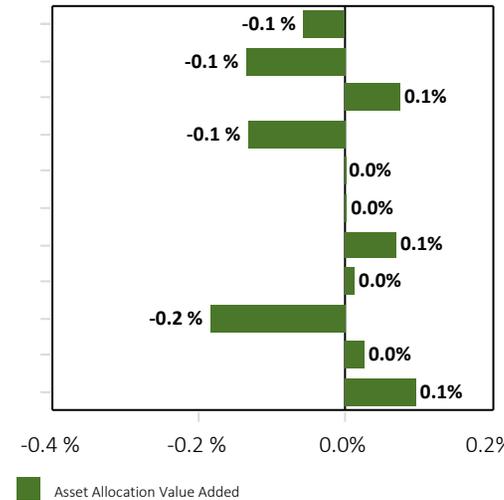
Total Value Added:-1.0 %



Total Asset Allocation:-0.2 %



Asset Allocation Value Added:-0.2 %



Total Manager Value Added:-0.5 %

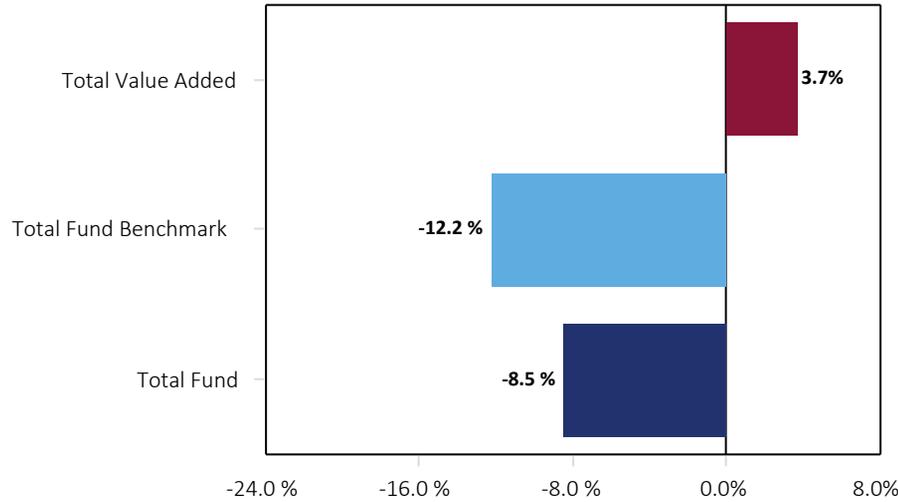


Total Fund Attribution

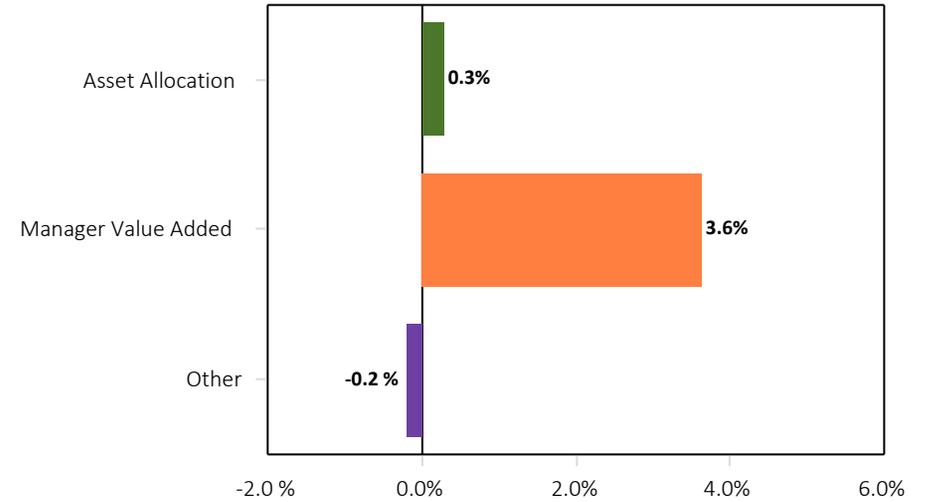
Dallas Total Fund

Periods Ended 1 Year Ending December 31, 2022

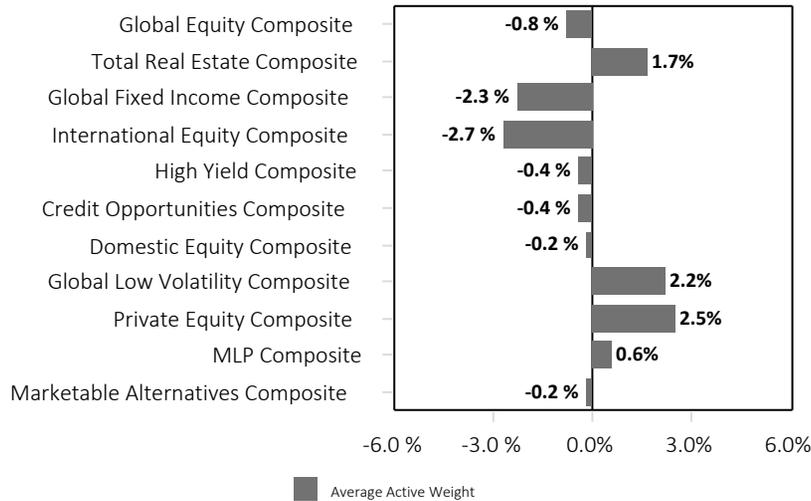
Total Fund Performance



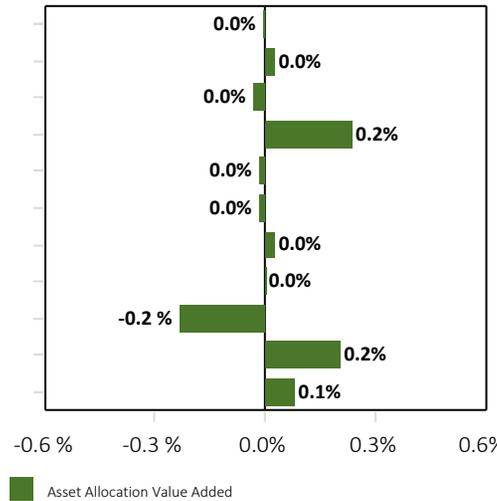
Total Value Added: 3.7%



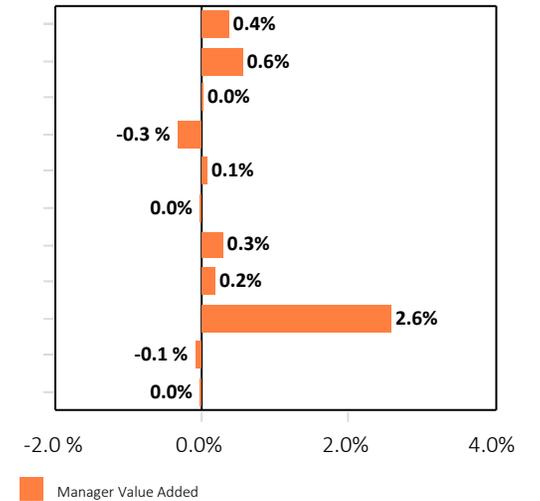
Total Asset Allocation: 0.3%



Asset Allocation Value Added: 0.3%



Total Manager Value Added: 3.6%

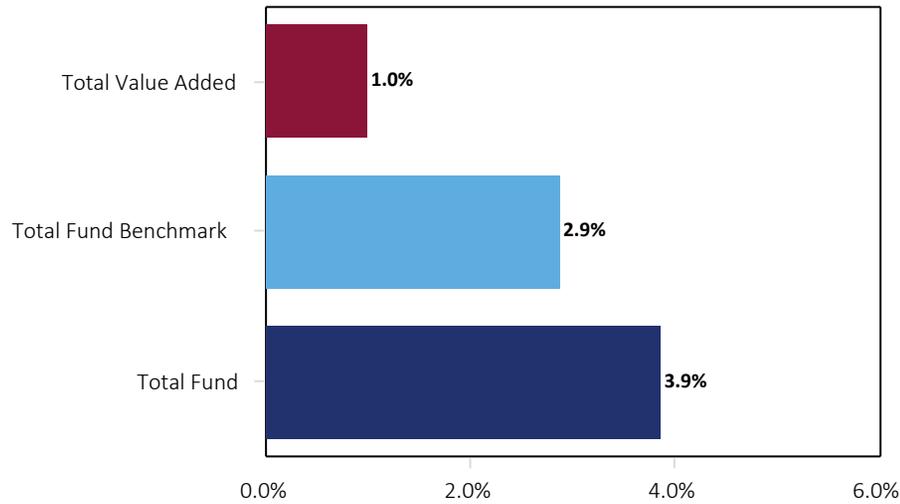


Total Fund Attribution

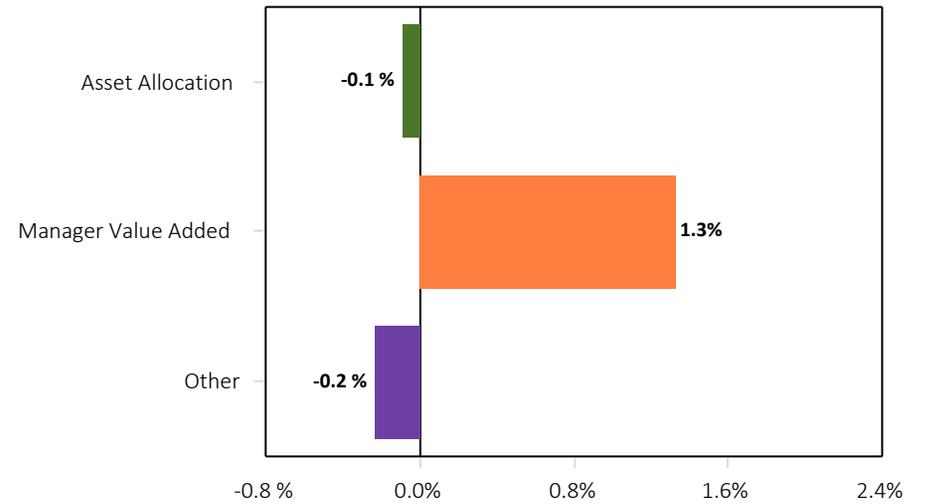
Dallas Total Fund

Periods Ended 3 Years Ending December 31, 2022

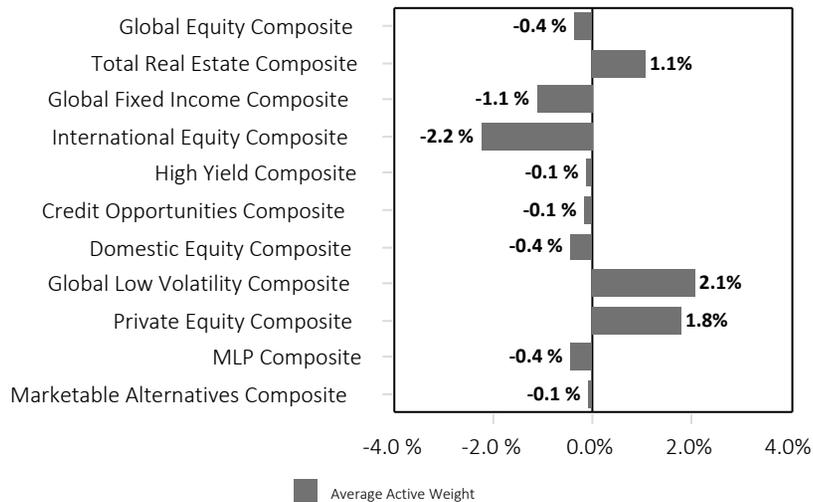
Total Fund Performance



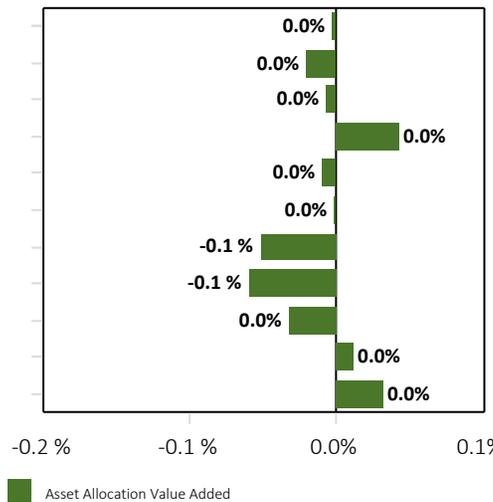
Total Value Added: 1.0%



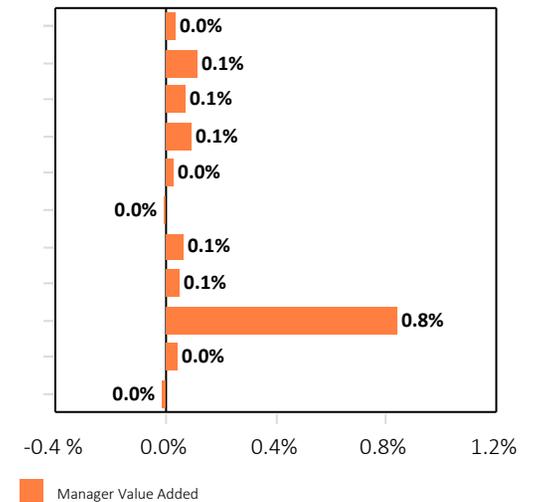
Total Asset Allocation: -0.1%



Asset Allocation Value Added: -0.1%



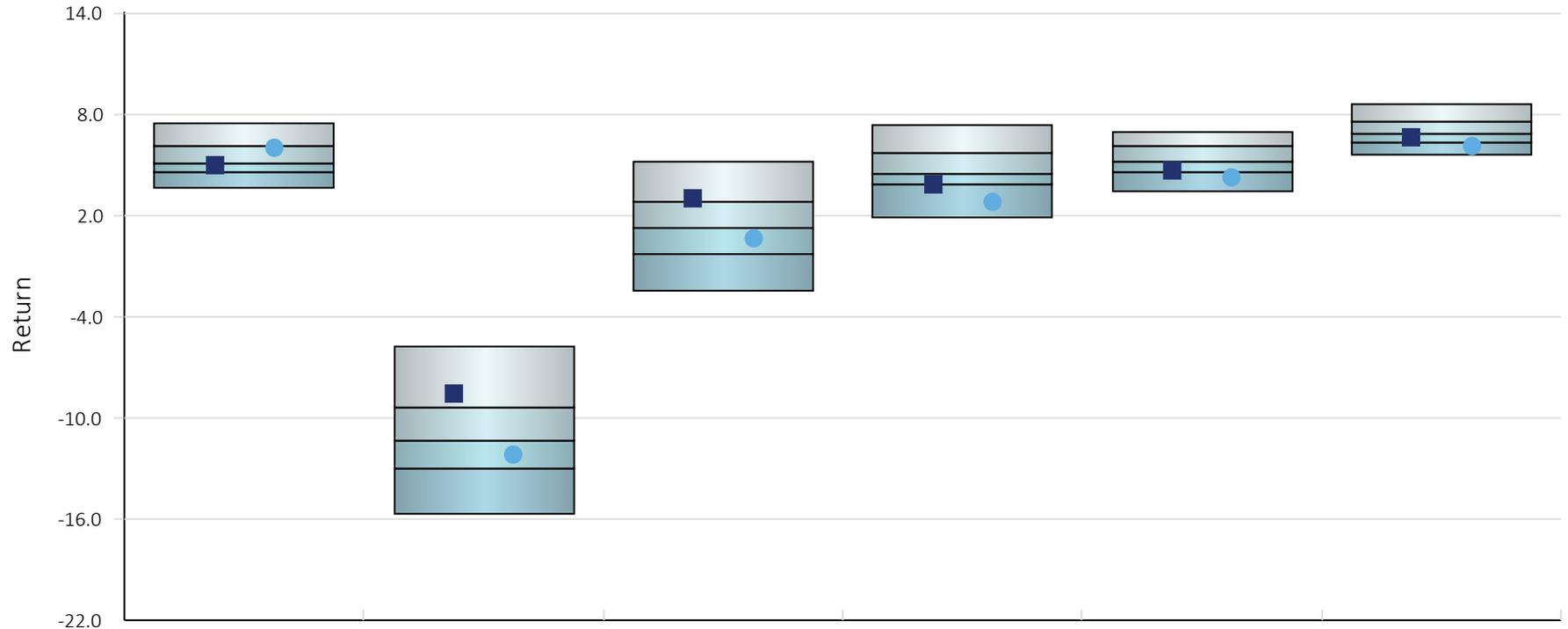
Total Manager Value Added: 1.3%



Plan Sponsor Peer Group Analysis

Dallas Total Fund vs All Public Plans > \$1B-Total Fund

Periods Ended December 31, 2022



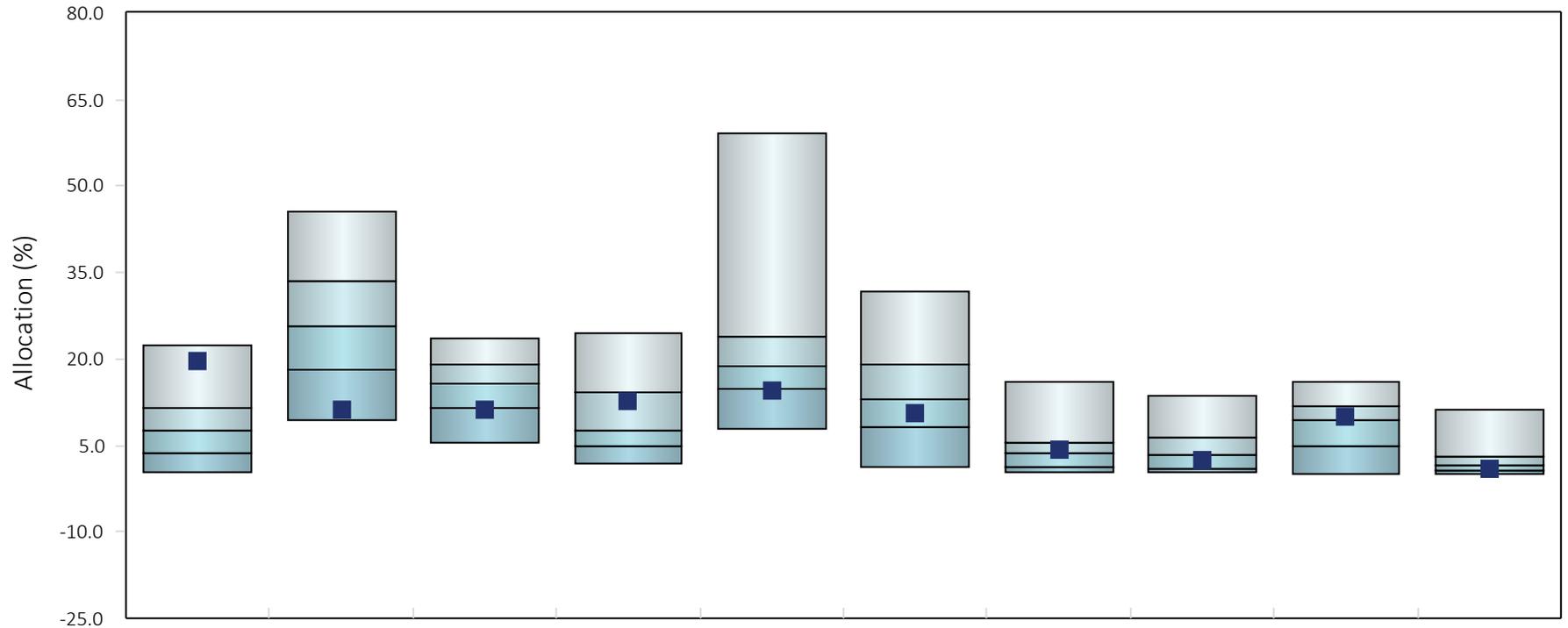
	QTD	1 Year	2 Years	3 Years	5 Years	10 Years
■ Dallas Total Fund	5.03 (54)	-8.52 (18)	3.07 (22)	3.87 (73)	4.64 (73)	6.63 (69)
● Policy Index	6.08 (27)	-12.22 (65)	0.64 (59)	2.87 (88)	4.23 (79)	6.18 (80)
5th Percentile	7.50	-5.75	5.23	7.36	6.96	8.62
1st Quartile	6.13	-9.33	2.81	5.74	6.13	7.59
Median	5.15	-11.31	1.26	4.50	5.19	6.89
3rd Quartile	4.56	-13.02	-0.24	3.82	4.57	6.31
95th Percentile	3.63	-15.68	-2.41	1.92	3.42	5.62
Population	57	53	52	51	49	46

Parenteses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor TF Asset Allocation

Dallas Total Fund vs All Public Plans > \$1B-Total Fund

Periods Ended December 31, 2022



	Global Equity	US Equity	Global ex-US Equity	Global Fixed Income	US Fixed	Private Equity	Real Assets/Com mod	Real Estate - Public	Real Estate - Private	Cash & Equivalents
■ Dallas Total Fund	19.64	11.19	11.18	12.66	14.51	10.68	4.18	2.37	10.00	1.00
5th Percentile	22.30	45.64	23.57	24.37	59.23	31.66	15.92	13.56	15.92	11.23
1st Quartile	11.43	33.59	19.07	14.20	23.88	19.11	5.37	6.32	11.70	3.11
Median	7.72	25.83	15.62	7.69	18.72	13.07	3.77	3.25	9.27	1.66
3rd Quartile	3.67	18.13	11.65	4.91	14.96	8.34	1.32	0.92	4.85	0.78
95th Percentile	0.41	9.52	5.48	1.99	7.87	1.21	0.25	0.35	0.17	0.13
Population	23	108	105	28	110	45	32	16	42	83

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	11.80	-13.15	4.83	5.12	7.55	7.97	9/1/2012	223,200,255	6.36
Global Low Volatility Composite	9.93	-8.92	1.84	4.40		6.54	7/1/2015	466,253,648	13.28
Domestic Equity Composite	7.88	-17.20	7.69	8.04	11.70	9.97	1/1/1990	393,055,510	11.19
International Equity Composite	11.64	-19.23	0.90	0.81	4.84	5.16	1/1/1990	392,554,829	11.18
Fixed Income Composite	2.09	-12.82	-2.10	0.37	1.52	4.25	10/1/1995	444,418,382	12.66
High Yield Composite	3.58	-9.98	0.23	2.18	3.67	5.80	1/1/1997	344,544,342	9.81
Credit Opportunities Composite	5.30	-10.62	-1.17	1.13		3.67	2/1/2016	164,904,532	4.70
Total Real Estate Composite	-0.86	-1.35	7.71	7.81	8.74	6.82	1/1/1990	434,384,176	12.37
Global Listed Infrastructure Composite	8.32	19.24	5.35	3.08	3.93	4.79	1/1/2012	146,756,055	4.18
Private Equity Composite	-2.03	13.49	17.78	16.00	14.05	14.42	6/1/2009	375,084,937	10.68
Marketable Alternatives Composite	1.12					1.12	10/1/2022	91,010,234	2.59
Managed Short Term Composite	0.84	1.46	0.72	1.26	0.77	2.73	1/1/1990	35,116,633	1.00
Dallas Total Fund	5.03	-8.52	3.87	4.64	6.63	8.66	1/1/1985	3,511,283,533	100.00
Policy Index	6.08	-12.22	2.87	4.23	6.18	9.14			

Asset Allocation & Performance

Domestic Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Systematic Financial	11.68	-10.18	6.79	5.25	11.50	10.28	8/1/2003	73,117,866	18.60
Russell 2000 Index	6.23	-20.44	3.10	4.13	9.01	8.39			
Redwood Investments *	-1.73	-36.70	3.63	2.62		5.02	10/1/2016	27,102,061	6.90
Russell 2000 Growth Index	4.13	-26.36	0.65	3.51		6.74			
Channing Capital *	7.37	-17.41	4.75	3.44		5.57	12/1/2013	31,960,938	8.13
Russell 2000 Value Index	8.42	-14.48	4.70	4.13		6.07			
Domestic Equity Small Cap Composite	7.63	-18.86	5.94	4.42	9.77	8.89	6/1/2003	132,180,865	33.63
Smith Graham *	11.81	-8.76	9.79	7.74		7.74	1/1/2018	68,798,813	17.50
Russell Midcap Index	9.18	-17.32	5.88	7.10		7.10			
T. Rowe Price	7.01	-18.39	7.87	9.78	12.96	9.37	4/1/2006	134,082,405	34.11
S&P 500 Index	7.56	-18.11	7.66	9.42	12.56	8.88			
Northern Trust S&P 500 (Lending)	6.42	-18.90	7.26	9.19	12.46	9.94	1/1/1995	57,993,427	14.75
S&P 500 Index	7.56	-18.11	7.66	9.42	12.56	9.94			
Domestic Equity Composite	7.88	-17.20	7.69	8.04	11.70	9.97	1/1/1990	393,055,510	100.00
Custom Benchmark	7.10	-19.04	7.41	8.99	12.28	10.02			

Asset Allocation & Performance

International Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	12.50	-15.80	4.32	1.97	7.16	8.02	4/1/1989	101,332,569	25.81
Custom Benchmark	13.31	-19.97	1.07	0.67	5.24	5.55			
Ativo International *	14.49	-19.53	-1.63	0.37		0.37	1/1/2018	36,149,107	9.21
MSCI EAFE (Net)	17.34	-14.45	0.87	1.54		1.54			
AQR Capital Management	14.17	-15.09	-0.90	-0.95	3.94	2.69	4/1/2006	112,001,625	28.53
Custom Benchmark	14.28	-16.00	0.07	0.88	3.80	2.64			
Baillie Gifford	14.47	-28.80	-3.42			1.42	4/1/2019	62,852,485	16.01
MSCI AC World ex USA (Net)	14.28	-16.00	0.07			2.67			
Ernest Partners	4.23	-20.46	0.62			3.02	4/1/2019	80,219,043	20.44
MSCI AC World ex USA (Net)	14.28	-16.00	0.07			2.67			
International Equity Composite	11.64	-19.23	0.90	0.81	4.84	5.16	1/1/1990	392,554,829	100.00
Custom Benchmark	14.15	-16.58	0.20	0.85	3.98	4.27			

