

MEKETA

INVESTMENT GROUP

Presentation to the Employees' Retirement Fund of the City of Dallas

February 9, 2021



Employees' Retirement Fund of the City of Dallas

Presenters



Leandro Festino
CFA, CAIA
Managing Principal

- 19 years of industry experience
- Joined the firm in 2003, Shareholder
- Lead consultant on various Texas-based public pension funds for both general and private markets consulting
- Member of Meketa's ESG Investing Committee
- Speaker at numerous industry events
- Member of the Texas Association of Public Employee Retirement Systems (TEXPERS)
- MBA in Finance Boston College; BA in Economics and Mathematics from University of Evansville
- Chair of the Investment Committee; Chair of the Socially Responsible Investment Task Force; Member of Executive and Finance Committees; Trustee, University of San Diego



David Sancewich
Principal

- 20 years of industry experience
- Joined the firm in 2019 as part of the Meketa/PCA Merger, Joined PCA in 2004, Shareholder
- Serves as a consultant to public funds
- Consulting work includes asset allocation, risk budgeting, investment policy and guideline development, portfolio and manager attribution analysis, asset class structural reviews, investment manager searches, and performance monitoring
- Member of Meketa's Marketable Securities Investment Committee
- MBA from Washington State University; BBA in Finance and Business Management from Washington State University



Alli Wallace Stone
CFA
Principal

- 12 years of industry experience
- Joined the firm in 2008, Shareholder
- Lead consultant on various Taft-Hartley, corporate, and public retirement systems
- Co-Chair of Meketa's Emerging and Diverse Manager Committee and member of the Defined Contribution Committee
- Consulting work includes asset allocation, design, investment policy development, portfolio and manager attribution analysis, sourcing MWDDBE managers, manager searches, and performance monitoring
- BS in Economics from the University of Massachusetts



Employees' Retirement Fund of the City of Dallas

Presenters



Christy Fields

Managing Principal

- 30 years of industry experience
- Joined the firm in 2019 as part of the merger between Meketa and Pension Consulting Alliance (PCA), Joined PCA in 1998, Shareholder
- Serves as a consultant and Head of Real Estate Portfolio Solutions
- Member of Meketa's Board of Directors, Private Markets Policy and Research, and Chair of the Diversity Leadership Committee
- MBA from Yale University's School of Management; BA from Cornell University



Stephen McCourt, CFA

Managing Principal, Co-CEO

- 26 years of industry experience
- Joined the firm in 1994, Shareholder
- Co-Chief Executive Officer
- Lead consultant on various public and private pension funds for both general and private markets consulting
- Speaker at numerous industry events
- Member of firm's Board of Directors and Executive, Investment Policy, Private Markets Policy and Global Macro Economic Committees
- ALM in History from Harvard; BS in Economics and Political Science from University of Vermont



Employees' Retirement Fund of the City of Dallas

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Why Meketa?



Employees' Retirement Fund of the City of Dallas

Why Meketa?

42

Years of Experience

219

clients

209

employees

\$1.5 T

In assets

- Public Fund Focus
 - \$1.4 trillion across 80+ clients
- Texas Presence
 - Serving Texas public funds for over a decade
 - 6 public fund, defined benefit Texas clients
- Deep resources to service clients
 - ~2 clients per investment professional
 - ~4 clients per consultant
- Focus on Risk Management & Asset Allocation
- Diversity and Inclusion Action Plan
- One Line of Business
 - All revenue from advisory and consulting services
 - No proprietary products; no conflicts of interest
- Prepared, motivated, and ready to serve

As of December 31, 2020.

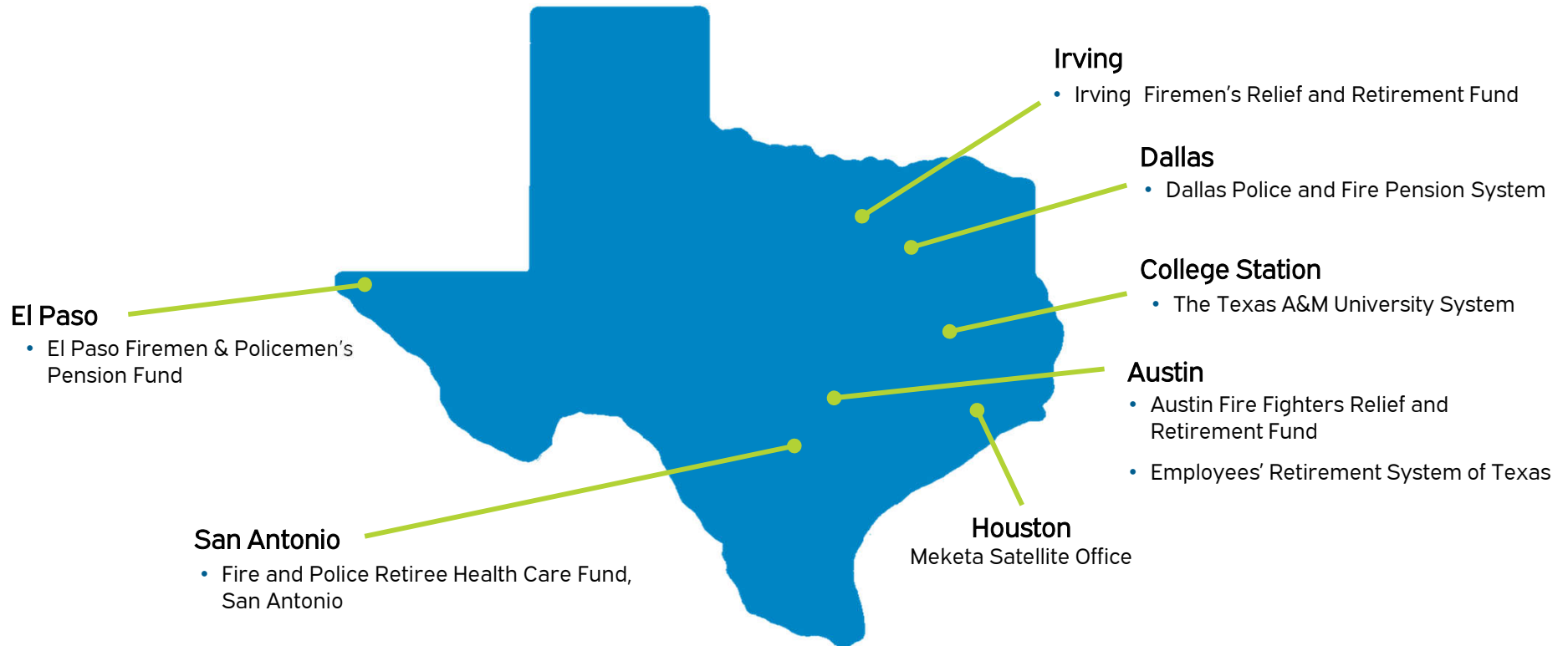


Employees' Retirement Fund of the City of Dallas

Why Meketa?

Texas Experience

- We advise on approximately \$12 billion for 7 clients located in Texas.



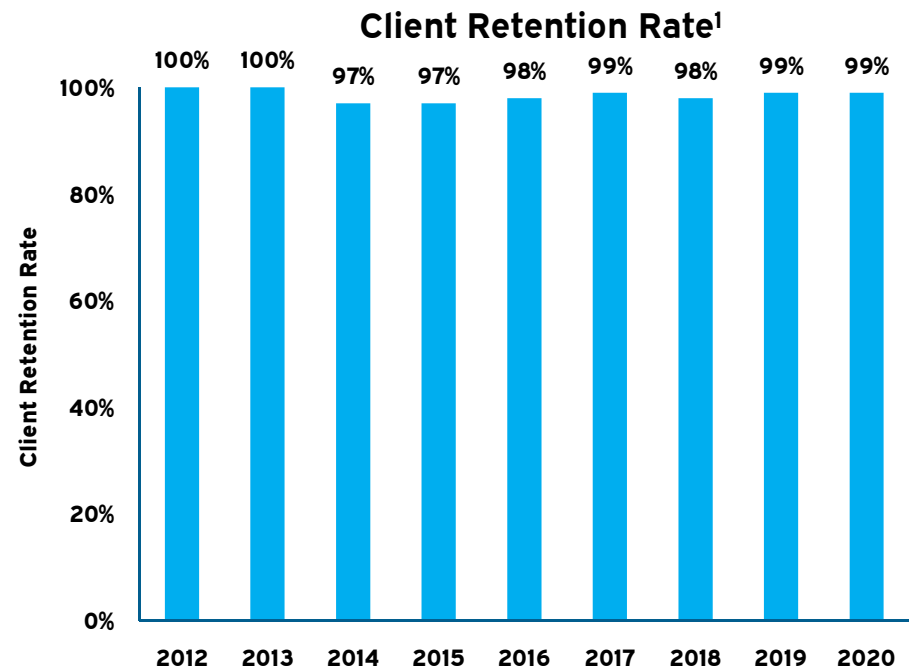
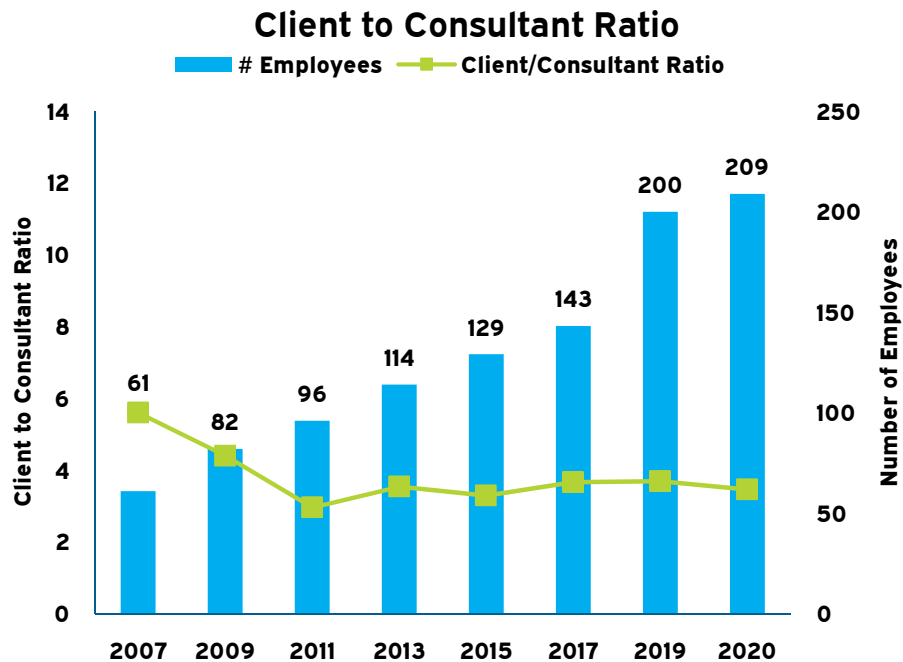


Employees' Retirement Fund of the City of Dallas

Why Meketa?

Deep & Growing Team

- Consistent and controlled growth.
- Staff of 209, including 139 investment professionals, across 7 offices.
- 63 consultants with an average of 12 years with the firm and 22 years in the industry.
- Low client to employee ratio.
- 99% client retention rate¹.



¹Average over the previous five years. Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year end.



Employees' Retirement Fund of the City of Dallas

Why Meketa?

Significant Alternative Investment Experience

Meketa serves as a specialized Alternative Investment Consultant on many client relationships and is long-tenured in the space.

- Private Equity investing since 2000
 - 60+ clients with approximately \$80 billion invested.
- Private Debt investing since 2002
 - 20+ clients with approximately \$5 billion invested.
- Hedge Funds investing since 2002
 - 50+ clients with approximately \$28 billion invested.
- Real Estate investing since 1994
 - 95+ clients with approximately \$50 billion invested.
- Natural Resources investing since 2006
 - 20+ clients with exceeding \$2 billion invested.
- Infrastructure investing since 2006
 - 20+ clients with approximately \$5 billion invested.

Diversity and Inclusion



Employees' Retirement Fund of the City of Dallas

Diversity and Inclusion

We use a mosaic of committees to integrate DE&I practices into all aspects of our business model and investment processes.





Employees' Retirement Fund of the City of Dallas

Diversity and Inclusion

We organize our DE&I efforts around three kinds of engagement

Internal (Meketa) Engagement	Community Engagement	Industry Engagement
<ul style="list-style-type: none">• Diversity and Inclusion Policy and corporate goals• Recruitment and retention initiatives• Training (Overcoming Unconscious Bias, Giving and Receiving Feedback, and Leading Inclusively in 2020)• Committee composition• Formal networking and mentoring• Learning library	<ul style="list-style-type: none">• Support of women, veteran, and ethnically diverse owned businesses in each of the communities where we live and work• Vendor policy• Support of local, regional and national organizations that promote social justice and/or support underserved communities	<ul style="list-style-type: none">• Manager research• Emerging manager programs and outreach• Internships• Active participation, including as founding or early members, in various industry organizations seeking to improve diversity and inclusion in institutional investment



Employees' Retirement Fund of the City of Dallas

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Meketa partners with the following Industry Organizations:

- CEO Act!on for Diversity & Inclusion
- Institutional Investing Diversity Cooperative
- Toigo Foundation
- SEO – Seizing Every Opportunity
- United Nations Principals for Responsible Investment (UNPRI)
- National Association of Securities Professionals (NASP)
- Heartland
- Women in Institutional Investments Network (WIIN)
- Boston Women in Finance (BWIF)
- 100 Women in Finance



Community Stewardship and Social Responsibility

- Corporate diversity.
 - 27 of 60 owners (or 45%) are women or minorities.
 - Approximately 58% of our employees are women or minorities.
 - 44% of our leadership team is comprised of women or minorities.
- As a signatory of the United Nations-backed Principles for Responsible Investment Initiative (PRI), Meketa has joined a network of international investors working together to put the six Principles of Responsible investing into practice.
- Corporate Responsibility Committee.
- Promote an environment that encourages employee volunteerism and charitable giving.
 - Sponsor multiple employee-driven fundraisers.
 - Contribute regularly to a variety of charities.
 - Believe in and support a healthy living environment.
- Green initiatives.



Employees' Retirement Fund of the City of Dallas

Diversity and Inclusion



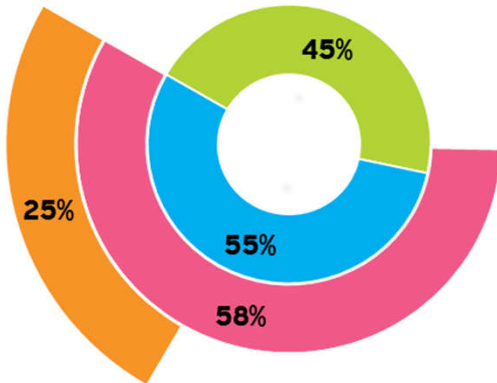
- Prioritizes efforts to hire, retain, and grow the careers of diverse employees.
- Reviews the composition of internal committees to ensure diversity and inclusion.
- Supports important industry organizations such as Toigo, NASP, AAAIM, PEWIN, WIIN, WIP, and PWIM, and expands our support to others that facilitate the advancement of diversity and inclusion goals.
- Expands training to include annual Unconscious Bias Diversity and Inclusion training for all employees.



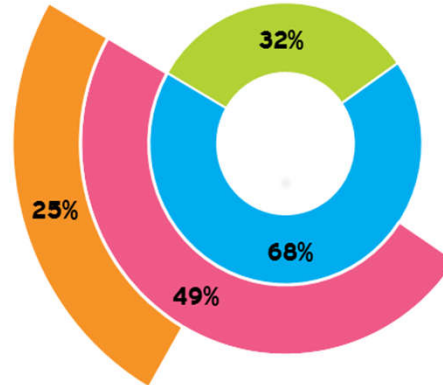
Employees' Retirement Fund of the City of Dallas

Diversity and Inclusion

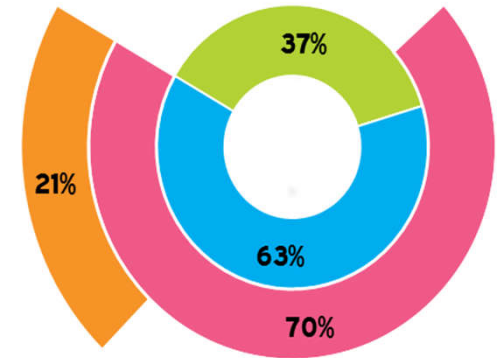
Total Employees



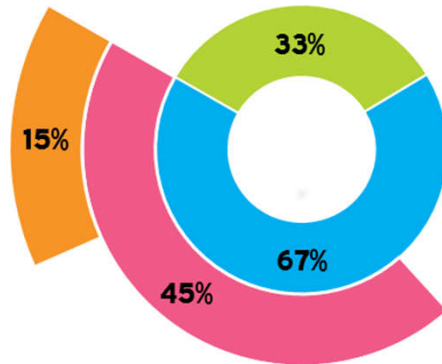
Investment Professionals



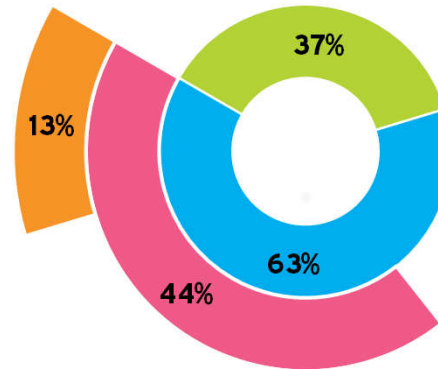
Operations



Shareholders



Senior Management



As of January 31, 2021.



Employees' Retirement Fund of the City of Dallas

Diversity and Inclusion

- Meketa is an equal opportunity employer and affirmatively seeks diversity in the workforce.
- We recruit qualified applicants and advance employees without regard to race, religious creed, color, national origin, ancestry, sex, physical or mental disability, age, marital status, veteran status, sexual orientation, or any other category protected by law.
- Research has confirmed that diversity of thought results in better organizational decision-making. Meketa continues to enhance our firm's focus on diversity.
- Over the last three years, over 50% of the firm's new hires were women or minorities.
- Of the 33 professionals who have become shareholders in the last three years (2018-2020), 16 (or 48%) of the new owners are women or minorities.

Emerging and Diverse Manager Initiatives



Employees' Retirement Fund of the City of Dallas

Emerging and Diverse Manager Initiatives

Diversity and Inclusion Initiatives

- Experience assisting numerous clients in establishing emerging and diverse manager programs as well as targeted investment programs across asset classes.
- Meketa regularly holds Emerging and Diverse Manager Days across our various offices to ensure broadest coverage of emerging and diverse managers across asset classes.
- Below are samples of clients with whom we have worked to initiate new, emerging and diverse manager initiatives:
 - California Public Employees' Retirement System
 - California State Teachers' Retirement System
 - City of Baltimore Employees' & Elected Officials' Retirement Systems
 - City of Hartford Municipal Employees' Retirement Fund
 - Los Angeles County Employees Retirement Association
 - Maryland State Retirement and Pension System
 - New York State Common Retirement Fund



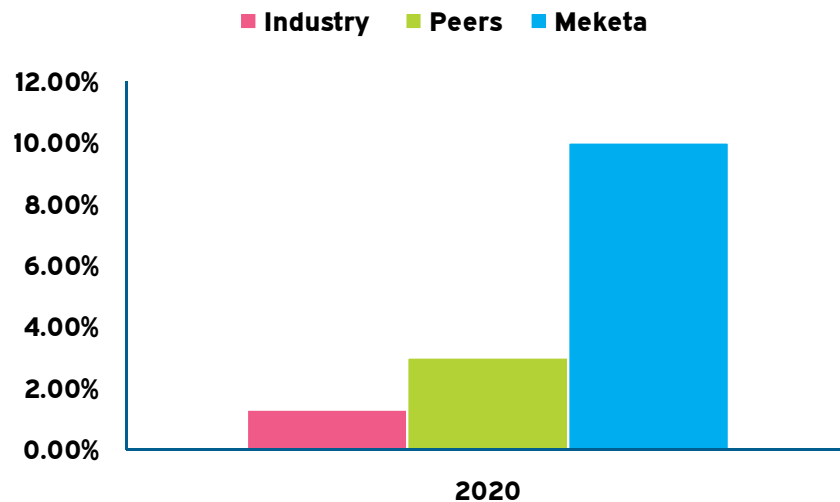
Employees' Retirement Fund of the City of Dallas

Emerging and Diverse Manager Initiatives

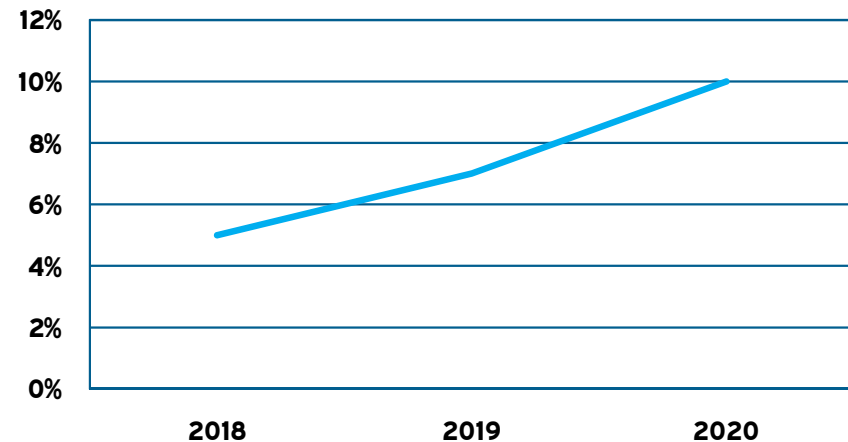
Emerging and Diverse Manager Initiatives*

- As of June 30, 2020, Meketa's clients on average had over 10% of assets invested with MWDBE firms.
- In 2020, MWDBE firms were recommended in over 20% of the searches we conducted on behalf of our clients.
- Over 300 public markets and over 300 private markets emerging and diverse managers are covered in our internal databases.

Diverse Manager Exposures**



Growth of MWDBE Client Exposures



Data as of June 30, 2020.

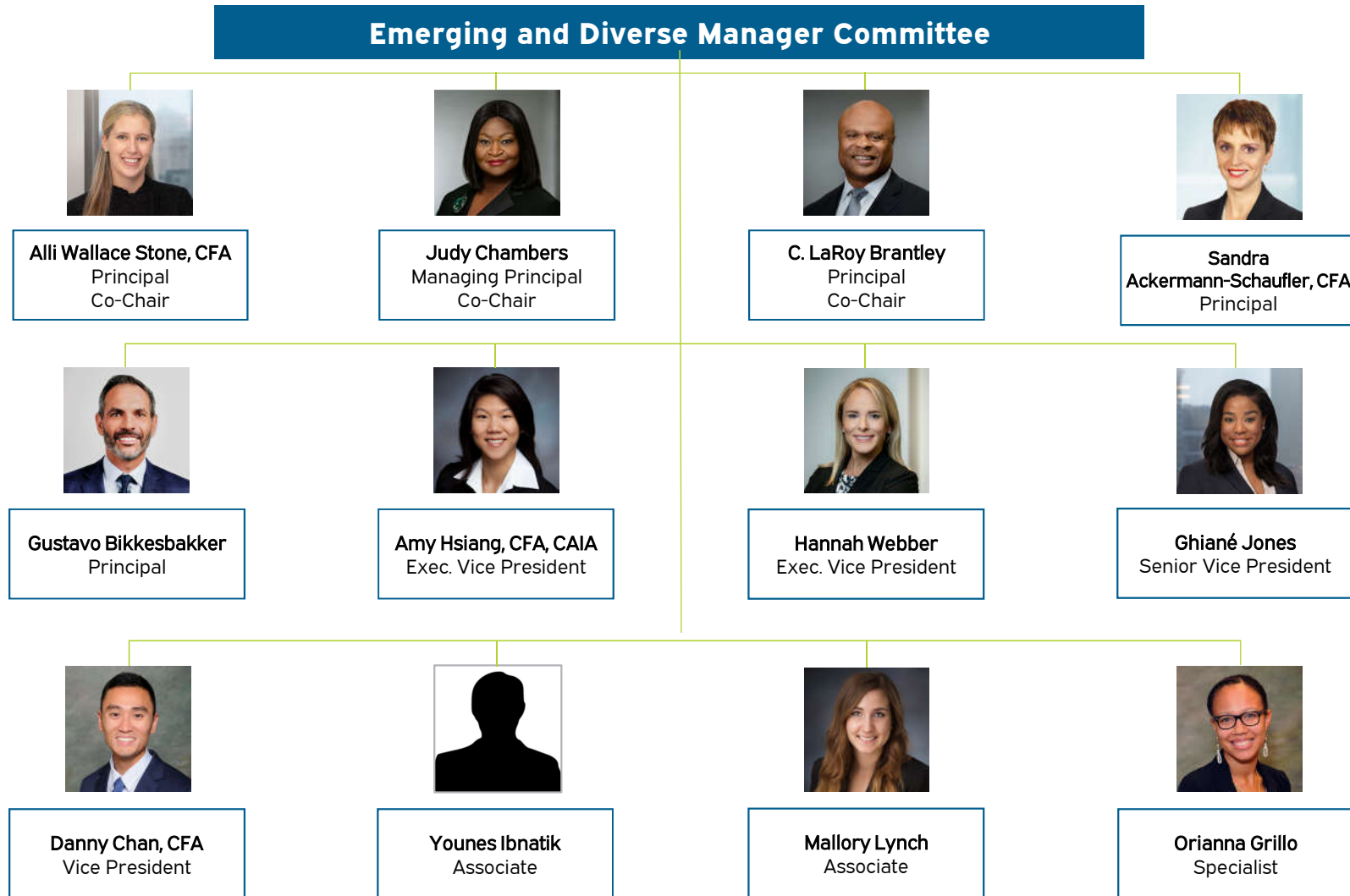
* Assets referenced reflect the assets where Meketa advises on manager selection.

** The peer group represents data presented by two similarly sized consulting firms from the IL Special Committee Pension Meetings in December.