Asset Allocation & Performance

Global Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global *	10.73	-4.85	5.05	5.23		5.23	1/1/2018	105,677,282	47.35
MSCI AC World Index (Net)	9.76	-18.36	4.00	5.23		5.23			
Wellington	12.78	-19.49	4.28	4.73	9.04	9.54	9/1/2012	117,522,973	52.65
MSCI AC World Index (Net)	9.76	-18.36	4.00	5.23	7.98	8.33			
Global Equity Composite	11.80	-13.15	4.83	5.12	7.55	7.97	9/1/2012	223,200,255	100.00
MSCI AC World Index (Net)	9.76	-18.36	4.00	5.23	7.98	8.33			

Asset Allocation & Performance

Low Volatility

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Acadian Global Low Vol.	11.29	-7.78	2.13	4.08		6.39	7/1/2015	236,305,890	50.68
MSCI AC World Index (Net)	9.76	-18.36	4.00	5.23		6.82			
MSCI AC World Minimum Volatility Index (Net)	8.48	-10.31	1.62	4.57		6.40			
BlackRock Global Low Vol.	8.58	-10.06	1.54	4.70		6.67	7/1/2015	229,947,758	49.32
MSCI AC World Minimum Volatility Index (Net)	8.48	-10.31	1.62	4.57		6.40			
Global Low Volatility Composite	9.93	-8.92	1.84	4.40		6.54	7/1/2015	466,253,648	100.00
MSCI AC World Minimum Volatility Index (Net)	8.48	-10.31	1.62	4.57		6.40			

Asset Allocation & Performance

Real Estate

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management	2.46	-27.18	0.62	4.17	6.86	8.77	10/1/2001	41,122,023	49.43
Wilshire U.S. Real Estate Securities Index	4.09	-26.75	-0.50	3.36	6.48	8.89			
CenterSquare	4.68	-23.60	1.37			5.86	6/1/2018	42,070,068	50.57
Wilshire U.S. Real Estate Securities Index	4.09	-26.75	-0.50			4.29			
REIT Composite	3.57	-25.41	1.00	4.48	6.79	8.93	10/1/2001	83,192,091	100.00
Wilshire U.S. Real Estate Securities Index	4.09	-26.75	-0.50	3.36	6.48	8.89			

Private Real Estate Summary

Periods Ended as of December 31, 2022

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Invesco II	82,345,336	65,188,333	65,188,333	12,988,939	Jan-14	6.3%	1.5
Total Direct Private Real Estate	82,345,336	65,188,333	65,188,333	12,988,939	Jan-14	6.3%	1.5

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Heitman America Real Estate Trust	106,652,390	75,000,000	88,210,161	91,636,647	Dec-10	7.8%	2.2
Invesco Core Real Estate USA	84,989,266	75,000,000	75,000,000	92,131,207	Oct-10	11.4%	2.4
Total Core Private Real Estate	191,641,655	150,000,000	163,210,161	183,767,854	Oct-10	10.1%	2.3

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
AEW Partners Real Estate Fund IX	29,441,646	45,000,000	28,703,704	16,806	Mar-21	3.1%	1.0
AEW PIX MM Co-Invest	4,122,474	10,000,000	3,943,396	264,914	Nov-21	14.8%	1.1
AEW PIX Oakland Park Co-Invest	5,162,801	5,000,000	5,000,000	255,918	Feb-22	8.5%	1.1
Virtus Real Estate Capital III	29,124,742	43,281,585	27,369,556	3,714,853	Jan-21	11.7%	1.2
Brasa Real Estate Fund II	9,353,431	20,000,000	9,899,977	546,545	Jul-22	-	1.0
Total Value-Add Private Real Estate	77,205,094	123,281,585	74,916,633	4,799,036	Jan-21	8.5%	1.1

¹ Total Value to Paid-in Capital ("TVPI") multiple calculation = (market value + distributions) / capital called

Private Equity Summary

Periods Ended as of December 31, 2022

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	182,152	25,000,000	22,058,532	31,222,789	Jul-09	13.5%	1.4
Hamilton Lane Secondary Fund III	3,530,350	30,000,000	23,372,292	27,935,183	Nov-12	10.1%	1.3
Hamilton Lane Secondary Fund IV	17,357,356	30,000,000	25,907,343	24,396,684	Mar-17	19.1%	1.6
Hamilton Lane Secondary Fund V	54,360,134	65,000,000	43,128,993	8,244,733	Mar-20	29.5%	1.5
Hamilton Lane Fund VII Composite	15,431,594	50,000,000	45,600,834	55,162,854	Jan-10	6.4%	1.5
Hamilton Lane Fund VIII (Global)	18,293,796	30,000,000	22,270,594	15,820,316	Nov-12	7.7%	1.5
GCM Grosvenor - Partnership, L.P.	29,230,882	75,000,000	93,988,722	131,421,671	Jun-11	14.5%	1.7
GCM Grosvenor - Partnership II, L.P. (2014)	51,647,328	60,000,000	71,165,890	65,838,357	Jul-14	17.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2015)	57,276,174	30,000,000	39,603,845	11,063,155	Dec-15	14.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2017)	31,297,988	30,000,000	29,053,710	7,732,257	Jan-18	17.1%	1.3
GCM Grosvenor - Advance Fund, L.P.	4,718,493	10,000,000	4,337,448	53,279	Jun-21	-	1.1
GCM Grosvenor - Partnership II, L.P. (2022)	2,228,643	20,000,000	2,229,719		May-22	-20.3%	1.0
Fairview Capital - Lone Star Fund I	51,512,615	40,000,000	35,813,040	14,458,863	Aug-15	16.1%	1.8
Fairview Capital - Lone Star Fund II	26,215,749	30,000,000	18,985,887	496,453	Dec-18	13.7%	1.4
Fairview Capital - Lone Star Fund III - A	10,517,855	25,000,000	10,833,831	-	Apr-21	-4.9%	1.0
Fairview Capital - Lone Star Fund III - B	158,544	20,000,000	266,095	-	Dec-22	-	0.6
Fairview Capital - Private Markets Fund VI	1,125,284	10,000,000	1,469,595	210,556	Apr-22	-9.5%	0.9
Total Private Equity Composite	375,084,937	580,000,000	490,086,369	394,057,150	Jul-09	14.5%	1.6

Public Market Equivalent (PME) ²

419,259,481

15.6%

Asset Allocation & Performance

Global Listed Infrastructure

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	9.92	28.37	11.68	6.37	5.48	6.52	1/1/2012	42,646,624	29.06
Alerian MLP Index	10.11	30.92	9.38	4.08	1.99	2.24			
Harvest Fund Advisors MLP	5.90	32.41	13.75	8.27	6.25	6.68	1/1/2012	46,579,869	31.74
Alerian MLP Index	10.11	30.92	9.38	4.08	1.99	2.24			
C&S Global Listed Infrastructure	9.10	-4.51				8.97	11/1/2020	57,529,563	39.20
FTSE Global Core Infrastructure 50/50 (Net)	9.01	-4.87				8.52			
Global Listed Infrastructure Composite	8.32	19.24	5.35	3.08	3.93	4.79	1/1/2012	146,756,055	100.00
Global Listed Infrastructure Benchmark	9.99	21.55	3.83	0.88	0.41	0.80			

Asset Allocation & Performance

Fixed Income

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Garcia Hamilton *	2.14	-10.92	-2.12	0.21		1.68	11/1/2013	145,843,378	32.82
Blmbg. U.S. Aggregate Index	1.87	-13.01	-2.71	0.02		1.27			
Western Asset Management	2.10					-3.53	7/1/2022	149,325,909	33.60
Blmbg. U.S. Aggregate Index	1.87					-2.97			
Wellington Core Bond	2.03					-3.10	7/1/2022	149,249,094	33.58
Blmbg. U.S. Aggregate Index	1.87					-2.97			
Fixed Income Composite	2.09	-12.82	-2.10	0.37	1.52	4.25	10/1/1995	444,418,382	100.00
Blmbg. U.S. Aggregate Index	1.87	-13.01	-2.71	0.02	1.06	4.29			

Asset Allocation & Performance

Opportunistic Credit

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$
Neuberger Berman	5.30	-10.62	-1.17	1.13		3.67	2/1/2016	164,904,532
Custom Benchmark	4.96	-9.97	-0.97	1.41		3.94		

Asset Allocation & Performance

High Yield

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	QTD	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	3.31	-10.32	0.18	1.85	3.28	5.95	2/1/1997	174,805,909	50.74
FTSE High Yield Market Capped Index	4.03	-10.85	-0.32	2.01	3.66				
FTSE High Yield Cash Pay	4.12	-10.85	-0.08	2.17	3.75	6.08			
BlackRock	3.86	-9.63	0.27	2.50	3.82	5.36	10/1/2006	169,738,433	49.26
FTSE High Yield Market Capped Index	4.03	-10.85	-0.32	2.01	3.66	5.59			
FTSE High Yield Cash Pay	4.12	-10.85	-0.08	2.17	3.75	5.69			
High Yield Composite	3.58	-9.98	0.23	2.18	3.67	5.80	1/1/1997	344,544,342	100.00
FTSE High Yield Cash Pay	4.12	-10.85	-0.08	2.17	3.75	6.09			

Asset Allocation & Performance

Marketable Alternatives

Periods Ended December 31, 2022

	Performance (%) net of fees			Allocation	
	1 Quarter	Since Inception	Inception Date	Market Value \$	%
Davidson Kempner	1.47	1.47	10/1/2022	45,660,637	50.17
HFRI Event-Driven (Total) Index	3.34	3.34			
Value Added	-1.87	-1.87			
Hudson Bay Capital	0.78	0.78	10/1/2022	45,349,597	49.83
HFRI Relative Value (Total) Index	1.35	1.35			
Value Added	-0.57	-0.57			
Marketable Alternatives Composite	1.12	1.12	10/1/2022	91,010,234	100.00
Marketable Alternatives Policy	2.39	2.39			
Value Added	-1.27	-1.27			

Cash Flow Summary

Dallas Total Fund

1 Quarter Ending December 31, 2022

	Begin Value	Net Cash Flow	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Dallas Total Fund	3,383,036,341	-41,668,510	-3,364,455	-1,152,396	174,432,554	3,511,283,533
Domestic Equity Composite	453,486,294	-89,894,608	-516,246	-4,339	29,984,409	393,055,510
Northern Trust S&P 500 (Lending)	143,931,252	-90,000,000		-2,699	4,064,874	57,993,427
Smith Graham *	61,533,373		-135,084	-205	7,400,729	68,798,813
T. Rowe Price	125,204,528	105,392	-105,392	-329	8,878,206	134,082,405
Domestic Equity Small Cap Composite	122,817,142		-275,771	-1,106	9,640,600	132,180,865
Systematic Financial	65,470,787		-147,256	-629	7,794,964	73,117,866
Redwood Investments *	27,578,140		-51,413	-253	-424,413	27,102,061
Channing Capital *	29,768,215		-77,101	-225	2,270,049	31,960,938
Total Real Estate Composite	430,174,591	8,110,072	-123,318	-260	-3,776,909	434,384,176
REIT Composite	80,326,558		-123,318	-255	2,989,106	83,192,091
Adelante Capital Management	40,136,206		-67,048	-165	1,053,030	41,122,023
CenterSquare	40,190,352		-56,270	-91	1,936,077	42,070,068
Private Core Real Estate Composite	283,253,063	-1,318,464			-7,947,607	273,986,991
Heitman America Real Estate Trust, LP	111,267,358	-718,938			-3,896,030	106,652,390
Invesco Core Real Estate USA, LLC	89,472,855	-432,012			-4,051,577	84,989,266
Invesco II	82,512,850	-167,514				82,345,336
Private Value-Add Real Estate	66,594,970	9,428,536		-5	1,181,592	77,205,094
Virtus Real Estate Capital III	23,151,947	5,454,364			518,431	29,124,742
AEW PARTNERS REAL ESTATE FUND IX	26,147,874	2,777,778			515,994	29,441,646
AEW PIX MM CO-INVEST	3,797,033	320,512			4,929	4,122,474
AEW PIX OAKLAND PARK CO-INVEST	5,121,671	-101,036			142,166	5,162,801
Brasa Real Estate Fund II	8,376,445	976,918		-5	72	9,353,431
Private Equity Composite	379,600,774	3,287,451	-539,073	-83,595	-7,180,620	375,084,937
Fairview Capital - Lone Star Fund I	54,535,785	-35,386	-50,000		-2,937,784	51,512,615

Cash Flow Summary

Dallas Total Fund

1 Quarter Ending December 31, 2022

	Begin Value	Net Cash Flow	Fees	Expenses	Capital Apprec./ Deprec.	End Value
Fairview Capital - Lone Star Fund II	25,396,943	-208,736	-75,000	-2,684	1,105,226	26,215,749
Fairview Capital - Lone Star Fund III - A	7,475,680	3,007,797	-37,500		71,878	10,517,855
Fairview Capital - Lone Star Fund III - B		153,762	-30,000		34,782	158,544
Fairview Private Markets Fund VI	1,318,516	-62,910			-130,322	1,125,284
Grosvenor Composite	183,227,760	-2,527,323	-200,323	-80,911	-4,019,695	176,399,508
Hamilton Lane Test	107,646,090	2,960,246	-146,250		-1,304,704	109,155,382
Hamilton Lane Secondary Fund II	176,048				6,104	182,152
Hamilton Lane Secondary Fund III	4,131,206	-203,788			-397,068	3,530,350
Hamilton Lane Secondary Fund IV	18,023,352	-697,773			31,777	17,357,356
Hamilton Lane Secondary Fund V	49,222,044	4,777,533	-146,250		506,807	54,360,134
Hamilton Lane Fund VIII (Global)	19,009,547	-341,510			-374,241	18,293,796
Hamilton Lane Fund VII Composite	17,083,893	-574,216			-1,078,083	15,431,594
Hamilton Lane Fund VII (Series B)	5,123,775	-210,445			-280,823	4,632,507
Hamilton Lane Fund VII (Series A)	11,960,118	-363,771			-797,260	10,799,087
International Equity Composite	351,510,409	125,934	-529,744	-5,317	41,453,547	392,554,829
Acadian International	89,950,905	126,936	-126,936	-317	11,381,980	101,332,569
Ativo International *	31,575,186		-51,794	-246	4,625,961	36,149,107
AQR Capital Management	98,106,863		-145,351	-3,009	14,043,123	112,001,625
Earnest Partners	76,967,976		-123,259	-898	3,375,223	80,219,043
Baillie Gifford	54,909,479		-82,404	-468	8,025,878	62,852,485
Global Equity Composite	199,642,856		-324,376	-2,036	23,883,811	223,200,255
Ariel Global *	95,439,230		-157,948	-829	10,396,828	105,677,282
Wellington	104,203,626		-166,428	-1,207	13,486,983	117,522,973
Global Low Volatility Composite	424,106,398	22,258	-210,715	-855	42,336,561	466,253,648
Acadian Global Low Vol.	212,341,521		-188,175	-855	24,153,399	236,305,890

Cash Flow Summary

Dallas Total Fund

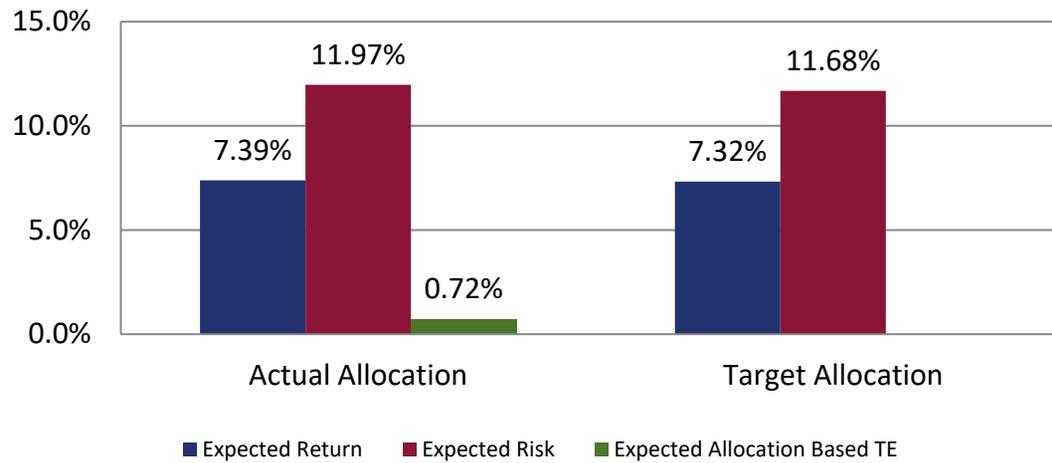
1 Quarter Ending December 31, 2022

	Begin Value	Net Cash Flow	Fees	Expenses	Capital Apprec./ Deprec.	End Value
BlackRock Global Low Vol.	211,764,877	22,258	-22,540		18,183,163	229,947,758
Global Listed Infrastructure Composite	176,129,697	-45,000,000	-326,293	-2,434	15,955,085	146,756,055
Atlantic Trust CIBC	52,539,751	-15,000,000	-104,887	-748	5,212,508	42,646,624
Harvest Fund Advisors MLP	70,860,798	-30,000,000	-136,018	-1,361	5,856,450	46,579,869
C&S Global Listed Infrastructure	52,729,148		-85,388	-324	4,886,127	57,529,563
Fixed Income Composite	435,352,380	-10	-271,375	-16,589	9,353,976	444,418,382
Garcia Hamilton *	142,792,368		-94,311	-1,088	3,146,409	145,843,378
Western Asset Management	146,268,360		-106,058	-8,411	3,172,018	149,325,909
Wellington Core Bond	146,291,651		-71,006	-7,048	3,035,498	149,249,094
Credit Opportunities Composite	156,605,615		-118,175	-3,462	8,420,554	164,904,532
Neuberger Berman	156,605,615		-118,175	-3,462	8,420,554	164,904,532
High Yield Composite	328,848,470	3,956,936	-405,140	-4,745	12,148,819	344,544,342
Oaktree Capital Management	165,409,690	3,956,936	-209,666	-848	5,649,796	174,805,909
BlackRock	163,438,780		-195,474	-3,897	6,499,023	169,738,433
Marketable Alternatives Composite		90,000,000			1,010,234	91,010,234
Davidson Kempner		45,000,000			660,637	45,660,637
Hudson Bay Capital		45,000,000			349,597	45,349,597
Managed Short Term Composite	47,578,856	-12,276,543		-1,028,766	843,086	35,116,633
Cash Account	47,578,856	-12,276,543		-1,028,766	843,086	35,116,633

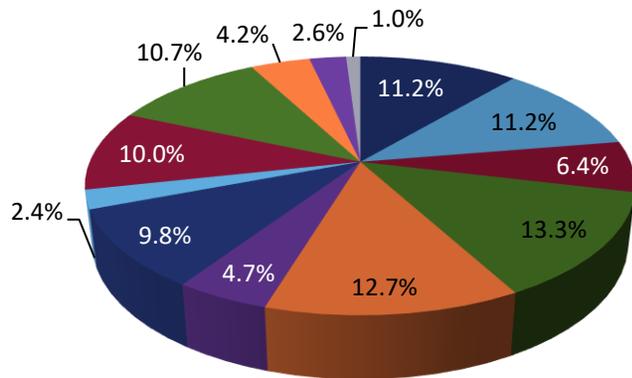
Risk Analysis & Performance Objectives

Expected Return and Risk

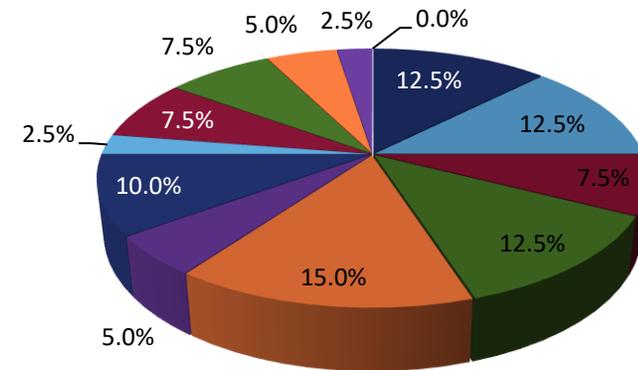
Periods Ended as of December 31, 2022



Actual Asset Allocation



Target Asset Allocation

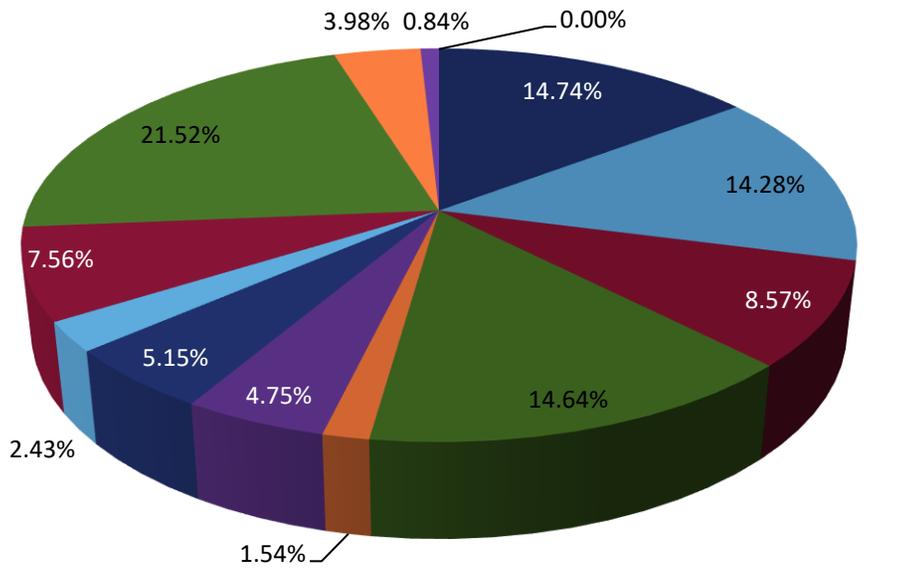


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|-----------------------|------------------------|--------------------------------|---------------------------|-----------------------|------------------------|--------------------------------|---------------------------|
| ■ Domestic Equity | ■ International Equity | ■ Global Equity | ■ Global Low Volatility | ■ Domestic Equity | ■ International Equity | ■ Global Equity | ■ Global Low Volatility |
| ■ US Fixed Income | ■ Opportunistic Credit | ■ High Yield | ■ Public REITs | ■ US Fixed Income | ■ Opportunistic Credit | ■ High Yield | ■ Public REITs |
| ■ Private Real Estate | ■ Private Equity | ■ Global Public Infrastructure | ■ Marketable Alternatives | ■ Private Real Estate | ■ Private Equity | ■ Global Public Infrastructure | ■ Marketable Alternatives |
| ■ Cash | | | | ■ Cash | | | |

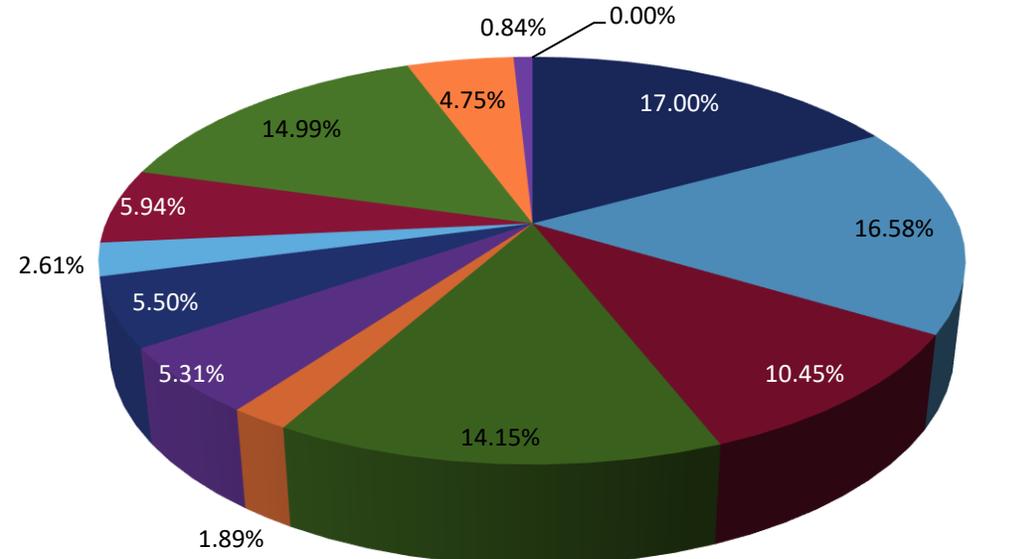
Expected Return and Risk

Periods Ended as of December 31, 2022

Contribution to Total Risk - Actual Allocation



Contribution to Total Risk - Target Allocation



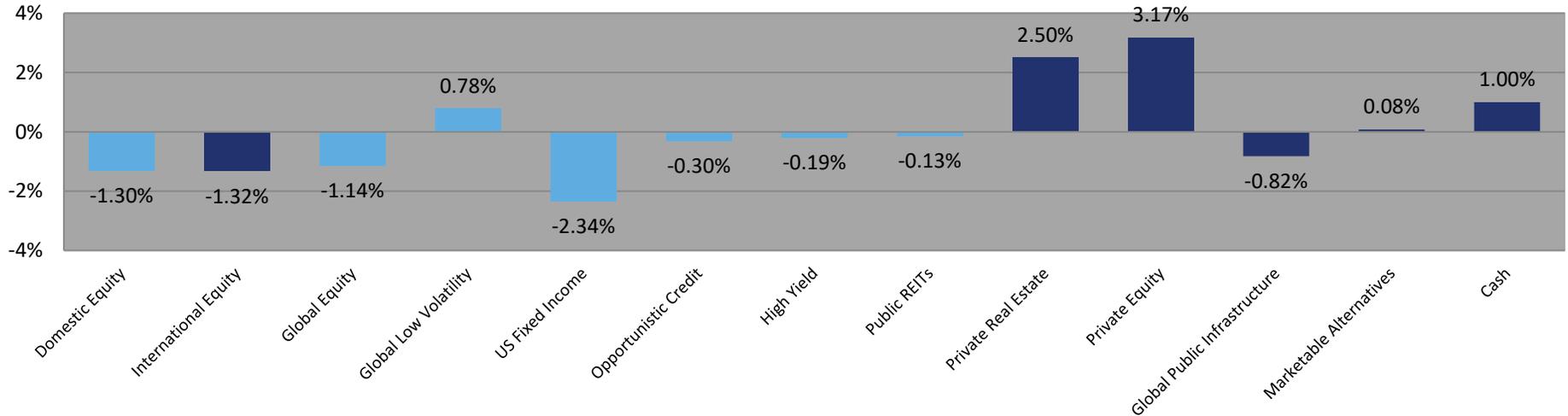
- Domestic Equity
- International Equity
- Global Equity
- Global Low Volatility
- US Fixed Income
- Opportunistic Credit
- High Yield
- Public REITs
- Private Real Estate
- Private Equity
- Global Public Infrastructure
- Marketable Alternatives
- Cash