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Emerging and Diverse Manager Initiatives



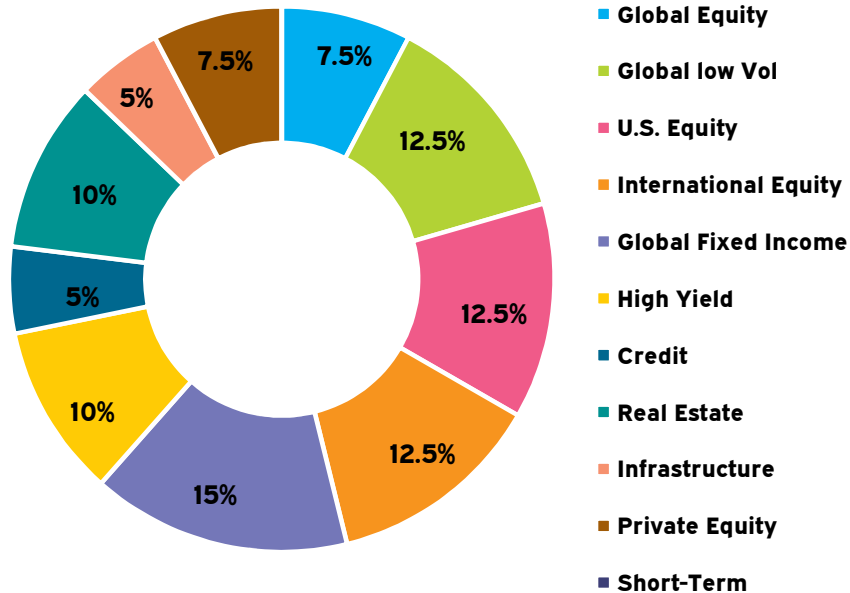
**Employees' Retirement Fund of the City of Dallas
Portfolio Observations**



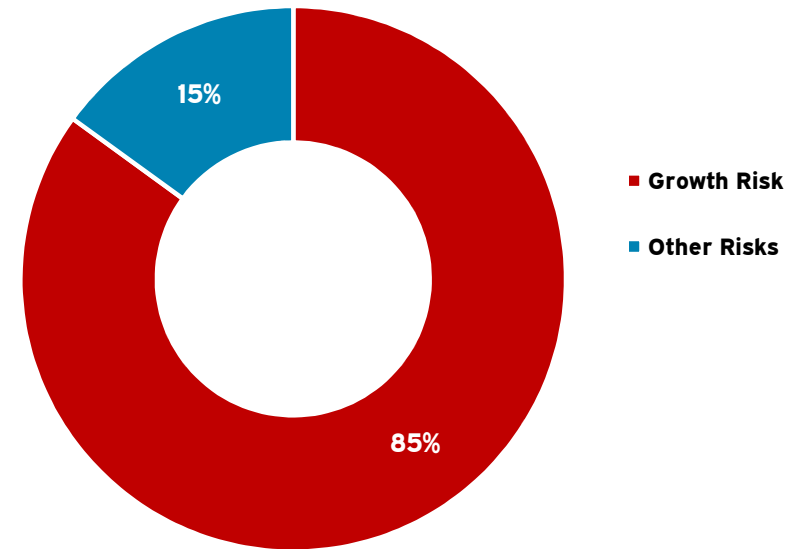
Employees' Retirement Fund of the City of Dallas

ERF Portfolio Observations

ERF Strategic Allocation Policy*



ERF Risk Allocation**



Basic Financial Metrics*	
Net Cash Flow	(5%)
Assumed Rate of Return	7.25%
Funded Ratio	75%

Similar to other mature public funds, ERF faces challenging headwinds. Meketa has a plan to help the Trustees navigate the current landscape.

* Source: November 2020 Targets based on various ERF reports, and most recent actuarial report, available in ERF's website.

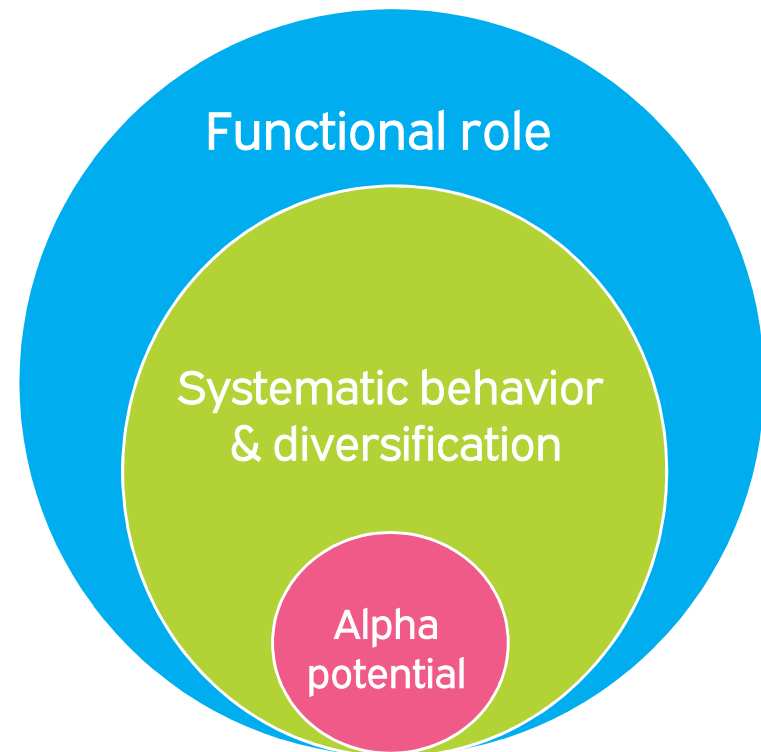
** Estimated based on ERF Target allocations



Structural Considerations

- Key first step: establishing the purpose of a strategic class.
- Assets underwritten (expected) to meet a specified function.
- Strategic classes modeled to reflect custom characteristics.
- Managers: meet class or segment functional requirements first.

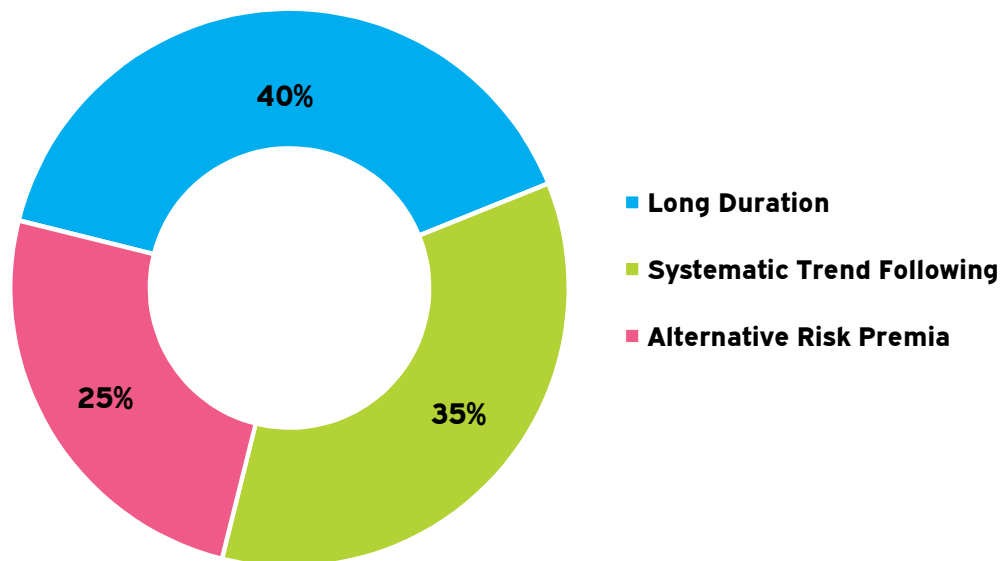
Functional Paradigm





Risk Mitigation Class

- Designed to appreciate during an equity crisis.
- Combination of various strategies such as long duration bonds, trend following, long volatility, alternative risk premia, and gold.
 - Programs are designed individually for each client based on goals and risk tolerance.



- Key premise: flight to default-free US\$ assets during crisis.
- Long duration is first-responder; trend following is second phase.
- Alternative risk premia bolsters returns during non-crisis periods.
- All liquid, readily accessible portfolios (*not* hedge funds).



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ERF Portfolio Observations

Reconfiguring to a Functional Framework

Risk Mitigating Concepts

- Engage a limited number of managers in specific risk-offset strategies.
- Ensure defensive posture posts strong gains in down equity markets.

Within Existing ERF Structure

Reconsider Public Equity Structure

- Consider stream lining your equity portfolio.
- Consider passive management where efficient.

Re-configure Fixed Income

- Consider revising mandates and benchmarks.
- Consider passive management, where efficient.

Revisit Role of Public Real Assets

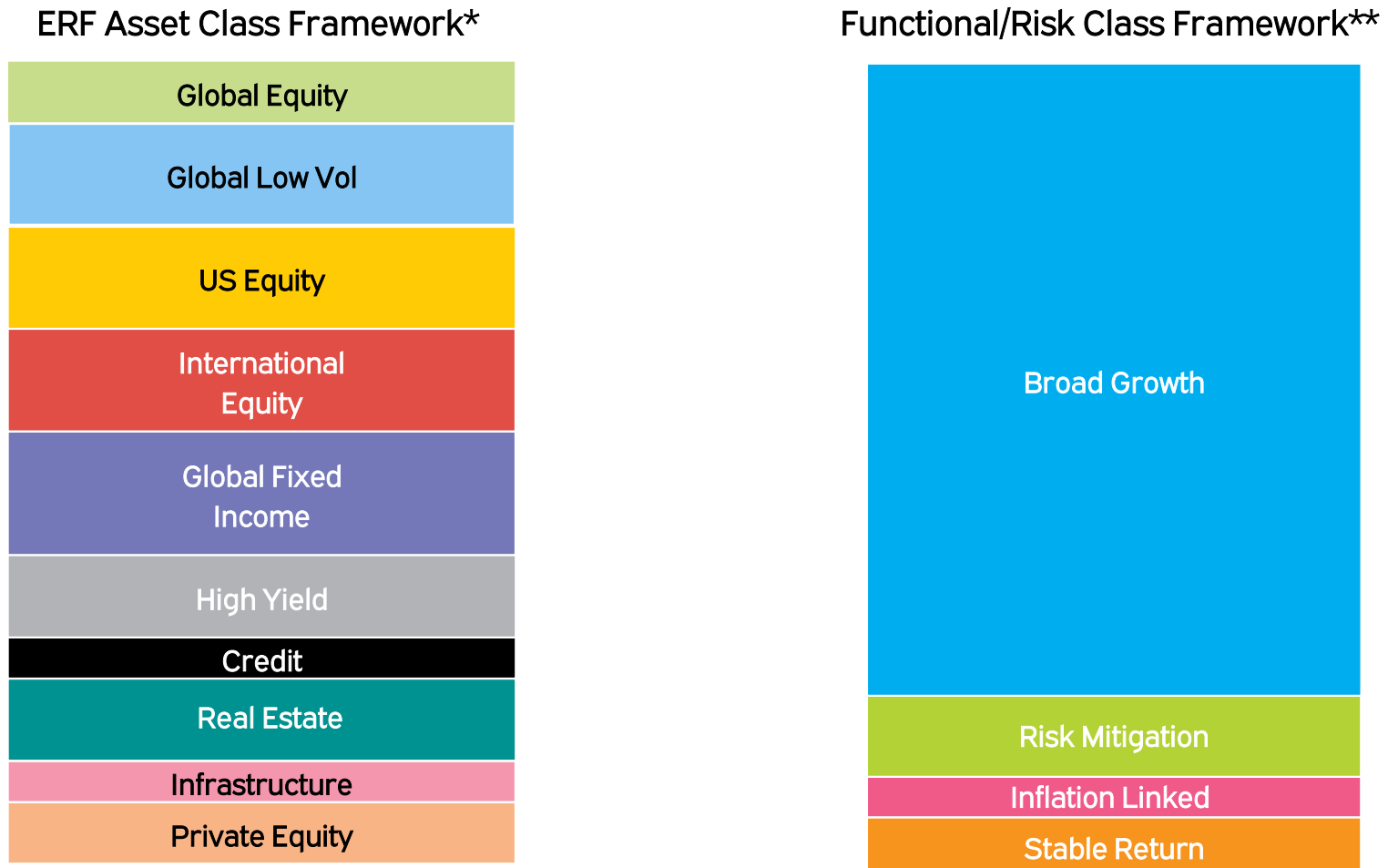
- Revisit role and need of these assets.
- Consider liquidity needs of the Fund.



Employees' Retirement Fund of the City of Dallas

ERF Portfolio Observations

Mapping of ERF Managers to More Risk Consistent Groupings



The new class structure assigns a role/risk to assets within the portfolio.

* Source: November 2020 Targets based on various ERF reports.

** Sample portfolio framework.

New Client Onboarding



Employees' Retirement Fund of the City of Dallas

New Client Onboarding

Onboarding Process

- Proven and Experienced
 - Over 50 Clients* joined us over the past 5 years, and the onboarding process was successful in each case.
 - Experience working with ERF's custodian (20+ clients).
- Robust Process
 - No data is lost / altered.
 - Mimic past reports to ensure data matches.
- Efficiency
 - Meketa assists throughout the conversion process to minimize draining Fund resources and ensure best practices are applied consistently.
- No Disruption
 - Move seamlessly with reporting the first quarter of service with the Fund.
 - We do the heavy lifting for you.

* This does not include the 31 clients that became clients of Meketa as part of the merger between Meketa and PCA on March 15, 2019.



Onboarding Process

- At the inception of a new relationship, we assign:
 - Investment Analyst(s);
 - Performance (Data) Analyst(s);
 - Client Administrator.
- In addition, we have an onboarding specialist that is dedicated to transitioning client accounts:
 - Coordinates all Requests for Information and vendor notifications;
 - Coordinates with the Investment Team the set up of the reporting procedure;
 - Collects and compiles governance documents;
 - Assists in the initial review of the Fund (Policy, Asset Allocation, Initial Fund Review, etc.)
- Benefits to our clients:
 - Efficient project management;
 - Best practices;
 - Client satisfaction and peace of mind.



Employees' Retirement Fund of the City of Dallas

New Client Onboarding

Once a contract is executed, we would propose the following transition timeline:

Week 1 to Week 3	Week 4 to Week 6	Week 7 to Week 9	Week 10 & Beyond
<ul style="list-style-type: none">☑ Gather all critical data for the Fund from current providers (managers, custodian, actuary, etc.)☑ Schedule due diligence meetings with each of the Fund's managers☑ Begin review of investment policy, asset allocation, manager roster and other critical Fund components	<ul style="list-style-type: none">☑ Complete initial investment policy review☑ Complete initial asset allocation review☑ Complete initial manager due diligence meetings☑ Finalize Initial Fund Review	<ul style="list-style-type: none">☑ Present Initial Fund Review to Staff and/or Board☑ Review investment policy with Board☑ Review asset allocation policy with Board☑ Review manager roster analysis with Board	<ul style="list-style-type: none">☑ Begin to implement Board decisions☑ Continue dialogue with Board regarding other components critical to running a successful investment program




Employees' Retirement Fund of the City of Dallas

New Client Onboarding

Comprehensive Initial Fund Review:

- Examines existing Investment Policy Statement, asset allocation policy, and structure.
- Results in a useful guide for discussions and decision-making.
- Provides current status of the funds, recommendations, and priorities.
- Use an iterative process and dialogue among our clients' Staff, Board members, and consultants.



Initial Fund Review
 Sample Client Fund

Summary Initial Fund Review

The table below summarizes Meketa Investment Group's initial review of the Sample Client Fund, including recommendations for action and priorities. Each recommendation is described in detail in the following pages.

Fund Governance	Priority
Investment Policy Statement	
• Review and update Investment Policy Statement	One
Investment Manager Guidelines	
• Review and update Investment Manager Guidelines	One
Crisis Response Plan	
• Establish a Crisis Response Plan	One
Fund Asset Allocation & Portfolio Construction	Priority
Asset Allocation Policy & Portfolio Construction	
• Adopt a new asset allocation and target ranges; revise definitions of asset classes; establish rebalancing policy	One
• Meet with the Fund's investment managers on a regular basis	One
• Replace lower conviction, redundant portfolios	Two
• Consider passive investments for large cap equities (domestic and international)	Two
• Diversify broadly across and within asset classes to reduce idiosyncratic risks	Two
Equity	
• Remain market cap neutral relative to the broad domestic equity index	One
• Eliminate value/growth biases in the domestic and international equity portfolio	One
• Consider adding a dedicated emerging market equity portfolio	Two
• Consider redeeming investments in dedicated long-short equities (Manager)	Two
Fixed Income	
• Consider adding an explicit target allocation to TIPS	One
• Consider adding an allocation to emerging markets debt	Two
• Consider adding a dedicated high yield bond mandate	Three

Priority one areas will be addressed by the Trustees and Meketa Investment Group, and any recommendations implemented by Meketa Investment Group within the next nine months. Priority two areas will be addressed over the next six to eighteen months, and any recommended actions implemented within that timeframe. Priority three areas will be addressed over the next twelve to thirty-six months, and any recommended actions implemented within that timeframe.

BOSTON CHICAGO LONDON MIAMI NEW YORK PORTLAND SAN DIEGO

Summary



Competitive Advantages

- Experienced, stable consulting firm
- Significant Public Fund experience, with Texas presence for over a decade
- Diversity and Inclusion leader
- Customized investment solutions and programs
- Deep resources, fully available to the Fund
- Focus on risk management and asset allocation
- Prepared, available and committed
- Proven new client onboarding process

99% client retention is the ultimate testament of the value our clients receive – strong investment performance, research, advice and client service



Employees' Retirement Fund of the City of Dallas

Summary

Thank you for the opportunity to meet with you and present our capabilities.

*We are excited about the prospect of serving the
Employees' Retirement Fund of the City of Dallas
and believe we would be a great fit for your organization.*

It would be an honor and a privilege to serve as your investment consultant.

Appendix

Public Fund Experience



Employees' Retirement Fund of the City of Dallas

Public Fund Experience

Significant Public Fund Experience

- We were hired by our first public fund client in 1998.
- We currently advise on over \$1.4 trillion for 81 public fund clients throughout the nation.
- Representative public fund clients:

City of Ann Arbor Employees' Retirement System (MI)
Arizona State Retirement System
Arizona State Treasurer's Office
Austin Fire Fighters Relief and Retirement Fund (TX)
Bloomington Fire Department Relief Association Pension Fund, MN
California's Valued Trust
CalOptima (CA)
California Public Employees' Retirement System
California Secure Choice Retirement Savings Plan
California State Teachers' Retirement System
Connecticut Retirement Plans and Trust Funds
Dallas Police & Fire Pension Fund
Denver Employees Retirement Plan
District of Columbia Retirement Board
East Bay Municipal Utility District (CA)
El Paso Firemen & Policemen's Pension Fund (TX)
Employees' Retirement System of the Government of the Virgin Islands
Employees' Retirement System of Texas
Finance Authority of Maine
Fire and Police Retiree Health Care Fund, San Antonio (TX)
Hingham Contributory Retirement System (MA)
Illinois State Board of Investment
Industrial Commission of Arizona
Los Angeles County Employees' Retirement Association (CA)
Town of Lexington Contributory Retirement System (MA)
City of Marlborough Contributory Retirement System (MA)
Maryland State Retirement and Pension System
Massachusetts Housing Finance Agency Employees' Retirement System

Merced County Employees Retirement Association
Minnesota State Board of Investment
Montana University System
Municipal Employees' Retirement System of Louisiana
City of Newport News Employees' Retirement Fund
New Mexico Public Employees Retirement Association
Town of Norwood Retirement System (MA)
Oakland Police and Fire Retirement System (CA)
Orange County Employees Retirement System (CA)
Oregon Growth Board
Oregon Public Employees' Retirement System
Overseas Private Investment Corporation
City of Phoenix Employees' Retirement System (AZ)
Plymouth County Retirement Association (MA)
City of Quincy Retirement System (MA)
Regional Transportation Authority (IL)
Rhode Island Resource Recovery Corporation
City and County of San Francisco Retiree Health Care Trust Fund (CA)
City of San Jose Police and Fire Department (CA)
San Joaquin County Employees' Retirement Association (CA)
San Jose Federated City Employees' Retirement System (CA)
South Carolina Retirement System Investment Commission
State of Hawaii Employees' Retirement System
Town of Wellesley OPEB (MA)
Washington State Investment Board
Worcester Retirement System (MA)
Wyoming Retirement System

As of December 31, 2020.

Consulting Services Overview



Employees' Retirement Fund of the City of Dallas

Consulting Services Overview

Consulting Philosophy

- Provide active leadership.
- Always fiduciaries.
- Proactive in bringing our best ideas.
- Our role:
 - Assisting clients in setting their objectives.
 - Assisting clients in achieving those objectives.
- Provide continuing education on investment topics.
- Provide reports, analysis, and advice that are of the highest quality.
- Maintain open dialogue and communication with our clients.

Investment Philosophy

- Primary focus on strategic advice (i.e., a long-term approach to investing).
- Asset allocation will be the largest determinant of a fund's performance.
- Diversify very broadly to protect against a wide variety of risks.
- Avoid unnecessary risks.
- Be skeptical regarding new investment strategies or fads.
- Create efficient, cost-effective portfolios.
- Focus active management on less efficient asset classes and passive management on more efficient asset classes.
- Use best-in-class managers.
- Minimize fees and other expenses.

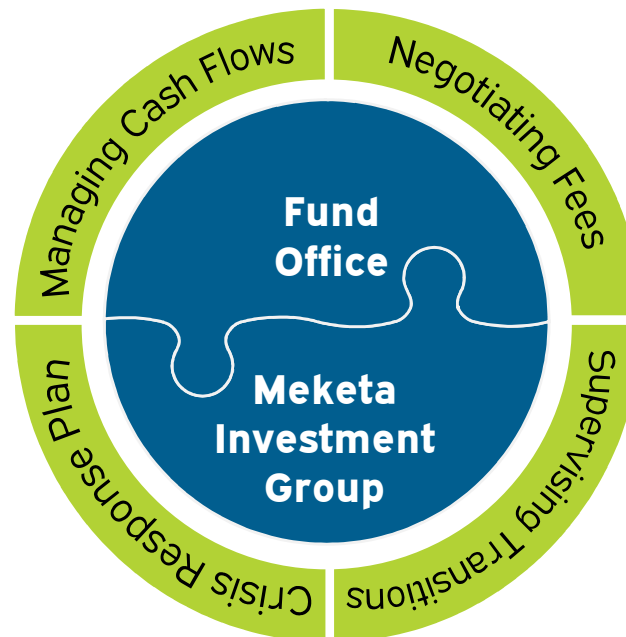


Employees' Retirement Fund of the City of Dallas

Consulting Services Overview

Fund Coordination

- Our services extend beyond providing investment advice.
- We take an active role in the funds we serve and can operate as an extension of the Fund Office.
- We work with the Fund's staff to efficiently implement client decisions.
- We provide these services in an attempt to increase returns by keeping costs low.



Strategic Asset Allocation and Risk Management



Employees' Retirement Fund of the City of Dallas

Strategic Asset Allocation and Risk Management

Our Asset Allocation Philosophy

- Asset allocation decisions likely have the largest impact of any decision you make.
- Asset allocation is the process of accepting and managing both risks and opportunities.
 - Explicitly, it is the decision of how much to invest in distinct asset classes.
 - Implicitly, it is also the determination of how much and what types of risks to accept.
- Hence, asset allocation and risk management are intricately linked.
- A fund's risk cannot be summarized in a single statistic or number.
 - We use many different tools to build a robust picture.
- We customize our work to meet your objectives.



The Mosaic Approach

- The real world risks and objectives faced by investors are complex and often conflicting.
 - These cannot be summarized in a single statistic.
 - Rather, we use a variety of tools to build a more complete picture.
- Our staff has access to the best tools used in the industry, and specialized, proprietary tools developed by our internal team.

Mean-Variance Optimization	Tracking Error vs. Peers
Risk Budgeting	Historical Scenario Analysis
Alpha Assumptions	Factor Stress Tests
Sequence of Returns Impact	Liquidity Stress Tests
Big Data Simulations	Economic Regime Analysis
High Dimension Optimization	Simulation-Based Optimization

- This approach provides a better understanding of how the plan might behave.



Employees' Retirement Fund of the City of Dallas

Strategic Asset Allocation and Risk Management

Dallas ERF & Industry Data*

- Compared to peers, the Fund is in a more precarious situation.
 - It's ratio of actives to retirees is lower than average, and close to 1-to-1.
 - It's net operating cash flow is weaker than average, near -5%.
 - Expected return assumption of 7.75% is higher than that of most peers.
- The Fund's funding ratio, however, is about equal to the average public pension fund.
- Altogether, the circumstances highlighted above indicate that care should be exercised to lower the impact and severity of a drawdown in the Fund's assets.
 - Simply stated, liabilities are projected to increase year over year; yet in an adverse environment the Fund would be forced to liquidate assets to pay benefits, facing a market rebound with a reduced asset base.
- The asset work that follows takes into account these conditions and uses Dallas ERF data throughout to illustrate our quality and depth of work.

*Source: Materials used in January 2020 during the onsite conducted by ERF to Meketa's office.

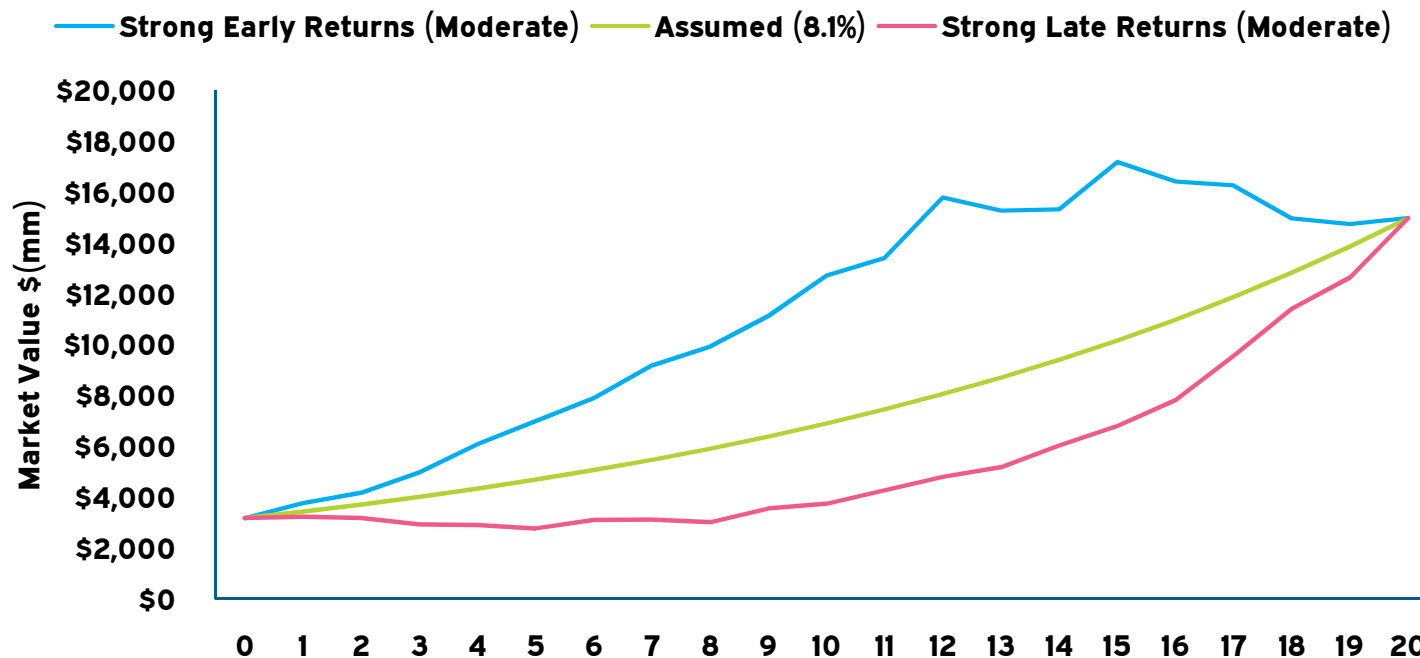


Employees' Retirement Fund of the City of Dallas

Strategic Asset Allocation and Risk Management

Sequence of Returns: Does Not Matter with No Cash Flows*

- This analysis reviews three scenarios that achieve the same twenty-year annualized return of 8.1%, but that take very different paths to arrive at this destination.
- The “Strong Early Returns” and “Strong Late Returns” scenarios produce the same returns but the order in which the returns are generated is reversed. The third scenario assumes 8.1% is earned every year.
- If net cash flow is \$0, the ending value is the same for all three scenarios.