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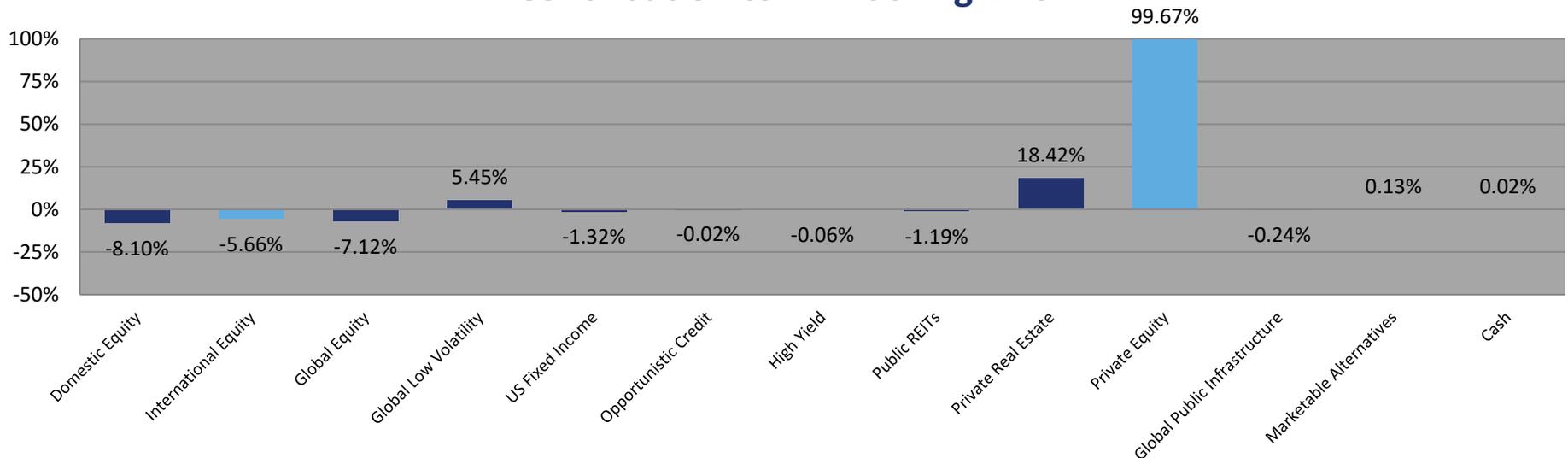
Expected Return and Risk

Periods Ended as of December 31, 2022

Asset Allocation Variance



Contribution to TF Tracking Error



1-Year Risk Statistics

Periods Ended December 31, 2022

	1 Year Standard Deviation	1 Year Sharpe Ratio	1 Year Excess Risk	1 Year Information Ratio
DOMESTIC EQUITY				
Systematic Financial	21.95	-0.45	21.94	1.48
Russell 2000 Index	24.55	-0.86	24.55	
Channing Capital *	23.80	-0.74	23.82	-0.57
Russell 2000 Value Index	24.65	-0.57	24.67	
Redwood Investments *	26.11	-1.64	26.09	-2.59
Russell 2000 Growth Index	25.56	-1.11	25.53	
Smith Graham *	24.30	-0.31	24.29	1.52
Russell Midcap Index	23.15	-0.76	23.12	
T. Rowe Price	21.74	-0.89	21.72	-0.35
S&P 500 Index	22.02	-0.86	22.01	
INTERNATIONAL EQUITY				
Acadian International	21.46	-0.76	21.37	1.35
MSCI AC World ex USA Small Cap (Net)	20.91	-1.02	20.78	
AQR Capital Management	19.29	-0.83	19.17	0.33
Custom Benchmark	19.56	-0.87	19.42	
Ativo International *	20.73	-1.01	20.62	-1.92
MSCI EAFE (Net)	20.77	-0.72	20.62	
GLOBAL EQUITY				
Wellington	20.78	-1.00	20.67	-0.36
MSCI AC World Index (Net)	20.24	-0.97	20.17	
Ariel Global *	13.46	-0.41	13.41	1.27
MSCI AC World Index (Net)	20.24	-0.97	20.17	
GLOBAL LOW VOLATILITY				
Acadian Global Low Vol.	14.56	-0.58	14.49	1.54
MSCI AC World Index (Net)	20.24	-0.97	20.17	

1-Year Risk Statistics

Periods Ended December 31, 2022

	1 Year Standard Deviation	1 Year Sharpe Ratio	1 Year Excess Risk	1 Year Information Ratio
REIT's				
Adelante Capital Management	21.81	-1.39	21.83	-0.43
Wilshire U.S. Real Estate Securities Index	22.82	-1.29	22.83	
CenterSquare	22.32	-1.14	22.34	2.10
Wilshire U.S. Real Estate Securities Index	22.82	-1.29	22.83	
FIXED INCOME				
Garcia Hamilton *	8.48	-1.50	8.40	1.66
Blmbg. U.S. Aggregate Index	7.98	-1.90	7.87	
HIGH YIELD				
BlackRock	10.76	-1.02	10.70	1.58
FTSE High Yield Cash Pay	11.33	-1.08	11.27	
Oaktree Capital Management	11.48	-1.02	11.45	0.44
FTSE High Yield Cash Pay	11.33	-1.08	11.27	
CREDIT OPPORTUNITIES				
Neuberger Berman	9.17	-1.36	9.00	-0.30
Custom Benchmark	9.13	-1.28	8.99	
MLP's				
Harvest Fund Advisors MLP	23.90	1.24	24.04	0.01
Alerian MLP Index	27.96	1.06	28.07	
Atlantic Trust CIBC	25.17	1.07	25.29	-0.48
Alerian MLP Index	27.96	1.06	28.07	

3-Year Risk Statistics

Periods Ended December 31, 2022

	3 Years Standard Deviation	3 Years Sharpe Ratio	3 Years Excess Risk	3 Years Information Ratio
DOMESTIC EQUITY				
Systematic Financial	24.03	0.37	24.17	0.38
Russell 2000 Index	26.02	0.22	26.16	
Channing Capital *	27.68	0.28	27.82	0.01
Russell 2000 Value Index	27.27	0.28	27.42	
Redwood Investments *	23.54	0.24	23.66	0.22
Russell 2000 Growth Index	26.20	0.13	26.32	
Smith Graham *	28.48	0.45	28.63	0.50
Russell Midcap Index	23.62	0.33	23.75	
T. Rowe Price	21.11	0.43	21.24	0.20
S&P 500 Index	20.87	0.42	21.00	
INTERNATIONAL EQUITY				
Acadian International	22.15	0.27	22.26	0.69
MSCI AC World ex USA Small Cap (Net)	22.73	0.13	22.84	
AQR Capital Management	19.67	0.02	19.77	-0.27
Custom Benchmark	19.26	0.06	19.34	
Ativo International *	20.66	-0.01	20.77	-0.46
MSCI EAFE (Net)	19.96	0.11	20.04	
GLOBAL EQUITY				
Wellington	20.04	0.27	20.13	0.08
MSCI AC World Index (Net)	19.86	0.26	19.98	
Ariel Global *	13.94	0.37	14.03	0.00
MSCI AC World Index (Net)	19.86	0.26	19.98	
GLOBAL LOW VOLATILITY				
Acadian Global Low Vol.	15.74	0.17	15.85	-0.34
MSCI AC World Index (Net)	19.86	0.26	19.98	

3-Year Risk Statistics

Periods Ended December 31, 2022

	3 Years Standard Deviation	3 Years Sharpe Ratio	3 Years Excess Risk	3 Years Information Ratio
REIT's				
Adelante Capital Management	21.89	0.11	22.05	0.45
Wilshire U.S. Real Estate Securities Index	22.98	0.07	23.13	
CenterSquare	22.58	0.14	22.74	0.86
Wilshire U.S. Real Estate Securities Index	22.98	0.07	23.13	
FIXED INCOME				
Garcia Hamilton *	5.93	-0.45	5.95	0.42
Blmbg. U.S. Aggregate Index	5.77	-0.57	5.78	
HIGH YIELD				
BlackRock	10.90	0.01	11.01	0.11
FTSE High Yield Cash Pay	11.06	-0.02	11.18	
Oaktree Capital Management	10.63	0.00	10.76	0.17
FTSE High Yield Cash Pay	11.06	-0.02	11.18	
CREDIT OPPORTUNITIES				
Neuberger Berman	11.61	-0.10	11.72	-0.03
Custom Benchmark	10.45	-0.11	10.56	
MLP's				
Harvest Fund Advisors MLP	35.89	0.54	36.04	-0.11
Alerian MLP Index	48.39	0.43	48.52	
Atlantic Trust CIBC	40.16	0.48	40.31	-0.18
Alerian MLP Index	48.39	0.43	48.52	

5-Year Risk Statistics

Periods Ended December 31, 2022

	5 Years Standard Deviation	5 Years Sharpe Ratio	5 Years Excess Risk	5 Years Information Ratio
DOMESTIC EQUITY				
Systematic Financial	21.78	0.29	21.88	0.11
Russell 2000 Index	23.30	0.24	23.40	
Channing Capital *	24.97	0.21	25.08	-0.07
Russell 2000 Value Index	24.01	0.24	24.12	
Redwood Investments *	22.03	0.17	22.11	-0.15
Russell 2000 Growth Index	23.78	0.21	23.86	
Smith Graham *	25.54	0.38	25.65	0.19
Russell Midcap Index	20.75	0.38	20.84	
T. Rowe Price	18.76	0.52	18.84	0.35
S&P 500 Index	18.53	0.51	18.62	
INTERNATIONAL EQUITY				
Acadian International	19.72	0.14	19.81	0.31
MSCI AC World ex USA Small Cap (Net)	19.51	0.07	19.59	
AQR Capital Management	17.93	-0.03	18.00	-0.55
Custom Benchmark	17.08	0.06	17.14	
Ativo International *	17.72	0.04	17.78	-0.24
MSCI EAFE (Net)	17.37	0.10	17.42	
GLOBAL EQUITY				
Wellington	18.30	0.28	18.36	-0.10
MSCI AC World Index (Net)	17.57	0.31	17.65	
Ariel Global *	13.33	0.35	13.40	-0.09
MSCI AC World Index (Net)	17.57	0.31	17.65	
GLOBAL LOW VOLATILITY				
Acadian Global Low Vol.	13.72	0.27	13.79	-0.25
MSCI AC World Index (Net)	17.57	0.31	17.65	

5-Year Risk Statistics

Periods Ended December 31, 2022

	5 Years Standard Deviation	5 Years Sharpe Ratio	5 Years Excess Risk	5 Years Information Ratio
REIT's				
Adelante Capital Management	19.00	0.25	19.09	0.33
Wilshire U.S. Real Estate Securities Index	19.91	0.21	20.00	
CenterSquare				
Wilshire U.S. Real Estate Securities Index				
FIXED INCOME				
Garcia Hamilton *	4.95	-0.19	4.93	0.14
Blmbg. U.S. Aggregate Index	5.04	-0.22	4.99	
HIGH YIELD				
BlackRock	8.99	0.18	9.05	0.13
FTSE High Yield Cash Pay	9.13	0.14	9.20	
Oaktree Capital Management	8.81	0.11	8.90	-0.34
FTSE High Yield Cash Pay	9.13	0.14	9.20	
CREDIT OPPORTUNITIES				
Neuberger Berman	9.40	0.04	9.46	-0.11
Custom Benchmark	8.50	0.06	8.57	
MLP's				
Harvest Fund Advisors MLP	31.03	0.38	31.15	0.06
Alerian MLP Index	39.76	0.28	39.87	
Atlantic Trust CIBC	33.85	0.33	33.97	-0.01
Alerian MLP Index	39.76	0.28	39.87	

10-Year Risk Statistics

Periods Ended December 31, 2022

	10 Years Standard Deviation	10 Years Sharpe Ratio	10 Years Excess Risk	10 Years Information Ratio
DOMESTIC EQUITY				
Systematic Financial	17.96	0.66	18.03	0.38
Russell 2000 Index	19.18	0.51	19.24	
Channing Capital *				
Russell 2000 Value Index				
Redwood Investments *				
Russell 2000 Growth Index				
Smith Graham *				
Russell Midcap Index	16.40	0.67	16.46	
T. Rowe Price	14.89	0.84	14.95	0.35
S&P 500 Index	14.71	0.83	14.77	
INTERNATIONAL EQUITY				
Acadian International	16.31	0.46	16.37	0.48
MSCI AC World ex USA Small Cap (Net)	15.97	0.35	16.02	
AQR Capital Management	14.88	0.28	14.93	0.07
Custom Benchmark	14.54	0.28	14.57	
Ativo International *				
MSCI EAFE (Net)				
GLOBAL EQUITY				
Wellington	15.00	0.60	15.05	0.32
MSCI AC World Index (Net)	14.25	0.56	14.30	
Ariel Global *				
MSCI AC World Index (Net)				
GLOBAL LOW VOLATILITY				
Acadian Global Low Vol.				
MSCI AC World Index (Net)				

10-Year Risk Statistics

Periods Ended December 31, 2022

	10 Years Standard Deviation	10 Years Sharpe Ratio	10 Years Excess Risk	10 Years Information Ratio
REIT's				
Adelante Capital Management	16.18	0.45	16.24	0.12
Wilshire U.S. Real Estate Securities Index	17.00	0.41	17.06	
CenterSquare				
Wilshire U.S. Real Estate Securities Index				
FIXED INCOME				
Garcia Hamilton *				
Blmbg. U.S. Aggregate Index				
HIGH YIELD				
BlackRock	7.18	0.45	7.23	0.02
FTSE High Yield Cash Pay	7.51	0.43	7.56	
Oaktree Capital Management	7.26	0.38	7.31	-0.52
FTSE High Yield Cash Pay	7.51	0.43	7.56	
CREDIT OPPORTUNITIES				
Neuberger Berman				
Custom Benchmark				
MLP's				
Harvest Fund Advisors MLP	25.23	0.34	25.30	0.29
Alerian MLP Index	30.77	0.20	30.84	
Atlantic Trust CIBC	27.20	0.31	27.27	0.36
Alerian MLP Index	30.77	0.20	30.84	

Asset Allocation & Performance

DOMESTIC EQUITY

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
DOMESTIC EQUITY				
T. Rowe Price	7.87	9.78	9.37	4/1/2006
Standard & Poor's 500 +1%	8.74	10.52	9.97	
Value Added	-0.87	-0.74	-0.60	
Systematic Financial	6.79	5.25	10.28	8/1/2003
Russell 2000 + 1.25%	4.40	5.43	9.75	
Value Added	2.39	-0.18	0.53	
Channing Capital *	4.75	3.44	5.57	12/1/2013
Russell 2000 Value + 1.25%	6.02	5.43	7.40	
Value Added	-1.27	-1.99	-1.83	
Redwood Investments *	3.63	2.62	5.02	10/1/2016
Russell 2000 Growth + 1.50%	2.17	5.07	8.35	
Value Added	1.46	-2.45	-3.33	
Smith Graham *	9.79	7.74	7.74	1/1/2018
Russell Mid Cap + 2%	8.01	9.25	9.25	
Value Added	1.78	-1.51	-1.51	

Asset Allocation & Performance

INTERNATIONAL EQUITY

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
INTERNATIONAL EQUITY				
Acadian International	4.32	1.97	8.02	4/1/1989
Custom Benchmark + 2%	3.11	2.70	7.67	
Value Added	1.21	-0.73	0.35	
AQR Capital Management	-0.90	-0.95	2.69	4/1/2006
Custom Benchmark +1.5%	1.57	2.40	4.18	
Value Added	-2.47	-3.35	-1.49	
Ativo International *	-1.63	0.37	0.37	1/1/2018
MSCI EAFE Index (N) + 2%	2.90	3.59	3.59	
Value Added	-4.53	-3.22	-3.22	
Baillie Gifford	-3.42		1.42	4/1/2019
MSCI ACWI ex US + 2.00%	2.10		4.74	
Value Added	-5.52		-3.32	
Earnest Partners	0.62		3.02	4/1/2019
MSCI ACWI ex US + 2.00%	2.10		4.74	
Value Added	-1.48		-1.72	

Asset Allocation & Performance

GLOBAL EQUITY

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
GLOBAL EQUITY				
Wellington	4.28	4.73	9.54	9/1/2012
MSCI ACWI (N) + 2%	6.10	7.34	10.51	
Value Added	-1.82	-2.61	-0.97	
Ariel Global *	5.05	5.23	5.23	1/1/2018
MSCI ACWI (N) + 1.5%	5.57	6.81	6.81	
Value Added	-0.52	-1.58	-1.58	
Acadian Global Low Vol.	2.13	4.08	6.39	7/1/2015
MSCI ACWI (N) + 2%	6.10	7.34	8.97	
Value Added	-3.97	-3.26	-2.58	

Asset Allocation & Performance

REAL ESTATE

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
REAL ESTATE				
Adelante Capital Management	0.62	4.17	8.77	10/1/2001
Wilshire Real Est. Secs + 1%	0.50	4.40	9.98	
Value Added	0.12	-0.23	-1.21	
CenterSquare	1.37		5.86	6/1/2018
Wilshire Real Est. Secs + 1%	0.50		5.34	
Value Added	0.87		0.52	

Asset Allocation & Performance

FIXED INCOME

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
FIXED INCOME				
Garcia Hamilton *	-2.12	0.21	1.68	11/1/2013
Bloomberg Aggregate + 0.5%	-2.23	0.52	1.78	
Value Added	0.11	-0.31	-0.10	
HIGH YIELD				
Oaktree Capital Management	0.18	1.85	5.90	4/1/1988
FTSE HY Cash Pay + 1%	0.92	3.19		
Value Added	-0.74	-1.34		
BlackRock	0.27	2.50	5.36	10/1/2006
FTSE HY Cash Pay + 1%	0.92	3.19	6.74	
Value Added	-0.65	-0.69	-1.38	
CREDIT OPPORTUNITIES				
Neuberger Berman	-1.17	1.13	3.67	2/1/2016
Custom Benchmark + 1%	0.03	2.43	4.98	
Value Added	-1.20	-1.30	-1.31	

Asset Allocation & Performance

MLP

Periods Ended December 31, 2022

	Performance (%) net of fees			
	3 Years	5 Years	Since Inception	Inception Date
MLP's				
Harvest Fund Advisors MLP	13.75	8.27	6.68	1/1/2012
Alerian MLP Index + 1.5%	11.04	5.66	3.79	
Value Added	2.71	2.61	2.89	
Atlantic Trust CIBC	11.68	6.37	6.52	1/1/2012
Alerian MLP Index + 1.5%	11.04	5.66	3.79	
Value Added	0.64	0.71	2.73	

Wilshire

Capital Market Return Assumptions Update

December 31, 2022

Update to Annual Report

- Capital market return assumptions are updated on a quarterly basis for new asset allocation studies
- Full assumption methodology is available in Wilshire Consulting's annual paper
- Following analysis serves as an update to the year-end report

Summary Changes

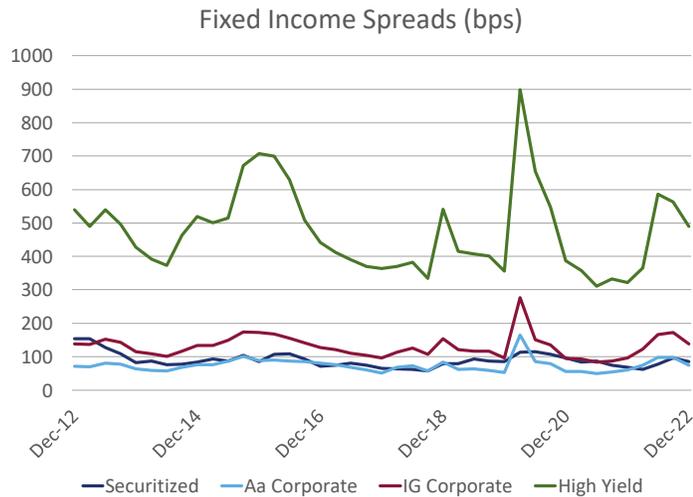
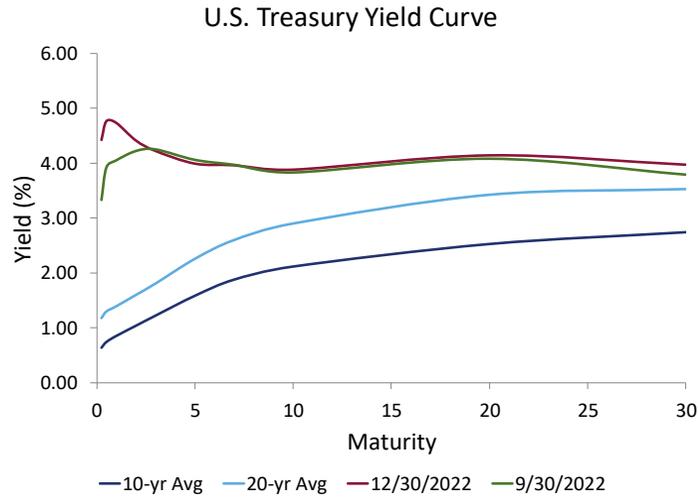
- Yield curve up in the short end, but largely unchanged and relatively flat at 5-years and beyond
 - Curve movements resulted in modest changes for government bond fixed income segments
 - Credit spreads tightened for investment grade and high yield bonds, resulting in lower forward-looking assumptions
- Yields on public real asset securities are generally down; continued volatility in breakeven inflation during the quarter
- Equity assumptions are down on lower current income and higher current valuations
- Equity risk premium continues to fall

* September 2022 Private Credit and Private Equity return assumptions are based on a revised methodology but inputs representative of quarter-end 9/30/2022

Asset Class Assumption	Total Return (%)			Risk (%)
	Sep 2022	Change	Dec 2022	
Inflation	2.25	0.00	2.25	1.75
Cash Equivalents	3.65	0.35	4.00	0.75
Treasuries	4.20	0.10	4.30	5.00
Core Bonds	4.90	0.00	4.90	4.70
LT Core Bonds	5.10	-0.20	4.90	9.80
High Yield Bonds	6.85	-0.30	6.55	10.00
Private Credit *	8.60	0.25	8.85	12.75
Global RE Securities	5.80	0.00	5.80	16.45
Private Real Estate	6.35	-0.15	6.20	14.00
U.S. Stocks	6.75	-0.25	6.50	17.00
Dev. ex-U.S. Stocks	7.50	-0.25	7.25	18.00
Emerging Market Stocks	7.75	-0.25	7.50	26.00
Private Equity *	10.10	-0.20	9.90	29.00
Global 60/40 (ACWI/U.S. Core)	6.65	-0.15	6.50	10.80

Implied Risk Premia	Relative Return (%)		
	Sep 2022	Change	Dec 2022
Cash - Inflation	1.40	0.35	1.75
Treasury - Cash	0.55	-0.25	0.30
Core - Treasury	0.70	-0.10	0.60
Long-Term Core - Core	0.20	-0.20	0.00
High Yield - Core	1.95	-0.30	1.65
Global RESI - Core	0.90	0.00	0.90
U.S. Stocks - Core	1.85	-0.25	1.60
Private Equity - U.S. Stocks	3.35	0.05	3.40
Implied Real Return (ACA - CPI)			
U.S. Stocks	4.50	-0.25	4.25
U.S. Bonds	2.65	0.00	2.65
Cash Equivalents	1.40	0.35	1.75

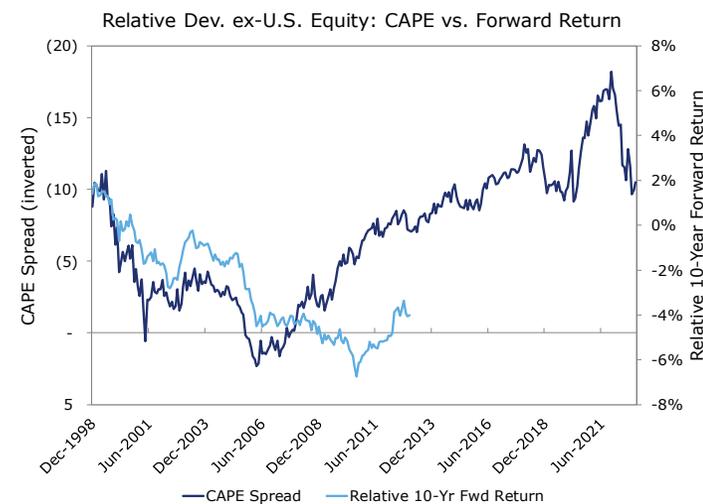
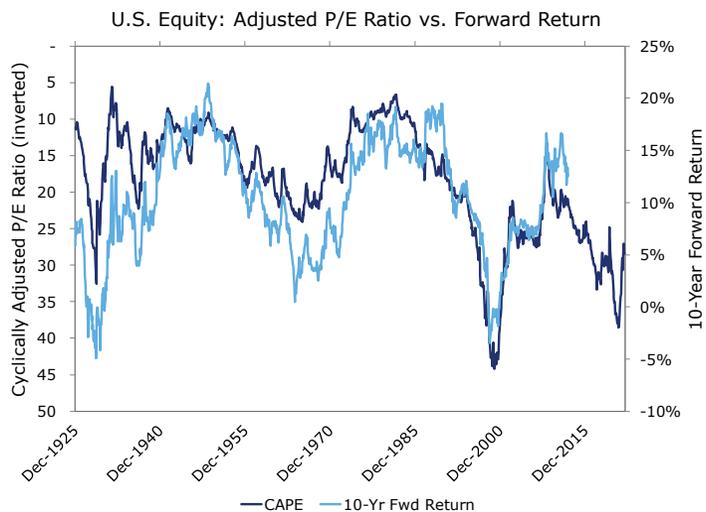
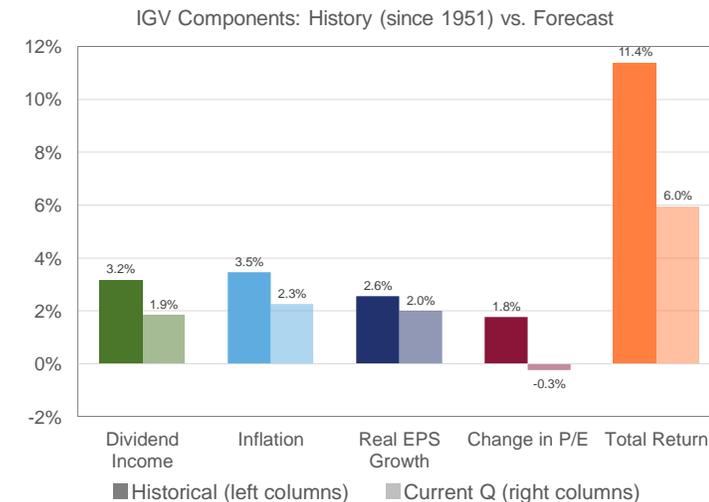
Fixed Income



Inflation & Fixed Income		Sep 2022	Change	Dec 2022
Inflation	10-Year Treasury Yield	3.83	0.05	3.88
	10-Year Real Yield	<u>1.68</u>	<u>(0.10)</u>	<u>1.58</u>
	Breakeven Inflation	2.15	0.15	2.30
	Inflation Forecast	2.25	0.00	2.25
Cash	91-Day T-Bill Yield	3.33	1.09	4.42
	T-Bill Yield in 10 Yrs	3.65	0.20	3.85
	Cash Forecast	3.65	0.35	4.00
Treasury	U.S. Treasury Idx Yield	4.13	0.05	4.18
	Treasury Idx Yield in 10 Yrs	4.30	0.15	4.45
	Treasury Idx Forecast	4.20	0.10	4.30
	U.S. LT Treasury Idx Yield	4.00	0.08	4.08
	LT Treasury Idx Yield in 10 Yrs	3.88	0.27	4.15
	LT Treasury Idx Forecast	4.05	0.00	4.05
Spread	U.S. Corporate Idx OAS	1.72	<u>(0.34)</u>	1.38
	Corporate Idx OAS in 10 Yrs	1.55	<u>(0.01)</u>	1.54
	Corporate Idx Forecast	5.65	(0.20)	5.45
	U.S. Core Bond Forecast	4.90	0.00	4.90
	U.S. LT Core Bond Forecast	5.10	(0.20)	4.90
	U.S. High Yield Idx OAS	5.62	<u>(0.73)</u>	4.89
High Yield Idx OAS in 10 Yrs	5.46	<u>(0.06)</u>	5.40	
High Yield Bond Forecast	6.85	(0.30)	6.55	

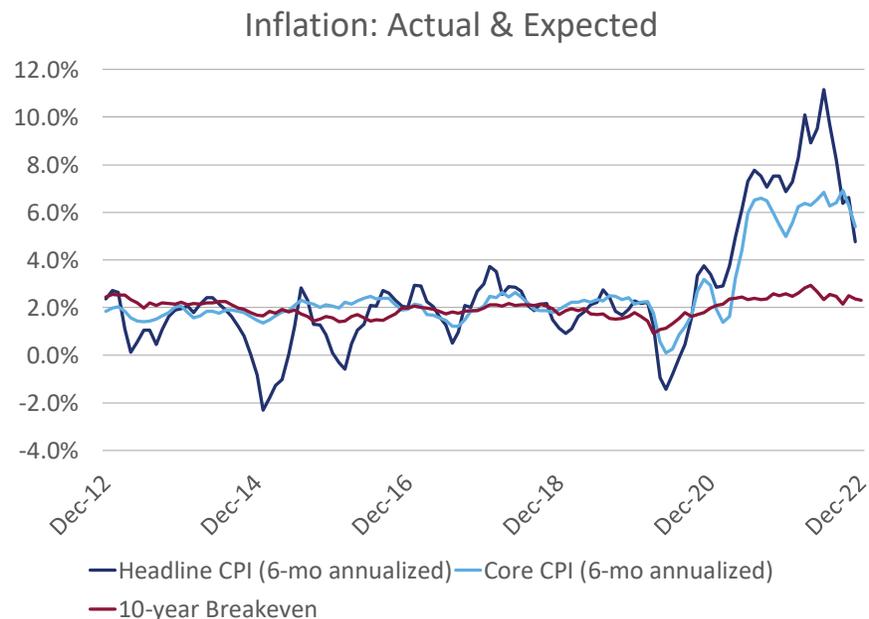
Equity Markets

Equity: Public & Private		Sep 2022	Change	Dec 2022
Equity	DDM	7.25	(0.40)	6.85
	IGV	6.50	(0.55)	5.95
	CAPE	6.70	0.25	6.95
	U.S. Equity Forecast	6.75	(0.25)	6.50
	Dev-ex-US Equity Forecast	7.50	(0.25)	7.25
	EM Equity Forecast	7.75	(0.25)	7.50
Private	Cost of Debt (Public)	5.65	0.00	5.65
	Cost of Debt (Private)	7.60	0.35	7.95
	Private Market Basket Forecast	10.25	(0.35)	9.90



Real Assets

- Inflation assumption of 2.25% is unchanged, but just below breakeven, given the volatility in the signal during the quarter
- Real asset yields are generally lower
- Commodity assumption is up on higher cash



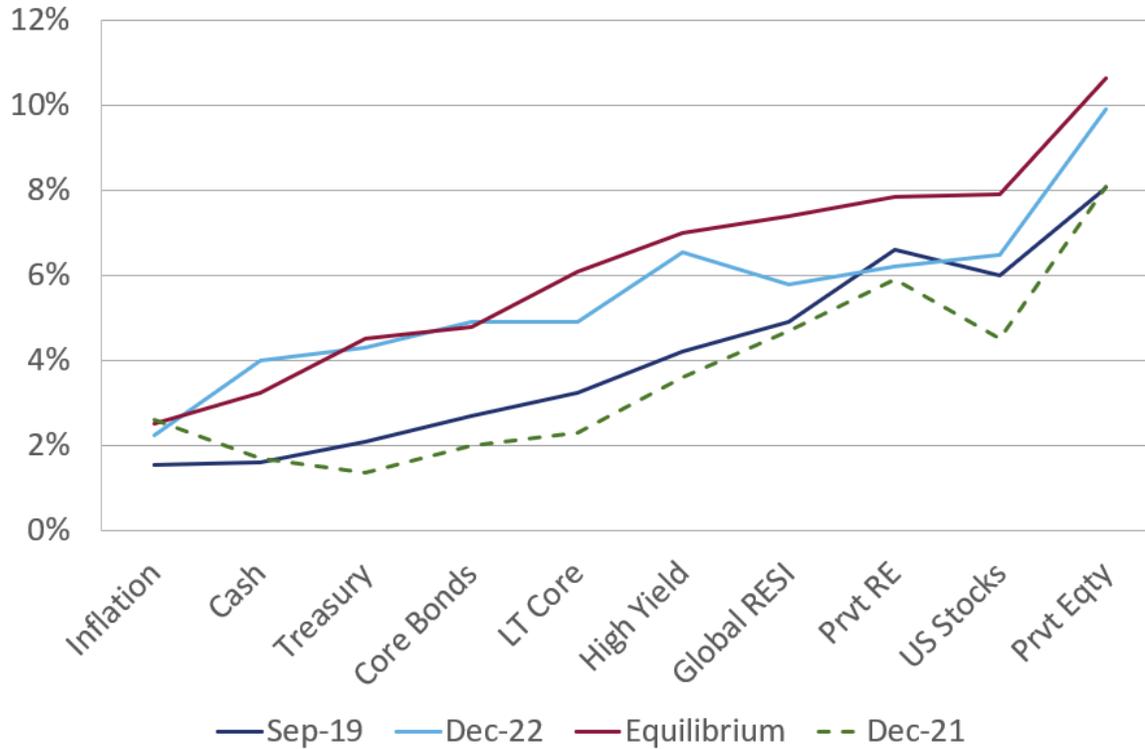
Asset Class Assumption	Total Return (%)			Risk (%)
	Sep 2022	Change	Dec 2022	
U.S. TIPS	4.05	-0.10	3.95	6.00
Global RE Securities	5.80	0.00	5.80	16.45
Private Real Estate	6.35	-0.15	6.20	14.00
Commodities	5.90	0.35	6.25	16.00
Inflation	2.25	0.00	2.25	1.75

Real Assets		Sep 2022	Change	Dec 2022
Listed	Inflation Capture (75%)	1.70	0.00	1.70
	REIT Yield	3.95	0.02	3.97
	Midstream Energy Yield	6.25	(0.31)	5.94
	Global Infrastructure Yield	3.71	(0.13)	3.58
Private	Real Estate Cap Rate	4.00	(0.10)	3.90
	Cost of Debt (Private)	6.10	0.10	6.20
	Infra. v RE Cap Rate Differential	(0.24)	(0.15)	(0.39)
	Infra. Leverage / RE Leverage	2.5	0.0	2.5

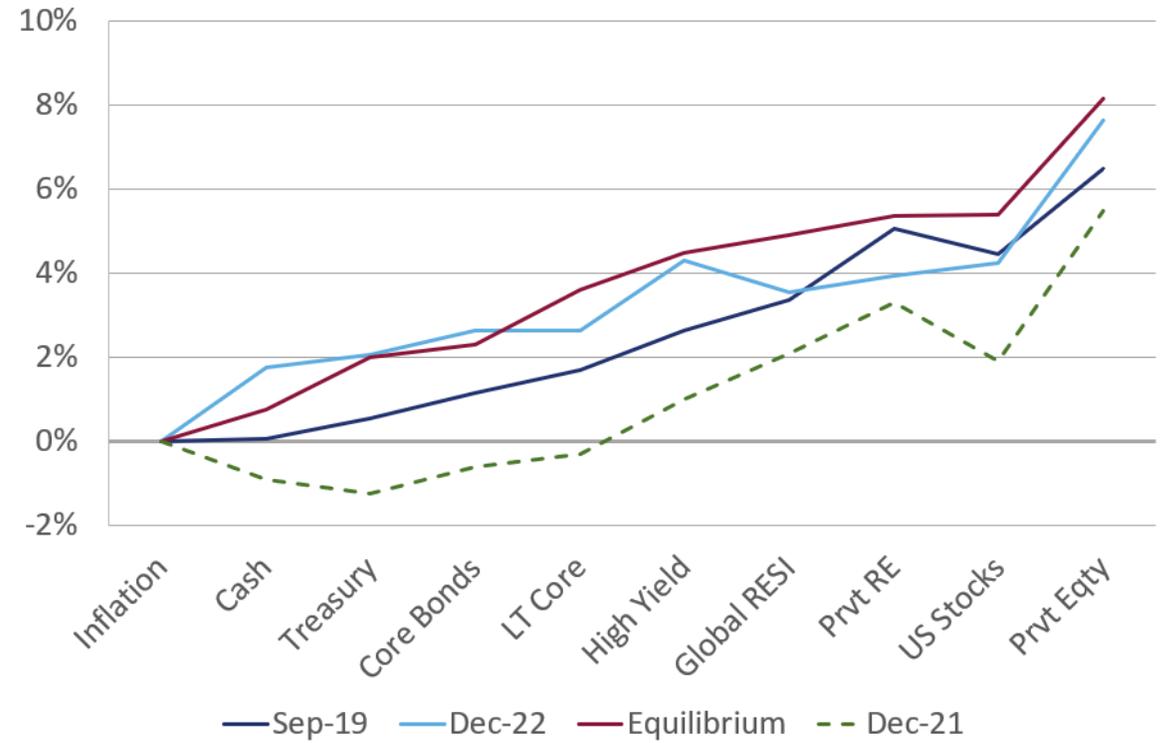
Equilibrium Assumptions

Current versus Equilibrium Asset Class Assumptions

Nominal Returns



Real Returns



Q4 2022 Correlation Matrix

	Equity						Fixed Income						Real Assets						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Private Credit	Dev ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
Compound Return (%)	6.50	7.25	7.50	7.60	7.05	9.90	4.00	4.90	4.90	3.95	6.55	8.85	3.05	5.65	5.80	6.20	6.25	6.65	2.25
Expected Risk (%)	17.00	18.00	26.00	19.10	17.10	29.00	0.75	4.70	9.80	6.00	10.00	12.75	4.00	17.50	16.45	14.00	16.00	12.35	1.75
Cash Yield (%)	1.75	3.25	2.80	3.10	2.25	0.00	4.00	5.10	5.25	4.40	9.65	5.10	3.75	3.95	3.95	2.25	4.00	3.15	0.00
Growth Exposure	8.00	8.00	8.00	8.00	8.00	14.00	0.00	-0.95	-2.40	-3.00	4.00	5.10	-1.00	6.00	6.00	3.50	0.00	2.70	0.00
Inflation Exposure	-3.00	0.00	5.00	1.45	-1.30	-3.75	0.00	-2.50	-6.80	2.50	-1.00	-1.50	-3.00	1.00	1.80	1.00	12.00	5.25	1.00
Correlations																			
US Stock	1.00																		
Dev ex-US Stock (USD)	0.81	1.00																	
Emerging Mkt Stock	0.74	0.74	1.00																
Global ex-US Stock	0.84	0.95	0.89	1.00															
Global Stock	0.95	0.91	0.84	0.94	1.00														
Private Equity	0.72	0.63	0.61	0.67	0.73	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.06	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.08	0.20	0.30	0.18	1.00											
LT Core Bond	0.31	0.15	0.01	0.11	0.24	0.31	0.11	0.94	1.00										
TIPS	-0.05	0.00	0.15	0.06	-0.01	-0.03	0.20	0.60	0.48	1.00									
High Yield Bond	0.54	0.39	0.49	0.46	0.53	0.31	-0.10	0.24	0.32	0.05	1.00								
Private Credit	0.68	0.55	0.58	0.60	0.68	0.44	0.00	0.24	0.30	0.00	0.76	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.16	0.17	0.26	0.10	0.68	0.66	0.39	0.26	0.22	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.57	0.49	-0.05	0.17	0.22	0.10	0.56	0.62	0.05	1.00					
Global RE Securities	0.64	0.57	0.54	0.60	0.65	0.55	-0.05	0.17	0.21	0.11	0.61	0.68	0.04	0.96	1.00				
Private Real Estate	0.55	0.45	0.45	0.49	0.54	0.50	-0.05	0.19	0.25	0.09	0.58	0.63	0.05	0.79	0.78	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.28	0.00	-0.03	-0.03	0.25	0.29	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.62	0.63	0.65	0.69	0.67	0.57	-0.03	0.22	0.24	0.30	0.64	0.69	0.04	0.78	0.84	0.76	0.64	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	0.00	-0.08	0.05	0.04	0.05	0.44	0.22	1.00

Alternative Investment Assumptions

Private Equity	Weight	Expected Return (%)	Expected Risk (%)
U.S. Buyouts	55.0%	8.50	30.00
Non-U.S. Buyouts	25.0%	9.20	32.00
Venture Capital	20.0%	9.70	44.00
Private Equity Basket	100.0%	9.90	29.00

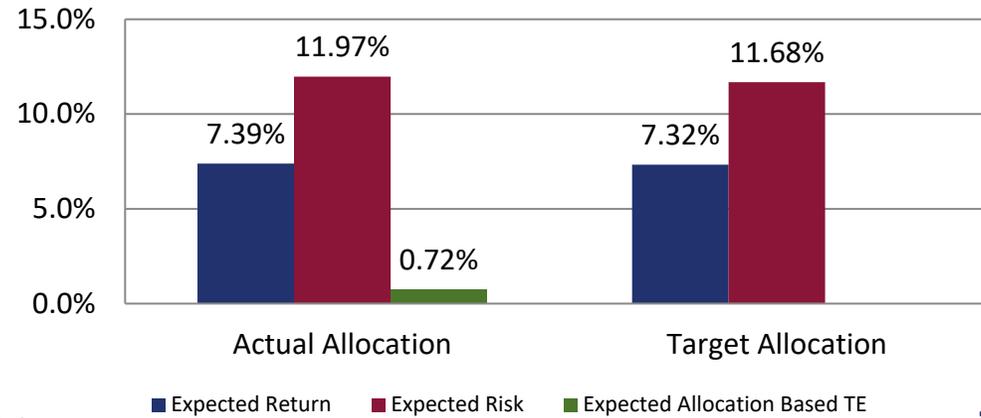
Private Credit	Weight	Expected Return (%)	Expected Risk (%)
Direct Lending	50.0%	8.50	10.00
Mezzanine/Oppportunistic Credit	30.0%	8.50	20.00
Distressed Debt	20.0%	8.25	20.00
Private Credit Basket	100.0%	8.85	12.75

Private Real Estate	Weight	Expected Return (%)	Expected Risk (%)
Core RE	70.0%	4.95	12.00
Value-Added RE	15.0%	7.95	17.50
Oppertunistic RE	15.0%	8.95	25.00
Private Real Estate Basket	100.0%	8.85	12.75

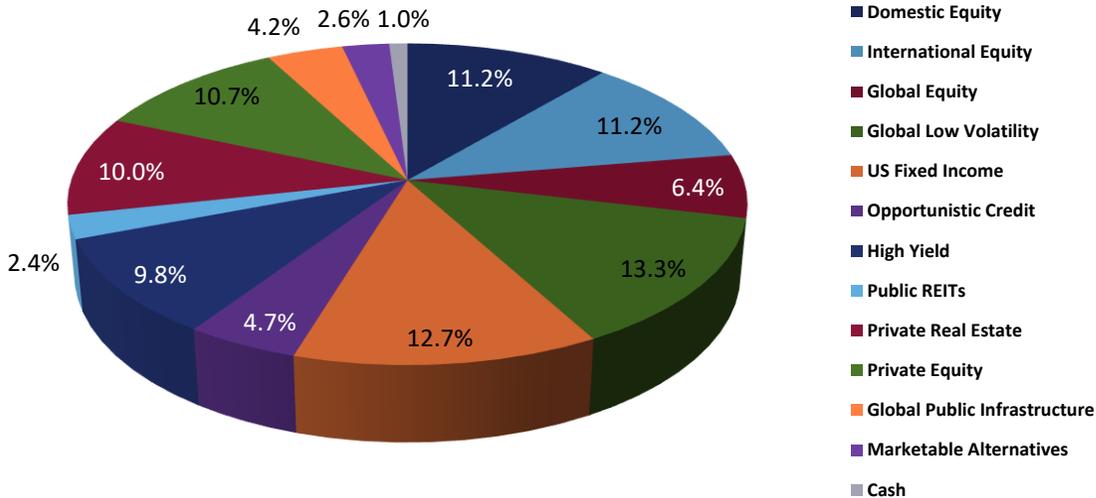
Public Real Assets	Weight	Expected Return (%)	Expected Risk (%)
Global REITs	30.0%	5.80	16.45
Global Listed Infrastructure	8.5%	5.25	17.00
Midstream Energy Infrastructure	1.5%	7.65	19.00
TIPS	45.0%	3.95	6.00
Commodites	36.0%	6.25	16.00
Gold	9.0%	6.25	18.00
Cash	-30.0%	4.00	0.75
Public Real Assets Basket	100.0%	6.25	11.35

Private Real Assets	Weight	Expected Return (%)	Expected Risk (%)
Real Estate	50.0%	6.20	14.00
Infrastructure	30.0%	5.45	25.00
Energy	20.0%	7.75	18.00
Private Real Assets Basket	100.0%	6.85	14.90

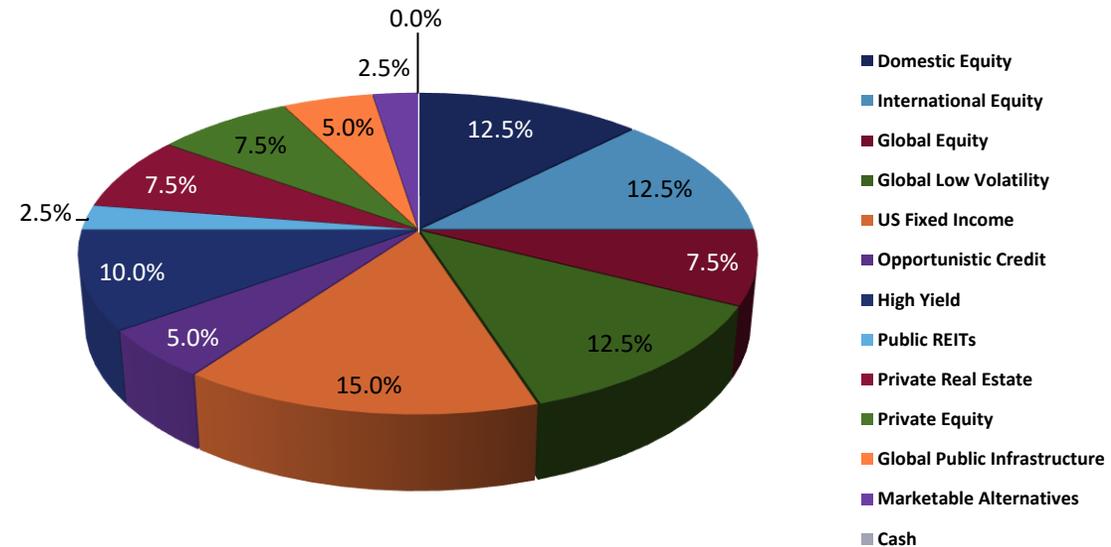
Dallas ERF Target Allocation & Expected Return/Risk



Actual Asset Allocation



Target Asset Allocation



Important Information

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DISCUSSION SHEET

Employees' Retirement Fund Board of Trustees Meeting

February 14, 2023

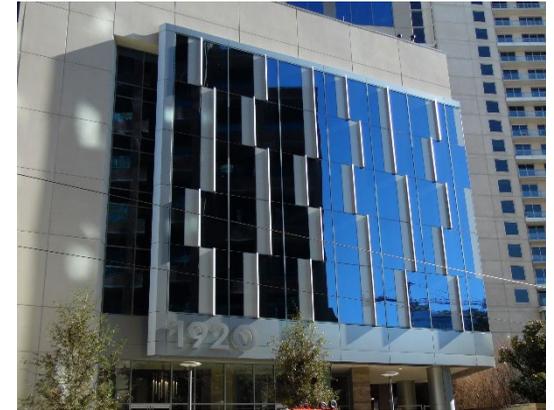
Issue: Baillie Gifford & Co.

Attachments: None

Discussion: In May 2022 the Board placed Baillie Gifford on watch due to their investment performance. The recommendation at that time was to place Baillie Gifford on watch for six months and re-evaluate their performance. During the watch period, ERF staff has had monthly calls with Baillie Gifford to closely monitor the organization, and their performance. Also in October 2022, the Board had a detailed discussion about Baillie Gifford with ERF staff and Wilshire.

Baillie Gifford has begun to make up their underperformance on a year-to-date and since inception basis. The goal is to see strong investment performance continue longer-term. Given that, ERF staff recommends keeping Ballie Gifford on watch until May 2023 and re-evaluate their status at that time. Wilshire concurs with staff regarding this recommendation.

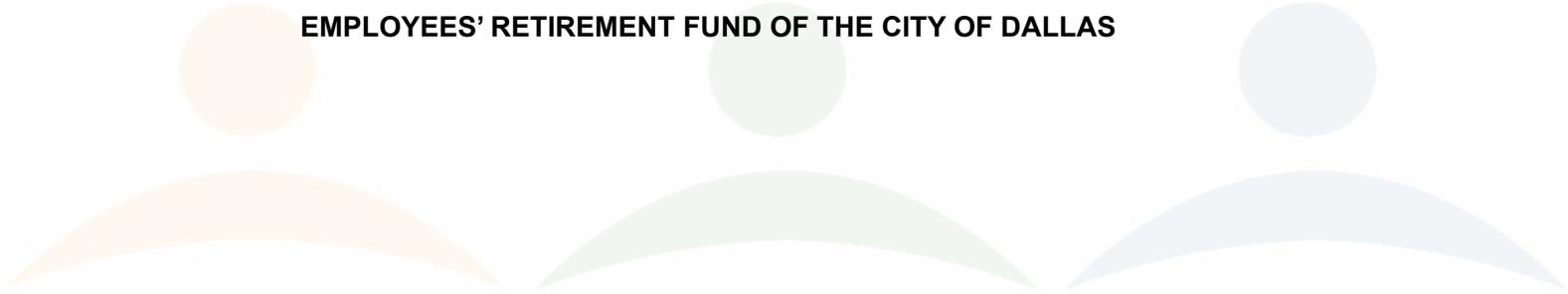
Recommendation: Suggested motion for approval is as follows: Move to approve Baillie Gifford & Co. remain on watch until May 2023.