Note: Assumes \$0 cash flow over the 20-year period and the 8.1% expected return of the current policy. Market value, cash flow and liability analysis uses data for the fund throughout this section.

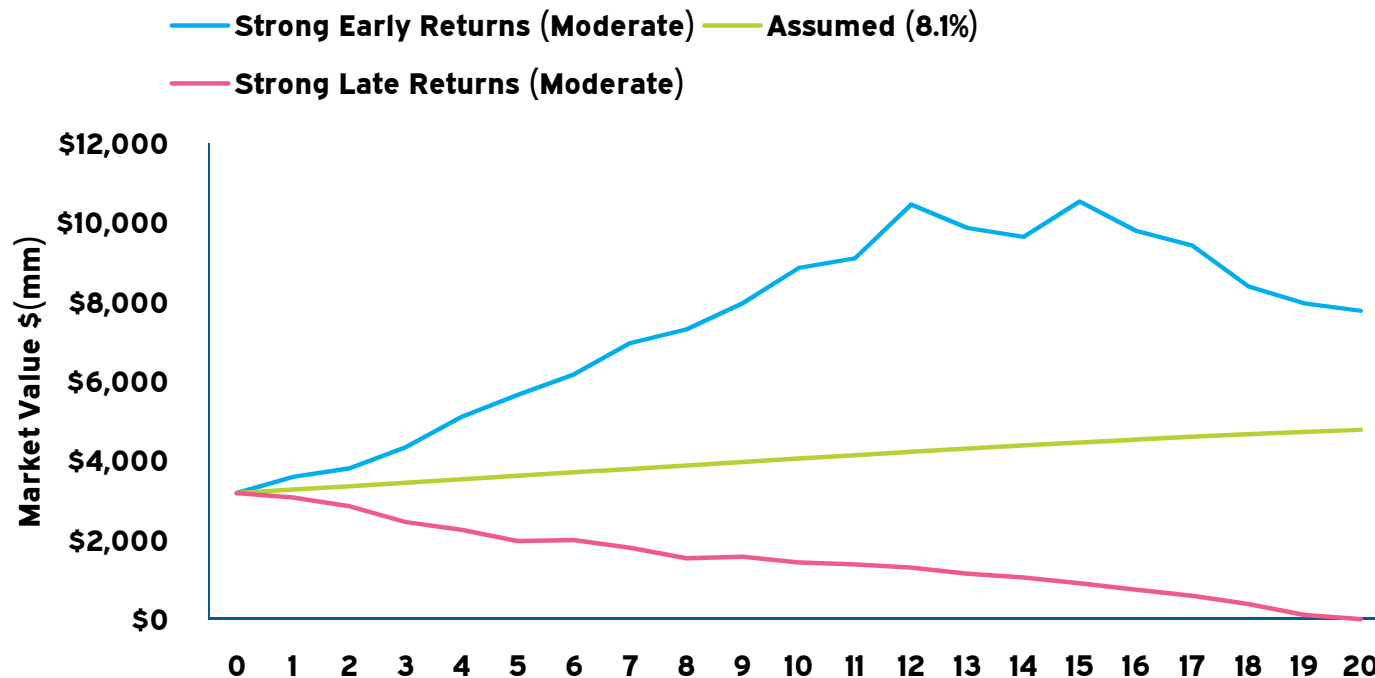


Employees' Retirement Fund of the City of Dallas

Strategic Asset Allocation and Risk Management

Sequence of Returns: Significant Impact with Negative Cash Flows*

- The path, or sequence, of returns matters a great deal for a fund with negative cash flows.
- Negative cash flows make it much harder for a fund to recover after a market downturn.



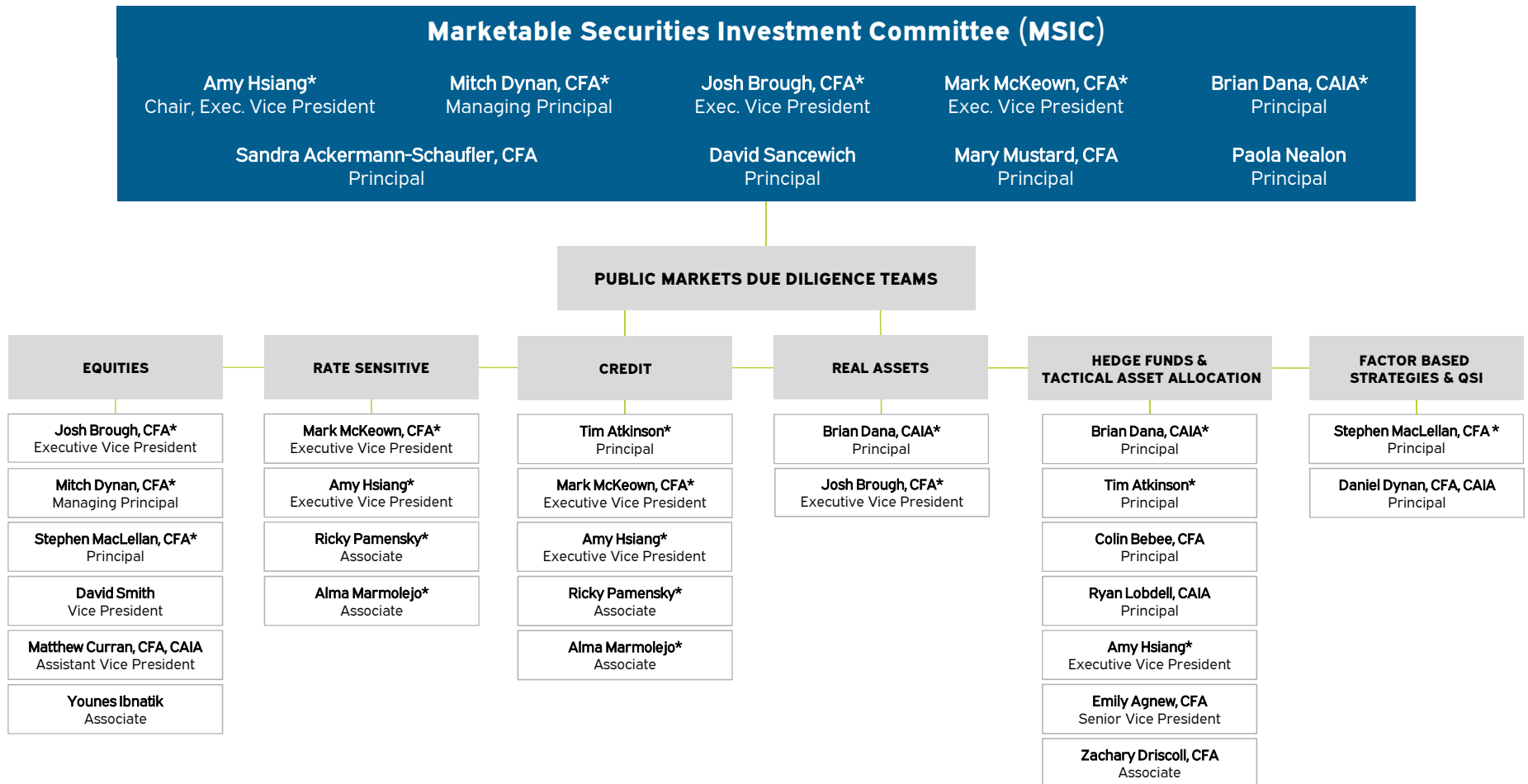
*Source: Materials used in January 2020 during the onsite conducted by ERF to Meketa's office.

Public Markets Manager Research



Employees' Retirement Fund of the City of Dallas

Public Markets Manager Research

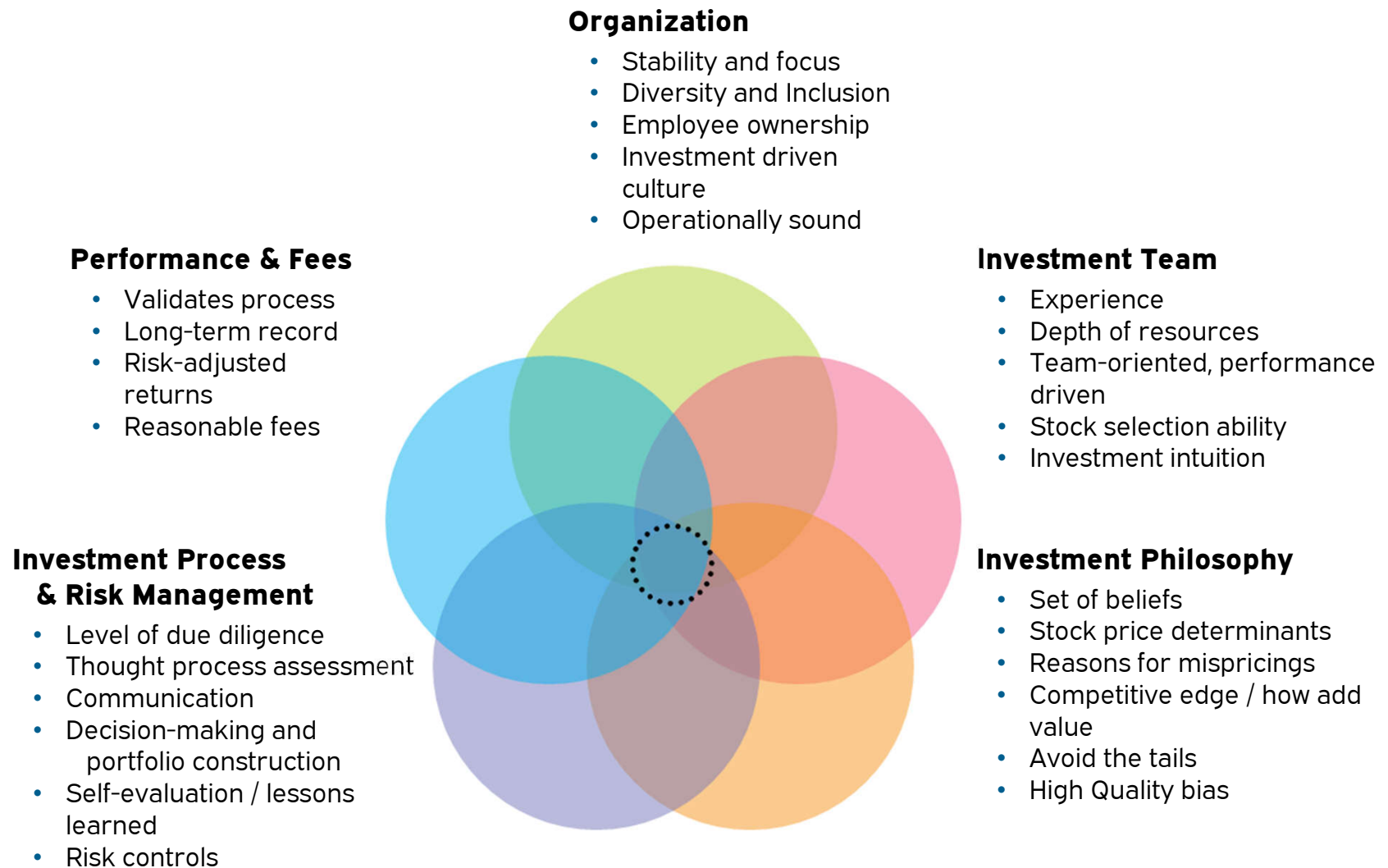


* Denotes an individual with multiple roles among public asset classes.

As of January 2021.



The Five Components of the Meketa Investment Manager Evaluation Process





Employees' Retirement Fund of the City of Dallas

Public Markets Manager Research

Public Markets Research Portal

Beginning in Q3 2020, we will be offering clients direct access to research produced by our manager research team in an easy-to-navigate environment.

Fund Details

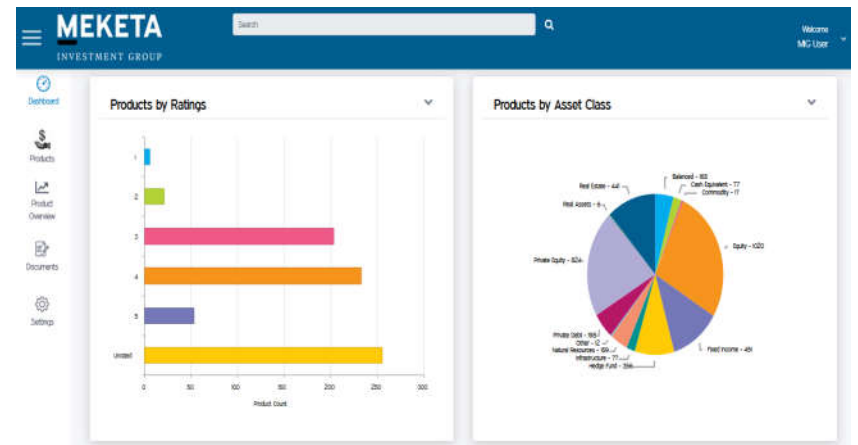
- Summary investment products by asset class and strategy.
- Full research summaries, including investment ratings, ESG ratings, ownership status, benchmarking, and performance.

Proprietary Research

- Meketa-produced investment analyses including full manager due diligence reports.
- Meeting notes written by our research analysts for each meeting taken (when available).
- Operational due diligence, summarizing middle and back-office functions and risks (when available).

Deep Environment

- Notes from over 500 meetings taken each year with investment managers.



The bottom dashboard shows a 'Strategy Description' section and a 'Product Information' table.

Strategy Description:
LSV employs a strictly quantitative process to build a portfolio of approximately 175 to 200 international, emerging market securities with value characteristics. Their proprietary model ranks securities based on fundamental measures of value and indicators of near-term improvement, while attempting to maximize the expected return of the portfolio.

Product Information		Research Overview		Firm Information	
Asset Class	Equity	Product Rating	NA	Location	Chicago, Illinois
Strategy	All Cap	ESG Rating	NA	Website	Http://www.lsvasset.com
Region	Emerging	Emerging Manager	False	Phone	(312) 460-2443
Benchmark	NA	Minority-Owned	False	Fax	(312) 220-9241
Product Assets (MM)	NA	Women-Owned	False	Employees	NA
Liquidity	NA	Manager Analysis	NA	Assets Under Management (MM)	75974.44
Management Fee	NA	MIG Analyst	NA		
Performance Fee	NA	MIG Clients	NA		
	NA	MIG Assets (MM)	NA		
Portfolio Manager	NA				



Meketa's Competitive Advantages and Differentiators

- Experience and size of team.
- Culture of collaboration and mentoring.
- Thoroughness of analysis / Robust vetting process.
- Incorporate ESG into evaluation of investment strategies.
- Integration with Private Markets research (where appropriate).
- Provide clients with access to capacity constrained and “closed” strategies.
- Leverage size and manager relationships to negotiate fee discounts.
- Open architecture / flexibility.
- Research emerging, minority and women-owned managers.
- Favorable manager selection adds value.

Private Markets Advisory Services



Employees' Retirement Fund of the City of Dallas

Private Markets Advisory Services

Heritage

- 20 years of investing in private markets. Recommended over \$30 billion in commitments, including over \$6 billion on a discretionary basis.
- No products or other conflicts of interest.
- Team of 47 professionals in seven offices across North America and Europe.
- Diverse client base; public and private pensions, endowments, foundations, and others. Client assets range from \$100 million to \$300 billion.

Approach

- Cover the full private markets opportunity: Private Equity, Private Debt, Real Estate, Infrastructure, and Natural Resources.
- Broad range of services: discretionary management, strategic & tactical advice, project due diligence, monitoring & reporting, and cash flow coordination.
- Proven philosophy: select top-quartile funds; emphasize value creation, market inefficiencies, and demonstrated manager skill.

Performance:

- Strong performance over multiple market cycles.

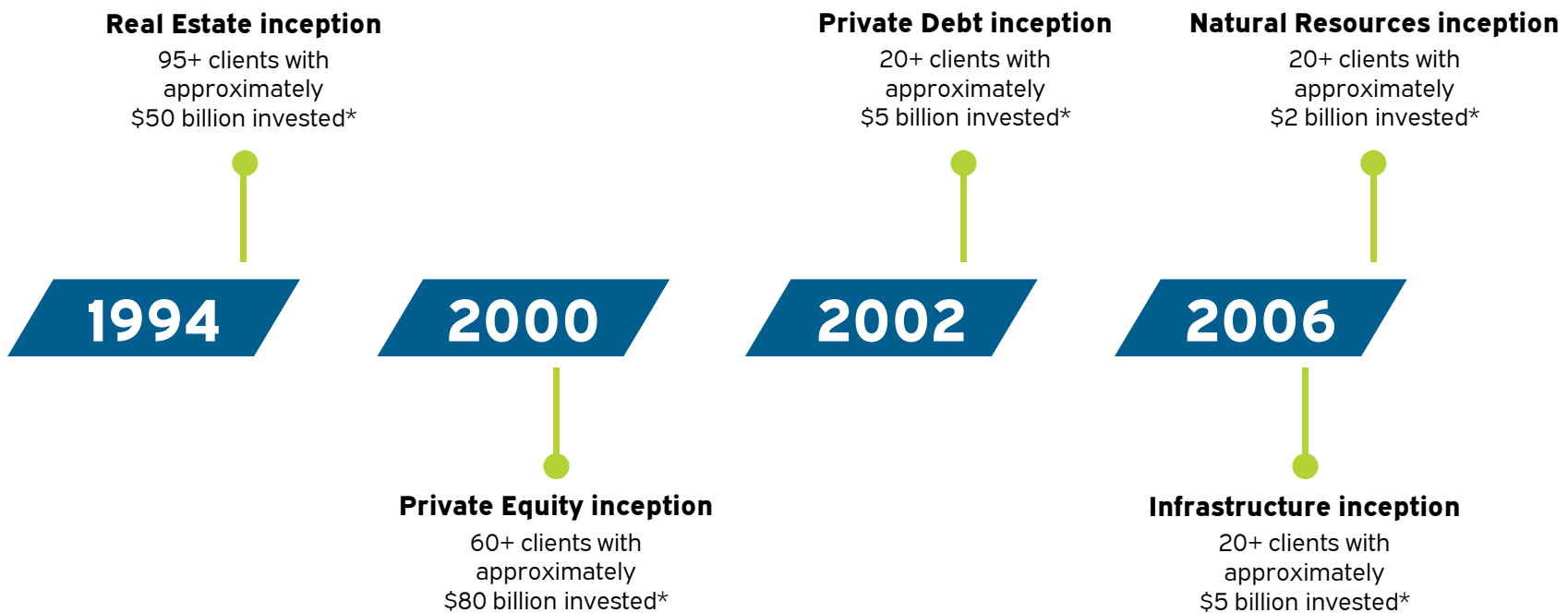
VINTAGES	COMMITTED (\$ MM)	INVESTED (\$ MM)	REALIZED (\$ MM)	TOTAL VALUE (\$ MM)	NET TVPI	NET IRR	CAMBRIDGE IRR	MSCI ACWI TWR
2000 - 2020	8,352.0	6,047.1	4,323.2	8,495.0	1.4X	11.4%	8.6%	4.1%

¹ Meketa performance includes all Discretionary and Discretionary-Effective private equity, private debt, and extracted natural resources investments since inception as of 6/30/2020. Meketa performance figures are net of manager and Meketa fees. Cambridge Associates Index benchmark is the median net IRR for private equity, private debt, and extracted natural resources funds from 2000 through 2020 across all regions as of 6/30/2020. Past performance is not indicative of future results.



Significant Private Markets Expertise

We have been evaluating Private Markets strategies since 1999. We serve as a specialized Private Markets Advisor on many client relationships and are long-tenured in the space.



* As of December 31, 2020.



Meketa's Competitive Advantages – Private Markets

- Oversee over \$100 billion in private market assets
- Large team of focused private market investment professionals
- Proactive sourcing and robust pipeline
- Deep and broad research practice
- Quality and thorough due diligence
- Strong performance track record
- No conflicts, no products



Employees' Retirement Fund of the City of Dallas

Private Markets Advisory Services: Private Markets Research Organization

Private Markets Policy Committee

John Haggerty, CFA*
Managing Principal

Stephen McCourt, CFA
Managing Principal

Peter Woolley, CFA, CLU, ChFC
Managing Principal

Frank Benham, CFA, CAIA
Managing Principal

Judy Chambers*
Managing Principal

Christy Fields*
Managing Principal

Alan Spatrick, CFA
Managing Principal

Jess Downer, CFA*
Principal

PRIVATE MARKETS DUE DILIGENCE TEAMS

PRIVATE EQUITY

Todd Silverman, CFA, CAIA*
Principal

Judy Chambers*
Managing Principal

Molly LeStage*
Principal

John Haggerty, CFA*
Managing Principal

Steven Hartt, CAIA*
Principal

Jess Downer, CFA*
Principal

Tad Fergusson, CFA*
Managing Principal

Timothy Atkinson*
Principal

Gustavo Bikkesbakker
Principal

Ethan Samson, JD
Principal

Jed Constantino*
Vice President

Danny Chan, CFA*
Vice President

Luke Riela, CFA*
Vice President

Andrew Gilboard*
Assistant Vice President

Aleem Naqvi, CFA*
Assistant Vice President

PRIVATE DEBT

Timothy Atkinson*
Principal

Mary Bates
Principal

Todd Silverman, CFA, CAIA*
Principal

Jed Constantino*
Vice President

Molly LeStage*
Principal

John Haggerty, CFA*
Managing Principal

Tad Fergusson, CFA*
Managing Principal

Luke Riela, CFA*
Vice President

Andrew Gilboard*
Assistant Vice President

REAL ASSETS

(Infrastructure and Natural Resources)

Lisa Bacon, CAIA
Principal

Gerald Chew, CAIA
Principal

Judy Chambers*
Managing Principal

Adam Toczylowski, CFA
Senior Vice President

Danny Chan, CFA*
Vice President

Steven Hartt, CAIA*
Principal

John Haggerty, CFA*
Managing Principal

Jed Constantino*
Vice President

Luke Riela, CFA*
Vice President

Aleem Naqvi, CFA*
Assistant Vice President

REAL ESTATE

Christy Fields
Managing Principal

David Glickman
Executive Vice President

Peter King
Executive Vice President

Karen Reeves
Senior Vice President

Esther Lho
Vice President

Derek Proctor
Vice President

Abigail Fischer
Associate

Jess Downer, CFA*
Principal

Steve Hartt, CAIA*
Principal

John Haggerty, CFA*
Managing Principal

INVESTMENT ASSOCIATES

Investment Associates
(6 Professionals)

LEGAL

Inside Counsel
(2 Professionals)
+
Outside Counsel

OPERATIONS & ADMINISTRATION

Operations
(7 Professionals)

Administration
(4 Professional)

TECHNOLOGY & DEVELOPMENT

IT Ops / Net Infrastructure
(7 professionals)
Investment Software
& Support
(4 Professionals)

* Denotes an individual with multiple roles among asset classes.

As of January 2021.

Contact Information



Employees' Retirement Fund of the City of Dallas

Contact Information

Meketa Investment Group

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Westwood, MA 02090

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Portland, OR 97210

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Suite 110
Carlsbad, CA 92008

Tel: (760) 795-3450

Chicago

One E Wacker Drive
Suite 1210
Chicago, IL 60601

Tel: (312) 474-0900

Miami

5200 Blue Lagoon Drive
Suite 120
Miami, FL 33126

Tel: (305) 341-2900

New York

48 Wall Street
11th Floor
New York, NY 10005

Tel: (212) 918-4783

London

25 Green Street
London W1K 7AX
U.K.

Tel: +44 (0)20 3841 6255

www.meketa.com

Investment Consulting Services

Mark Makepeace, Chief Executive Officer

Thomas Toth, CFA, Managing Director

Ali Kazemi, Managing Director

Bill Bracamontes, Managing Director

Joanna Bewick, CFA, Senior Vice President

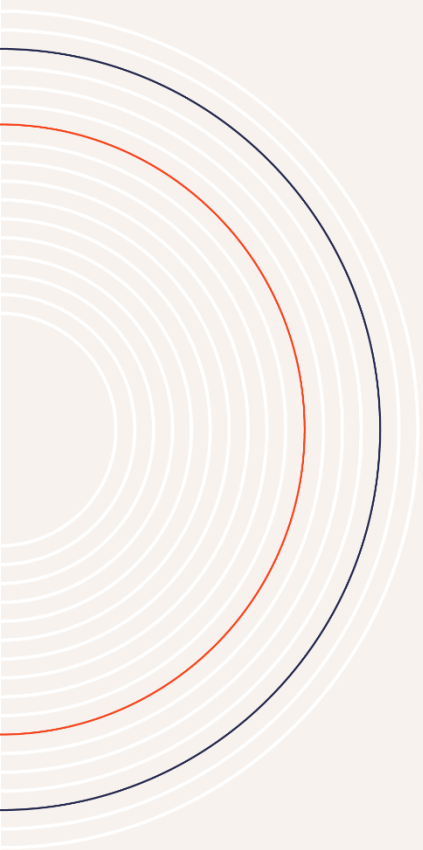
February 9, 2021

Prepared for



Wilshire

Agenda



- A Successful Partnership
- Why Wilshire
- Working With Wilshire
- Moving Forward

A Successful Partnership

Wilshire

Working Together

Wilshire Supports Dallas ERF's Strategic Plan & Objectives

- Provide Retirement Benefits and Superior Service to Advance the Financial Security of its Members



DALLAS EMPLOYEES' RETIREMENT FUND HAD DOUBLE DIGIT returns OF 17.5% IN 2019

FROM THE DESK OF ERF'S EXECUTIVE DIRECTOR, CHERYL ALSTON

A collage of various news articles and graphics. On the left, there is a portrait of Cheryl Alston, Executive Director, with a quote: 'The ERF Board I want to thank for their continued support and commitment to our members in 2019.' Below this is a graphic showing a '17.5%' return as of December 31, 2019. In the center, a large graphic reads 'A DECADE IN REVIEW' with '2010' and '2019' connected by a vertical line of dots. To the right, there are several smaller images: a 'TIER B' award graphic, a group photo of staff, and a graphic stating '3,257 new retirees from 2010-2019'. At the bottom left of the collage is the '75 years' anniversary logo, featuring the stylized human figures from the ERF logo.