2023 STRATEGIC PLAN

FEBRUARY 14, 2023

EMPLOYEES' RETIREMENT FUND OF THE CITY OF DALLAS



ERF Mission, Guiding Principles and Core Values

- » Mission – Provide retirement benefits and superior service to advance the financial security of its members
- » Guiding Principles
 - We are committed to excellence, quality and value in everything we do through the most effective use of our resources.
 - We focus on the needs of our members and deliver consistent and timely information to our members about their retirement benefits.
 - We are committed to public trust by being an ethical, sensitive, and cost efficient organization.
 - We model best practices in our industry and innovate to achieve higher standards
 - We continually evaluate our business processes to support a user friendly environment that improves member satisfaction.
 - We support open communication.

» Core Values

The ERF Staff is committed to reflecting these core values in all we say and do:

- Fulfilling fiduciary responsibilities with the utmost integrity and accountability;
- Thinking independently, respecting individuality, and working as a team;
- Encouraging open communication and collaboration;
- Continuously expanding our knowledge; and
- In all endeavors, act in an ethical, honest, and professional manner.

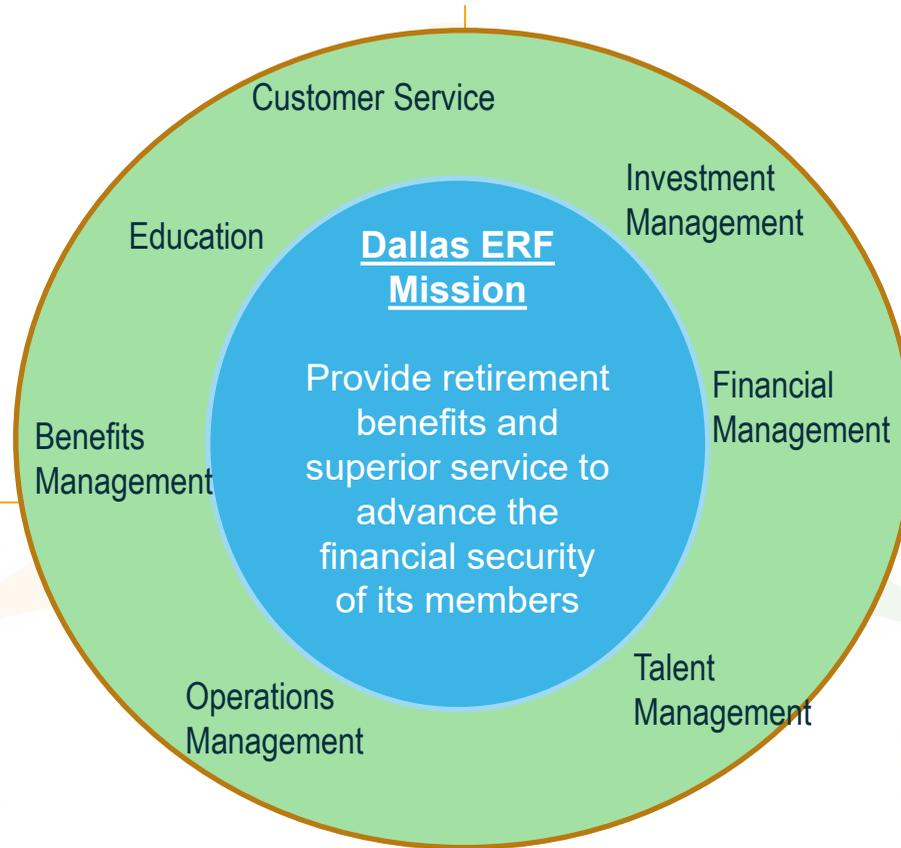
Strategy Map

Member

Enhance services to members



Financial
Ensure a financially sound retirement system



Business Transformation

Drive operational excellence



Workforce Transformation
Grow an engaged, highly skilled and diverse workforce

2022 Year In Review



2022 Accomplishments

- As of 12/31/2022, the Fund achieved returns exceeding the benchmarks for the respective period
 - 1 year – (8.52%) vs benchmark of (12.22)%
 - 3 year – 3.87% vs benchmark of 2.87%
 - 5 year – 4.64% vs benchmark of 4.23%
 - 10 year – 6.63% vs benchmark of 6.18%
- Onboarded two fixed income managers
- Onboarded two marketable alternatives managers
- Received award from Institutional Investor magazine for the work on Diversity, Equity and Inclusion

2022 Accomplishments

Benefits

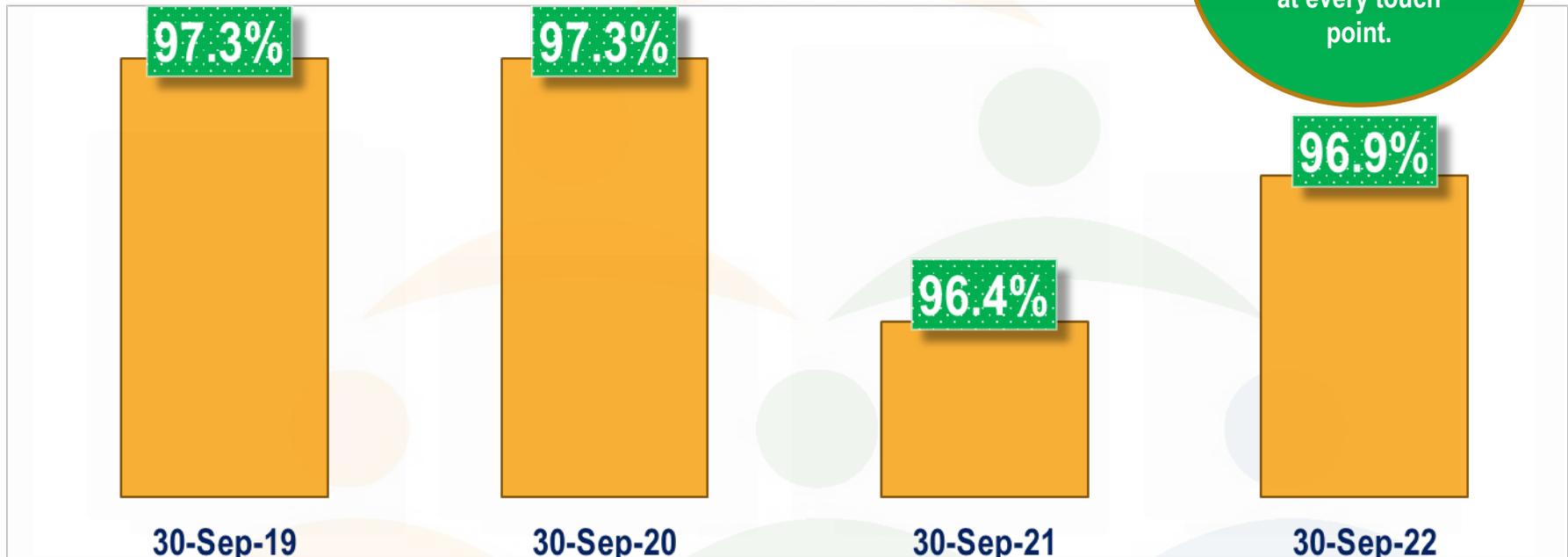
- The Benefits, Records Management and Administration Teams have had enormous success regarding membership services. The benefits team is hybrid, so they meet the member where they are - virtually or in person.
- **Key Metric Results:**
 - Retirements – 293
 - Benefits Paid - \$317 M
 - Refunds - \$12 M
- Expanded suite of member education programs including webinars, podcasts
- Translated all education materials into Spanish
- Maintained customer service ratings above 96%
- Completed the annual audit on time with a clean audit opinion and no control deficiencies noted

DALLAS ERF BENEFIT MANAGEMENT & MEMBERSHIP EDUCATION

Webinar Title	Average Length of Class	Average Number of Attendees	Average Survey Response Rate	Average Attentiveness	Sessions / Total Attendees
Health Benefits	1 Hour 14 minutes	76	42%	69%	8 / 608
Social Security	1 Hour 50 Minutes	80	52%	74%	8 / 642
Fidelity	1 Hour 30 minutes	55	32%	58%	8 / 443
Pension Benefits	1 Hour	85	53%	75%	8 / 686
Taxes After Retirement	1 Hour	57	47%	67%	8 / 456
Money & Credit	1 Hour	33	62%	30%	4 / 132
On Demand Views	All sessions are recorded and provided via email to those that registered but could not attend the live session. On demand views represent those that watched the recordings.				44 / 607
Total	Webinar analytics from June 2020 – September 2022				3,574

Dallas ERF benefit management & membership education.

Overall Customer Service Ratings



2023-2025

A graphic for the 2023-2025 Strategic Plan. It features a central rectangle with a dark blue background on the left and a green background on the right. The text "2023-2025 Strategic Plan" is written in white, bold, sans-serif font. The text is positioned on the dark blue background. A white horizontal line is located below the text on the green background. The graphic is surrounded by decorative elements: a light orange circle above, a light green circle below, and three light-colored curved shapes (orange, green, and blue) at the bottom. A white horizontal line is also present on the green background of the graphic.

**2023-2025
Strategic
Plan**



Process

- Dallas ERF staff conducted research with various national organizations to gain best practices. For example:
 - National Conference of Public Pension Organizations
- One on One Meetings with Best Practice Organizations in their fields
 - Finance
 - Technology
 - Investments
 - Benefits
 - Administration
- One on One Meetings with Dallas ERF Trustees
- One on One Meetings with Plan Sponsor



Strategic Planning Study for ERF's Administration and Benefits

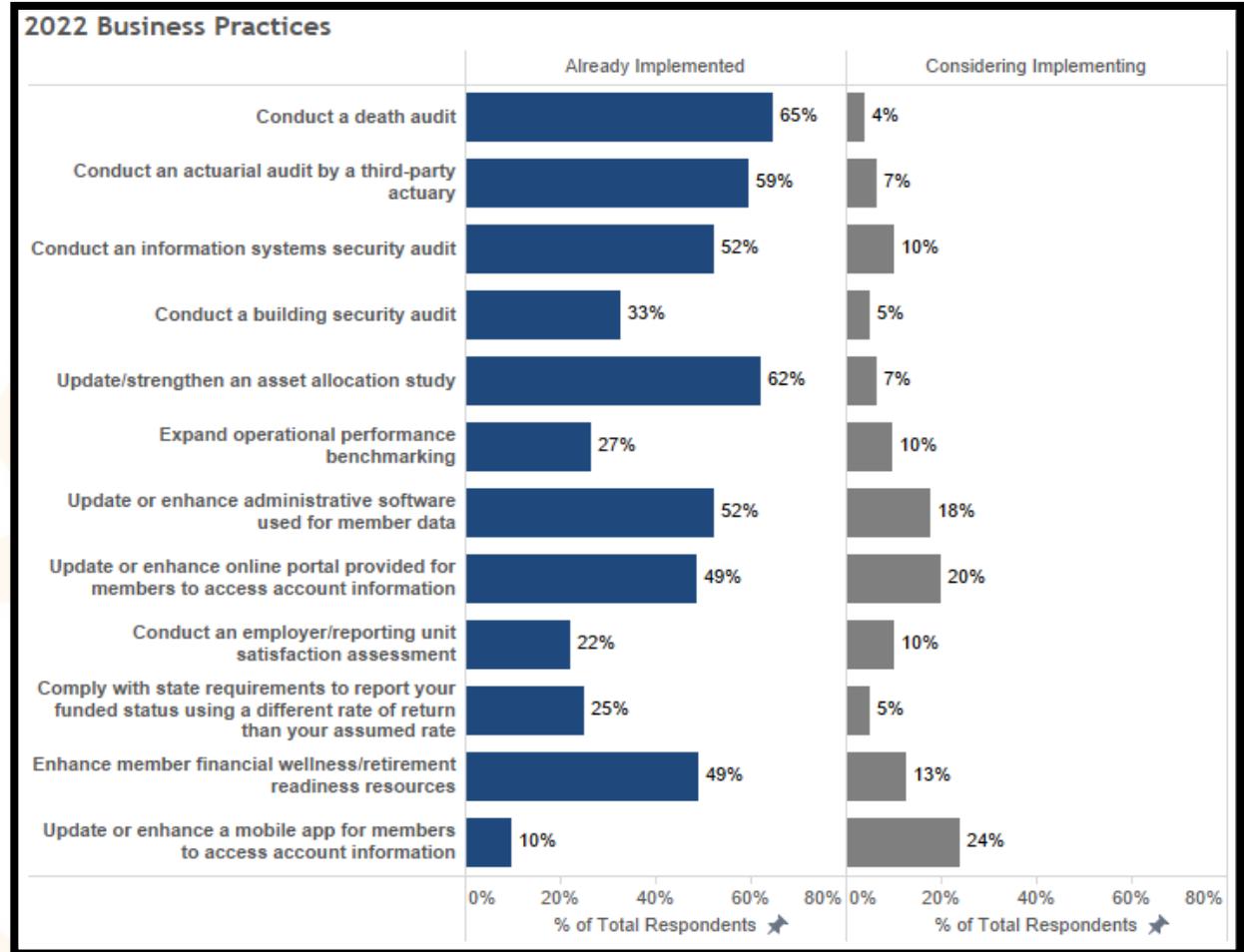
» KEY TAKEAWAYS

» From September to December 2022, the National Conference on Public Employee Retirement Systems (NCPERS) undertook a comprehensive study exploring the retirement practices of the public sector.

» NCPERS 2023 Study targets Public Sector Pension Fund Trends in:

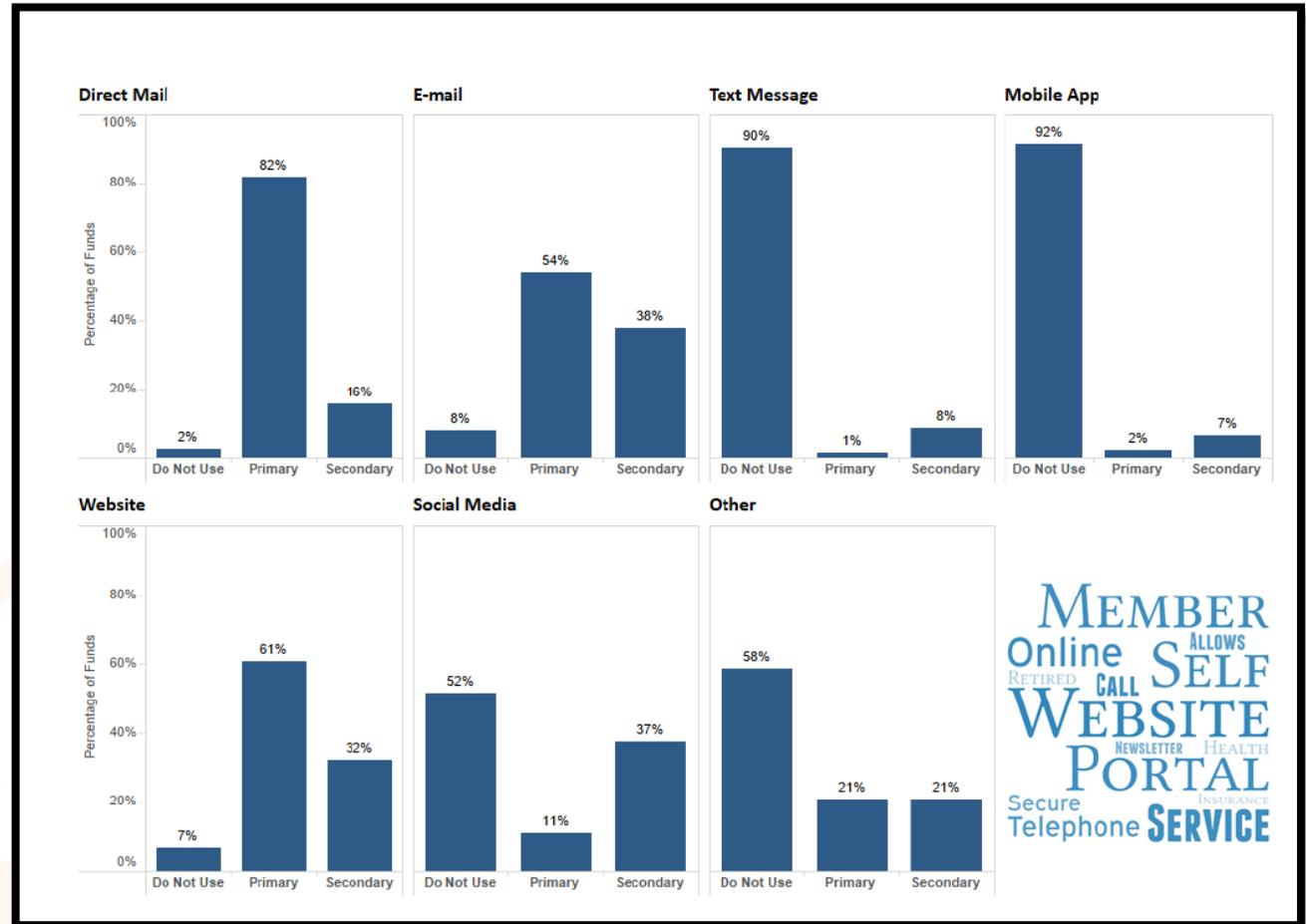
- Fiscal,
- Operational, and
- Business Practices

» The Study includes responses from 195 state and local government pension. About **56 percent are local funds** while 44 percent are statewide funds.



Strategic Planning Study for ERF's Administration and Benefits

The primary communication modes used by respondents to communicate with members include direct mail, e-mail, and the website. Secondary modes include e-mail, social media, website.



MEMBER
 Online RETIRED WEBSITE PORTAL SERVICE
 CALL NEWSLETTER HEALTH
 SELF ALLOWS
 Secure Telephone SERVICE



Strategic Insights

- Strategy
 - General agreement with the mission
 - Discussion on the inclusion of families in addition to the member – legal review
- Finance
 - Separate audit committee in addition to full board
- Investments
 - Separate investment committee in addition to full board
 - Deepen investment knowledge on board. (COVID prevented board from attending training)
- Communications
 - Increase opportunities for trustees to meet with the members
 - Increase opportunities to meet with the plan sponsor
 - Increase opportunities for trustees to meet with ERF staff
- Future board topics
 - Cybersecurity
 - Succession Plan





Strategic Plan – Business Objectives

The Employees' Retirement Fund of the City of Dallas focuses on seven key business objectives. They are the following:

- **Customer Service** - Provide high quality customer service and education that enables members to make informed and timely retirement decisions
- **Education** - Improve the accessibility to, quantity, and quality of member education programs
- **Benefits Management** - Administer benefit programs and business processes in an innovative, effective and efficient manner
- **Investment Management** - Maintain an investment management program that will provide funding for the benefit obligations of the Fund
- **Financial Management** - Develop and maintain financial and accounting processes that support ERF's business objectives and initiatives
- **Operations Management** - Develop and maintain a secure technology infrastructure and operations that will support ERF business objectives and initiatives
- **Talent Management** - Provide ERF staff with training in the skill sets, policies, and procedures that enables them to perform their respective functions

Administration and Benefits



- Establish a paperless Contract Management system using Salesforce
- Establish the Board Coordination Team
- Modify Consent Agenda process
- Barcode All Forms in V3 for members self service process
- Reactivate member forms for uploading in MSS pending testing
- Seek a survey of performance from the City of Dallas

- Evaluate core functionality of V3
- Assess other wrap around tools to V3
- Integrate ERF University into an enhanced system
- Compare ERF to NCPERS annual benchmark study
- Identify and implement a ERF Application for SMART devices



- Establish strategy to retire members at department sites using Salesforce
- Enhance virtual retirement process – “Retire Now”
- Evaluate smart devices for benefit counselors
- Compare ERF to NCPERS annual benchmark study

- Evaluate core functionality of V3
- Assess other wrap around tools to V3
- Compare ERF to NCPERS annual benchmark study

Benchmark Study



Finance

Develop and maintain financial and accounting processes that support ERF's business objectives and initiatives

The initiatives developed must conform to best practices. Entities considered were GFOA, NCPERS and Northern Trust.

GFOA Accounting best practices include:

- Meeting and Exceeding Minimum GAAP Financial Reporting Requirements
- Policies and Procedures Documentation
- Disaster Recovery for Technology
- Timely Financial Reporting

NCPERS

- Best practices include GFOA Award for Excellence, NCPERS Certificate of Transparency, Unqualified Audit Opinion, Board adopted investment policy, annual investment performance evaluation



Investment Management 2023

Maintain an investment management program that will provide funding for the benefit obligations of the Fund

Initiatives	Project Manager	Cost	Metric
Make changes to ERF asset allocation in the first half of 2023; conduct investment manager searches accordingly	Natalie	Low/ Medium	Complete manager searches and successful portfolio transitions as directed by the Board
Utilize enhanced risk management tools for both detailed portfolio analysis and risk management	Josh	Low	Enhance quantitative metrics and risk management analytics for ongoing internal portfolio analysis
Conduct quarterly conference calls with investment managers as part of existing manager oversight and as per ERF Manager Selection & Monitoring Policy; invite investment managers for Board presentations during the year; monitor managers on watch monthly	Natalie/ Jaladhi	Low	Conduct due diligence meetings on approximately 1/3 rd of managers every year; examine other asset classes as per Board interest, conduct manager visits and attend conferences as appropriate
Develop and execute ERF Open Houses for Next Generation Managers	Jaladhi	Medium	Hold a minimum of two in-person Open Houses in 2023 during May and September
ERF Next Generation Manager White Paper	Natalie/ Jaladhi	Medium	Published in 2023

Communications

Top Five Initiatives

1. Engage younger employees
2. Provide more Pensions education in native languages
3. Update publications to be more accessible for mobile devices
4. Provide text messages and use as a link to email campaigns, website updates and Facebook posts
5. Ensure website and publications are all ADA compliant

Next Step

- Staff will complete interviews for best practices
- Staff will provide a road map of initiatives for board approval
- Create a multi-year budget based on the road map for board approval



Conclusion

Member

Enhance services to members



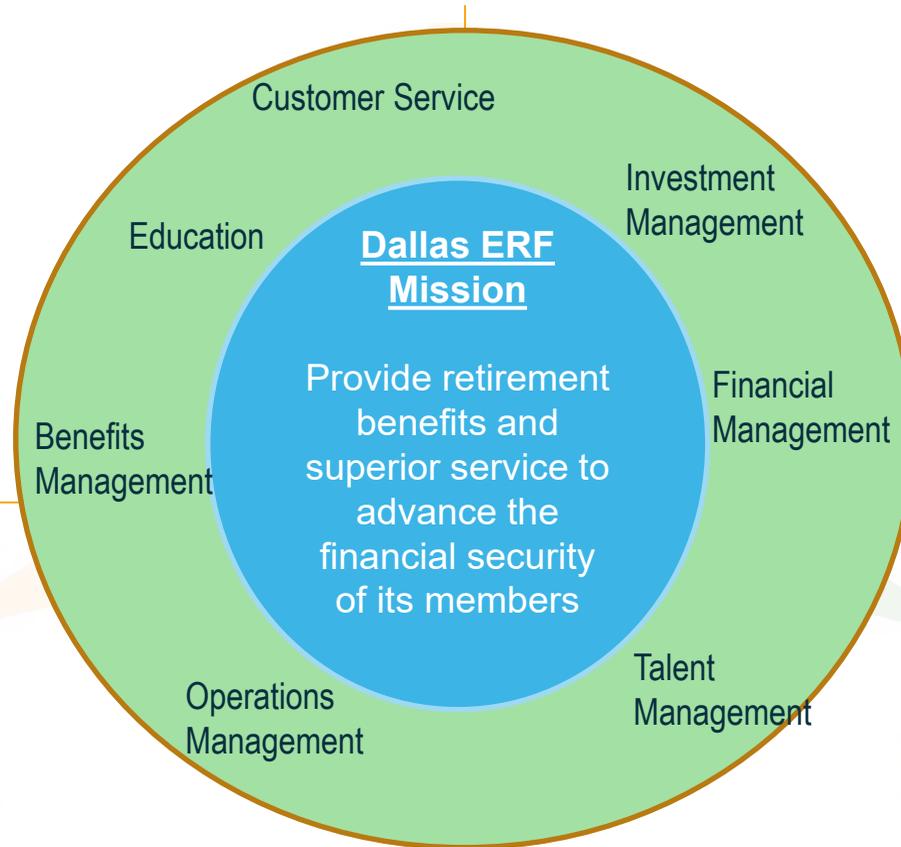
Financial

Ensure a financially sound retirement system



Workforce Transformation

Grow an engaged, highly skilled and diverse workforce



Business Transformation

Drive operational excellence

REGISTER NOW!

2023 SPRING CONFERENCE

GOVERNANCE AS THE LINCHPIN: THE "G" IS KEY

MARCH 6-8

SALAMANDER HOTEL | WASHINGTON, DC



FEATURED GUEST SPEAKERS



Jeffrey Smith

Managing Member,
CEO & CIO
Starboard Value



Matt Levine

Columnist, Bloomberg
Opinion



Council of Institutional Investors[®]
The **voice** of corporate governance

**Registration Is Now Open for CII's 2023
Spring Conference in Washington, DC!**

Conference Format: The conference will be in-person only (no streaming option).