ERF CORE VALUES

- Fulfill Fiduciary Responsibility
- Think Independently
- Respect Individuality
- Work as a Team
- Communicate & Collaborate
- Continuously Expand our Knowledge
- In all Endeavors, Act in an Ethical, Honest & Professional Manner

Vision & Mission

Our Vision



To be the leading investment solutions provider, improving outcomes for investors globally



Our Mission



To provide better investment solutions that deliver impact and value for our clients



A Successful Partnership

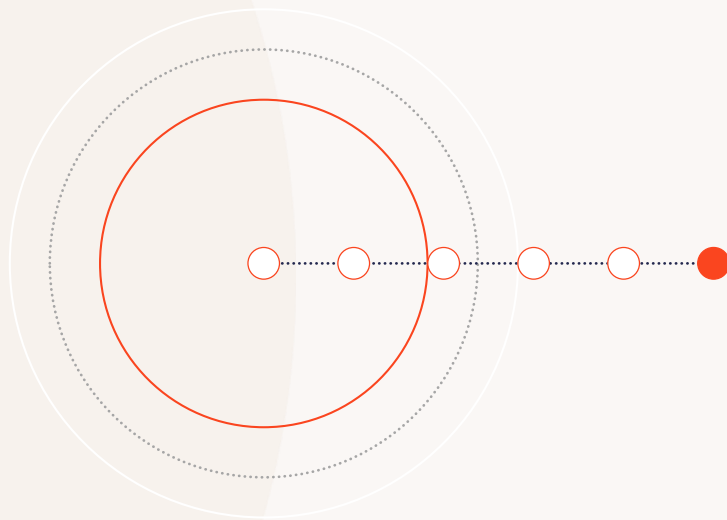
Wilshire has enjoyed serving as the investment consultant for Dallas ERF since 1994. In that time, Wilshire has helped Dallas ERF navigate through many complex market cycles and capitalize on several unique opportunities.

- Providing best-in class consulting services with the expertise of a globally resourced investment firm with a boutique service model
- Educating Dallas ERF on industry trends and standards
- Vigilant assessment of investment management fees
- Evaluating underperforming managers and replacing with best-in-class managers, when warranted
- Improving and adapting the return and risk profile through asset allocation and investment structure decisions
 - ERF is one of only three Texas pension systems to outperform a 60/40 portfolio over the last 10 years¹.

¹Source: <https://www.dallasnews.com/business/personal-finance/2020/08/15/how-many-texas-public-pension-funds-beat-a-simple-index-fund/>

Why Wilshire

Wilshire



\$1.2 TRILLION
in assets under advisement*

\$76 BILLION
in assets under management*

INSTITUTIONAL ADVISORY

INTERMEDIARY ADVISORY

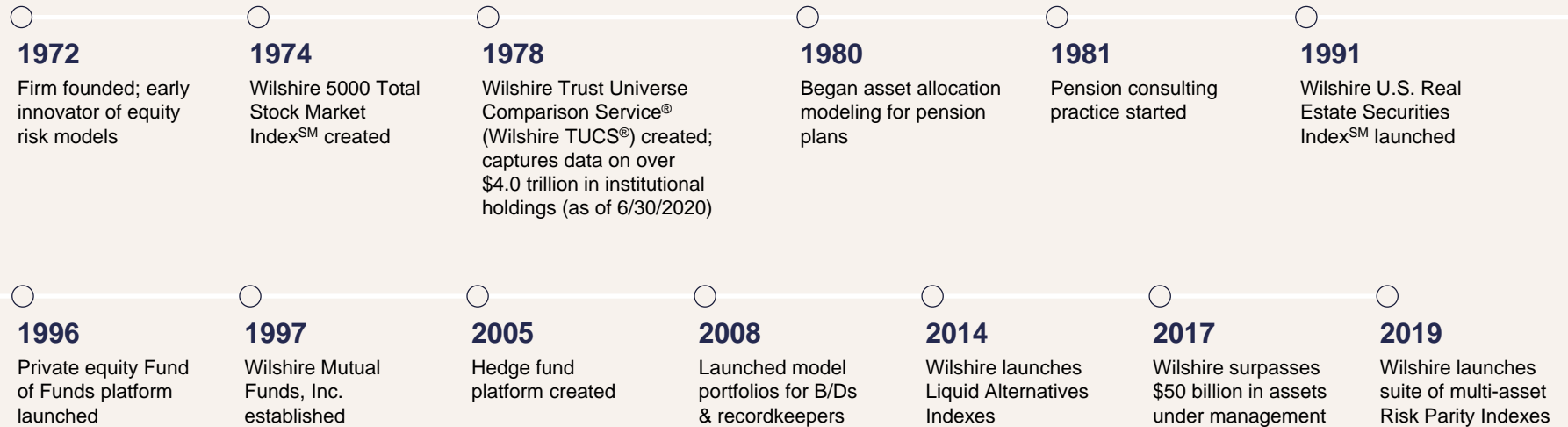
PRIVATE MARKETS ADVISORY

MULTI-ASSET CLASS ANALYTICS

INDEX SOLUTIONS

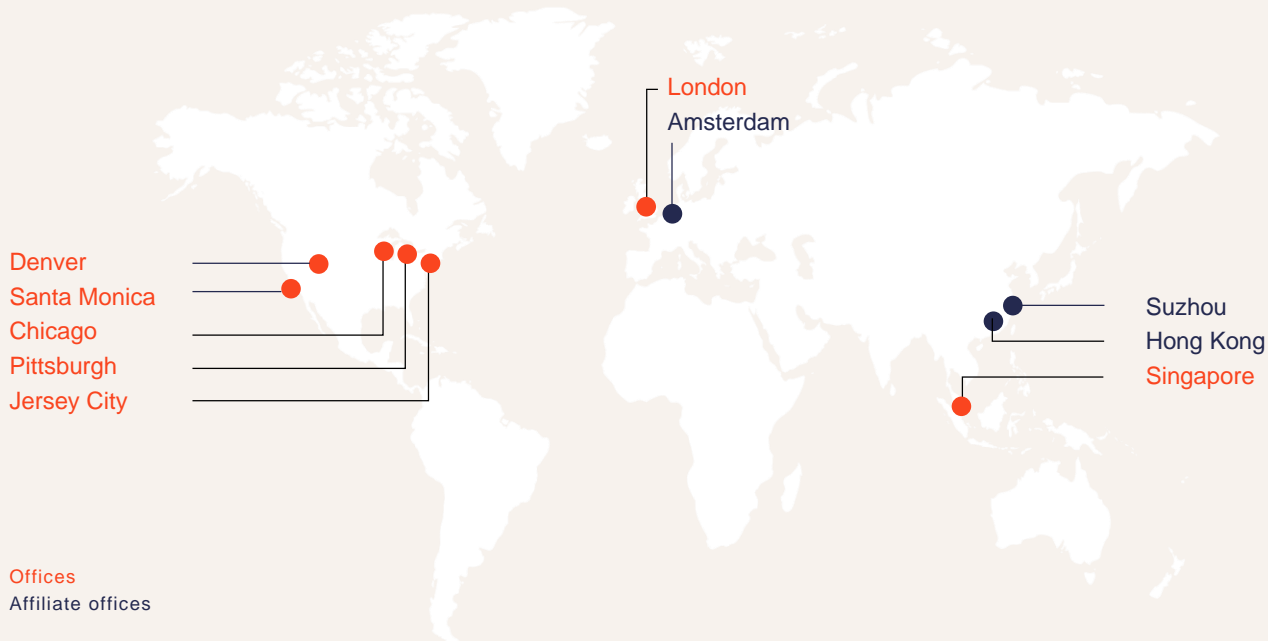
* As of 9/30/2020

Institutional heritage



WILSHIRE

Global presence



261

associates
worldwide

72

investment
professionals

34

CFA
charterholders

As of 12/31/2020

© 2021 Wilshire

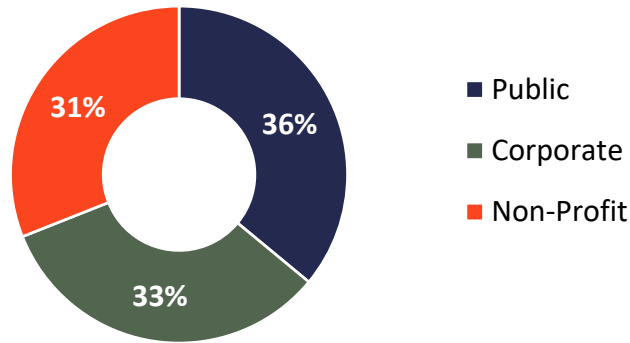
Institutional Client Base

40+
Years Experience

\$1.2 TRILLION
in assets under advisement*

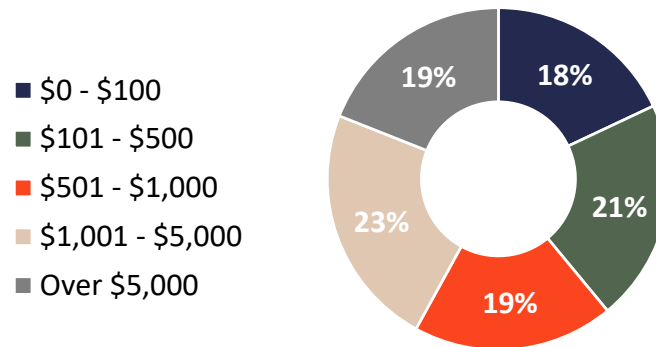
100+
clients

CONSULTING CLIENT BASE BY TYPE



**Average client tenure:
12 years**

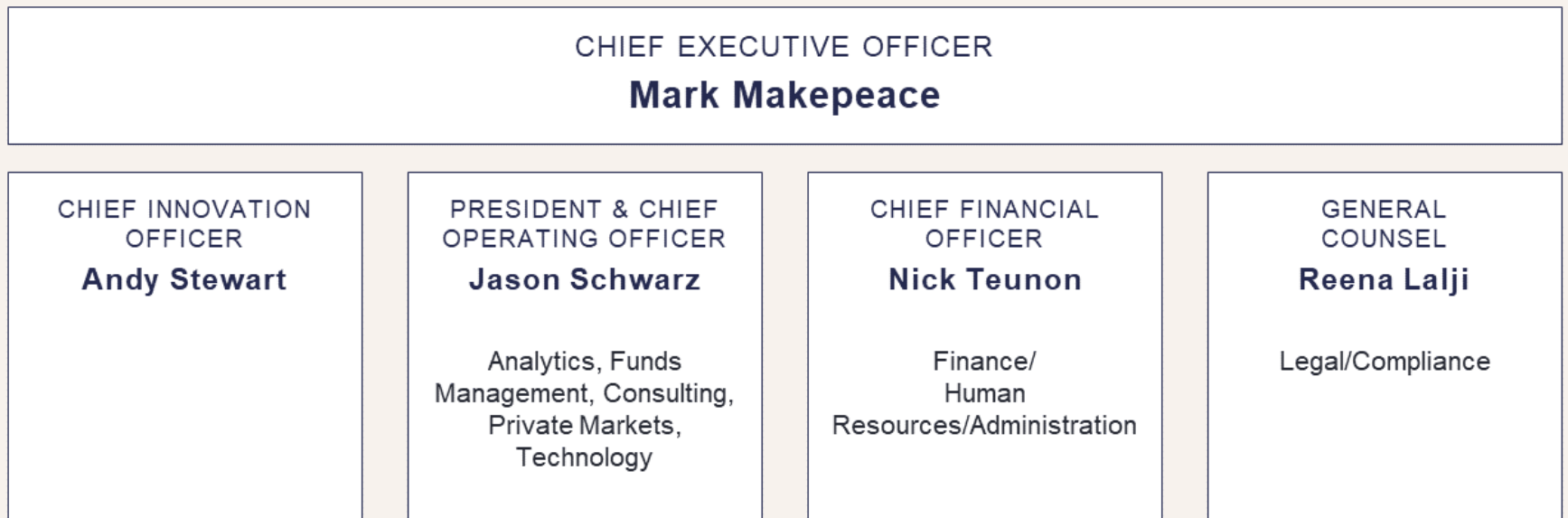
CONSULTING CLIENT BASE BY ASSET SIZE (\$MM)



**Average client size:
\$7.6 billion**

*As of 9/30/20

Corporate Organizational Chart



Diversity at Wilshire

A diverse and inclusive culture – one that maximizes the talent pool and challenges group-think – improves opportunities and outcomes for our clients and associates.

Ongoing Commitment and Increasing Scope

THE FIRM	OUR CLIENTS	THE INDUSTRY & COMMUNITY
<ul style="list-style-type: none"> Foster a supportive and respectful team culture across the firm Representation of Women and Minorities as of January 2021: <ul style="list-style-type: none"> 57% of employees 38% of senior leaders (VP and above) 33% of Wilshire Board Governance: <ul style="list-style-type: none"> ESG and Diversity Committee Gender Diversity Awareness Committee Mandatory, firm-wide training Formal mentoring program 	<p>Clients have expressed an increased appetite for diversity in managers</p> <p>Diversity as a value proposition: Broadening the opportunity set and maximizing the talent pool</p> <p>Returns</p> <ul style="list-style-type: none"> Some studies show there is a statistically significant relationship between a more diverse leadership team and better financial performance.¹ <p>Innovation</p> <ul style="list-style-type: none"> Diversity can drive innovation^{2,3} Capitalizing on opportunities in an increasingly global and diverse world 	<p>Thought Leadership</p> <ul style="list-style-type: none"> “Asset Management Diversity in Action” “Diverse Owned Manager Initiative: A Year in Review” <p>Active Engagement</p> <ul style="list-style-type: none"> Diverse Asset Managers Initiative (DAMI) National Association of Securities Professionals (NASP) Women in Institutional Investments Network (WIIIN)

¹ Vivian Hunt, Denis Layton, and Sara Prince, “Diversity Matters.” McKinsey & Company, 2015. Available at

<https://www.mckinsey.com/~media/mckinsey/business%20functions/organization/our%20insights/why%20diversity%20matters/diversity%20matters.ashx>

² Rocia Lorenzo, Nicole Voigt, Miki Tsusaka, Matt Krentz, and Katie Abouzahr, “How Diverse Leadership Teams Boost Innovation.” Boston Consulting Group, 2018. Available at

<https://www.bcg.com/en-us/publications/2018/how-diverse-leadership-teams-boost-innovation.aspx>

³ Sylvia Ann Hewlett, Melinda Marshall, and Laura Sherbin, “How Diversity Can Drive Innovation.” Harvard Business Review, 2013 Available at <https://hbr.org/2013/12/how-diversity-can-drive-innovation>

Achieving Wilshire's Diversity Goals

RECRUITING	DEVELOPMENT	RETENTION
<ul style="list-style-type: none"> • Speaking roles at Toigo Foundation events/job board participation • Open positions and internships on Job Target's Diversity websites • Company sponsor of Women in Institutional Investments Network/job board participation • Diverse attendance at career fairs • Hire interns with intention of hiring full time 	<ul style="list-style-type: none"> • Formal mentorship program for females • Company-wide educational events • Reimbursement for pursuing relevant professional designations and annual membership fees • Wilshire Gender Diversity Awareness Committee 	<ul style="list-style-type: none"> • Inclusive paid Parental Leave Policy for primary and secondary caregivers • Formal career path/progression for all roles within firm

Working With Wilshire

Wilshire

Working with Wilshire

Dallas ERF Investment Consultant Team



Thomas Toth, CFA
Managing Director



Ali Kazemi
Managing Director



Bill Bracamontes
Managing Director

Private Markets



Josephine He
Assistant Vice President

Performance



Brice Shirimbere
Senior Associate

Asset Allocation



Brian Bubrick
Associate

Performance

TEAM RESOURCES

Capital Markets
Research

Risk
Management

Private
Markets

Performance
Measurement

Manager
Research

Investment Philosophy

Wilshire's investment platform is focused on converting risk into attractive returns

Risk Management ≠ Risk Avoidance

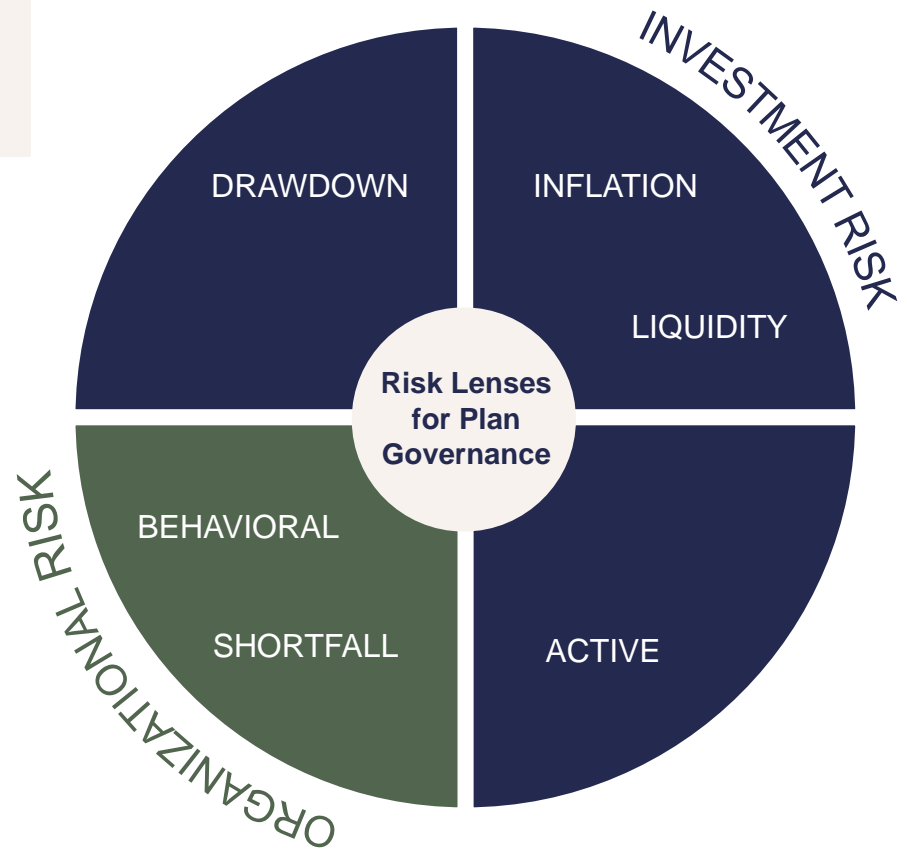
Fundamental Beliefs

- Risk should be compensated: Risk and return go hand-in-hand, but not all risks are rewarded equally. Be extremely selective.
- Attractive long-term returns can be realized by managing downside and behavioral risks: Investors are enamored with potential returns and often underestimate the associated risks. Drawdowns destroy long-term wealth potential. Actively manage risk exposures.
- An opportunistic investment process can occasionally exploit market pricing: While excessive “tactical” trading or market timing can create more risk than return, maintaining a nimble investment program can allow investors to exploit market volatility.
- Costs matter and fees should only be paid to harness unique return streams: In a world of uncertain outcomes, fees and expenses are risks that are known with near-perfect insight and are a hurdle between the portfolio and its objectives. Be an extremely disciplined buyer.
- Manager selection and access is critical to driving attractive returns within alternative investment strategies: The illiquidity risk premium varies through time and, alone, may be insufficient to justify private investments. Tailor alternative investment strategies to take advantage of specific markets or managers that offer unique opportunities.

Risk Assessment Framework

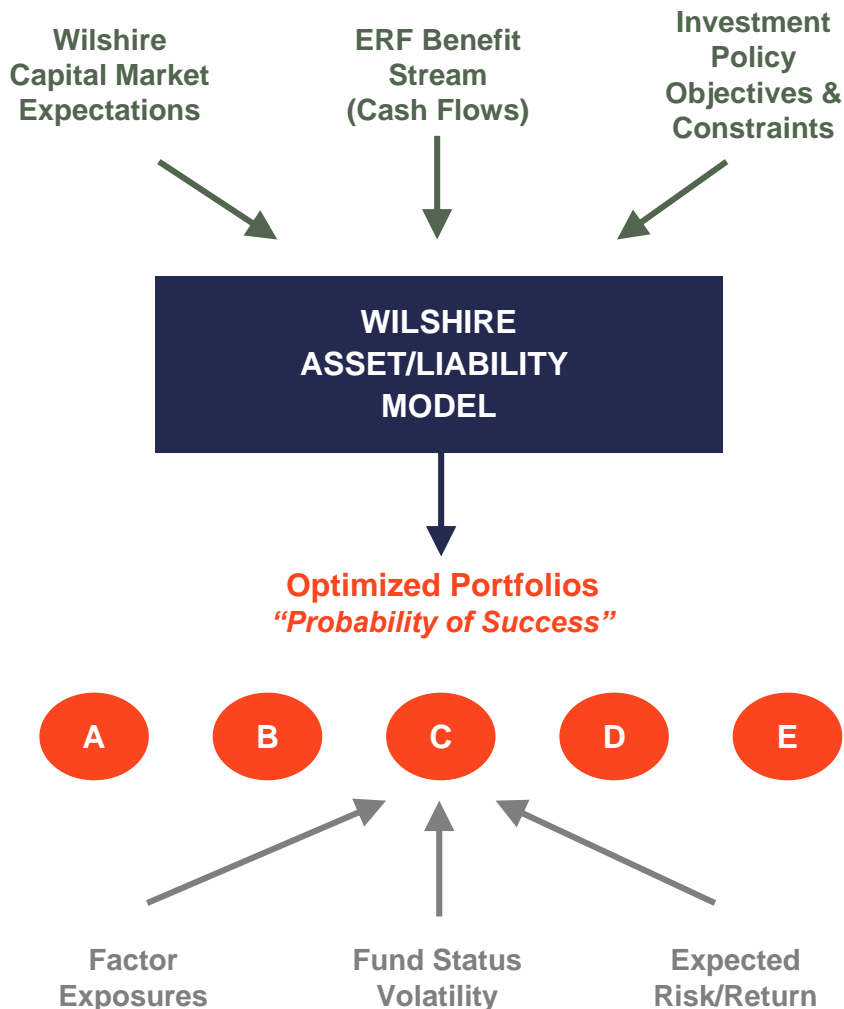
Wilshire's multi-dimensional view of risk integrates organizational and investment considerations into a comprehensive framework for evaluating strategic decisions.

- **Shortfall:** Support distributions and long-term growth
- **Behavioral:** Instill strong governance
- **Drawdown:** Limit portfolio losses
- **Inflation:** Preserve long-term purchasing power
- **Liquidity:** Balance near-term needs, long-term opportunities
- **Active:** Ensure unique exposures
- **Emerging & Long-Term:** Environmental, Social & Governance risks, such as externalities, intangibles and reputation may be linked to various risk lenses



EMERGING & LONG-TERM RISKS

Asset Allocation Process



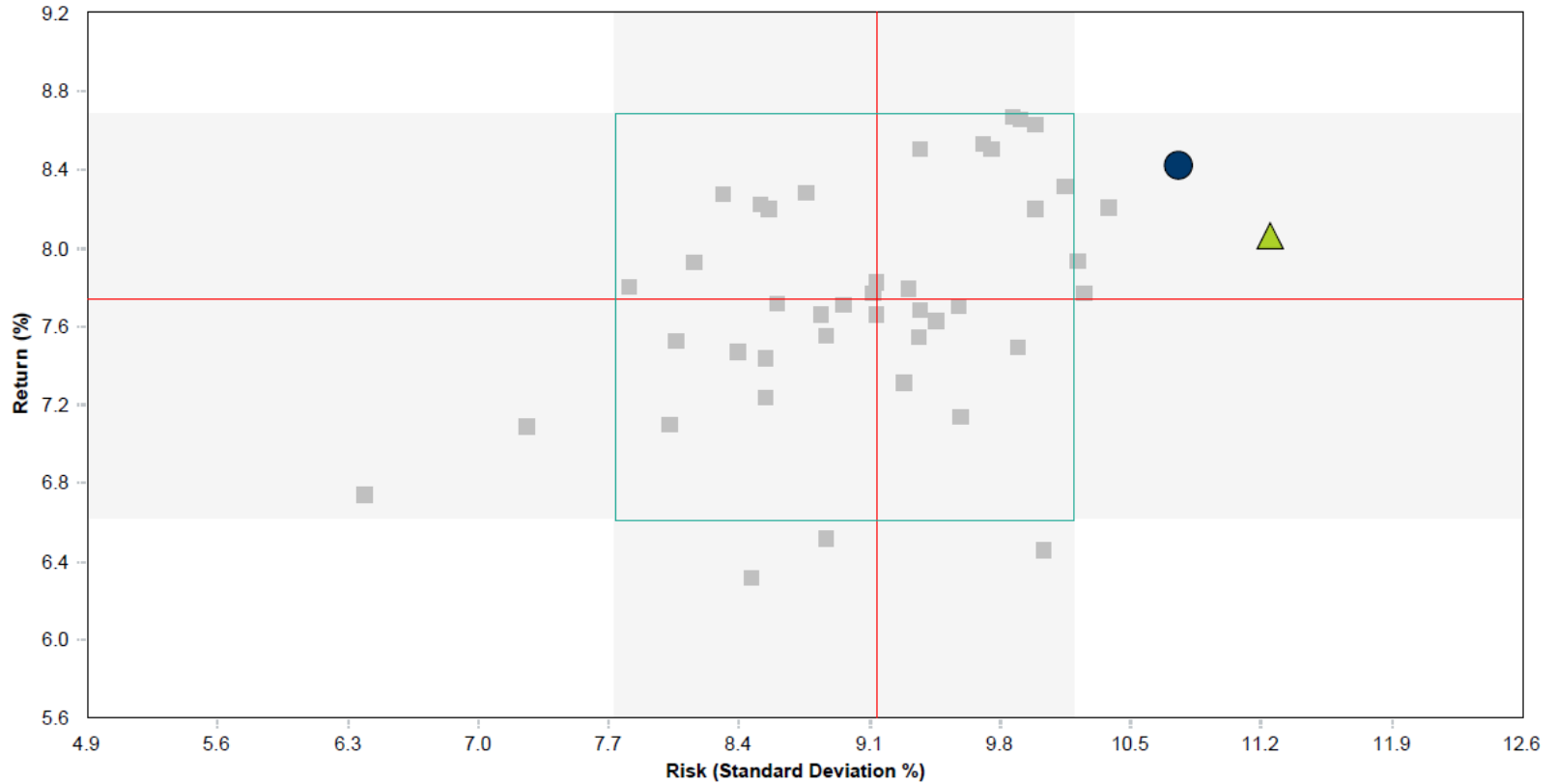
- Wilshire believes the mission of a defined benefit plan is to fund benefits promised to participants
- The role of asset allocation is to manage risk in order to fulfill that core mission
 - **Maximize safety** of promised benefits
 - **Minimize cost** of funding these benefits
- Wilshire’s Asset Liability Model provides methodology for selecting a target portfolio that considers both goals
- Rigorously developed capital market assumptions for risk and return (see appendix)
- Given that short-term volatility is also important, we identify the impact of the asset allocation decision on funded ratios, annual contribution requirements, and other metrics
- Strategic asset allocation is not a guide to outperforming in every market ... but it should provide a roadmap for success over a market cycle

Asset Allocation Scorecard

DECISION	DATE	IMPACT	
Global equity	Q3 2012 from US and Non-US equity	+ / -	Modestly behind global equity market since inception. Increased exposure in late 2018, reduced MLPs and have strongly outperformed.
Global low volatility equity	Q3 2015 from US and Non-US equity	+ / -	Exhibited 25% less volatility than broad equity market since inception, did not keep pace with equity rally in 2H of 2020.
Private equity	Q2 2009	+ +	Outperformed global equity by 1.4% annualized from June 2009 – December 2020. Increased exposure adopted in November 2019.
High yield	Increased Q3 2009 from Core Bonds	+ +	Materially outperformed core bonds since asset allocation shift.
Opportunistic credit	Q1 2016	-	Trailed high yield index since inception, but offers diversification with flexible mandate.
Private real estate	Q1 2011	+	Outpaced public real estate since inception with lower volatility. Addition of value add opportunities.
Listed Infrastructure	2011 introduction of MLPs	- -	Reduced target weight and shifted to more diversified listed infrastructure adopted in November 2019.

Results Oriented

Dallas Total Fund vs. All Public Plans-Total Fund
 Periods ending January 1, 1994 to December 31, 2020



	Return	Standard Deviation
● Dallas Total Fund	8.42	10.76
▲ Policy Index	8.06	11.25
— Median	7.74	9.14

Source: Investment Metrics

Manager Research Process

Our process is heavily qualitative

- 70+ professionals contributing to manager research
- Focus on six key areas; conduct more than 1,600 manager meetings a year on average
- Analysts have dedicated asset class coverage, with some compensation tied to research/forecasts

Quantitative analysis seeks to uncover portfolio characteristics

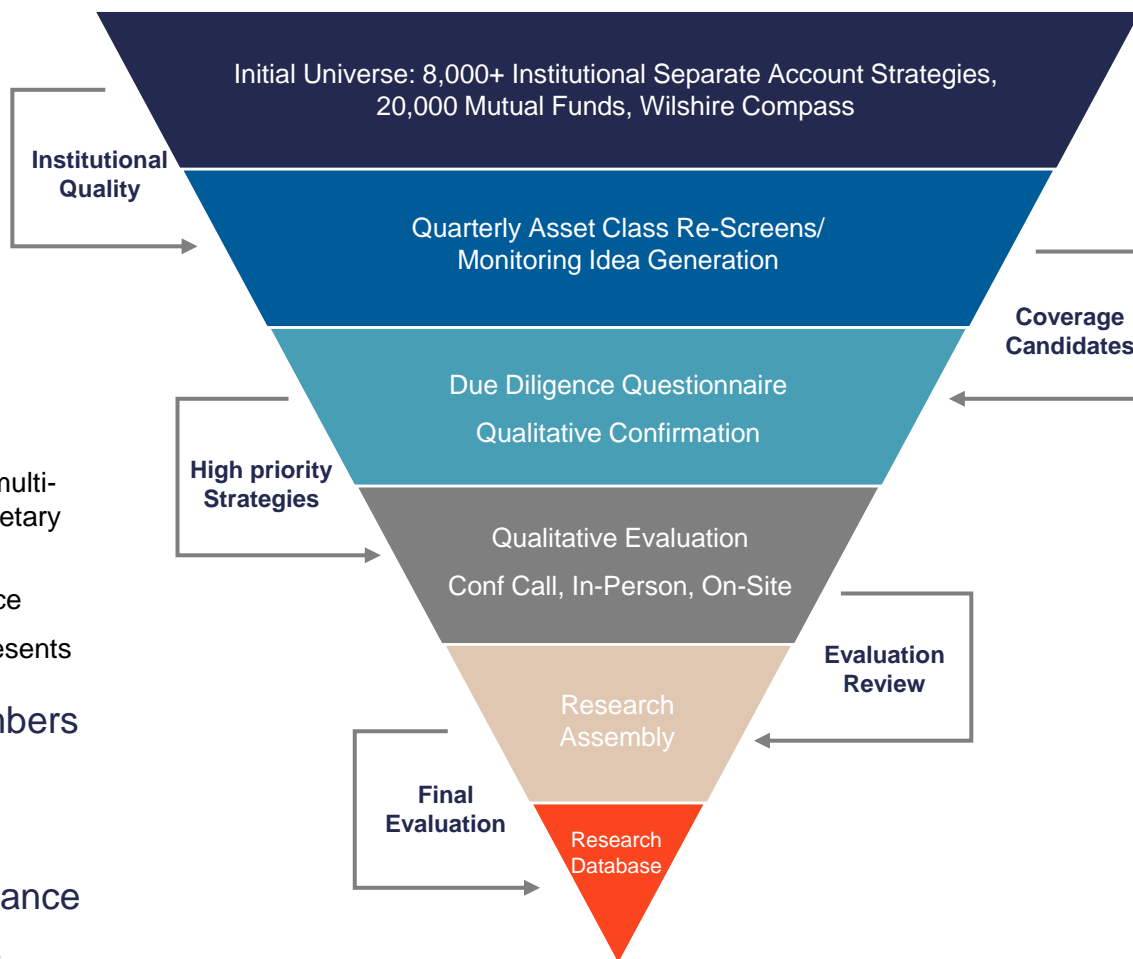
- Conduct returns-based, holdings-based and multi-factor risk analyses using sophisticated proprietary analytic tools
- Seek to uncover the key drivers of performance
- Attempt to determine what risks a portfolio presents

Research team delves beyond the numbers

- Understand investment philosophy
- Evaluate manager and organization

Develop expectations of future performance

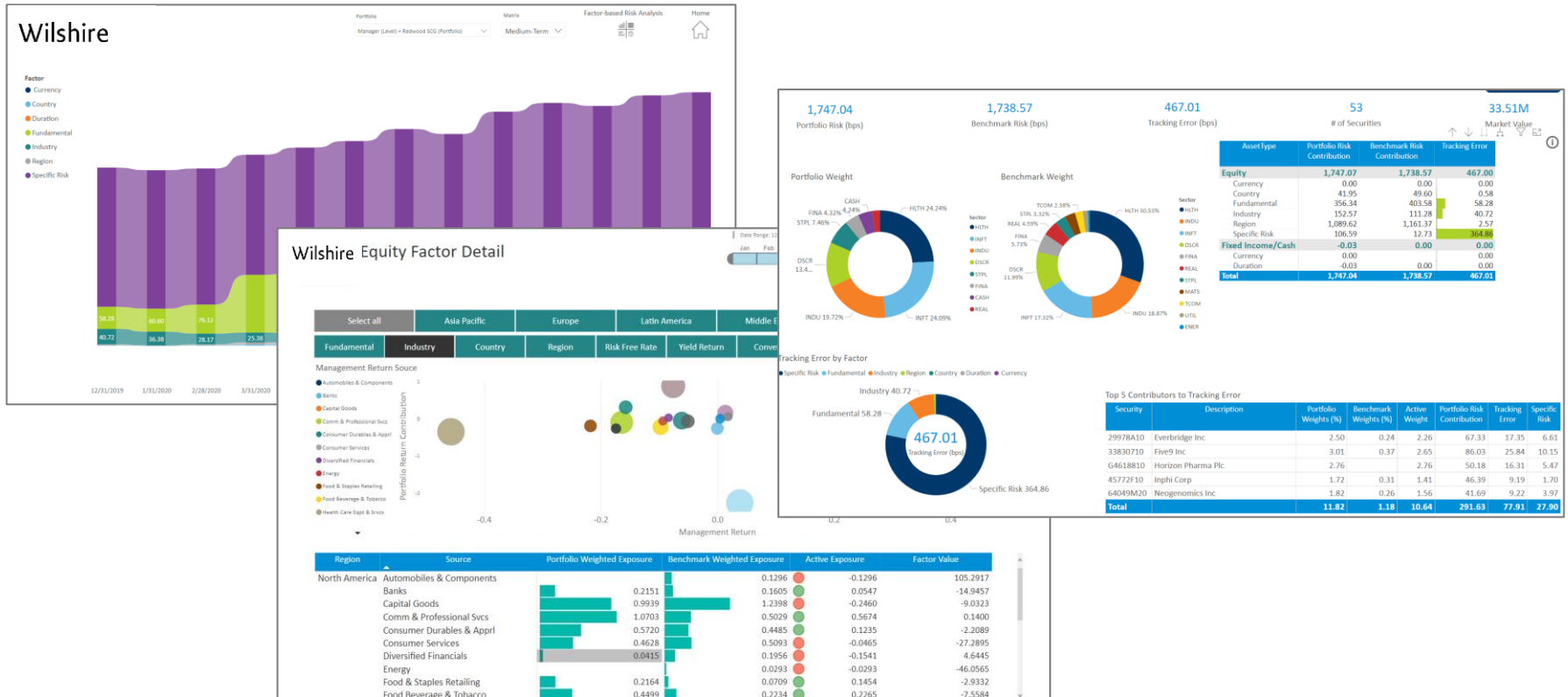
- Derive explicit performance and risk forecasts for managers



Risk Management – Leveraging Wilshire Risk Models

Risk management is part of the DNA of Wilshire

- Our teams use our risk models to dive deeper into the systematic factor drivers
- Our clients benefit from the ability for independent ex-ante analysis
- New dashboards allow for our clients to get in the driver's seat



Diverse Owned Manager Initiative

MANAGER SEARCH PROCESS

Include a diverse-owned firm in every public securities manager search by Wilshire Consulting

Products must fit client mandate and be scored in top four deciles

DIVERSE OWNERSHIP

Search books include percentage of ownership by women and minorities

Highlights diversity in the manager search process

ALIGNING INTERESTS

Discretionary compensation for consultants tied to interaction with diverse owned firms

Specifically aligns interests of senior leaders

INTERNAL GOVERNANCE

Diverse owned manager asset class committee governs the initiative

Focused effort, tracking, and accountability

EDUCATION

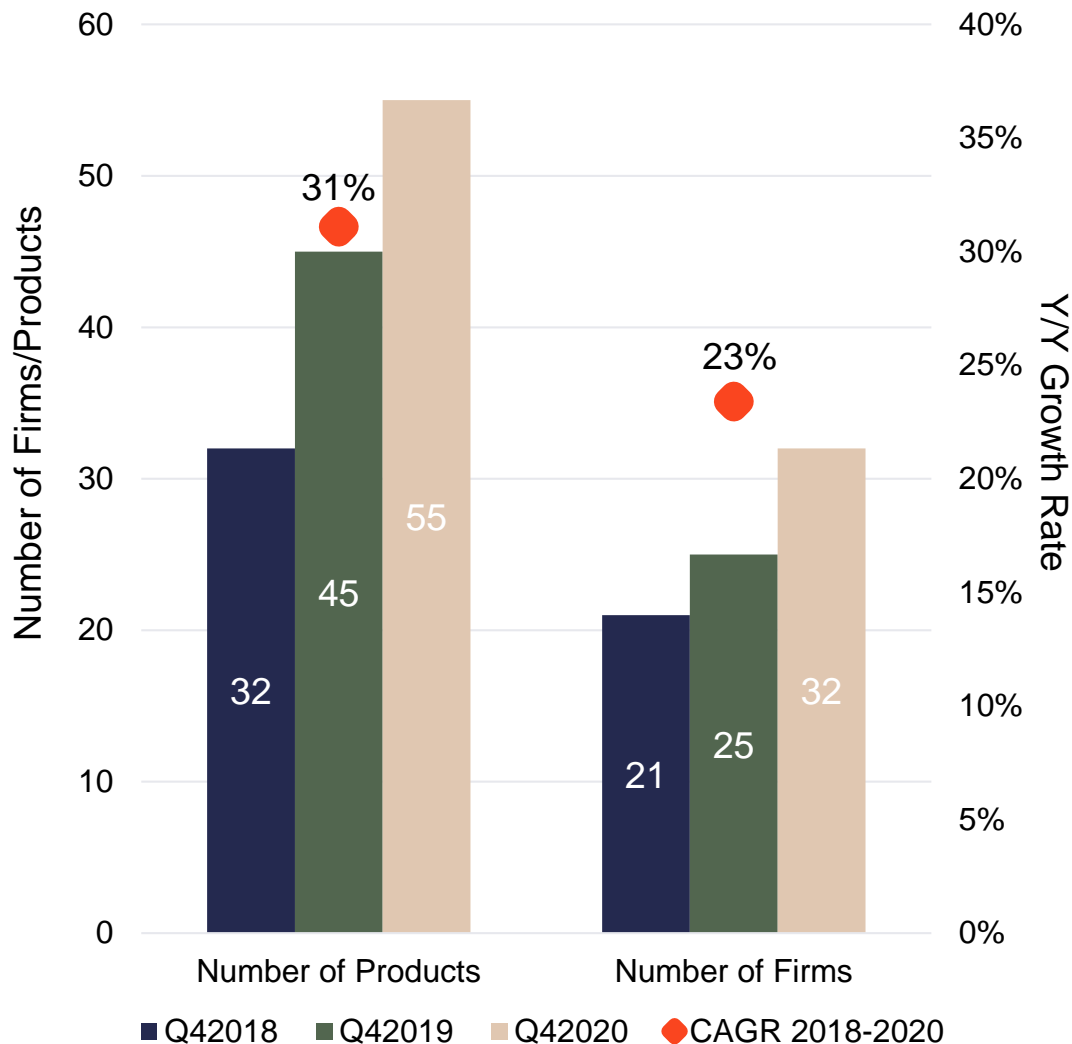
Broaden outreach to diverse owned firms

Created “Welcome to Wilshire,” a series of educational seminars for diverse owned firms

The Diverse Owned Manager Initiative has proactively engaged with the community and had a demonstrable impact on awareness and outreach.

In the spirit of transparency and public accountability, please see “Wilshire’s Diverse Owned Manager Initiative – A Year in Review” for an annual summary of results and lessons learned.

Diverse Owned Manager Focus List 4Q2020



New strategies added in 2020

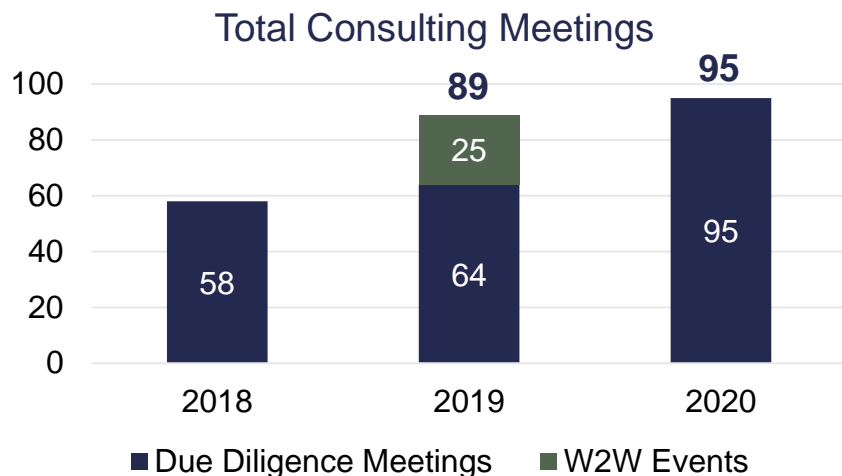
- Advent (High Yield)
- ARGA (International Equity)
- Brown (Intl Small Company)
- Frontier (HAV International Equity)
- GIA (Core Plus)
- Hardman Johnston (Intl Equity)
- High Point (Large Cap Value)
- Kabouter (Intl Equity SMID)
- Longfellow (Core Plus)
- Metis (Intl Equity Micro and Small Cap)
- Sapience (Small Cap Value)

Double-digit growth since 2018 on the short list

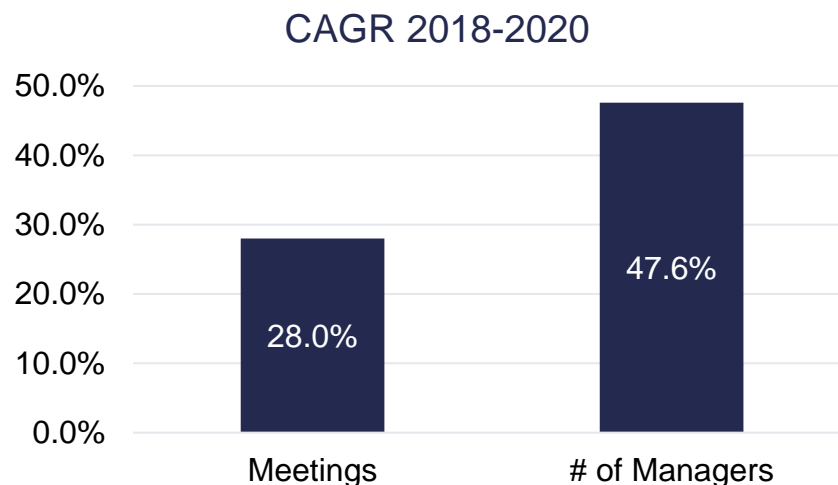
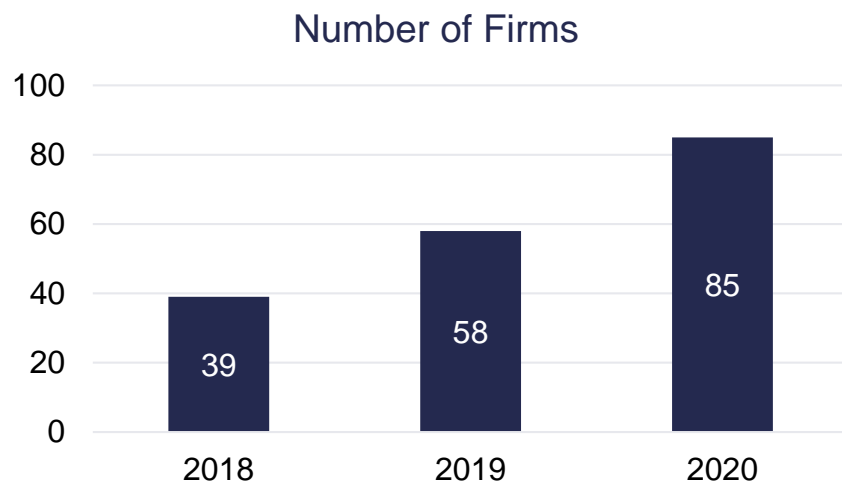
- number of firms (CAGR +23%)
- number of strategies (CAGR +31%)

Growing the list of highly rated diverse owned firms and strategies increases the likelihood of matching managers to mandates.

Diverse Owned Manager Outreach

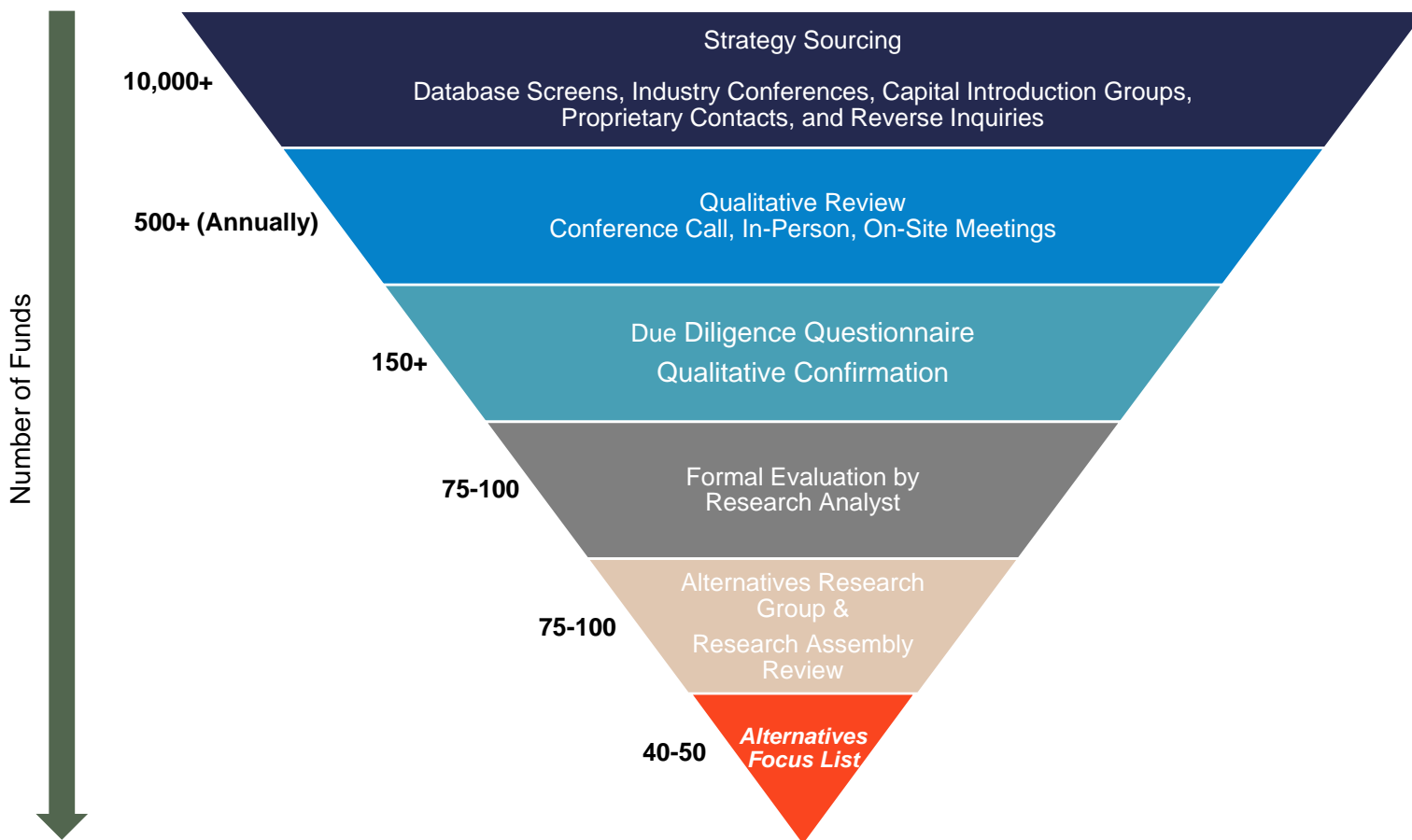


- Wilshire’s reach in the diverse owned community has increased materially, despite the need to suspend the “Welcome to Wilshire (W2W)” events in 2020.
- Given 145 diverse owned firms, Wilshire Consulting met with 59%, 40% and 35% of the cohort in 2020, 2019, and 2018, respectively. For context, Manager Research meets with approximately one-third of the manager database per year.



Marketable Alternatives: Sourcing and Selection

Idea generation and strategy sourcing result from **industry conferences, Capital Introduction groups, proprietary contacts, and reverse inquiries**, among other channels. **Quantitative database screens** are also used to complement our proprietary quantitative and qualitative research.



Applied to Alternatives

How do we seek exceptional managers?

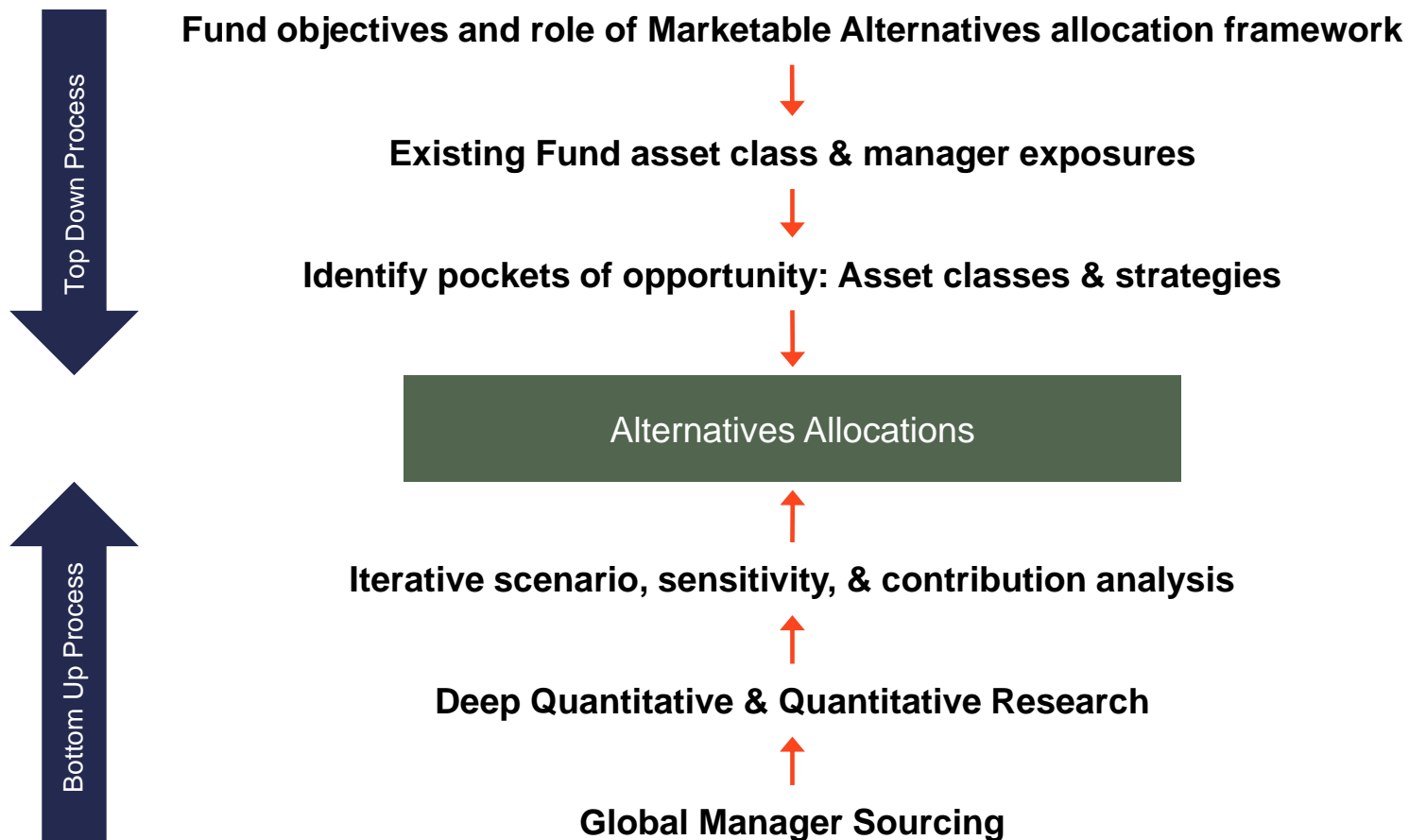
- **Adhere to a clear and comprehensive due diligence process coupled with a consistent scoring framework.**
- **Identify key factors that impact long-term alpha generation.**
 - What inefficiency is the manager trying to exploit?
 - Why is that inefficiency expected to persist over time?
 - Focus on organizational stability and team pedigree/alignment.
 - What is the primary alpha source or investment expertise?
 - Is the investment process disciplined and repeatable?

Due Diligence Matters:

- Alternative investment strategies can be quite complex.
- Generic strategy groups are not homogenous and represent a broad range of risk factor exposures and portfolio characteristics.
- Alternative strategies are prone to long-term style drift given their flexible nature.
- Performance can vary considerably by strategy and by manager.

Recommendation/Allocation Approach

Wilshire's process integrates Policy or Fund objectives, existing exposures, macro outlooks, market information, strategy views and robust analytics to develop portfolios that perform in a consistent manner throughout a variety of market environments.