Cost: Your membership with CII is 'bundled' so some or all attendee fees are free depending on your yearly membership dues:

- \$5,200-10,000 = 3 conference attendees per event
- \$10,001-\$14,999 = 4 conference attendees per event
- >\$15,000 = unlimited attendees

Pension Fund Trustees: Trustees may attend CII conferences at no cost! Please reach out to [Kylund Arnold](#) for the discount code. Additionally, CII will host a free private dinner and discussion on March 6 just for pension fund trustees with ample time to network and discuss issues of importance. Any trustee for a CII Member pension fund may attend. Please contact CII Executive Director [Amy Borrus](#) for more information or [Kylund Arnold](#) to RSVP.

Hotel: CII has secured a discounted block of rooms at the Salamander Hotel (formerly the Mandarin Oriental) at \$349/night. A link to book in CII's block will be provided with your conference registration confirmation.

Full Agenda & Conference Registration

Note: You will be asked for your CII Member Type when you register. Your organization's type is **U.S. Asset Owners: Public Pension Funds (Bundled)**.

CII is a nonprofit, nonpartisan association of U.S. asset owners, primarily pension funds, state and local entities charged with investing public assets and endowments and foundations, with combined assets of \$4 trillion. Our associate members include non-U.S. asset owners with more than \$4 trillion in assets, and a range of asset managers with more than \$35 trillion in assets under management. CII members share a commitment to healthy public capital markets and strong corporate governance.

ALTSLA 2023

[SPEAKERS](#) [VENUE](#) [AGENDA](#) [SPONSORS](#) [TICKETS](#)

THE WEST COAST'S PREMIER ALTERNATIVE INVESTMENT CONFERENCE

Insightful commentary from leading industry experts covering alternative investments including hedge funds, private equity, real estate, natural resources, commodities, managed futures, asset allocation strategies, and global economic conditions.

Early bird specials just released!

[Register Here](#)

March 27–29, 2023

THE EVENT

ALTSLA is an educationally focused alternative investment conference designed to bring the professional investor community together for a full day of dialogue and discussion on the most relevant topics facing investors today.

In its first seven years, the ALTSLA conference has sold out well in advance and received glowing reviews from attendees. In 2023, the only way is up! This year's event offers more content, more speakers and more opportunities, but most importantly more content and opportunities for you to engage with the members of your alternatives community.

Led by CFA Society Los Angeles, CAIA and the California Alternative Investment Association–CalALTS, ALTSLA is the annual meeting place and an educational hotspot for those seeking the very latest in alternative investment news and developments. It has become a hub for alternative investment leaders from all over the country and it is has been created with one key purpose: providing YOU with all the essential knowledge that you require to drive your business forward.

ALTSLA is specifically designed to provide relevant, educationally focused content for individuals who manage, advise, allocate to, or oversee alternative investments. This includes:

- Institutional investors
- Financial advisors
- Family offices
- Asset managers
- Investment consultants
- Plan trustees
- Portfolio managers
- Research analysts



Austin will host the **Texas Association of Public Employee Retirement Systems' 2023 Annual Conference on April 2-5**. As part of the Association's mission to help public employees secure retirement, this year's theme is "Strengthen Pension: Together We Can." State-mandated training programs and public employee retirement management sessions are offered at the Annual Conference. Participants will be able to learn about industry trends, gain new skills, and establish new connections during the event.

This year's conference features a networking golf tournament, membership receptions, keynote speakers, a motivational speaker, breakout panel discussions, a member's event, and roundtable discussions during which members will get to discuss pressing topics with peers and experts.

An early-morning golf tournament kicks the conference off on Sunday, April 2. The rest of the day is free until a 5:30 p.m. welcome reception. TEXPERS' pension funds may attend the association's Annual Business Meeting at 3 p.m.

The conference continues Monday, April 3, with general sessions starting at 8 a.m. A members' event will be held that evening at Punch Bowl Social, an Austin "scratch-to-table dining and couture gaming" destination.

General sessions continue from 8:30 a.m. to 4:30 p.m. on day three of the conference, Tuesday, April 4. There will be a reception at 5 p.m. The last day of the conference, Wednesday, April 5, features a half-day of general sessions.

Basic and Advanced Trustee Training

TEXPERS members looking to fulfill state-mandated Basic and Advanced training requirements may do so the day before the Annual Conference starts on Saturday, April 1.

Basic Trustee Training is for new trustees and provides seven hours of training over seven content areas from 8 a.m. to 4 p.m. The registration fee is \$225 for TEXPERS member retirement systems and employee group members and is \$325 for non-member retirement systems.

Advanced Trustee Training is for more seasoned trustees who have taken Basic Trustee Training or another training program covering the same content. Advanced Trustee Training is different every time it is held and offers a deep dive into various topics. The April 1 class runs from 8:30 a.m. to 1:30 p.m.

Alternative Investment Strategies

Tuesday, July 18 - Thursday, July 20, 2023
Wharton West | San Francisco, San Francisco, CA

REGISTER

PROGRAM DETAILS

HOTEL/TRAVEL

IFEBP > Education > Certificate Programs > Wharton > Alternative Investment Strategies

Alternative Investment Strategies is a 2½-day specialty program that provides practical education to help you understand the complexities of alternative investments. Focused on the topics of hedge funds and real estate investing for benefit funds, this advanced-level course will provide you with the tools to make effective investment decisions. The course schedule covers lecture/discussion sessions, problem-solving exercises and group breakout sessions.

TUESDAY | July 18, 2023



WEDNESDAY | July 19, 2023



THURSDAY | July 20, 2023



This program provides very comprehensive, relevant, and valuable knowledge to be gained. Wharton classes are always impressive. Classroom settings make me more attentive, and instructors try to reach out to everyone.

Maria Frica Pangelinan
Trustee
Marianas Public Land Trust
Saipan, Mariana Islands

Objective

This program is for those who have a solid grasp of investment fundamentals and seek to learn more about how their fund could assess the use of alternative investments. Alternative Investment Strategies is designed to build upon participants' existing knowledge base and experience.

While there are no formal prerequisites for this program, those without prior knowledge of fundamental investment theory will most likely find this program too advanced and are encouraged to register for the [Portfolio Concepts and Management program](#).

Who Should Attend

Fiduciaries from both defined benefit and defined contribution plans who represent various industries, sizes and geographic areas (United States and Canada), including

- Multiemployer and public plan trustees
- Administrators and staff
- Human resources and benefits professionals
- Corporate officers and executives
- Finance personnel
- Investment professionals.

Speakers



**Christopher C. Geczy,
Ph.D.**

Academic Director of the
Jacobs Levy Equity
Management Center for
Quantitative Financial Research;
Academic Director of the
Wharton Wealth Management
Initiative
The Wharton School, University
of Pennsylvania



Todd Sinai, Ph.D.

David B. Ford Professor;
Professor of Real Estate;
Professor of Business
Economics and Public Policy;
Chairperson, Real Estate
Department
The Wharton School, University
of Pennsylvania



Continuing Education



Educational sessions at this program may qualify for CEBS continuing professional education (CPE) credit.

Visit www.cebscpe.org for more information.

Continuing Education credit for additional professions and designations MAY be available for attendance at live sessions. You must register for the program and request CE credit at least 60 days prior to the beginning of the program so that the Foundation can seek preapproval from the governing agency.

After a three-year hiatus due to the pandemic, I am pleased to announce that we'll be bringing back our beloved **Annual Public Funds Roundtable in 2023**. The Roundtable will take place at the **Beverly Hilton in Los Angeles on April 25th & 26th**. We'll also be having a welcome reception on the evening of **April 24th**.

- To route yourself to the registration website, please click on the following link: [Click Here](#)

Public Pension Plans, Consultants and Asset Managers will gather from all over North America to discuss the latest challenges and opportunities that they're experiencing in today's volatile and rapidly changing environment. After a decade of relative calm following the global financial crisis and two years of supernormal returns, global markets hit an inflection point in 2022. This gave way to a new reality of supply-side disruptions, geopolitical tensions, and surging inflationary pressures, however, asset investors and managers can still control their own destiny in a tumultuous and uncertain market environment. What impact will this environment have on your structure, performance, and prospects? We'd be absolutely thrilled if you could join us and contribute to the conversation.

To help guide the discussion and formulate our peer-driven agenda, we've called upon our esteemed Advisory Board consisting of senior investment professionals from across the region. A list of our Advisory Board Members can be found below. The agenda and speaking opportunities will be available in January, so please keep an eye out for regular updates.

With this invitation, participation at the event is **complimentary** for you. If you have any questions, I'd be happy to hop on a quick phone call to discuss. I hope to see you in Los Angeles next year and wish you a happy and healthy new year!

2023 Public Funds Roundtable Advisory Board

- Alison Romano, Chief Investment Officer, **San Francisco Employees' Retirement System**
- Anastasia Titarchuk, Chief Investment Officer, **New York State Common Retirement Fund**
- Andrew Junkin, Chief Investment Officer, **Virginia Retirement System**
- Andy Palmer, Chief Investment Officer, **Maryland State Retirement and Pension System**
- Bob Jacksha, Chief Investment Officer, **New Mexico Educational Retirement Board**
- Chris Kautzky, Chief Investment Officer, **Ontario Pension Board**
- David Hunter, Chief Investment Officer, **Texas Municipal Retirement System**
- David Kushner, Chief Investment Officer, **City of Austin Employees' Retirement System**
- David Silber, Chief Investment Officer, **City of Milwaukee Employees' Retirement System**
- Donald Pierce, Chief Investment Officer, **San Bernardino County Employees' Retirement Association**
- Edwin Denson, Chief Investment Officer, **State of Wisconsin Investment Board**
- Farouki Majeed, Chief Investment Officer, **Ohio School Employees Retirement System**
- Glenn Hubert, Interim Chief Investment Officer, **Teachers' Pension Plan Corporation Newfoundland and Labrador**
- Howard Hodel, Acting Chief Investment Officer, **Employees' Retirement System of the State of Hawaii**
- James Davis, Chief Investment Officer, **OPTrust**
- Jeremy Wolfson, Chief Investment Officer, **Los Angeles Water & Power Employees' Retirement Plan**
- Jerome (Jeb) Burns, Chief Investment Officer, **Municipal Employee's Retirement System of Michigan**
- Joe Aguilar, Chief Investment Officer, **Illinois State Treasury**
- Jon Spinney, Chief Investment Officer, **New Brunswick Investment Management Company**

- Katherine Molnar, Chief Investment Officer, **Fairfax County Police Officers' Retirement System**
- Lamar Taylor, Interim Executive Director & Chief Investment Officer, **Florida State Board of Administration**
- Mario Therrien, Head of Investment Funds and External Management, **CDPQ**
- Mark Steed, Chief Investment Officer, **Arizona Public Safety Personnel Retirement Systems**
- Matt Clark, Chief Investment Officer, **South Dakota Investment Council**
- Michael Trotsky, Chief Investment Officer, **Massachusetts Pension Reserves Investment Management Board**
- Molly Murphy, Chief Investment Officer, **Orange County Employees Retirement System**
- Rod June, Chief Investment Officer, **Los Angeles City Employees' Retirement System**
- Ryan Wagner, Chief Investment Officer, **Dallas Police & Fire Pension System**
- Sam Masoudi, Chief Investment Officer, **Wyoming Retirement System**
- Scott Chan, Deputy Chief Investment Officer, **California State Teachers' Retirement System**
- Scott Davis, Chief Investment Officer, **Indiana Public Retirement System**
- Scott McIntosh, Senior Managing Director, Cross-Asset Strategies, **Ontario Municipal Employees Retirement System**
- Steve Davis, Chief Investment Officer, **Sacramento County Employees' Retirement System**
- Tim Price, Chief Investment Officer, **Contra Costa County Employees' Retirement Association**
- TJ Carlson, Chief Investment Officer, **Missouri State Employees' Retirement System**

Portfolio Concepts and Management

Monday, May 1 - Thursday, May 4, 2023
Wharton, Philadelphia, PA



REGISTER

PROGRAM DETAILS

HOTEL/TRAVEL

Portfolio management is a complex task with numerous decisions on how to allocate money in your fund. Portfolio Concepts and Management provides the core principles of portfolio theory and investment performance measurement, offering practical tools and experiences to help you make reliable investment management decisions. This program offers lecture/discussion sessions, problem solving exercises and small-group case study sessions in a 3½-day format. Grow confidence in your ability to evaluate investments with a broad, fundamental understanding of investment products and practices.

Outline

MONDAY May 1, 2023	∨
TUESDAY May 2, 2023	∨
WEDNESDAY May 3, 2023	∨
THURSDAY May 4, 2023	∨

Benefits of Attending

- Learn the fundamental concepts needed for effective portfolio oversight.
- Obtain a solid grounding in the principles of modern portfolio theory.
- Gain practical experience needed to make sound investment management decisions.
- Apply what you have learned in an interactive case study.
- Learn from world-class faculty who are skilled educators and researchers, award-winning authors and leading authorities.

Who Should Attend

This program is intended for those who have little experience with investment-related course work.

Fiduciaries from both defined benefit and defined contribution plans who represent various industries, sizes and geographic areas (United States and Canada), including

- Multiemployer and public plan trustees
- Administrators and fund staff
- Human resources and benefits professionals
- Corporate officers and executives
- Finance personnel
- Investment professionals

Speakers



Gordon M. Bodnar, Ph.D.

Morris W. Offit Professor of International Finance and Director of the International Economics Program, Johns Hopkins School of Advanced International Studies (SAIS);
Lecturer
The Wharton School



Geoffrey Gerber, Ph.D.

President and Chief Investment Officer
TWIN Capital Management, Inc.



Howard Kaufold, PhD

Adjunct Professor of Finance
The Wharton School



A. Craig MacKinlay, Ph.D.

Joseph P. Wargrove Professor of Finance, Academic Director, Jacobs Levy Center
The Wharton School



Speakers



Geoffrey Gerber, Ph.D.
President and Chief Investment
Officer
TWIN Capital Management, Inc.



Howard Kaufold, PhD
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The Wharton School



A. Craig MacKinlay, Ph.D.
Joseph P. Wargrove Professor
of Finance; Academic Director,
Jacobs Levy Center
The Wharton School



Olivia S. Mitchell, Ph.D.
Executive Director, Pension
Research Council and Director,
Boettner Center for Pensions
and Retirement Research
The Wharton School, University
of Pennsylvania

Continuing Education



Educational sessions at this program may qualify for CEBS continuing professional education (CPE) credit. Visit www.cebscpe.org for more information.

Continuing Education credit for additional professions and designations MAY be available for attendance at live sessions. You must register for the program and request CE credit at least 60 days prior to the beginning of the program so that the Foundation can seek preapproval from the governing agency.



Mark Your Calendar: Consortium 2023

Celebrating 20 Years of Leadership, Growth, and Impact

May 23-24, 2023 | New York

We have two exciting announcements!

2023 will mark Consortium's 20th anniversary!

This year, we will recognize 20 years of Consortium, highlight its critical role in driving the diverse and emerging manager industry forward for two decades, and discuss where we hope to see the industry 20 years from now.

We are uniting Consortium and the SEM Conference

We are also excited to announce the combining of GCM Grosvenor's two long-standing conferences, Consortium and the Small and Emerging Managers (SEM) Conference, into **one flagship event: Consortium 2023**.

Consortium 2023 will continue its legacy as a "go-to" conference for institutional investors and consultants seeking education and access to world-class diverse-and women-led firms and small and emerging managers. By connecting these groups and featuring the best-of-the-best content, speakers, and networking opportunities from both conferences, we anticipate a dynamic and impactful event like no other.

Please join us at the reimagined Consortium 2023 -- we look forward to celebrating with you.

Registration will open in February, and we expect a sold-out event!

[Add to calendar](#)

May 23-24, 2023 | New York Hilton Midtown

[Read more](#)

Questions? Contact the GCM Grosvenor Events Team at events@gcmlp.com.

ASSET ALLOCATION COMPARISON

December 31, 2022

	Market Value	% of Total Fund	Allocation Policy	% Difference from Allocation	Prior Period Market Value	Prior Period % of Total Fund
EQUITY						
CHANNING CAPITAL	31,960,937.97	0.90			34,515,287.57	0.96
REDWOOD- SL	27,102,060.69	0.77			30,009,427.63	0.83
SYSTEMATIC	73,117,866.13	2.07			77,288,326.34	2.15
<i>Total Small Cap</i>	132,180,864.79	3.74			141,813,041.54	3.94
SMITH GRAHAM	68,798,813.00	1.95			72,976,318.03	2.03
T. ROWE PRICE	134,082,405.28	3.79			142,241,941.58	3.95
<i>Total Domestic/Enhanced equity</i>	202,881,218.28	5.74			215,218,259.61	5.98
NTGI S&P 500 EQUITY INDEX	57,993,426.70	1.64			61,537,712.67	1.71
<i>Total Index</i>	57,993,426.70	1.64			61,537,712.67	1.71
<i>Total Domestic</i>	393,055,509.77	11.12	12.50	-1.38	418,569,013.82	11.62
ADELANTE CAPITAL	41,122,023.36	1.16			43,362,819.36	1.20
CENTERSQUARE-SL	42,070,067.58	1.19			44,305,223.92	1.23
<i>Total REITS</i>	83,192,090.94	2.35	2.50	-0.15	87,668,043.28	2.43
AEW PARTNERS	38,726,921.00	1.10			38,507,445.00	1.07
BRASA CAPITAL MGMT	9,353,431.00	0.26			8,331,436.00	0.23
HEITMAN	112,234,813.65	3.18			112,234,813.65	3.12
INVESCO	82,345,336.00	2.55			82,345,336.00	2.50
INVESCO - SL	90,108,788.85	2.33			90,108,788.85	2.29
VIRTUS REAL ESTATE CAP	29,124,742.00	0.82			29,124,742.00	0.81
<i>Total Real Estate</i>	361,894,032.50	10.24	7.50	2.74	360,652,561.50	10.01
FAIRVIEW CAPITAL	89,351,093.00	2.53			88,191,700.00	2.45
GROSVENOR GCM - CFG	181,664,209.00	5.14			178,868,235.00	4.97
HAMILTON LANE	109,496,892.00	3.10			106,508,924.00	2.96
<i>Total Private Equity</i>	380,512,194.00	10.77	7.50	3.27	373,568,859.00	10.37
ACADIAN	101,332,568.60	2.87			101,523,321.10	2.82
AQR CAPITAL	112,001,625.48	3.17			112,355,081.33	3.12
AQR CAPITAL MGMT - Russia	691.34	0.00			691.34	0.00
ATIVO	36,149,107.26	1.02			36,415,960.00	1.01
BAILLIE GIFFORD	62,852,484.89	1.78			64,065,243.06	1.78
EARNEST PARTNERS	87,361,460.18	2.47			89,123,393.54	2.47
<i>Total International</i>	399,697,937.75	11.31	12.50	-1.19	403,483,690.37	11.20
ARIEL	105,677,281.77	2.99			107,256,698.89	2.98
WELLINGTON MGMT	117,522,973.49	3.33			120,309,884.43	3.34
<i>Total Global Equity</i>	223,200,255.26	6.31	7.50	-1.19	227,566,583.32	6.32
ACADIAN-LVG	236,305,890.35	6.69			239,937,492.24	6.66
BLACKROCK	229,947,757.51	6.51			234,476,385.89	6.51
<i>Total Global Low Volatility Equity</i>	466,253,647.86	13.19	12.50	0.69	474,413,878.13	13.17
ATLANTIC TRUST	42,646,623.52	1.21			44,931,708.57	1.25
HARVEST FUND	46,579,868.79	1.32			49,106,491.37	1.36
COHEN & STEERS	57,529,562.65	1.63			59,061,669.18	1.64
<i>Total Global Listed Infrastructure</i>	146,756,054.96	4.15	5.00	-0.85	153,099,869.12	4.25
DAVIDSON KEMPNER INST PTRS	45,310,845.00	1.28			45,027,498.00	1.25
HUDSON BAY CAPITAL	45,218,653.00	1.28			45,004,843.00	1.25
<i>Total Marketable Alternatives</i>	90,529,498.00	2.56	2.50	0.06	90,032,341.00	2.50
TOTAL EQUITY	2,545,091,221.04	72.01	70.00	2.01	2,589,054,839.54	71.89
FIXED INCOME						
GARCIA HAMILTON	145,843,377.85	4.13			146,959,914.41	4.08
WESTERN ASSET MANAGEMENT	149,265,702.12	4.22			149,771,844.22	4.16
WELLINGTON-CORE BOND	149,519,889.83	4.23			149,783,981.49	4.16
<i>Total Investment Grade</i>	444,628,969.80	12.58	15.00	-2.42	446,515,740.12	12.40
NEUBERGER BERMAN	165,106,585.36	4.67			164,174,297.45	4.56
<i>Total Opportunistic Credit</i>	165,106,585.36	4.67	5.00	-0.33	164,174,297.45	4.56
BLACKROCK-HY	169,738,432.67	4.80			171,034,222.06	4.75
OAKTREE	174,805,908.88	4.95			176,830,040.51	4.91
<i>Total High Yield</i>	344,544,341.55	9.75	10.00	-0.25	347,864,262.57	9.66
CASH ACCOUNT	35,116,633.02	0.99			53,742,760.47	1.49
<i>Total Short Term</i>	35,116,633.02	0.99	0.00	0.99	53,742,760.47	1.49
TOTAL FIXED INCOME	989,396,529.73	27.99	30.00	-2.01	1,012,297,060.61	28.11

TOTAL FUND \$ 3,534,487,750.77

\$ 3,601,351,900.15

Market Value YE 2021 \$ 4,082,277,584.28

Market Value Variance

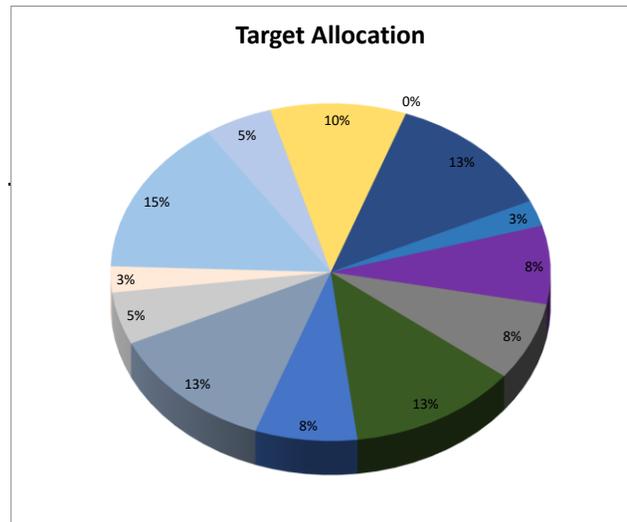
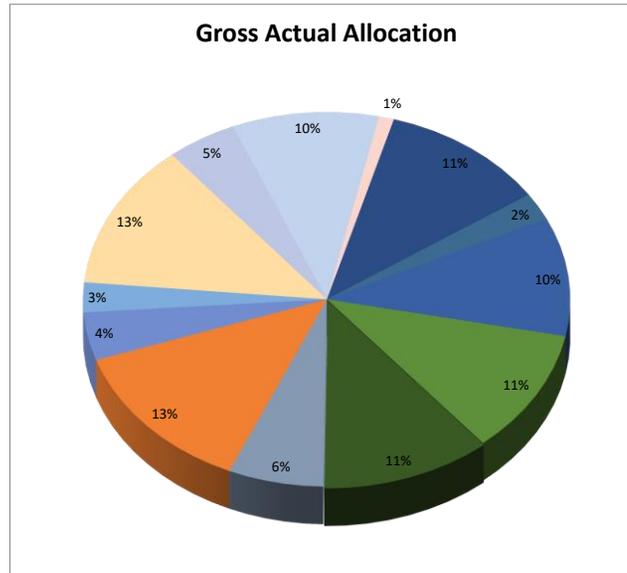
Change from YE 2021: \$ (547,789,833.51)

Change from prior month: \$ (66,864,149.38)

Asset Allocation: Actual vs. Target

December 31, 2022

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	31,960,937.97	0.90		
REDWOOD- SL	27,102,060.69	0.77		
SYSTEMATIC	73,117,866.13	2.07		
<i>Total Small Cap</i>	132,180,864.79	3.74		
SMITH GRAHAM	68,798,813.00	1.95		
T. ROWE PRICE	134,082,405.28	3.79		
<i>Total Domestic/Enhanced equity</i>	202,881,218.28	5.74		
NTGI S&P 500 EQUITY INDEX	57,993,426.70	1.64		
<i>Total Index</i>	57,993,426.70	1.64		
<i>Total Domestic</i>	393,055,509.77	11.12	12.50	-1.38
ADELANTE CAPITAL	41,122,023.36	1.16		
CENTERSQUARE-SL	42,070,067.58	1.19		
<i>Total REITS</i>	83,192,090.94	2.35	2.50	-0.15
AEW PARTNERS	38,726,921.00	1.10		
BRASA CAPITAL MGMT	9,353,431.00	0.26		
HEITMAN	112,234,813.65	3.18		
INVESCO	90,108,788.85	2.55		
INVESCO - SL	82,345,336.00	2.33		
VIRTUS REAL ESTATE CAP	29,124,742.00	0.82		
<i>Total Real Estate</i>	361,894,032.50	10.24	7.50	2.74
FAIRVIEW CAPITAL	89,351,093.00	2.53		
GROSVENOR GCM - CFGI	181,664,209.00	5.14		
HAMILTON LANE	109,496,892.00	3.10		
<i>Total Private Equity</i>	380,512,194.00	10.77	7.50	3.27
ACADIAN	101,332,568.60	2.87		
AQR CAPITAL	112,001,625.48	3.17		
AQR CAPITAL MGMT - Russia	691.34	0.00		
ATIVO	36,149,107.26	1.02		
BAILLIE GIFFORD	62,852,484.89	1.78		
EARNEST PARTNERS	87,361,460.18	2.47		
<i>Total International</i>	399,697,937.75	11.31	12.50	-1.19
ARIEL	105,677,281.77	2.99		
WELLINGTON MGMT	117,522,973.49	3.33		
<i>Total Global Equity</i>	223,200,255.26	6.31	7.50	-1.19
ACADIAN-LVG	236,305,890.35	6.69		
BLACKROCK	229,947,757.51	6.51		
<i>Total Global Low Volatility Equity</i>	466,253,647.86	13.19	12.50	0.69
ATLANTIC TRUST	42,646,623.52	1.21		
HARVEST FUND	46,579,868.79	1.32		
COHEN & STEERS	57,529,562.65	1.63		
<i>Total Global Listed Infrastructure</i>	146,756,054.96	4.15	5.00	-0.85
DAVIDSON KEMPNER INST PTRS	45,310,845.00	1.28		
HUDSON BAY CAPITAL	45,218,653.00	1.28		
<i>Total Marketable Alternatives</i>	90,529,498.00	2.56	2.50	0.06
TOTAL EQUITY	2,545,091,221.04	72.01	70.00	2.01
FIXED INCOME				
GARCIA HAMILTON	145,843,377.85	4.13		
WESTERN ASSET MANAGEMENT	149,265,702.12	4.22		
WELLINGTON-CORE BOND	149,519,889.83	4.23		
<i>Total Investment Grade</i>	444,628,969.80	12.58	15.00	-2.42
NEUBERGER BERMAN	165,106,585.36	4.67		
<i>Total Opportunistic Credit</i>	165,106,585.36	4.67	5.00	-0.33
BLACKROCK-HY	169,738,432.67	4.80		
OAKTREE	174,805,908.88	4.95		
<i>Total High Yield</i>	344,544,341.55	9.75	10.00	-0.25
CASH ACCOUNT	35,116,633.02	0.99		
<i>Total Short Term</i>	35,116,633.02	0.99	0.00	0.99
TOTAL FIXED INCOME	989,396,529.73	27.99	30.00	-2.01
TOTAL FUND	\$ 3,534,487,750.77			



ASSET ALLOCATION COMPARISON

January 31, 2023

	Market Value	% of Total Fund	Allocation Policy	% Difference from Allocation	Prior Period Market Value	Prior Period % of Total Fund
EQUITY						
CHANNING CAPITAL	35,650,244.61	0.98			31,960,937.97	0.90
REDWOOD- SL	28,828,502.62	0.79			27,102,060.69	0.77
SYSTEMATIC	66,166,449.21	1.82			73,117,866.13	2.07
<i>Total Small Cap</i>	130,645,196.44	3.59			132,180,864.79	3.74
SMITH GRAHAM	75,876,342.15	2.08			68,798,813.00	1.95
T. ROWE PRICE	143,064,752.63	3.93			134,082,405.28	3.79
<i>Total Domestic/Enhanced equity</i>	218,941,094.78	6.01			202,881,218.28	5.74
NTGI S&P 500 EQUITY INDEX	61,637,746.84	1.69			57,993,426.70	1.64
<i>Total Index</i>	61,637,746.84	1.69			57,993,426.70	1.64
<i>Total Domestic</i>	411,224,038.06	11.29	12.50	-1.21	393,055,509.77	11.12
ADELANTE CAPITAL	45,496,563.27	1.25			41,122,023.36	1.16
CENTERSQUARE-SL	46,542,827.34	1.28			42,070,067.58	1.19
<i>Total REITS</i>	92,039,390.61	2.53	2.50	0.03	83,192,090.94	2.35
AEW PARTNERS	38,726,921.00	1.06			38,726,921.00	1.10
BRASA CAPITAL MGMT	9,353,431.00	0.26			9,353,431.00	0.26
HEITMAN	105,944,228.89	2.91			112,234,813.65	3.18
INVESCO	82,210,358.00	2.33			82,345,336.00	2.55
INVESCO - SL	84,989,273.11	2.26			90,108,788.85	2.33
VIRTUS REAL ESTATE CAP	29,124,742.00	0.80			29,124,742.00	0.82
<i>Total Real Estate</i>	350,348,954.00	9.62	7.50	2.12	361,894,032.50	10.24
FAIRVIEW CAPITAL	91,510,245.00	2.51			89,351,093.00	2.53
GROSVENOR GCM - CFG	176,497,077.00	4.85			181,664,209.00	5.14
HAMILTON LANE	109,155,382.00	3.00			109,496,892.00	3.10
<i>Total Private Equity</i>	377,162,704.00	10.35	7.50	2.85	380,512,194.00	10.77
ACADIAN	108,234,941.18	2.97			101,332,568.60	2.87
AQR CAPITAL	122,237,512.38	3.36			112,001,625.48	3.17
AQR CAPITAL MGMT - Russia	691.34	0.00			691.34	0.00
ATIVO	30,566,789.75	0.84			36,149,107.26	1.02
BAILLIE GIFFORD	69,900,095.01	1.92			62,852,484.89	1.78
EARNEST PARTNERS	95,804,619.16	2.63			87,361,460.18	2.47
<i>Total International</i>	426,744,648.82	11.72	12.50	-0.78	399,697,937.75	11.31
ARIEL	99,617,063.62	2.73			105,677,281.77	2.99
WELLINGTON MGMT	154,407,714.75	4.24			117,522,973.49	3.33
<i>Total Global Equity</i>	254,024,778.37	6.97	7.50	-0.53	223,200,255.26	6.31
ACADIAN-LVG	241,891,477.69	6.64			236,305,890.35	6.69
BLACKROCK	234,041,484.52	6.43			229,947,757.51	6.51
<i>Total Global Low Volatility Equity</i>	475,932,962.21	13.07	12.50	0.57	466,253,647.86	13.19
ATLANTIC TRUST	45,072,277.15	1.24			42,646,623.52	1.21
HARVEST FUND	48,965,718.01	1.34			46,579,868.79	1.32
COHEN & STEERS	59,559,208.86	1.64			57,529,562.65	1.63
<i>Total Global Listed Infrastructure</i>	153,597,204.02	4.22	5.00	-0.78	146,756,054.96	4.15
DAVIDSON KEMPNER INST PTRS	45,660,637.00	1.25			45,310,845.00	1.28
HUDSON BAY CAPITAL	45,349,597.00	1.24			45,218,653.00	1.28
<i>Total Marketable Alternatives</i>	91,010,234.00	2.50	2.50	0.00	90,529,498.00	2.56
TOTAL EQUITY	2,632,084,914.09	72.26	70.00	2.26	2,545,091,221.04	72.01
FIXED INCOME						
GARCIA HAMILTON	151,469,923.29	4.16			145,843,377.85	4.13
WESTERN ASSET MANAGEMENT	156,831,545.19	4.31			149,265,702.12	4.22
WELLINGTON-CORE BOND	126,471,343.02	3.47			149,519,889.83	4.23
<i>Total Investment Grade</i>	434,772,811.50	11.94	15.00	-3.06	444,628,969.80	12.58
NEUBERGER BERMAN	171,130,564.56	4.70			165,106,585.36	4.67
<i>Total Opportunistic Credit</i>	171,130,564.56	4.70	5.00	-0.30	165,106,585.36	4.67
BLACKROCK-HY	176,166,414.11	4.84			169,738,432.67	4.80
OAKTREE	181,104,852.85	4.97			174,805,908.88	4.95
<i>Total High Yield</i>	357,271,266.96	9.81	10.00	-0.19	344,544,341.55	9.75
CASH ACCOUNT	47,408,558.49	1.30			35,116,633.02	0.99
<i>Total Short Term</i>	47,408,558.49	1.30	0.00	1.30	35,116,633.02	0.99
TOTAL FIXED INCOME	1,010,583,201.51	27.74	30.00	-2.26	989,396,529.73	27.99

TOTAL FUND \$ 3,642,668,115.60

\$ 3,534,487,750.77

Market Value YE 2022 \$ 3,534,487,750.77

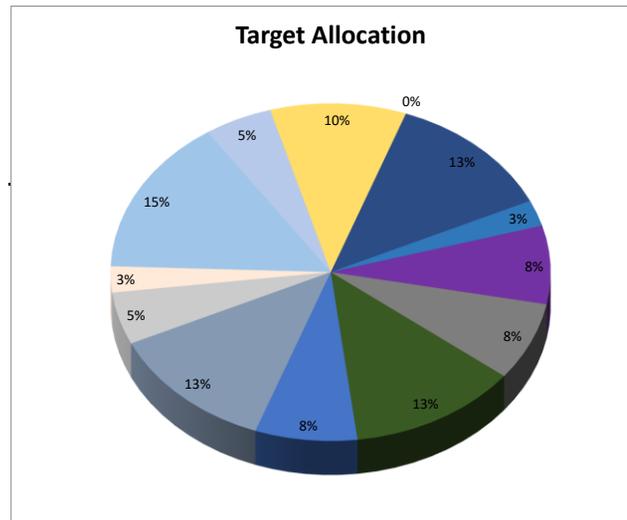
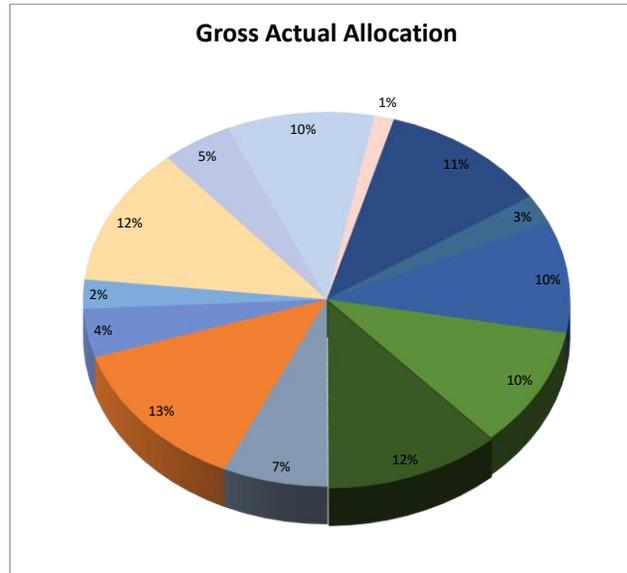
Market Value Variance

Change from YE 2022: \$ 108,180,364.83
 Change from prior month: \$ 108,180,364.83

Asset Allocation: Actual vs. Target

January 31, 2023

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	35,650,244.61	0.98		
REDWOOD- SL	28,828,502.62	0.79		
SYSTEMATIC	66,166,449.21	1.82		
<i>Total Small Cap</i>	130,645,196.44	3.59		
SMITH GRAHAM	75,876,342.15	2.08		
T. ROWE PRICE	143,064,752.63	3.93		
<i>Total Domestic/Enhanced equity</i>	218,941,094.78	6.01		
NTGI S&P 500 EQUITY INDEX	61,637,746.84	1.69		
<i>Total Index</i>	61,637,746.84	1.69		
<i>Total Domestic</i>	411,224,038.06	11.29	12.50	-1.21
ADELANTE CAPITAL	45,496,563.27	1.25		
CENTERSQUARE-SL	46,542,827.34	1.28		
<i>Total REITS</i>	92,039,390.61	2.53	2.50	0.03
AEW PARTNERS	38,726,921.00	1.06		
BRASA CAPITAL MGMT	9,353,431.00	0.26		
HEITMAN	105,944,228.89	2.91		
INVESCO	84,989,273.11	2.33		
INVESCO - SL	82,210,358.00	2.26		
VIRTUS REAL ESTATE CAP	29,124,742.00	0.80		
<i>Total Real Estate</i>	350,348,954.00	9.62	7.50	2.12
FAIRVIEW CAPITAL	91,510,245.00	2.51		
GROSVENOR GCM - CFGI	176,497,077.00	4.85		
HAMILTON LANE	109,155,382.00	3.00		
<i>Total Private Equity</i>	377,162,704.00	10.35	7.50	2.85
ACADIAN	108,234,941.18	2.97		
AQR CAPITAL	122,237,512.38	3.36		
AQR CAPITAL MGMT - Russia	691.34	0.00		
ATIVO	30,566,789.75	0.84		
BAILLIE GIFFORD	69,900,095.01	1.92		
EARNEST PARTNERS	95,804,619.16	2.63		
<i>Total International</i>	426,744,648.82	11.72	12.50	-0.78
ARIEL	99,617,063.62	2.73		
WELLINGTON MGMT	154,407,714.75	4.24		
<i>Total Global Equity</i>	254,024,778.37	6.97	7.50	-0.53
ACADIAN-LVG	241,891,477.69	6.64		
BLACKROCK	234,041,484.52	6.43		
<i>Total Global Low Volatility Equity</i>	475,932,962.21	13.07	12.50	0.57
ATLANTIC TRUST	45,072,277.15	1.24		
HARVEST FUND	48,965,718.01	1.34		
COHEN & STEERS	59,559,208.86	1.64		
<i>Total Global Listed Infrastructure</i>	153,597,204.02	4.22	5.00	-0.78
DAVIDSON KEMPNER INST PTRS	45,660,637.00	1.25		
HUDSON BAY CAPITAL	45,349,597.00	1.24		
<i>Total Marketable Alternatives</i>	91,010,234.00	2.50	2.50	0.00
TOTAL EQUITY	2,632,084,914.09	72.26	70.00	2.26
FIXED INCOME				
GARCIA HAMILTON	151,469,923.29	4.16		
WESTERN ASSET MANAGEMENT	156,831,545.19	4.31		
WELLINGTON-CORE BOND	126,471,343.02	3.47		
<i>Total Investment Grade</i>	434,772,811.50	11.94	15.00	-3.06
NEUBERGER BERMAN	171,130,564.56	4.70		
<i>Total Opportunistic Credit</i>	171,130,564.56	4.70	5.00	-0.30
BLACKROCK-HY	176,166,414.11	4.84		
OAKTREE	181,104,852.85	4.97		
<i>Total High Yield</i>	357,271,266.96	9.81	10.00	-0.19
CASH ACCOUNT	47,408,558.49	1.30		
<i>Total Short Term</i>	47,408,558.49	1.30	0.00	1.30
TOTAL FIXED INCOME	1,010,583,201.51	27.74	30.00	-2.26
TOTAL FUND	\$ 3,642,668,115.60			



DISCUSSION SHEET

Employees' Retirement Fund
Board of Trustees Meeting

February 14, 2023

Issue: First Quarter Cash Rebalance

Attachment: None, informational purposes

Discussion: During the month of January, ERF staff rebalanced fund managers taking \$30 million in cash to pay benefits for the First Quarter of 2023.

Redemptions for First Quarter cash needs were as follows: \$12 million from Systematic Financial Management L.P., \$10 million from Ariel Investments, and \$8 million from Ativo Capital.

Wilshire

Dallas Employees' Retirement Fund

Monthly Investment Summary

Dec-2022

Monthly Index Performance

Periods Ended December 31, 2022

	Performance (%)				
	1 Month	QTD	1 Year	3 Years	5 Years
U.S. Equity					
FT Wilshire 5000 Index	-5.87	7.10	-19.04	7.41	8.99
S&P 500 Index	-5.76	7.56	-18.11	7.66	9.42
Wilshire 4500 Completion Index	-6.27	5.34	-23.86	5.25	6.20
MSCI USA Minimum Volatility Index	-3.73	9.80	-9.19	5.14	8.59
U.S. Equity by Size/Style					
Wilshire U.S. Large-Cap Index	-5.86	7.05	-19.03	7.73	9.60
Wilshire U.S. Large-Cap Growth Index	-7.98	0.75	-29.54	7.11	9.48
Wilshire U.S. Large-Cap Value Index	-3.77	13.75	-5.51	8.11	8.87
Wilshire U.S. Small-Cap Index	-6.11	7.91	-18.65	4.41	5.06
Wilshire U.S. Small-Cap Growth Index	-6.18	7.07	-23.07	3.18	4.70
Wilshire U.S. Small-Cap Value Index	-6.04	8.68	-14.22	5.58	4.95
Wilshire U.S. Micro-Cap Index	-4.21	4.93	-26.07	-0.43	-0.25
Non-U.S. Equity (USD)					
MSCI AC World ex USA (Net)	-0.75	14.28	-16.00	0.07	0.88
MSCI ACWI ex USA Minimum Volatility Index (Net)	0.22	8.35	-12.75	-0.97	1.32
MSCI EAFE (Net)	0.08	17.34	-14.45	0.87	1.54
MSCI Emerging Markets (Net)	-1.41	9.70	-20.09	-2.69	-1.40
MSCI AC World ex USA Small Cap (Net)	0.17	13.31	-19.97	1.07	0.67
U.S. Fixed Income					
Blmbg. U.S. Aggregate Index	-0.45	1.87	-13.01	-2.71	0.02
Blmbg. U.S. Treasury: Long	-1.70	-0.59	-29.26	-7.40	-2.20
Blmbg. U.S. Long Corporate Index	-1.15	5.40	-25.62	-5.72	-0.75
Blmbg. U.S. TIPS Index	-1.02	2.04	-11.85	1.21	2.11
Blmbg. U.S. Credit Index	-0.43	3.44	-15.26	-2.86	0.42
Blmbg. U.S. Corp: High Yield Index	-0.62	4.17	-11.19	0.05	2.31
S&P LSTA Leverage Loan Index	0.44	2.74	-0.60	2.52	3.30

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	-1.92	11.80	-13.15	4.83	5.12	7.97	9/1/2012	223,200,255	6.32
Global Low Volatility Composite	-1.72	9.93	-8.92	1.84	4.40	6.54	7/1/2015	466,253,648	13.20
Domestic Equity Composite	-6.10	7.88	-17.20	7.69	8.04	9.97	1/1/1990	393,055,510	11.13
International Equity Composite	-0.94	13.66	-17.76	1.51	1.17	5.22	1/1/1990	399,671,704	11.31
Fixed Income Composite	-0.42	2.13	-12.78	-2.09	0.38	4.25	10/1/1995	444,615,625	12.59
High Yield Composite	-1.31	3.58	-9.97	0.23	2.18	5.80	1/1/1997	344,567,032	9.75
Credit Opportunities Composite	0.57	5.43	-10.52	-1.13	1.16	3.69	2/1/2016	165,105,357	4.67
Total Real Estate Composite	-1.00	1.59	1.09	8.58	8.34	6.89	1/1/1990	445,086,123	12.60
Global Listed Infrastructure Composite	-4.14	8.32	19.24	5.35	3.08	4.79	1/1/2012	146,756,055	4.15
Private Equity Composite	-0.18	-1.03	14.65	18.17	16.24	14.50	6/1/2009	378,881,037	10.72
Marketable Alternatives Composite	0.55	0.59				0.59	10/1/2022	90,529,498	2.56
Managed Short Term Composite	0.36	0.84	1.46	0.72	1.26	2.73	1/1/1990	35,116,633	0.99
Dallas Total Fund	-1.62	5.68	-7.96	4.08	4.77	8.68	1/1/1985	3,532,838,477	100.00
Policy Index	-2.40	6.08	-12.22	2.87	4.23	9.14			

Asset Allocation & Performance

Domestic Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Systematic Financial Russell 2000 Index	-5.40 -6.49	11.68 6.23	-10.18 -20.44	6.79 3.10	5.25 4.13	10.28 8.39	8/1/2003	73,117,866	18.60
Redwood Investments * Russell 2000 Growth Index	-9.69 -6.42	-1.73 4.13	-36.70 -26.36	3.63 0.65	2.62 3.51	5.02 6.74	10/1/2016	27,102,061	6.90
Channing Capital * Russell 2000 Value Index	-7.40 -6.56	7.37 8.42	-17.41 -14.48	4.75 4.70	3.44 4.13	5.57 6.07	12/1/2013	31,960,938	8.13
Domestic Equity Small Cap Composite	-6.79	7.63	-18.86	5.94	4.42	8.89	6/1/2003	132,180,865	33.63
Smith Graham * Russell Midcap Index	-5.72 -5.40	11.81 9.18	-8.76 -17.32	9.79 5.88	7.74 7.10	7.74 7.10	1/1/2018	68,798,813	17.50
T. Rowe Price S&P 500 Index	-5.74 -5.76	7.01 7.56	-18.39 -18.11	7.87 7.66	9.78 9.42	9.37 8.88	4/1/2006	134,082,405	34.11
Northern Trust S&P 500 (Lending) S&P 500 Index	-5.76 -5.76	6.42 7.56	-18.90 -18.11	7.26 7.66	9.19 9.42	9.94 9.94	1/1/1995	57,993,427	14.75
Domestic Equity Composite FT Wilshire 5000	-6.10 -5.87	7.88 7.10	-17.20 -19.04	7.69 7.41	8.04 8.99	9.97 10.02	1/1/1990	393,055,510	100.00

* Domestic Equity Composite Since Inception benchmark includes S&P 500 until March, 1999.

Asset Allocation & Performance

Real Estate

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management	-5.17	2.46	-27.18	0.62	4.17	8.77	10/1/2001	41,122,023	49.43
Wilshire U.S. Real Estate Securities Index	-5.61	4.09	-26.75	-0.50	3.36	8.89			
CenterSquare	-5.04	4.68	-23.60	1.37		5.86	6/1/2018	42,070,068	50.57
Wilshire U.S. Real Estate Securities Index	-5.61	4.09	-26.75	-0.50		4.29			
REIT Composite	-5.11	3.57	-25.41	1.00	4.48	8.93	10/1/2001	83,192,091	100.00
Wilshire U.S. Real Estate Securities Index	-5.61	4.09	-26.75	-0.50	3.36	8.89			

Private Real Estate Summary

Periods Ended as of December 31, 2022

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Invesco II	82,345,336	65,188,333	65,188,333	12,988,939	Jan-14	6.3%	1.5
Total Direct Private Real Estate	82,345,336	65,188,333	65,188,333	12,988,939	Jan-14	6.3%	1.5

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Heitman America Real Estate Trust	112,234,814	75,000,000	88,210,161	91,636,647	Dec-10	8.1%	2.3
Invesco Core Real Estate USA	90,108,789	75,000,000	75,000,000	92,131,207	Oct-10	11.6%	2.4
Total Core Private Real Estate	202,343,603	150,000,000	163,210,161	183,767,854	Oct-10	10.3%	2.4

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
AEW Partners Real Estate Fund IX	29,441,646	45,000,000	28,703,704	16,806	Mar-21	3.1%	1.0
AEW PIX MM Co-Invest	4,122,474	10,000,000	3,943,396	264,914	Nov-21	14.8%	1.1
AEW PIX Oakland Park Co-Invest	5,162,801	5,000,000	5,000,000	255,918	Feb-22	8.5%	1.1
Virtus Real Estate Capital III	29,124,742	43,281,585	27,369,556	3,714,853	Jan-21	11.7%	1.2
Brasa Real Estate Fund II	9,353,431	20,000,000	9,899,977	546,545	Jul-22	-	1.0
Total Value-Add Private Real Estate	77,205,094	123,281,585	74,916,633	4,799,036	Jan-21	8.5%	1.1

¹ Total Value to Paid-in Capital ("TVPI") multiple calculation = (market value + distributions) / capital called

Private Equity Summary

Periods Ended as of December 31, 2022

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	176,048	25,000,000	22,058,532	31,222,789	Jul-09	13.5%	1.4
Hamilton Lane Secondary Fund III	3,530,350	30,000,000	23,372,292	27,935,183	Nov-12	10.1%	1.3
Hamilton Lane Secondary Fund IV	17,357,356	30,000,000	25,907,343	24,396,684	Mar-17	19.1%	1.6
Hamilton Lane Secondary Fund V	54,360,134	65,000,000	43,128,993	8,244,733	Mar-20	29.5%	1.5
Hamilton Lane Fund VII Composite	15,431,594	50,000,000	45,600,834	54,588,638	Jan-10	6.4%	1.5
Hamilton Lane Fund VIII (Global)	18,635,306	30,000,000	22,270,594	15,820,316	Nov-12	7.8%	1.5
GCM Grosvenor - Partnership, L.P.	28,675,932	75,000,000	93,988,722	131,421,671	Jun-11	14.8%	1.7
GCM Grosvenor - Partnership II, L.P. (2014)	57,587,449	60,000,000	71,165,890	65,838,357	Jul-14	18.6%	1.7
GCM Grosvenor - Partnership II, L.P. (2015)	55,656,539	30,000,000	39,603,845	11,063,155	Dec-15	15.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2017)	31,177,518	30,000,000	29,053,710	7,732,257	Jan-18	19.0%	1.3
GCM Grosvenor - Advance Fund, L.P.	4,718,493	10,000,000	4,337,448	53,279	Jun-21	-	1.1
GCM Grosvenor - Partnership II, L.P. (2022)	2,223,225	20,000,000	2,229,719		May-22	-	1.0
Fairview Capital - Lone Star Fund I	52,210,056	40,000,000	35,813,040	14,373,477	Aug-15	16.3%	1.9
Fairview Capital - Lone Star Fund II	25,312,481	30,000,000	18,985,887	348,563	Dec-18	11.4%	1.4
Fairview Capital - Lone Star Fund III - A	10,517,855	25,000,000	10,893,831	-	Apr-21	-1.2%	1.0
Fairview Capital - Lone Star Fund III - B	158,544	20,000,000	153,762	-	Dec-22	-	1.0
Fairview Capital - Private Markets Fund VI	1,152,157	10,000,000	1,469,595	147,646	Apr-22	-12.0%	0.9
Total Private Equity Composite	378,881,037	580,000,000	490,034,036	393,186,748	Jul-09	14.6%	1.6