Private Markets Platform

DIVERSIFIED PLATFORM	GLOBAL TEAM	RESEARCH- & CLIENT-FOCUSED	ACTIVE INVESTOR
Private Equity Real Estate Infrastructure Energy Private Credit	37 Years of Experience and commitment to the Lower-Middle-Market ¹ Average 17 years of experience by Investment Committee members	In 2020, 5,200+ points of contact with managers ² 2,600+ actively sourced primary, secondary, and co-investment opportunities	560 basis point outperformance versus MSCI ACWI PME since inception ³ \$20.5 bn AUA \$27.6 bn invested by clients ⁴
365+ Primary 50+ Secondary 35+ Co-Investment Discretionary investments since-inception	44 Professionals 25 Investment Professionals 13 Operations 4 Offices Worldwide	~100 Institutional Investors Served 16 Advisory Clients 10.7+ million Beneficiaries Served ⁵	Over 170 Active Manager Relationships Over 70 Advisory Board Relationships

Data as of September 30, 2020.

¹ Wilshire began its research in the private markets in 1984








² Points of contact include notes in the database categorized as annual/board meeting, co-investment, secondary, due diligence analysis, email/mail/fax, meeting, phone, reference call, or other preliminary review.

³ Past performance is not indicative of future results. IRR performance is based on the Net Alpha calculations of all Wilshire discretionary funds-of-funds that invest primarily in the private markets, since inception in October 1997, versus the Public Benchmark. Public Benchmark is calculated using the Long-Nickels PME methodology, under which contributions and distributions of the underlying funds are completely matched to the MSCI All Country World index, buying and selling index units at each transaction date. After matching both contributions and distributions, the methodology calculates a terminal NAV.

⁴ Represents capital committed to Wilshire discretionary funds, as well as investment commitments made by non-discretionary clients.

⁵ Includes beneficiaries of discretionary and non-discretionary relationships of Wilshire Private Markets

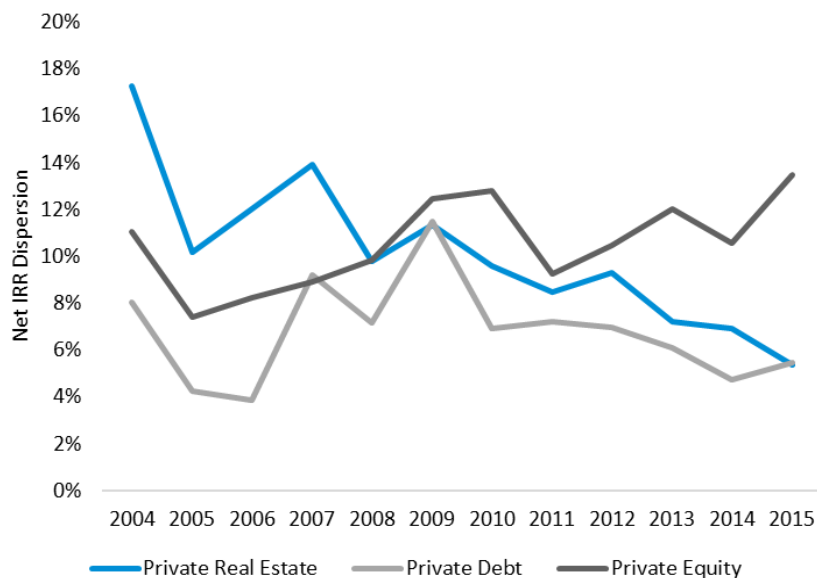
Global, Experienced Senior Team

INVESTMENT COMMITTEE MEMEBER	YRS OF PRIVATE MARKETS EXP	YRS WITH WILSHIRE	DEGREE
 Bill Bracamontes Managing Director <i>Santa Monica</i>	13	13	B.A. Economics, Stanford University
 Ilona Brom Managing Director <i>Amsterdam</i>	25	17	MSc Economics/Business Administration, University of Amsterdam
 Marc Friedberg, CFA Managing Director <i>Pittsburgh</i>	23	21	B.S. Business Administration, University of Pittsburgh MBA Finance & Economics, University of Pittsburgh
 Mark Perry Managing Director <i>Santa Monica</i>	12	8	B.S. Electrical Engineering, University of California (Los Angeles) MBA Finance, University of California (Los Angeles) MS Electrical Engineering, Stanford University
 Shawn Quinn Managing Director <i>Pittsburgh</i>	15	15	B.S. Business Administration, Carnegie Mellon University
 William van Eesteren Managing Director <i>Amsterdam</i>	27	19	MSc Business Administration, Erasmus University (Rotterdam)
 Björn Waltmans Managing Director <i>Amsterdam</i>	13	9	BSc Aerospace Engineering, Delft University of Technology BSc Business Economics, Erasmus University (Rotterdam) MSc Aerospace Engineering, Delft University of Technology

Manager Selection is Essential

- Manager selection within the private markets is critical with large dispersion of returns between top- and bottom-quartile funds
- Wilshire has developed an adaptive framework to assess private markets managers

Net IRR Quartile Dispersion* by Vintage Year



Wilshire Manager Radar



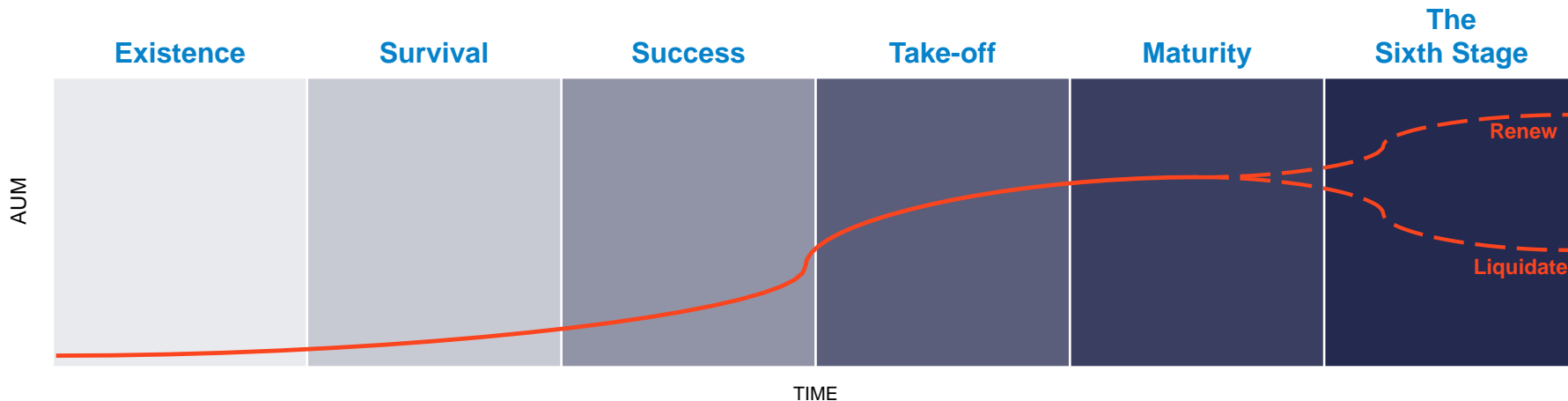
KEY	
Top Decile	5
Top Quartile	4
Average	3
Bottom Half	2
Bottom Decile	1
No Information	0

*Preqin. Dispersion represents difference between first-quartile threshold and third-quartile threshold. Based on North American private markets investments using most-up-to-date performance data as of January 2021 for vintage years 2004-2015; vintage years after 2015 are less meaningful.

Stronger Alignment & Motivation

We believe a firm “life cycle” exists and investing with firms **early in the life cycle is optimal**

**MANAGER LIFE CYCLE:
APPLICATION OF THE C&L MODEL¹ TO PRIVATE MARKETS**



- We believe managers of smaller funds are focused on carried interest rather than management fees
- Success for earlier funds – especially debut funds – is critical for firm survival

¹ Source: Churchill, N., and V. Lewis. "The Five Stages of Small Business Growth." Harvard Business Review 61, no. 3 (May/June 1983): 30-50. C&L model refers to the framework developed by Neil Churchill and Virginia Lewis that categorizes the five common stages that each small business undergoes as they develop and mature. Owners who can assess the stage at which a company is currently operating in can leverage the framework to better understand existing and future challenges.

Moving Forward

Wilshire

Fee Proposal

Initial Fee Proposal (Onsite)		Best and Final Offer
\$350,000 (Year 1)	\$395,000 (Year 1)	\$370,000 (Year 1)
Excluding marketable alternatives and private markets consulting	Including marketable alternatives	Including marketable alternatives consulting Including annual/bi-annual private real estate search Including customized risk dashboard for public equity portfolios

Fee Disclosures

- The general consulting services included in the above Best and Final Offer are outlined in Wilshire’s RFP response to Dallas ERF’s request for investment consulting services.
- The Best and Final Offer includes consulting on marketable alternatives. More specifically, a fully customized hedge fund program tailored for Dallas ERF. Services include:
 - Portfolio advisory and monitoring of up to 10 managers
 - Includes evaluation and scoring on up to five managers per year not under current coverage
 - Each additional manager above five per year is charged incrementally
- The Private Real Estate Manager Search services include:
 - Formal RFP process
 - Up to two focus list diligence reports
 - Wilshire’s participation for manager onsite meetings
 - Travel expenses were waived for the 1st manager search completed in 2020; however, travel expenses will be additional expenses borne by Dallas ERF in future manager searches.

Why Wilshire

1

Extensive experience guiding **a diverse base** of sophisticated and complex public retirement plans

2

Resources of a global investment advisory firm, with **personalized service** of a local boutique

3

Scientific approach to engineering portfolios with **a DNA of disciplined risk management**

Appendix

Wilshire

Executive Management



Mark Makepeace

CHIEF EXECUTIVE OFFICER

Mark Makepeace is Chief Executive Officer of Wilshire. Prior to joining Wilshire, Mark was Group Director of Information Services of the London Stock Exchange Group (LSEG) and Chief Executive of FTSE Russell, the global index provider.

Mark started his career in financial services in 1985, when he joined the London Stock Exchange to coordinate “Big Bang” (the deregulation of securities trading in the City of London).

In 1995 he founded FTSE International (a joint venture between the Financial Times and LSEG) and grew the index business from a small UK start up with nine staff to become one of the largest and most successful global index providers today. Mark has over 20 years’ experience of developing successful joint ventures. He has successfully forged alliances with stock exchanges, academics and leading industry groups establishing substantial businesses around the world. He was a founding member of the Index Industry Association and its first chairman.

Mark has been a long-time supporter of the children’s charity UNICEF and currently serves as an honorary Vice President of UNICEF UK. Mark is a Distinguished Fellow at the Georgetown Centre for Financial Markets and Policy, Georgetown University, Washington DC and also serves as a member of the Board of Directors of the Saudi Stock Exchange (Tadawul) and the Singapore Stock Exchange (SGX). He is author of *FTSE: The Inside Story*.

Dallas ERF Team



Thomas Toth, CFA, Managing Director

Tom Toth is a Managing Director of Wilshire. He has 20 years of investment experience providing client service for a variety of pension, endowment, and foundation clients. Mr. Toth is a member of Wilshire's Investment Strategy Committee and currently sits on both the Hedge Fund of Funds and Private Equity/Credit Asset Class Committees, where he is responsible for the evaluation and monitoring of a variety of products in the alternative investment arena.

Mr. Toth joined Wilshire in 2004 and initially worked in Wilshire's Investment Research Group, where he was responsible for writing white papers on topics such as hedge funds, private equity, and infrastructure. Prior to joining Wilshire, Mr. Toth worked in New York for fixed income asset manager Fischer Francis Trees and Watts. Mr. Toth earned his BA from the University of California, San Diego, and an MBA with a concentration in finance / capital markets from the USC Marshall School of Business. Mr. Toth also holds the Chartered Financial Analyst designation.



Ali Kazemi, Managing Director

Ali Kazemi is a Managing Director with Wilshire. Mr. Kazemi works in Wilshire's Santa Monica, Calif., office, and helps manage a diverse roster of institutional clients including public and corporate pension plans, foundations and insurance companies. In his role, Mr. Kazemi assists clients with asset allocation, manager selection, risk budgeting, board education, and investment policy development. Mr. Kazemi has extensive experience working with clients to understand the drivers of risk in their portfolios using holdings based ex-ante risk reports which he has designed; these are specifically tailored to assist institutional investors manage risk at all levels of the portfolio. He also serves as the chair of Wilshire's Multi-Asset/Risk Parity Asset Class Committee.

Mr. Kazemi joined Wilshire in 2001 and worked in product development and client service with Wilshire Analytics' total fund analytic systems. His responsibilities included the design and development of multi-asset class risk models and the supporting reporting framework. In 2006, he worked in the Wilshire London office for three years where he coordinated the client servicing support for a combination of asset management and institutional investing clients using Wilshire Analytics to help manage risk and performance within their portfolios. Mr. Kazemi earned a BS from the University of California, San Diego.

Dallas ERF Team



Bill Bracamontes, Managing Director

Mr. Bracamontes serves on Wilshire's Private Markets' Investment Committee and is responsible for monitoring existing private markets investments and analysis of new private markets investment opportunities in the U.S., for primary and secondary partnership investments, as well as direct co-investments. In recent years, Mr. Bracamontes has played an integral role Wilshire's Private Markets' investments in the venture capital and growth equity segments of the U.S. market. He received his Bachelor of Arts in Economics from Stanford University. Mr. Bracamontes joined Wilshire in 2007.



Josephine He, CFA, FRM, Assistant Vice President

Josephine He is an Assistant Vice President with Wilshire. Based in Santa Monica, she manages the West Coast performance measurement team. Ms. He is a member of Wilshire Consulting's Custodian Asset Class Committee. She joined Wilshire in 2012 as a member of the operations team, with responsibility for maintaining Wilshire's index databases and assisting in investment structure analysis and manager research activity. Ms. He earned a BS in mathematics-economics from the University of California, Los Angeles. She is fluent in Mandarin and conversant in Spanish. Ms. He holds the designations of Chartered Financial Analyst (CFA) and Financial Risk Manager (FRM).



Brice Shirimbere, Senior Associate

Brice Shirimbere is a Senior Associate with Wilshire Associates. He develops and communicates customized risk management solutions, including asset allocation studies and investment strategy reviews for defined benefit, defined contribution, endowment and foundation clients. He also provides ongoing monitoring services, and researches and maintains Wilshire's proprietary asset allocation models. Mr. Shirimbere joined Wilshire in 2015. Previously, Mr. Shirimbere worked as a consultant for two actuarial firms where he was responsible for actuarial valuation and plan design for public and private pension plans. He completed an MBA from the Anderson School of Business at the University of California Los Angeles and a BA in economics from the University of San Diego.



Brian Bubrick, Associate

Brian Bubrick is an Associate with Wilshire. He joined the firm in 2014. Mr. Bubrick provides performance, attribution and reporting services to public and corporate pension plans, foundations and endowments. Mr. Bubrick earned his undergraduate degree in Business Administration with a finance option from California State University, Los Angeles.

ESG Capabilities

Interest in ESG (environmental, social and governance) is growing: Wilshire aims to deliver customizable ESG solutions to its clients

Beliefs

- Poorly managed ESG risks can have a material impact on asset values.
- ESG risks may be repriced & contribute to future tail risk.
- ESG integration in the investment process could lead to better outcomes.

Credentials

- Signed the Principles for Responsible Investing (2016)
- Hired VP for Responsible Investment (2017)
- Approved ESG policy (2019)
- Set up firm-wide ESG & Diversity Committee (2019)



Solutions

ADVISORY SERVICES	RESEARCH	INVESTMENT
<ul style="list-style-type: none"> • Educational Seminars • Peer Benchmarking • Policy Design • Stewardship Best Practices • ESG in Manager Selection • Carbon Analytics & Scenarios • Impact Themes & SDGs • Screening & Exclusions 	<ul style="list-style-type: none"> • Thought-Leadership: <ul style="list-style-type: none"> • Where's the "F" in ESG? • Asset Management Diversity • ClimateLens • Manager due diligence – Are your managers "Walking the Walk?" • ESG/Impact Strategy recommended buy list • ESG attribution analysis 	<ul style="list-style-type: none"> • Customizable ESG investment solutions across spectrum of approaches: <ul style="list-style-type: none"> • Exclusions • Tilts • Optimization • Integration • Impact

Summary Changes to Asset Assumptions

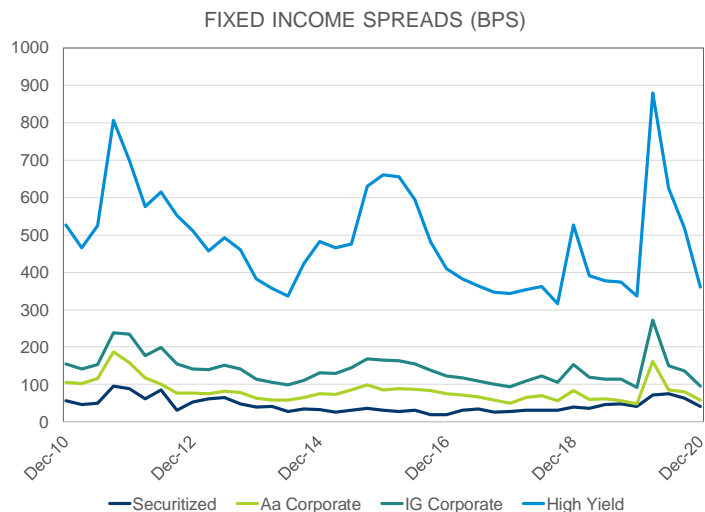
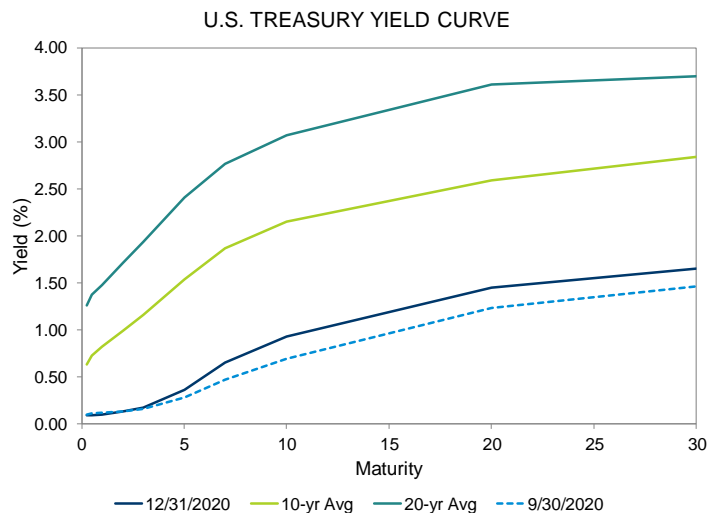
- Breakeven, Treasury yields and the forward curve are all up
 - Conditions pushed market-duration forecasts higher
 - Credit spreads tightened across all segments; weighing heavily on high yield

- Real asset yields are down while inflation is up
- Equity forecasts are down largely due to negative valuation prospects
- Non-U.S. Equity return premium is up on attractive relative valuations

	TOTAL RETURN (%)			RISK (%)
	SEPT 2020	CHANGE	DEC 2020	
INFLATION	1.80	0.35	2.15	1.75
CASH EQUIVALENTS	0.55	0.15	0.70	0.75
TREASURIES	0.20	0.30	0.50	4.50
CORE BONDS	1.05	0.25	1.30	4.30
LT CORE BONDS	1.75	0.00	1.75	10.00
HIGH YIELD BONDS	3.45	-0.35	3.10	8.85
GLOBAL RE SECURITIES	5.40	0.00	5.40	15.85
PRIVATE REAL ESTATE	6.65	-0.45	6.20	14.00
U.S. STOCKS	5.50	-0.50	5.00	17.00
DEV. EX-U.S. STOCKS	6.00	-0.25	5.75	18.00
EMERGING MARKET STOCKS	6.00	-0.25	5.75	26.00
PRIVATE EQUITY	7.45	-0.50	6.95	28.00
GLOBAL 60/40 (ACWI/U.S. Core)	4.30	-0.15	4.15	10.75

	RELATIVE RETURN CHANGES (%)		
	SEPT 2020	CHANGE	DEC 2020
CASH - INFLATION	-1.25	-0.20	-1.45
TREASURY - CASH	-0.35	0.15	-0.20
CORE - TREASURY	0.85	-0.05	0.80
LONG-TERM CORE - CORE	0.70	-0.25	0.45
HIGH YIELD - CORE	2.40	-0.60	1.80
GLOBAL RESI - CORE	4.35	-0.25	4.10
U.S. STOCKS - CORE	4.45	-0.75	3.70
PRIVATE EQUITY - U.S. STOCKS	1.95	0.00	1.95
RETURNS MINUS INFLATION			
U.S. STOCKS	3.70	-0.85	2.85
U.S. BONDS	-0.75	-0.10	-0.85
CASH EQUIVALENTS	-1.25	-0.20	-1.45

Fixed Income

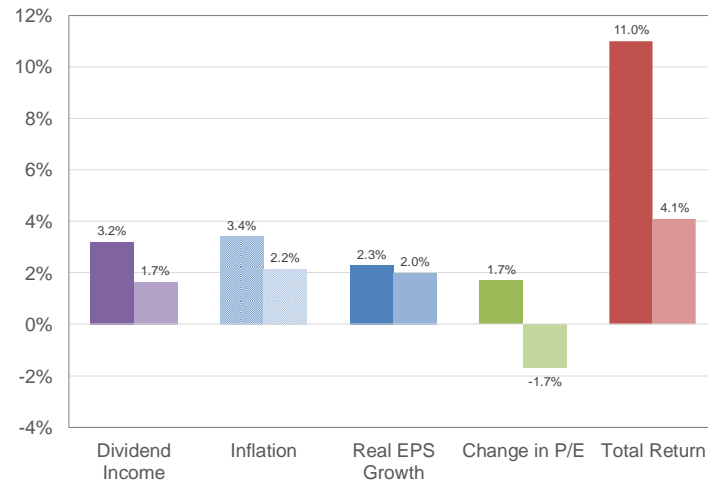


INFLATION & FIXED INCOME		SEP 2020	CHANGE	DEC 2020
INFLATION	10-Year Treasury	0.69	0.24	0.93
	10-Year Real	<u>-0.94</u>	-0.12	<u>-1.06</u>
	Breakeven	1.63	0.36	1.99
	Wilshire ACA	1.80	0.35	2.15
CASH	91-Day T-Bill	0.10	-0.01	0.09
	Yield Forecast in Year 10	1.35	0.30	1.65
	Wilshire ACA	0.55	0.15	0.70
CORE	U.S. Treasury Index	0.48	0.09	0.57
	Yield Forecast in Year 10	1.85	0.20	2.05
	Wilshire ACA	0.20	0.30	0.50
SPREAD	U.S. Corporate Spread	1.35	-0.40	0.95
	Spread Forecast in Year 10	1.64	-0.02	1.62
	Wilshire ACA	1.50	0.00	1.50
	Core Bonds ACA	1.05	0.25	1.30
	High Yield Spread	5.47	-1.60	3.87
DURATION	Long-Term Treasury	1.32	0.19	1.51
	Yield Forecast in Year 10	2.05	0.12	2.17
	Wilshire ACA	0.55	0.35	0.90
	Long G/C ACA	1.75	0.00	1.75

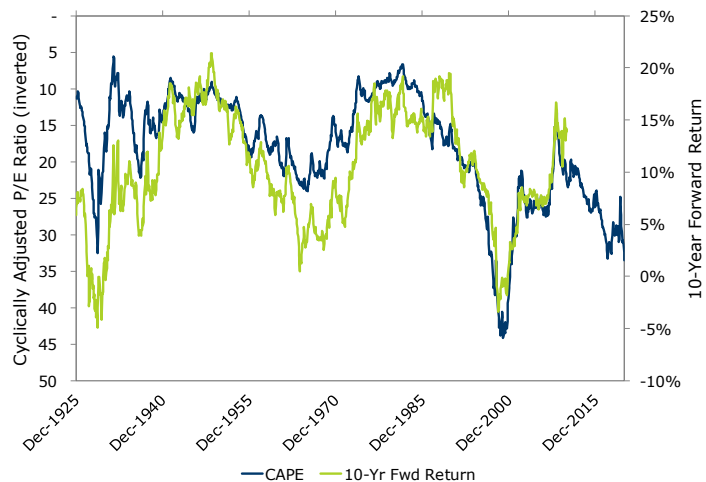
Equity Markets

EQUITY: PUBLIC & PRIVATE		SEP 2020	CHANGE	DEC 2020
US EQUITY	DDM	6.00	0.50	6.50
	IGV	5.20	-1.10	4.10
	CAPE	5.25	-1.65	3.60
	Wilshire ACA	5.50	-0.50	5.00
	Global ex-US ACA	6.25	-0.25	6.00
PRIVATE	Cost of Debt - Public	3.10	0.15	3.25
	Cost of Debt - Private	5.45	0.00	5.45
	Wilshire ACA	7.45	-0.50	6.95

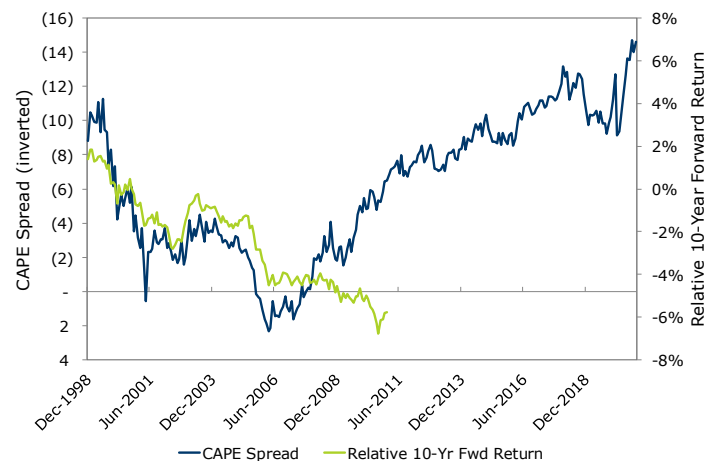
IGV Components: History (since 1951) vs. Forecast