Public Market Equivalent (PME) ²

419,259,481

15.6%

Asset Allocation & Performance

International Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	-0.18	12.51	-15.79	4.32	1.97	8.02	4/1/1989	101,337,928	25.36
Custom Benchmark	0.17	13.31	-19.97	1.07	0.67	5.55			
Ativo International *	-0.73	14.49	-19.53	-1.63	0.37	0.37	1/1/2018	36,149,107	9.04
MSCI EAFE (Net)	0.08	17.34	-14.45	0.87	1.54	1.54			
AQR Capital Management	-0.34	14.13	-15.12	-0.90	-0.96	2.69	4/1/2006	111,970,723	28.02
Custom Benchmark	-0.75	14.28	-16.00	0.07	0.88	2.64			
Baillie Gifford	-1.89	14.47	-28.80	-3.42		1.42	4/1/2019	62,852,485	15.73
MSCI AC World ex USA (Net)	-0.75	14.28	-16.00	0.07		2.67			
Earnest Partners	-1.98	13.50	-13.38	3.52		5.39	4/1/2019	87,361,460	21.86
MSCI AC World ex USA (Net)	-0.75	14.28	-16.00	0.07		2.67			
International Equity Composite	-0.94	13.66	-17.76	1.51	1.17	5.22	1/1/1990	399,671,704	100.00
Custom Benchmark	-0.62	14.15	-16.58	0.20	0.85	4.27			

Asset Allocation & Performance

Global Equity

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global *	-1.47	10.73	-4.85	5.05	5.23	5.23	1/1/2018	105,677,282	47.35
MSCI AC World Index (Net)	-3.94	9.76	-18.36	4.00	5.23	5.23			
Wellington	-2.32	12.78	-19.49	4.28	4.73	9.54	9/1/2012	117,522,973	52.65
MSCI AC World Index (Net)	-3.94	9.76	-18.36	4.00	5.23	8.33			
Global Equity Composite	-1.92	11.80	-13.15	4.83	5.12	7.97	9/1/2012	223,200,255	100.00
MSCI AC World Index (Net)	-3.94	9.76	-18.36	4.00	5.23	8.33			

Asset Allocation & Performance

Global Low Volatility

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian Global Low Vol.	-1.51	11.29	-7.78	2.13	4.08	6.39	7/1/2015	236,305,890	50.68
MSCI AC World Index (Net)	-3.94	9.76	-18.36	4.00	5.23	6.82			
MSCI AC World Minimum Volatility Index (Net)	-1.98	8.48	-10.31	1.62	4.57	6.40			
BlackRock Global Low Vol.	-1.93	8.58	-10.06	1.54	4.70	6.67	7/1/2015	229,947,758	49.32
MSCI AC World Minimum Volatility Index (Net)	-1.98	8.48	-10.31	1.62	4.57	6.40			
Global Low Volatility Composite	-1.72	9.93	-8.92	1.84	4.40	6.54	7/1/2015	466,253,648	100.00
MSCI AC World Minimum Volatility Index (Net)	-1.98	8.48	-10.31	1.62	4.57	6.40			

Asset Allocation & Performance

Global Listed Infrastructure

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	-5.09	9.92	28.37	11.68	6.37	6.52	1/1/2012	42,646,624	29.06
Alerian MLP Index	-4.70	10.11	30.92	9.38	4.08	2.24			
Harvest Fund Advisors MLP	-5.14	5.90	32.41	13.75	8.27	6.68	1/1/2012	46,579,869	31.74
Alerian MLP Index	-4.70	10.11	30.92	9.38	4.08	2.24			
C&S Global Listed Infrastructure	-2.59	9.10	-4.51			8.97	11/1/2020	57,529,563	39.20
FTSE Global Core Infrastructure 50/50 (Net)	-2.21	9.01	-4.87			8.52			
Global Listed Infrastructure Composite	-4.14	8.32	19.24	5.35	3.08	4.79	1/1/2012	146,756,055	100.00
Global Listed Infrastructure Benchmark	-4.07	9.99	21.55	3.83	0.88	0.80			

Asset Allocation & Performance

Fixed Income

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Garcia Hamilton *	-0.76	2.14	-10.92	-2.12	0.21	1.68	11/1/2013	145,843,378	32.80
Blmbg. U.S. Aggregate Index	-0.45	1.87	-13.01	-2.71	0.02	1.27			
Western Asset Management	-0.34	2.05				-3.57	7/1/2022	149,252,200	33.57
Blmbg. U.S. Aggregate Index	-0.45	1.87				-2.97			
Wellington Core Bond	-0.17	2.21				-2.93	7/1/2022	149,520,047	33.63
Blmbg. U.S. Aggregate Index	-0.45	1.87				-2.97			
Fixed Income Composite	-0.42	2.13	-12.78	-2.09	0.38	4.25	10/1/1995	444,615,625	100.00
Blmbg. U.S. Aggregate Index	-0.45	1.87	-13.01	-2.71	0.02	4.29			

Asset Allocation & Performance

Opportunistic Credit

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	0.57	5.43	-10.52	-1.13	1.16	3.69	2/1/2016	165,105,357	
Custom Benchmark	0.01	4.96	-9.97	-0.97	1.41	3.94			

Asset Allocation & Performance

High Yield

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	-1.85	3.31	-10.32	0.18	1.85	5.95	2/1/1997	174,805,909	50.73
FTSE High Yield Cash Pay	-0.64	4.12	-10.85	-0.08	2.17	6.08			
BlackRock	-0.74	3.87	-9.62	0.27	2.51	5.36	10/1/2006	169,761,123	49.27
FTSE High Yield Cash Pay	-0.64	4.12	-10.85	-0.08	2.17	5.69			
High Yield Composite	-1.31	3.58	-9.97	0.23	2.18	5.80	1/1/1997	344,567,032	100.00
FTSE High Yield Cash Pay	-0.64	4.12	-10.85	-0.08	2.17	6.09			

Asset Allocation & Performance

Marketable Alternatives

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Davidson Kempner	0.63	0.69				0.69	10/1/2022	45,310,845	50.05
Davidson Kempner Policy	1.02	3.48				3.48			
Value Added	-0.39	-2.79				-2.79			
Hudson Bay Capital	0.48	0.49				0.49	10/1/2022	45,218,653	49.95
Hudson Bay Policy	1.11	1.30				1.30			
Value Added	-0.63	-0.81				-0.81			
Marketable Alternatives Composite	0.55	0.59				0.59	10/1/2022	90,529,498	100.00
Marketable Alternatives Policy	1.06	2.39				2.39			
Value Added	-0.51	-1.80				-1.80			

Asset Allocation & Performance

Cash

Periods Ended December 31, 2022

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.36	0.84	1.46	0.72	1.26	3.07	1/1/1988	35,116,633	100.00
Managed Short Term Composite	0.36	0.84	1.46	0.72	1.26	2.73	1/1/1990	35,116,633	100.00

Wilshire

Dallas Employees' Retirement Fund

Monthly Investment Summary

January 31, 2023

Monthly Index Performance

Periods Ended January 31, 2023

	Performance (%)			
	1 Month	1 Year	3 Years	5 Years
U.S. Equity				
FT Wilshire 5000 Index	6.90	-8.20	9.82	9.33
S&P 500 Index	6.28	-8.22	9.88	9.54
Wilshire 4500 Completion Index	10.35	-7.48	8.89	7.67
MSCI USA Minimum Volatility Index	1.48	-2.07	4.84	8.16
U.S. Equity by Size/Style				
Wilshire U.S. Large-Cap Index	6.57	-8.71	9.94	9.81
Wilshire U.S. Large-Cap Growth Index	9.58	-15.86	9.81	9.95
Wilshire U.S. Large-Cap Value Index	3.74	-0.13	9.82	8.84
Wilshire U.S. Small-Cap Index	10.32	-2.04	8.94	6.63
Wilshire U.S. Small-Cap Growth Index	11.05	-3.65	7.46	6.10
Wilshire U.S. Small-Cap Value Index	9.66	-0.56	10.35	6.71
Wilshire U.S. Micro-Cap Index	9.22	-10.81	3.89	1.34
Non-U.S. Equity (USD)				
MSCI AC World ex USA (Net)	8.11	-5.72	3.64	1.36
MSCI ACWI ex USA Minimum Volatility Index (Net)	3.24	-6.71	0.19	1.27
MSCI EAFE (Net)	8.10	-2.83	4.25	2.13
MSCI Emerging Markets (Net)	7.90	-12.12	1.40	-1.48
MSCI AC World ex USA Small Cap (Net)	7.20	-8.50	4.54	1.10
U.S. Fixed Income				
Blmbg. U.S. Aggregate Index	3.08	-8.36	-2.35	0.86
Blmbg. U.S. Treasury: Long	6.41	-21.47	-7.53	-0.32
Blmbg. U.S. Long Corporate Index	6.90	-15.75	-4.84	0.85
Blmbg. U.S. TIPS Index	1.83	-8.38	1.12	2.66
Blmbg. U.S. Credit Index	3.81	-9.11	-2.39	1.36
Blmbg. U.S. Corp: High Yield Index	3.81	-5.22	1.29	2.96
S&P LSTA Leverage Loan Index	2.73	1.75	3.26	3.66

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	5.78	11.16	-4.56	7.00	5.09	8.49	9/1/2012	226,088,407	6.21
Global Low Volatility Composite	2.08	6.75	-2.60	2.36	4.08	6.75	7/1/2015	475,932,962	13.07
Domestic Equity Composite	7.68	6.01	-5.59	10.91	8.67	10.19	1/1/1990	411,224,038	11.29
International Equity Composite	10.71	18.80	-5.73	5.35	1.72	5.47	1/1/1990	426,743,958	11.72
Fixed Income Composite	3.72	7.64	-7.74	-1.55	1.28	4.38	10/1/1995	462,709,183	12.70
High Yield Composite	3.69	4.05	-4.35	1.53	2.79	5.93	1/1/1997	357,271,267	9.81
Credit Opportunities Composite	3.78	8.48	-5.55	-0.11	1.84	4.17	2/1/2016	171,130,565	4.70
Total Real Estate Composite	2.66	0.36	2.80	8.41	8.64	6.87	1/1/1990	442,388,345	12.14
Global Listed Infrastructure Composite	4.66	3.61	18.38	8.54	2.84	5.19	1/1/2012	153,597,204	4.22
Private Equity Composite	-0.02	-1.37	8.41	17.73	15.75	14.32	6/1/2009	377,162,704	10.35
Marketable Alternatives Composite	0.00	1.12				1.12	10/1/2022	91,010,234	2.50
Managed Short Term Composite	0.31	1.00	1.78	0.78	1.30	2.73	1/1/1990	47,408,558	1.30
Dallas Total Fund	4.21	6.03	-2.38	5.48	4.95	8.76	1/1/1985	3,642,667,425	100.00
Policy Index	4.44	6.59	-5.77	4.49	4.57	9.24			

Asset Allocation & Performance

Domestic Equity

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Systematic Financial	6.94	6.43	1.14	11.01	6.17	10.61	8/1/2003	66,166,449	16.09
Russell 2000 Index	9.75	5.02	-3.38	7.51	5.54	8.87			
Redwood Investments *	6.37	-4.33	-20.11	5.00	3.42	5.98	10/1/2016	28,828,503	7.01
Russell 2000 Growth Index	9.95	4.56	-6.50	4.26	4.68	8.26			
Channing Capital *	11.54	6.99	-4.47	10.27	5.46	6.79	12/1/2013	35,650,245	8.67
Russell 2000 Value Index	9.54	5.48	-0.52	9.94	5.78	7.08			
Domestic Equity Small Cap Composite							6/1/2003	130,645,196	31.77
Smith Graham *	10.29	9.61	4.74	15.27	8.92	9.70	1/1/2018	75,876,342	18.45
Russell Midcap Index	8.30	8.61	-3.33	9.02	8.02	8.67			
T. Rowe Price	6.70	6.10	-8.37	10.08	9.91	9.74	4/1/2006	143,064,753	34.79
S&P 500 Index	6.28	5.76	-8.22	9.88	9.54	9.23			
Northern Trust S&P 500 (Lending)	6.28	5.76	-9.11	9.47	9.31	10.14	1/1/1995	61,637,747	14.99
S&P 500 Index	6.28	5.76	-8.22	9.88	9.54	10.15			
Domestic Equity Composite	7.68	6.01	-5.59	10.91	8.67	10.19	1/1/1990	411,224,038	100.00
FT Wilshire 5000	6.90	5.80	-8.20	9.82	9.33	10.22			

* Domestic Equity Composite Since Inception benchmark includes S&P 500 until March, 1999.

Asset Allocation & Performance

Real Estate

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management	10.64	10.29	-13.11	3.78	7.04	9.25	10/1/2001	45,496,563	49.43
Wilshire U.S. Real Estate Securities Index	11.33	11.20	-12.39	2.88	6.42	9.40			
CenterSquare	10.63	11.50	-9.42	4.39		8.07	6/1/2018	46,542,827	50.57
Wilshire U.S. Real Estate Securities Index	11.33	11.20	-12.39	2.88		6.64			
REIT Composite	10.63	10.90	-11.28	4.09	7.42	9.41	10/1/2001	92,039,391	100.00
Wilshire U.S. Real Estate Securities Index	11.33	11.20	-12.39	2.88	6.42	9.40			

Private Real Estate Summary

Periods Ended as of January 31, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Invesco II	82,210,358	65,188,333	65,188,333	13,123,917	Jan-14	5.8%	1.5
Total Direct Private Real Estate	82,210,358	65,188,333	65,188,333	13,123,917	Jan-14	5.8%	1.5

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
Heitman America Real Estate Trust	105,944,229	75,000,000	88,210,161	92,344,808	Dec-10	7.8%	2.2
Invesco Core Real Estate USA	84,989,273	75,000,000	75,000,000	92,579,251	Oct-10	11.4%	2.4
Total Core Private Real Estate	190,933,502	150,000,000	163,210,161	184,924,059	Oct-10	10.1%	2.3

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	TVPI Multiple
AEW Partners Real Estate Fund IX	29,441,646	45,000,000	28,703,704	16,806	Mar-21	2.8%	1.0
AEW PIX MM Co-Invest	4,122,474	10,000,000	3,943,396	264,914	Nov-21	13.3%	1.1
AEW PIX Oakland Park Co-Invest	5,162,801	5,000,000	5,000,000	255,918	Feb-22	8.5%	1.1
Virtus Real Estate Capital III	29,124,742	43,281,585	27,369,556	3,714,853	Jan-21	11.1%	1.2
Brasa Real Estate Fund II	9,353,431	20,000,000	9,899,977	546,545	Jul-22	-	1.0
Total Value-Add Private Real Estate	77,205,094	123,281,585	74,916,633	4,799,036	Jan-21	7.8%	1.1

¹ Total Value to Paid-in Capital ("TVPI") multiple calculation = (market value + distributions) / capital called

Private Equity Summary

Periods Ended as of January 31, 2023

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	182,152	25,000,000	22,058,532	31,222,789	Jul-09	13.5%	1.4
Hamilton Lane Secondary Fund III	3,530,350	30,000,000	23,372,292	27,935,183	Nov-12	10.1%	1.3
Hamilton Lane Secondary Fund IV	17,357,356	30,000,000	25,907,343	24,396,684	Mar-17	18.8%	1.6
Hamilton Lane Secondary Fund V	54,360,134	65,000,000	43,128,993	8,244,733	Mar-20	27.9%	1.5
Hamilton Lane Fund VII Composite	15,431,594	50,000,000	45,600,834	55,162,854	Jan-10	6.4%	1.5
Hamilton Lane Fund VIII (Global)	18,293,796	30,000,000	22,270,594	15,820,316	Nov-12	7.6%	1.5
GCM Grosvenor - Partnership, L.P.	29,230,882	75,000,000	93,988,722	131,421,671	Jun-11	14.5%	1.7
GCM Grosvenor - Partnership II, L.P. (2014)	51,100,220	60,000,000	71,665,890	66,885,465	Jul-14	17.2%	1.6
GCM Grosvenor - Partnership II, L.P. (2015)	58,164,633	30,000,000	40,494,934	11,065,785	Dec-15	14.2%	1.7
GCM Grosvenor - Partnership II, L.P. (2017)	30,646,144	30,000,000	29,053,710	8,384,101	Jan-18	17.1%	1.3
GCM Grosvenor - Advance Fund, L.P.	5,127,529	10,000,000	4,746,483	53,279	Jun-21	-	1.1
GCM Grosvenor - Partnership II, L.P. (2022)	2,227,669	20,000,000	2,229,719	974	May-22	-20.3%	1.0
Fairview Capital - Lone Star Fund I	51,512,615	40,000,000	35,813,040	14,458,863	Aug-15	15.8%	1.8
Fairview Capital - Lone Star Fund II	28,195,947	30,000,000	20,966,085	496,453	Dec-18	13.1%	1.4
Fairview Capital - Lone Star Fund III - A	10,517,855	25,000,000	10,833,831	-	Apr-21	-4.4%	1.0
Fairview Capital - Lone Star Fund III - B	158,544	20,000,000	266,095	-	Dec-22	-	0.6
Fairview Capital - Private Markets Fund VI	1,125,284	10,000,000	1,469,595	210,556	Apr-22	-9.6%	0.9
Total Private Equity Composite	377,162,704	580,000,000	493,866,692	395,759,706	Jul-09	14.3%	1.6

Public Market Equivalent (PME) ²

451,300,047

16.1%

Asset Allocation & Performance

International Equity

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	6.81	16.17	-3.93	7.75	2.01	8.21	4/1/1989	108,234,941	25.36
Custom Benchmark	7.20	17.64	-8.50	4.54	1.10	5.75			
Ativo International *	6.74	15.21	-9.02	0.96	0.92	1.66	1/1/2018	30,566,790	7.16
MSCI EAFE (Net)	8.10	20.37	-2.83	4.25	2.13	3.08			
AQR Capital Management	8.98	19.75	-4.92	3.08	-0.43	3.21	4/1/2006	122,237,512	28.64
Custom Benchmark	8.11	19.97	-5.72	3.64	1.36	3.11			
Baillie Gifford	11.21	24.63	-12.80	0.59		4.24	4/1/2019	69,900,095	16.38
MSCI AC World ex USA (Net)	8.11	19.97	-5.72	3.64		4.72			
Earnest Partners	19.43	18.08	-2.18	8.09		7.83	4/1/2019	95,804,619	22.45
MSCI AC World ex USA (Net)	8.11	19.97	-5.72	3.64		4.72			
International Equity Composite	10.71	18.80	-5.73	5.35	1.72	5.47	1/1/1990	426,743,958	100.00
Custom Benchmark	7.98	19.64	-6.11	3.75	1.32	4.50			

Asset Allocation & Performance

Global Equity

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global *	3.74	8.78	-2.05	6.60	4.95	5.91	1/1/2018	99,617,064	44.06
MSCI AC World Index (Net)	7.17	10.94	-7.99	6.83	5.53	6.58			
Wellington	7.61	13.30	-6.60	6.94	4.91	10.23	9/1/2012	126,471,343	55.94
MSCI AC World Index (Net)	7.17	10.94	-7.99	6.83	5.53	8.98			
Global Equity Composite	5.78	11.16	-4.56	7.00	5.09	8.49	9/1/2012	226,088,407	100.00
MSCI AC World Index (Net)	7.17	10.94	-7.99	6.83	5.53	8.98			

Asset Allocation & Performance

Global Low Volatility

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian Global Low Vol.	2.36	7.40	-1.44	3.04	3.76	6.64	7/1/2015	241,891,478	50.82
MSCI AC World Index (Net)	7.17	10.94	-7.99	6.83	5.53	7.73			
MSCI AC World Minimum Volatility Index (Net)	1.73	5.95	-4.04	1.73	4.25	6.57			
BlackRock Global Low Vol.	1.78	6.08	-3.78	1.67	4.39	6.85	7/1/2015	234,041,485	49.18
MSCI AC World Minimum Volatility Index (Net)	1.73	5.95	-4.04	1.73	4.25	6.57			
Global Low Volatility Composite	2.08	6.75	-2.60	2.36	4.08	6.75	7/1/2015	475,932,962	100.00
MSCI AC World Minimum Volatility Index (Net)	1.73	5.95	-4.04	1.73	4.25	6.57			

Asset Allocation & Performance

Global Listed Infrastructure
 Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	5.69	2.36	24.16	15.56	6.44	7.01	1/1/2012	45,072,277	29.34
Alerian MLP Index	6.61	2.68	25.66	13.91	4.24	2.81			
Harvest Fund Advisors MLP	5.12	0.25	26.71	17.24	8.00	7.11	1/1/2012	48,965,718	31.88
Alerian MLP Index	6.61	2.68	25.66	13.91	4.24	2.81			
C&S Global Listed Infrastructure	3.53	9.07	2.79			10.31	11/1/2020	59,559,209	38.78
FTSE Global Core Infrastructure 50/50 (Net)	2.60	8.21	0.66			9.43			
Global Listed Infrastructure Composite	4.66	3.61	18.38	8.54	2.84	5.19	1/1/2012	153,597,204	100.00
Global Listed Infrastructure Benchmark	5.61	4.10	19.37	7.79	0.85	1.29			

Asset Allocation & Performance

Fixed Income

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Garcia Hamilton *	3.86	7.87	-6.02	-1.43	1.11	2.08	11/1/2013	151,469,923	32.74
Blmbg. U.S. Aggregate Index	3.08	6.39	-8.36	-2.35	0.86	1.60			
Western Asset Management	3.85	8.05				0.19	7/1/2022	156,831,545	33.89
Blmbg. U.S. Aggregate Index	3.08	6.39				0.02			
Wellington Core Bond	3.46	7.01				0.25	7/1/2022	154,407,715	33.37
Blmbg. U.S. Aggregate Index	3.08	6.39				0.02			
Fixed Income Composite	3.72	7.64	-7.74	-1.55	1.28	4.38	10/1/1995	462,709,183	100.00
Blmbg. U.S. Aggregate Index	3.08	6.39	-8.36	-2.35	0.86	4.39			

Asset Allocation & Performance

Opportunistic Credit

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	3.78	8.48	-5.55	-0.11	1.84	4.17	2/1/2016	171,130,565	
Custom Benchmark	3.27	6.96	-5.38	-0.13	1.96	4.37			

Asset Allocation & Performance

High Yield

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	3.60	3.49	-4.89	1.48	2.46	6.08	2/1/1997	181,104,853	50.69
FTSE High Yield Cash Pay	3.84	4.83	-4.89	1.20	2.78	6.21			
BlackRock	3.79	4.64	-3.79	1.57	3.12	5.57	10/1/2006	176,166,414	49.31
FTSE High Yield Cash Pay	3.84	4.83	-4.89	1.20	2.78	5.90			
High Yield Composite	3.69	4.05	-4.35	1.53	2.79	5.93	1/1/1997	357,271,267	100.00
FTSE High Yield Cash Pay	3.84	4.83	-4.89	1.20	2.78	6.22			

Asset Allocation & Performance

Marketable Alternatives

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Davidson Kempner	0.00	1.47				1.47	10/1/2022	45,660,637	50.17
Davidson Kempner Policy	-0.33	3.14				3.14			
Hudson Bay Capital	0.00	0.78				0.78	10/1/2022	45,349,597	49.83
Hudson Bay Policy	0.17	1.47				1.47			
Marketable Alternatives Composite	0.00	1.12				1.12	10/1/2022	91,010,234	100.00
Marketable Alternatives Policy	-0.08	2.31				2.31			

Asset Allocation & Performance

Cash

Periods Ended January 31, 2023

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.31	1.00	1.78	0.78	1.30	3.07	1/1/1988	47,408,558	100.00
Managed Short Term Composite	0.31	1.00	1.78	0.78	1.30	2.73	1/1/1990	47,408,558	100.00

At A Glance

For period ended December 31, 2022

	2021		2022	
	This Month	YTD	This Month	YTD
Retirements				
Age	12	204	12	195
Service	1	16	1	13
Rule of 78	1	98	4	81
QDRO	0	2	0	4
<i>Total</i>	14	320	17	293
Disability Retirements				
Service	0	0	0	0
Non-service	0	3	0	0
<i>Total</i>	0	3	0	0
Benefits Paid	\$ 25,471,153.37	\$ 296,507,737.46	\$ 25,990,225.59	\$ 317,117,096.45
Refunds	\$ 703,395.87	\$ 10,415,511.00	\$ 934,423.01	\$ 12,117,508.37
Number of refunds	45	641	84	812
*Contributions	\$ 9,370,997.03	\$ 120,571,025.71	\$ 10,134,782.38	\$ 128,638,108.22

	Members on record at month end				
	Retirees & beneficiaries	Disabilities	Actives	Tier A actives	Tier B Actives
Jan	7,658	139	7,313	4,279	3,034
Feb	7,671	138	7,328	4,232	3,096
Mar	7,680	138	7,361	4,192	3,169
April	7,690	135	7,346	4,148	3,198
May	7,706	135	7,385	4,118	3,267
June	7,723	135	7,403	4,064	3,339
July	7,740	135	7,468	4,044	3,424
Aug	7,741	135	7,465	4,008	3,457
Sep	7,747	136	7,479	3,962	3,517
Oct	7,754	135	7,506	3,936	3,570
Nov	7,765	133	7,495	3,900	3,595
Dec	7,760	132	7,520	3,876	3,644

At A Glance

For period ended January 31, 2023

	2022		2023		Members on record at month end					
	This Month	YTD	This Month	YTD	Retirees & beneficiaries	Disabilities	Actives	Tier A actives	Tier B Actives	
Retirements										
Age	17	17	9	9	Jan	7,757	130	7,643	3,850	3,793
Service	0	0	2	2	Feb					
Rule of 78	7	7	8	8	Mar					
QDRO	0	0	1	1	April					
<i>Total</i>	24	24	20	20	May					
					June					
Disability Retirements					July					
Service	0	0	0	0	Aug					
Non-service	0	3	0	0	Sep					
<i>Total</i>	0	3	0	0	Oct					
					Nov					
Benefits Paid	\$ 25,993,522.35	\$ 25,993,522.35	\$ 27,001,773.05	\$ 27,001,773.05	Dec					
Refunds	\$ 860,299.08	\$ 860,299.08	\$ 693,472.08	\$ 693,472.08						
Number of refunds	54	54	48	48						
*Contributions	\$ 9,518,894.72	\$ 9,518,894.72	\$ 10,547,181.23	\$ 10,547,181.23						