U.S. EQUITY: ADJUSTED P/E RATIO VS FORWARD RETURN



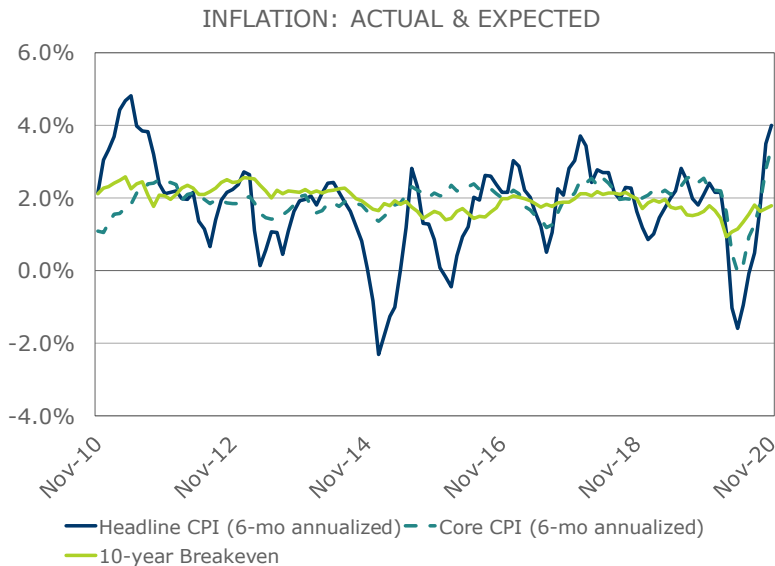
RELATIVE DEV. - U.S. EQUITY: CAPE VS FORWARD RETURN



Real Assets

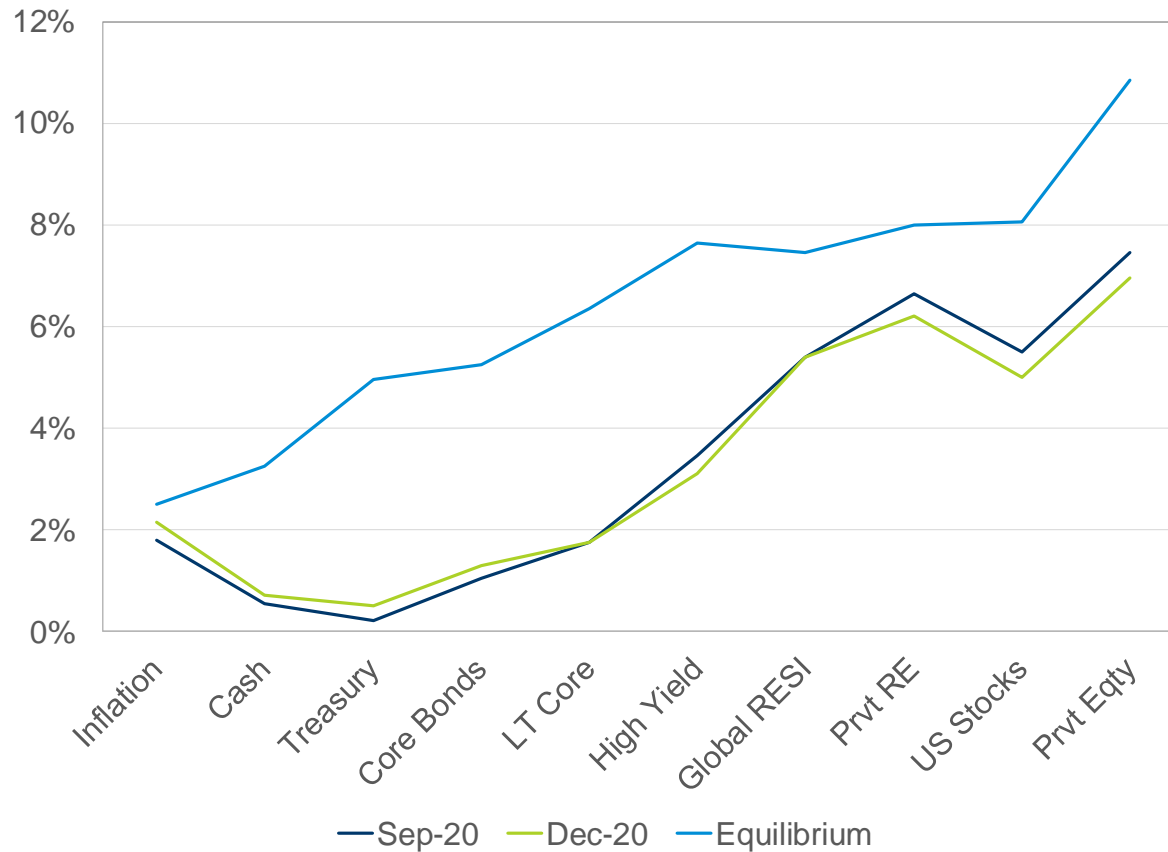
- Breakeven dipped to 0.5% in mid-March and has been steadily increasing since then
- Assumption of 2.15% is higher than actual BE, which was the case in Sept.
- Real asset yields are down

	TOTAL RETURN (%)			RISK (%)
	SEPT 2020	CHANGE	DEC 2020	
U.S. TIPS	0.40	0.40	0.80	6.00
GLOBAL RE SECURITIES	5.40	0.00	5.40	15.85
PRIVATE REAL ESTATE	6.65	-0.45	6.20	14.00
COMMODITIES	2.35	0.50	2.85	15.00
INFLATION	1.80	0.35	2.15	1.75



REAL ASSETS		SEP 2020	CHANGE	DEC 2020
LISTED	Inflation Capture	1.35	0.25	1.60
	REIT Yield	3.85	-0.25	3.60
	Midstream Yield	9.90	-2.00	7.90
	Infrastructure Yield	3.60	-0.50	3.10
	Commodities (π + Cash)	2.35	0.50	2.85
PRIVATE	RE Assumed Cap Rate	4.25	-0.25	4.00
	Cost of Debt - Private	3.25	0.20	3.45
	Prvt. Infra. Prm/Dsct vs. PRE	-0.25	-0.25	-0.50
	Leverage vs. Real Estate	2.5	0.00	2.5

Equilibrium Assumptions



Current versus Equilibrium Asset Class Assumptions

Q4 2020 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		High Yield	Dev ex- US Bond (Hdg)	Real Estate			Cmtdy	Real Assets	US CPI	
									Core Bond	TIPS			US RES	Global RES	Private RE				
COMPOUND RETURN (%)	5.00	5.75	5.75	6.00	5.55	6.95	0.70	1.30	1.75	0.80	3.10	0.35	5.20	5.40	6.20	2.85	5.65	2.15	
ARITHMETIC RETURN (%)	6.35	7.25	8.75	7.65	6.90	10.35	0.70	1.40	2.15	1.00	3.60	0.45	6.55	6.55	7.10	3.90	6.15	2.15	
EXPECTED RISK (%)	17.00	18.00	26.00	19.15	17.15	28.00	0.75	4.30	8.85	6.00	10.00	4.30	17.00	15.85	14.00	15.00	10.15	1.75	
CASH YIELD (%)	1.50	2.25	1.75	2.10	1.75	0.00	0.70	2.35	3.00	1.60	7.00	1.35	3.60	3.60	2.50	0.70	2.00	0.00	
GROWTH EXPOSURE	8.00	8.00	8.00	8.00	8.00	13.50	0.00	-0.80	-2.10	-3.00	4.00	-1.00	6.00	6.00	3.50	0.00	1.80	0.00	
INFLATION EXPOSURE	-3.00	0.00	5.00	1.55	-1.10	-3.80	0.00	-2.45	-6.55	2.50	-1.00	-3.00	1.00	1.95	1.00	12.00	4.90	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	0.83	0.96	0.87	1.00															
Global Stock	0.95	0.92	0.83	0.94	1.00														
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00											
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.92	1.00										
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.59	0.47	1.00									
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00								
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.17	0.18	0.26	0.10	0.66	0.65	0.39	0.26	1.00							
US RE Securities	0.58	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00						
Global RE Securities	0.64	0.58	0.56	0.61	0.65	0.58	-0.05	0.17	0.22	0.11	0.61	0.03	0.96	1.00					
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.75	1.00				
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00			
Real Assets	0.48	0.51	0.58	0.57	0.54	0.47	-0.02	0.23	0.25	0.39	0.56	0.05	0.70	0.75	0.70	0.65	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	-0.08	0.05	0.03	0.05	0.44	0.26	1.00	

Alternative Investment Assumptions

	BASKET WEIGHT	EXPECTED RETURN (%)	EXPECTED RISK (%)
PRIVATE EQUITY			
BUYOUTS	50%	5.00	30.00
VENTURE CAPITAL	20%	7.50	44.00
DISTRESSED DEBT	5%	5.25	20.00
MEZZANINE DEBT	5%	5.00	20.00
NON-US BUYOUTS	20%	6.25	32.00
PRIVATE EQUITY BASKET		6.95	28.00
PRIVATE REAL ESTATE			
CORE	70%	5.20	12.00
VALUE ADDED	15%	6.90	17.50
OPPORTUNISITC	15%	8.85	25.00
PRIVATE REAL ESTATE BASKET		6.20	14.00
PUBLIC REAL ASSETS			
GLOBAL REAL ESTATE	31%	5.40	15.85
U.S. TIPS	48%	0.80	6.00
COMMODITIES	33%	2.85	15.00
GOLD	9%	2.85	18.00
INFRA. / MDSTRM ENERGY	12%	5.30	16.20
BORROWING	-33%	0.95	0.75
PUBLIC REAL ASSETS BASKET		4.10	11.05
PRIVATE REAL ASSETS			
PRIVATE REAL ESTATE	35%	6.20	14.00
TIMBER	35%	6.15	15.00
OIL & GAS	30%	7.05	18.00
PRIVATE REAL ASSETS BASKET		7.00	11.25
HEDGE FUNDS			
EQUITY MARKET NEUTRAL	10%	2.75	4.50
EVENT DRIVEN	25%	4.20	7.00
EQUITY LONG/SHORT	35%	5.00	9.75
GLOBAL MACRO	5%	4.10	6.75
RELATIVE VALUE	25%	3.60	5.75
HEDGE FUND BASKET		4.25	6.60

Private Markets Solutions

SERVICE	INCLUDES	COMMINGLED VEHICLE	SEPARATE ACCOUNTS	ADVISORY SERVICES
Sourcing	<ul style="list-style-type: none"> • Map market • (Assistance in) building relationships • Enhanced manager access 	✓	✓	✓
Due Diligence	<ul style="list-style-type: none"> • Staged investment due diligence • Operational due diligence • Business terms review 	✓	✓	✓
Co-investments & Secondaries	<ul style="list-style-type: none"> • Opportunistic allocation 	✓	✓	Upon client request
Tax & Legal	<ul style="list-style-type: none"> • Legal review • Tax reporting 	✓	✓	CLIENT
Portfolio Planning	<ul style="list-style-type: none"> • Forward calendar composition • Portfolio construction • Position sizing 	✓	✓	✓
Investment Decisions	<ul style="list-style-type: none"> • Final investment discretion 	WPM	WPM	CLIENT
Monitoring & Reporting	<ul style="list-style-type: none"> • Quarterly reviews • Frequent touch points • Performance reporting 	✓	✓	Upon client request
Portfolio Administration	<ul style="list-style-type: none"> • Cashflow management • Annual audit 	✓	✓	CLIENT*

✓ Denotes inclusion within the service

*Subject to separate administrative services contract

Private Equity Network

NORTH AMERICA

EUROPE

ASIA-PACIFIC

BUYOUT

VENTURE/ GROWTH

DISTRESSED/ CREDIT

Manager names represent firms tracked in Wilshire's investment database with corresponding contact notes.

Real Assets Network

GLOBAL

ENERGY



INFRASTRUCTURE



TIMBERLAND



REAL ESTATE



Manager names represent firms tracked in Wilshire's investment database with corresponding contact notes.

Consulting Research & Education

Market/Economic & Topical

- Asset Allocation Return and Risk Assumptions Annual
- Midstream Energy Infrastructure: The Evolution of an Asset Class
- Hedge Funds 2.0: An Integrated Approach To Investing In Marketable Alternatives
- Cryptocurrencies: Thoughts and Concerns for Institutional Investors
- MLP Update: Implications of Recent Tax Code Changes
- Where's the "F" in ESG?
- Wilshire ESG Client Survey
- Recent Trends in Hedge Fund Fees: Say Goodbye to 2 & 20
- Benchmarking Risk Parity Portfolios
- Climate Change: Evolving Risks and Opportunities
- Wilshire Consulting's Risk Lenses – The Essential Nature of Risk
- European Credit Environment and Opportunity Set
- Implications of Rising Rates on Asset Performance
- Alternative Mutual Fund Strategies: Liquid Opportunities
- ESG Investing Update
- Measuring Up
- TIPS Return Drivers: Examples of Divergent TIPS Performance
- Liquidity Management: Bridge Over Troubled Water
- Forecasting Private Equity Returns: Building Return Assumptions in Private Markets
- Credit Opportunities: Perspectives on the Current Marketplace
- Factor-Based Asset Allocation (2 Part Paper)

Consulting Research & Education

Asset Class/Strategic

- Returns as Far as the Eye Can See: Ultra-Long-Term Asset Class Assumptions
- Smart Beta: The Space between Alpha and Beta
- Economic Factor Portfolios: A Macro Lens for Understanding Market Behavior
- Gliding Into Balance: Glidepath Approach to Implementing Risk Parity
- Currency Management Today
- A Call for Patience: Keep Your Eye on the Horizon
- Considering the Alternatives: Alternative Risk/Return Strategies
- Bonds Gone Wild: The Role of Unconstrained Bond Strategies
- Recent Developments in Emerging Markets Debt
- Hedge Fund Style Assumptions: Methodology Overview
- Revisiting Home-Country Bias
- Alternative Equity-Weighting Strategies
- Bank Loans: A Special Credit Opportunity
- A Rebalancing Act: Implementing a Rebalancing Policy
- The Weighting is the Hardest Part, Dynamic Asset Allocation
- The Bucket List: Combining Assets Classes in Asset Allocation
- Opportunistic Investing
- Risk-Focused Diversification
- Implications of Return Non-normality on Asset Allocation
- Infrastructure Investing
- Incorporating Active Management... Over Active Imagination

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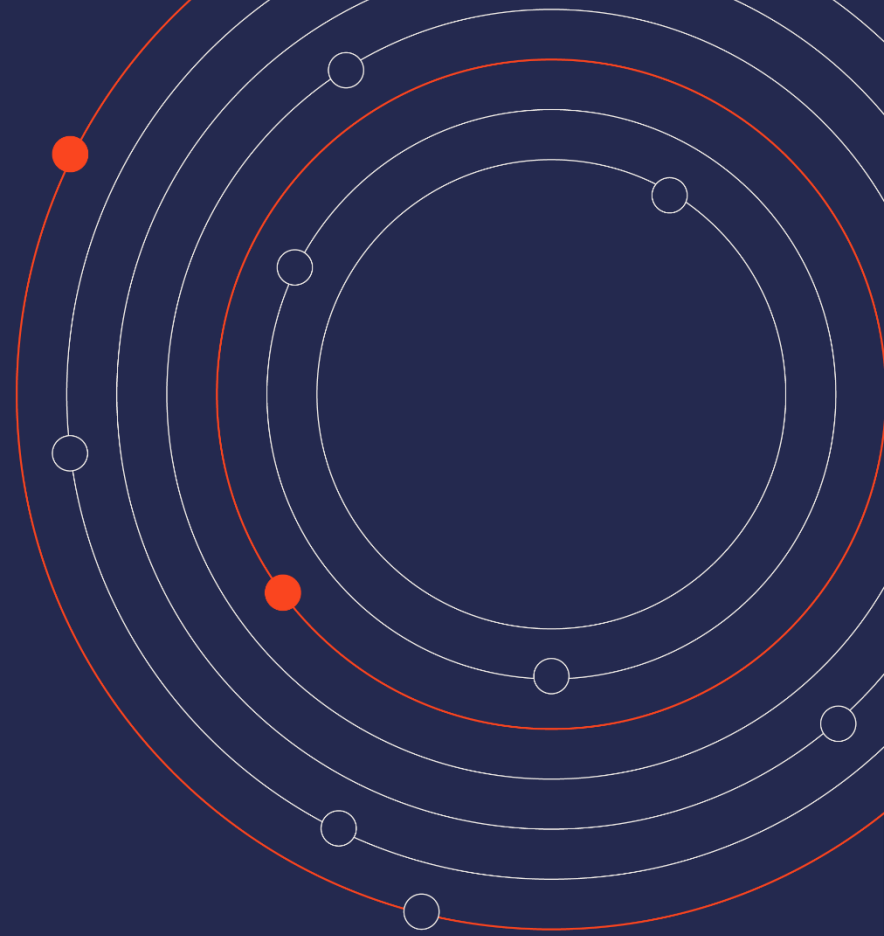
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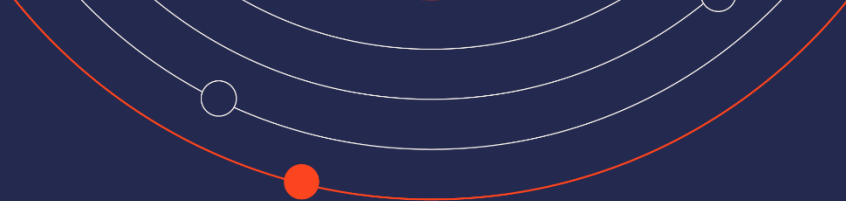
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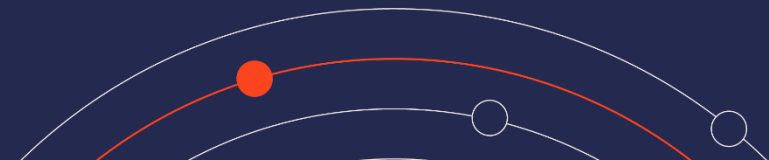
Wilshire



Numbers in Context

4th Quarter 2020

Wilshire



Market Commentary

U.S. Equity

Although Coronavirus infections are accelerating and many cities are re-imposing restrictions, both consumer and business surveys are moderating at encouraging levels. However, job growth has slowed dramatically and initial jobless claims remain at what would normally be historic levels. The big news on the virus front is the commencement of vaccine distribution but that does not mean we are close to any normalization of everyday activities.

Consumer price changes slowed during the fourth quarter, with modest gains for the past twelve months. The Consumer Price Index was up 0.4% for the three months ending November and up 1.2% for the one-year period.

Non-U.S. Equity

A second wave of COVID-19 infections is hindering several European countries and the ECB responded by expanding its money-printing program by hundreds of billions of euros. The Chinese economy is poised for growth this year, unlike most other countries, but that is driven by the PRC's traditional strengths, such as exports, while domestic demand is still weak.

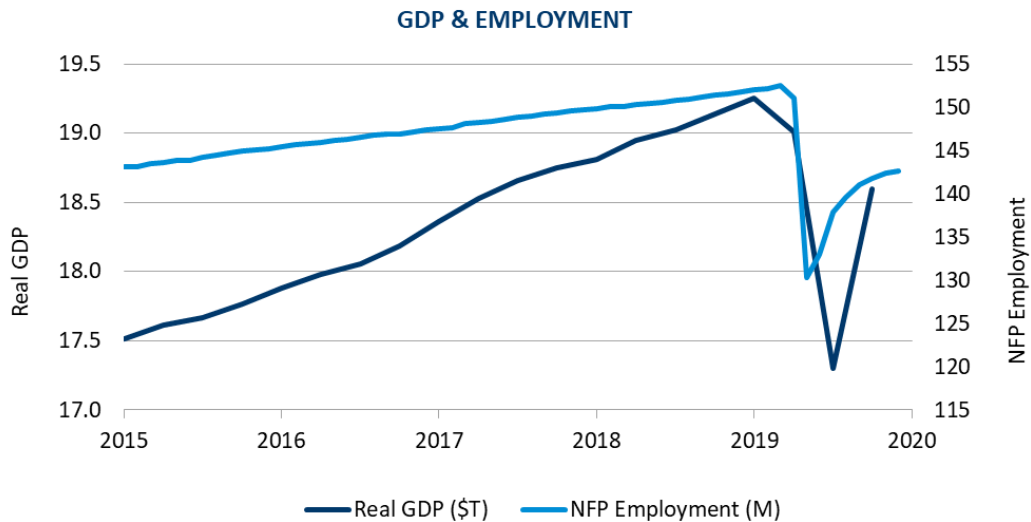
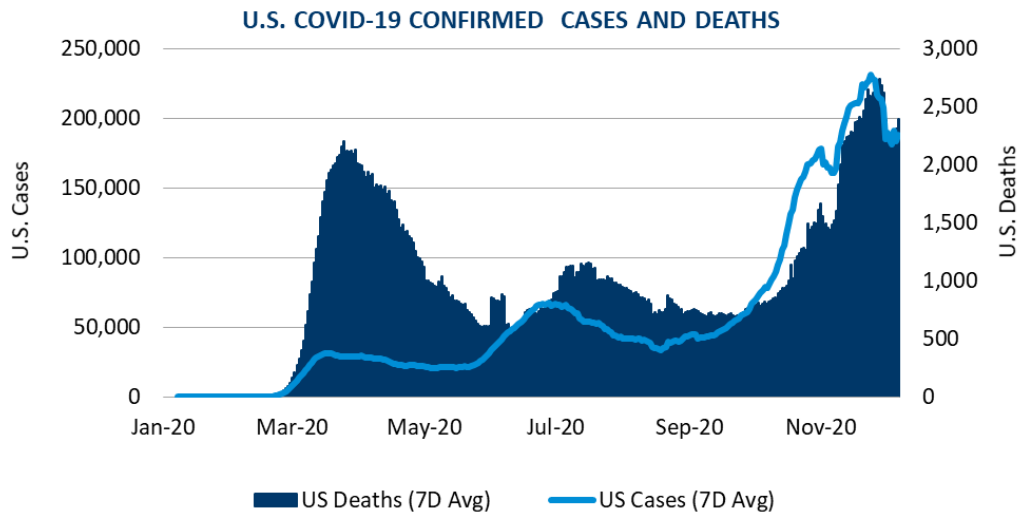
Fixed Income

The U.S. Treasury yield curve was up across most maturities with the 10-year Treasury yield ending the quarter at 0.93%. The FOMC met twice with no change to their overnight rate, which they expect will be near zero through 2023. The Committee reiterated its pledge to support the economic recovery, including an increase in its bond-buying activities.

December 2020 Asset Class Assumptions

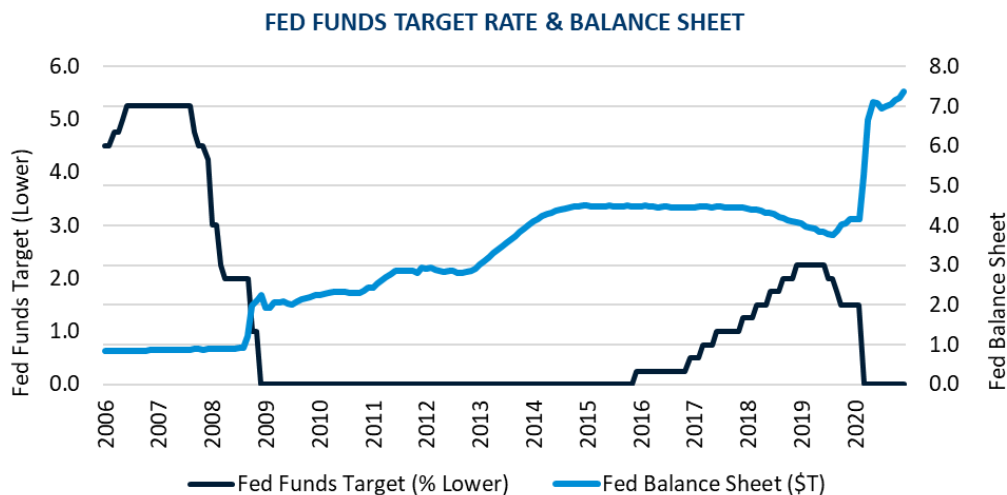
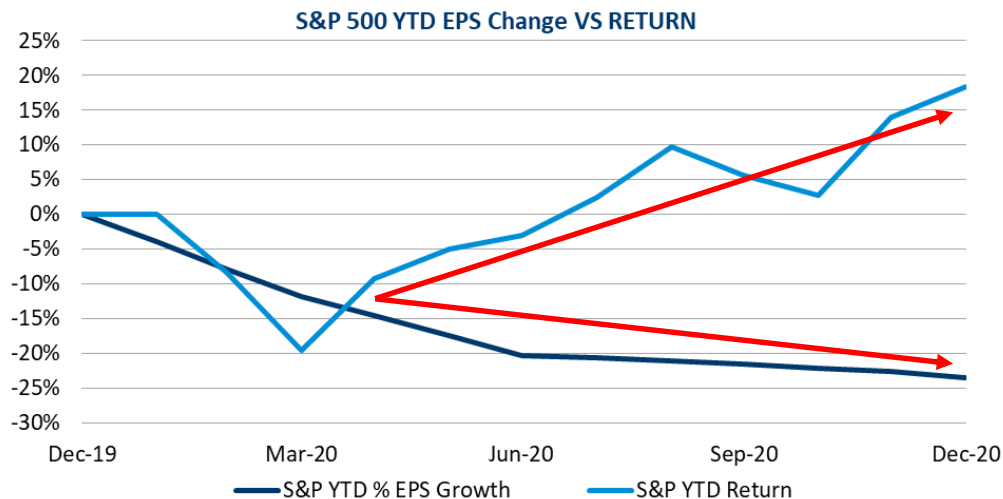
	EQUITY						FIXED INCOME						REAL ASSETS					
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Dev ex-US Bond (Hdg)	Real Estate			Cmnty	Real Assets	US CPI
													US RES	Global RES	Private RE			
COMPOUND RETURN (%)	5.00	5.75	5.75	6.00	5.55	6.95	0.70	1.30	1.75	0.80	3.10	0.35	5.20	5.40	6.20	2.85	5.65	2.15
ARITHMETIC RETURN (%)	6.35	7.25	8.75	7.65	6.90	10.35	0.70	1.40	2.15	1.00	3.60	0.45	6.55	6.55	7.10	3.90	6.15	2.15
EXPECTED RISK (%)	17.00	18.00	26.00	19.15	17.15	28.00	0.75	4.30	8.85	6.00	10.00	4.30	17.00	15.85	14.00	15.00	10.15	1.75
CASH YIELD (%)	1.50	2.25	1.75	2.10	1.75	0.00	0.70	2.35	3.00	1.60	7.00	1.35	3.60	3.60	2.50	0.70	2.00	0.00
GROWTH EXPOSURE	8.00	8.00	8.00	8.00	8.00	13.50	0.00	-0.80	-2.10	-3.00	4.00	-1.00	6.00	6.00	3.50	0.00	1.80	0.00
INFLATION EXPOSURE	-3.00	0.00	5.00	1.55	-1.10	-3.80	0.00	-2.45	-6.55	2.50	-1.00	-3.00	1.00	1.95	1.00	12.00	4.90	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	0.83	0.96	0.87	1.00														
Global Stock	0.95	0.92	0.83	0.94	1.00													
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.92	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.59	0.47	1.00								
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.17	0.18	0.26	0.10	0.66	0.65	0.39	0.26	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
Global RE Securities	0.64	0.58	0.56	0.61	0.65	0.58	-0.05	0.17	0.22	0.11	0.61	0.03	0.96	1.00				
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.75	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.48	0.51	0.58	0.57	0.54	0.47	-0.02	0.23	0.25	0.39	0.56	0.05	0.70	0.75	0.70	0.65	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	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

2020 “Turn the Page”



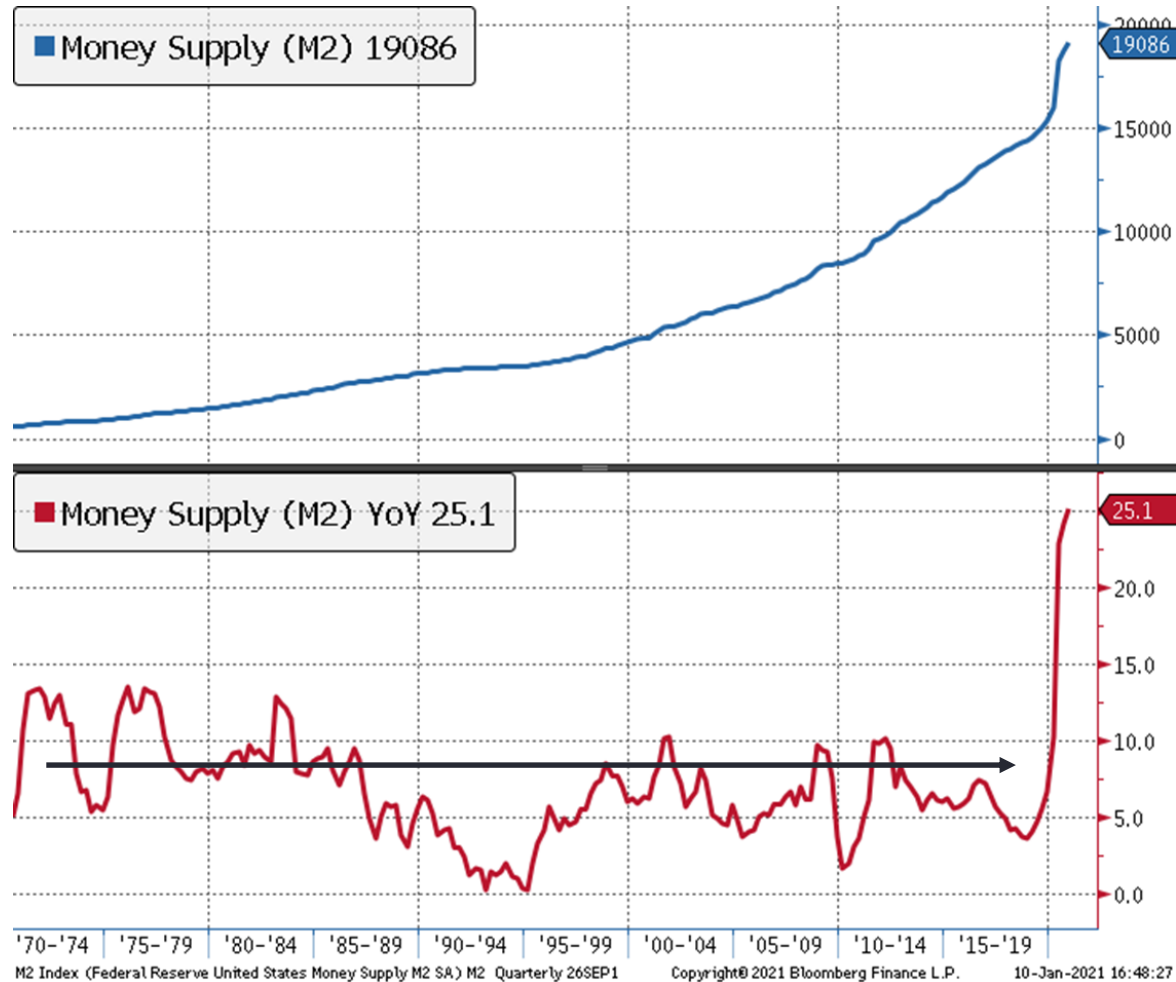
Data Source: Bloomberg

2020 Economic & Market Divergence



Data Source: Bloomberg

Money Supply (M2) Growth

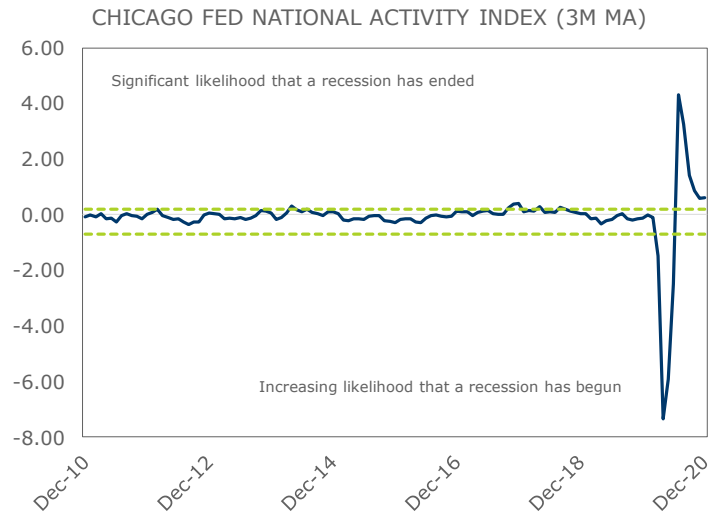


Data Source: Bloomberg

Economic/Market Activity

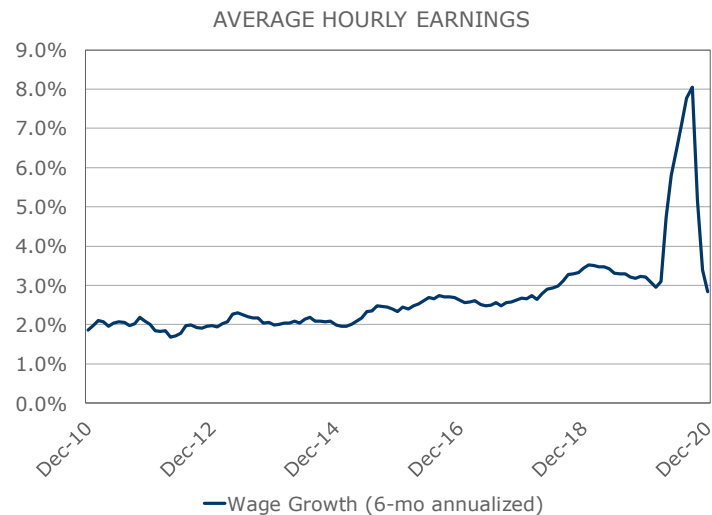
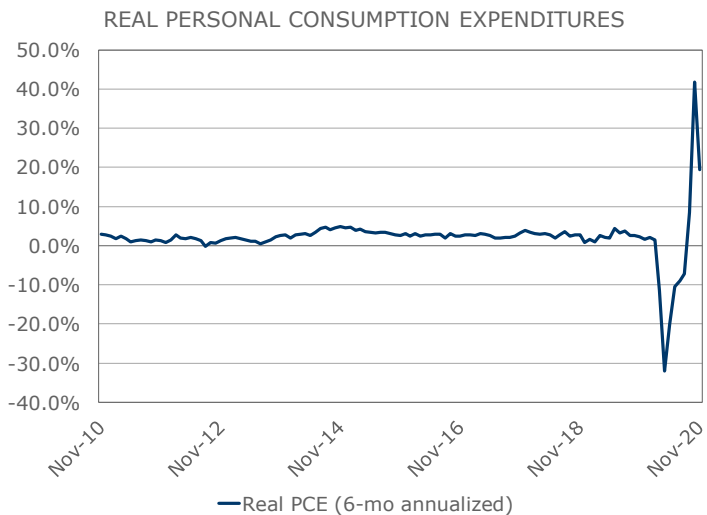
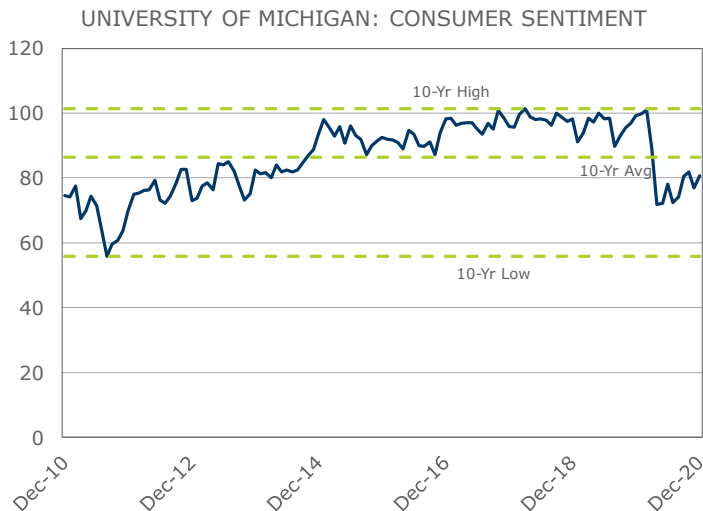
Wilshire

Economic Growth



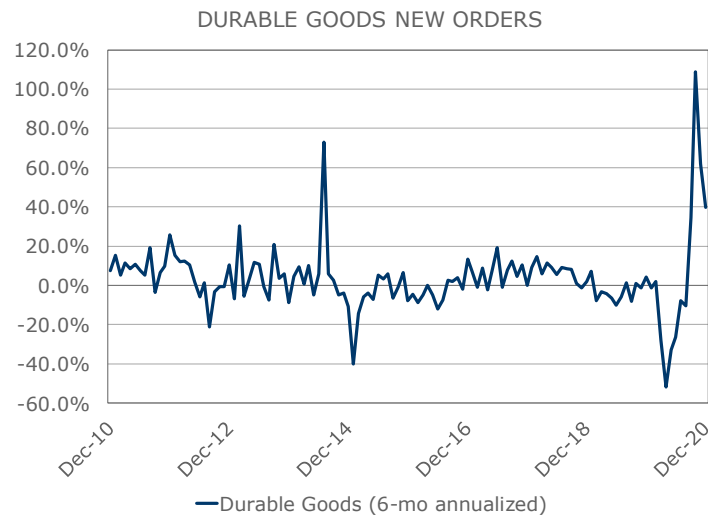
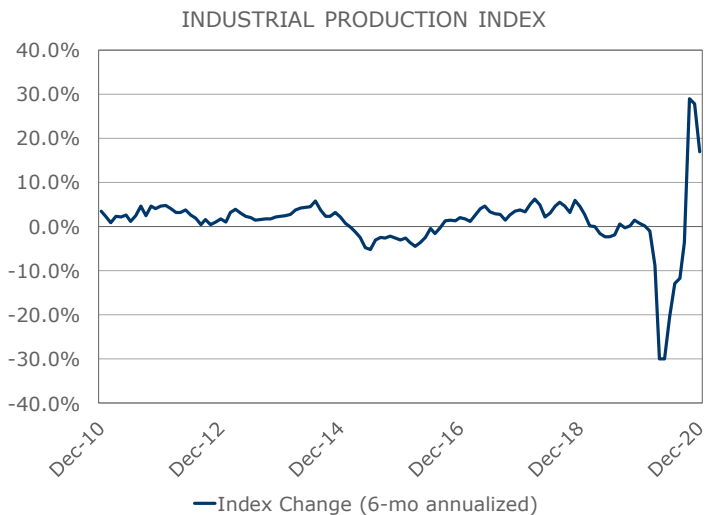
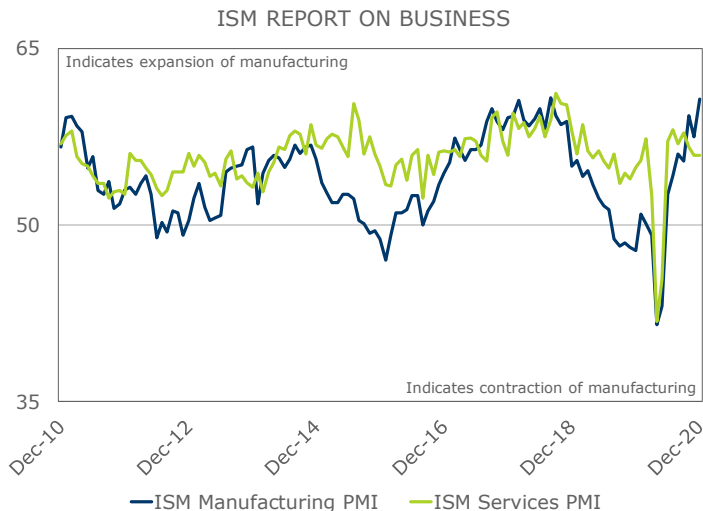
Data Sources: Bloomberg

Consumer Activity



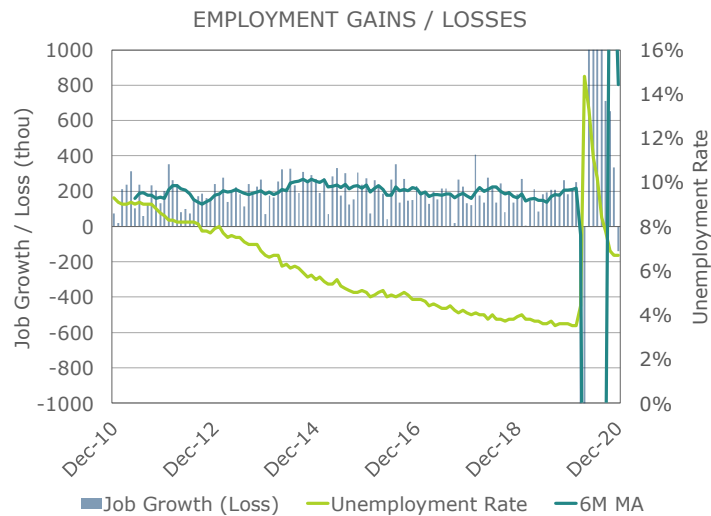
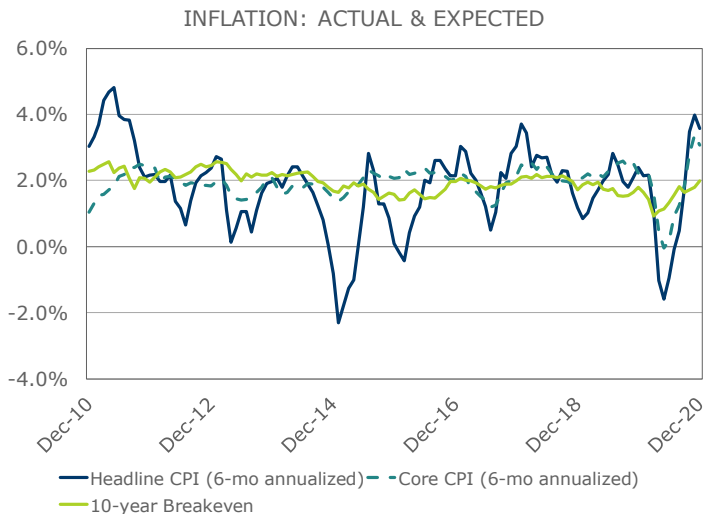
Data Sources: Bloomberg

Business Activity



Data Sources: Bloomberg

Inflation and Employment

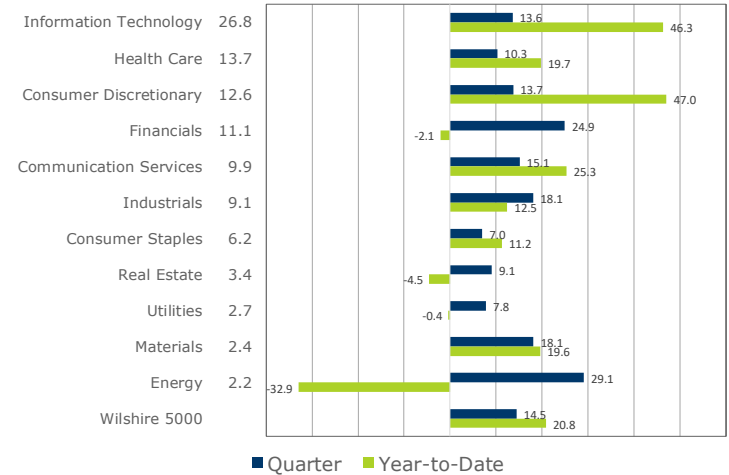


Data Sources: Bloomberg

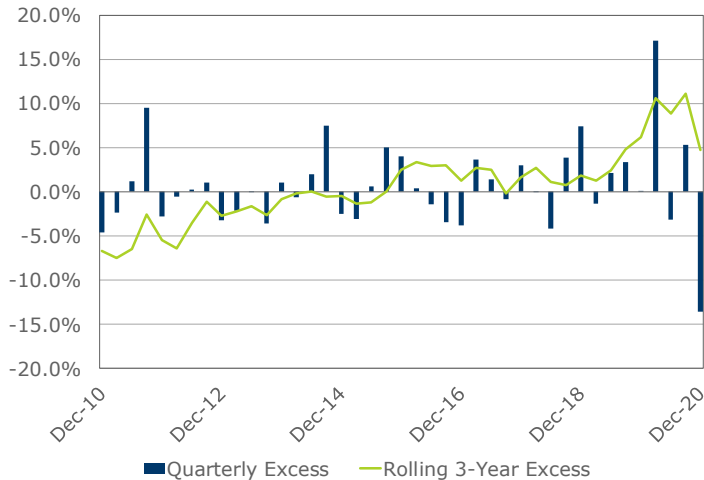
U.S. Equity Market

AS OF 12/31/2020	QTR	YTD	1 YR	3 YR	5 YR	10 YR
WILSHIRE 5000 INDEX	14.5	20.8	20.8	14.5	15.5	13.8
WILSHIRE U.S. LARGE CAP	13.2	21.2	21.2	15.0	15.8	14.0
WILSHIRE U.S. SMALL CAP	31.0	17.4	17.4	9.7	12.9	11.5
WILSHIRE U.S. LARGE GROWTH	12.8	35.4	35.4	21.0	19.8	16.4
WILSHIRE U.S. LARGE VALUE	13.6	7.4	7.4	8.9	11.6	11.6
WILSHIRE U.S. SMALL GROWTH	29.7	29.7	29.7	14.9	16.2	13.2
WILSHIRE U.S. SMALL VALUE	32.2	6.2	6.2	4.7	9.5	9.7
WILSHIRE REIT INDEX	10.6	-7.9	-7.9	3.3	4.3	8.3
MSCI USA MIN. VOL. INDEX	6.9	5.8	5.8	11.2	12.6	13.4
FTSE RAFI U.S. 1000 INDEX	17.5	8.0	8.0	8.2	11.7	11.7

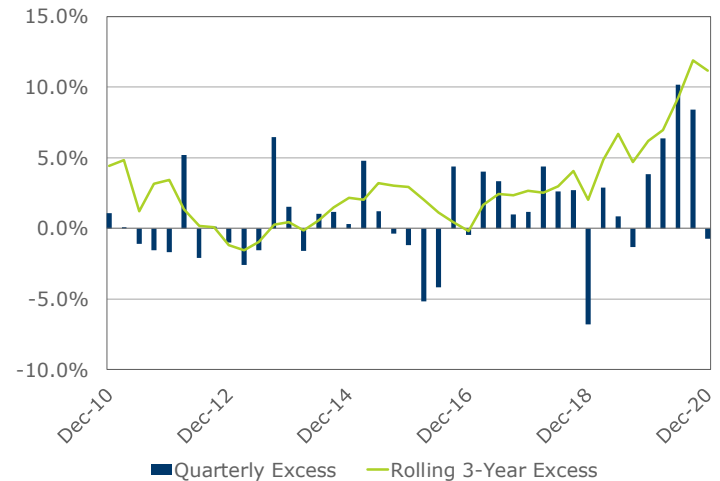
U.S. SECTOR WEIGHT AND RETURN (%)



LARGE CAP VS SMALL CAP



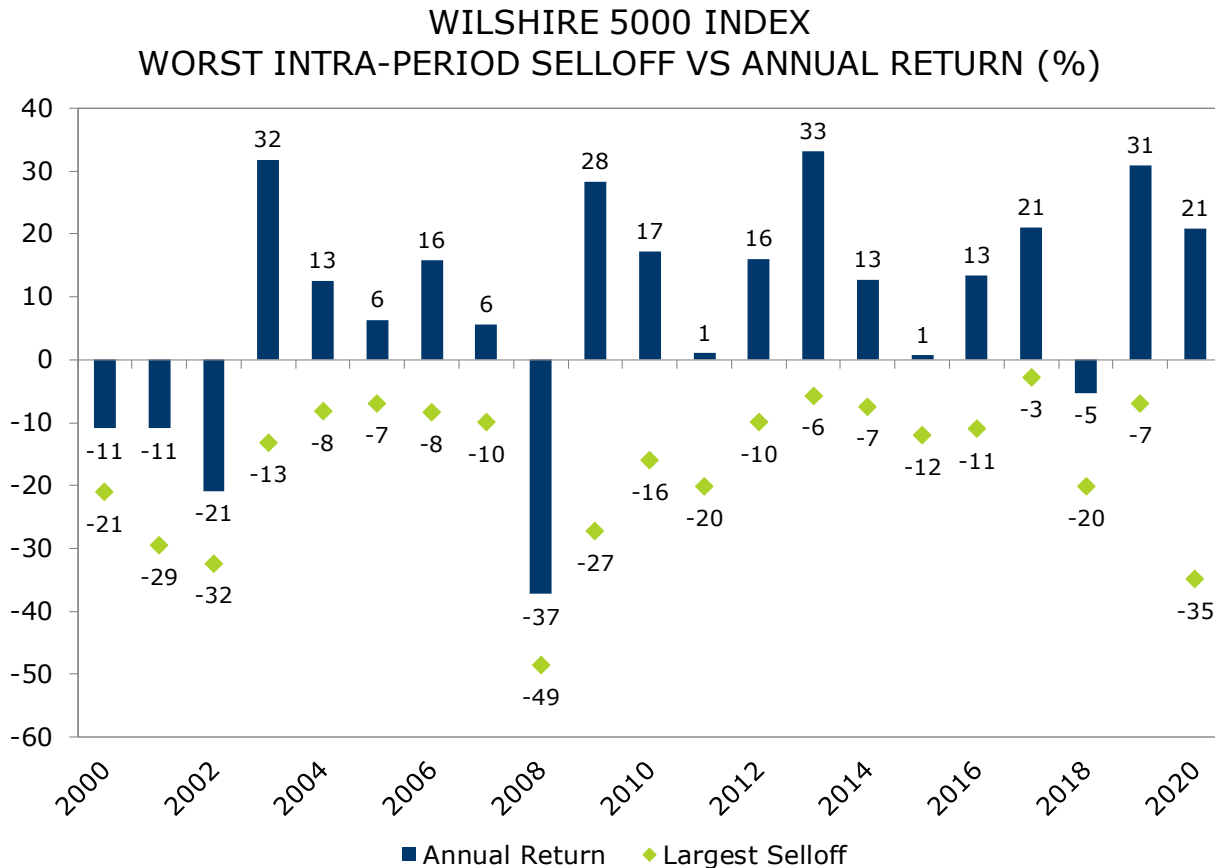
LARGE GROWTH VS LARGE VALUE



Data Sources: Bloomberg, Wilshire Atlas

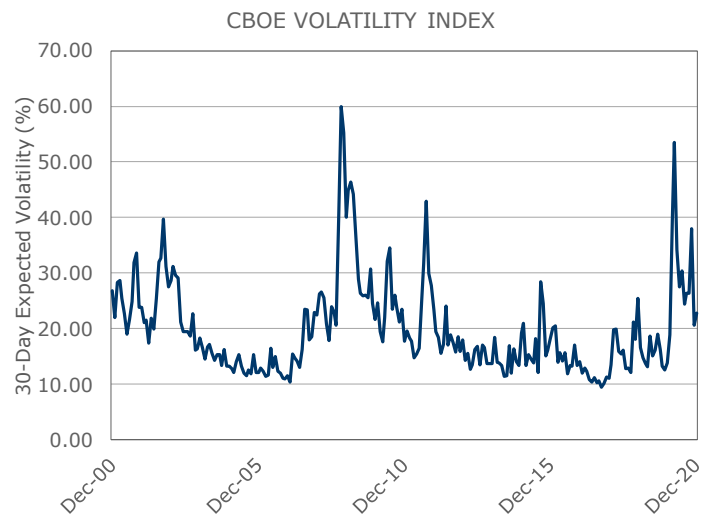
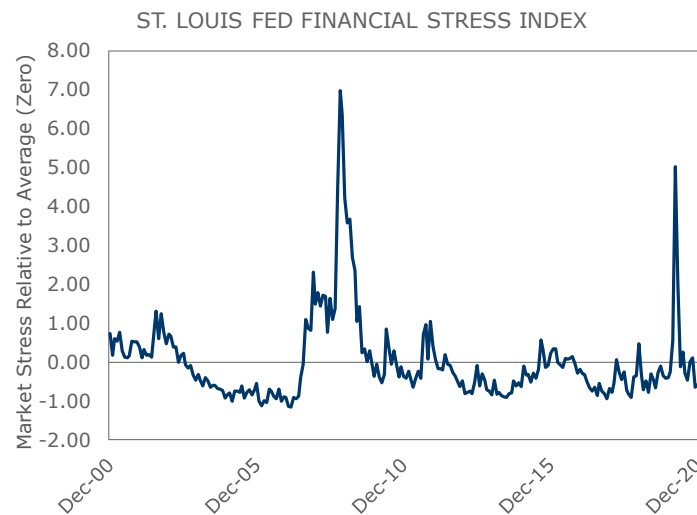
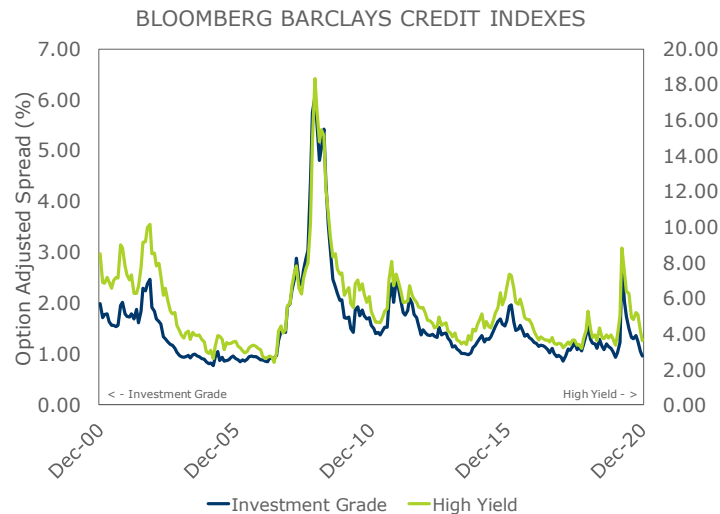
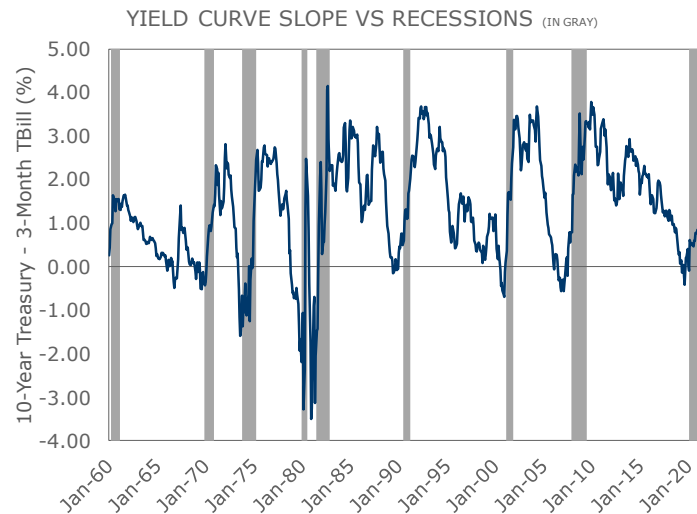
Annual Returns

Despite the largest sell-off since the credit crisis, U.S. equity had a second-straight big year



Data Sources: Wilshire

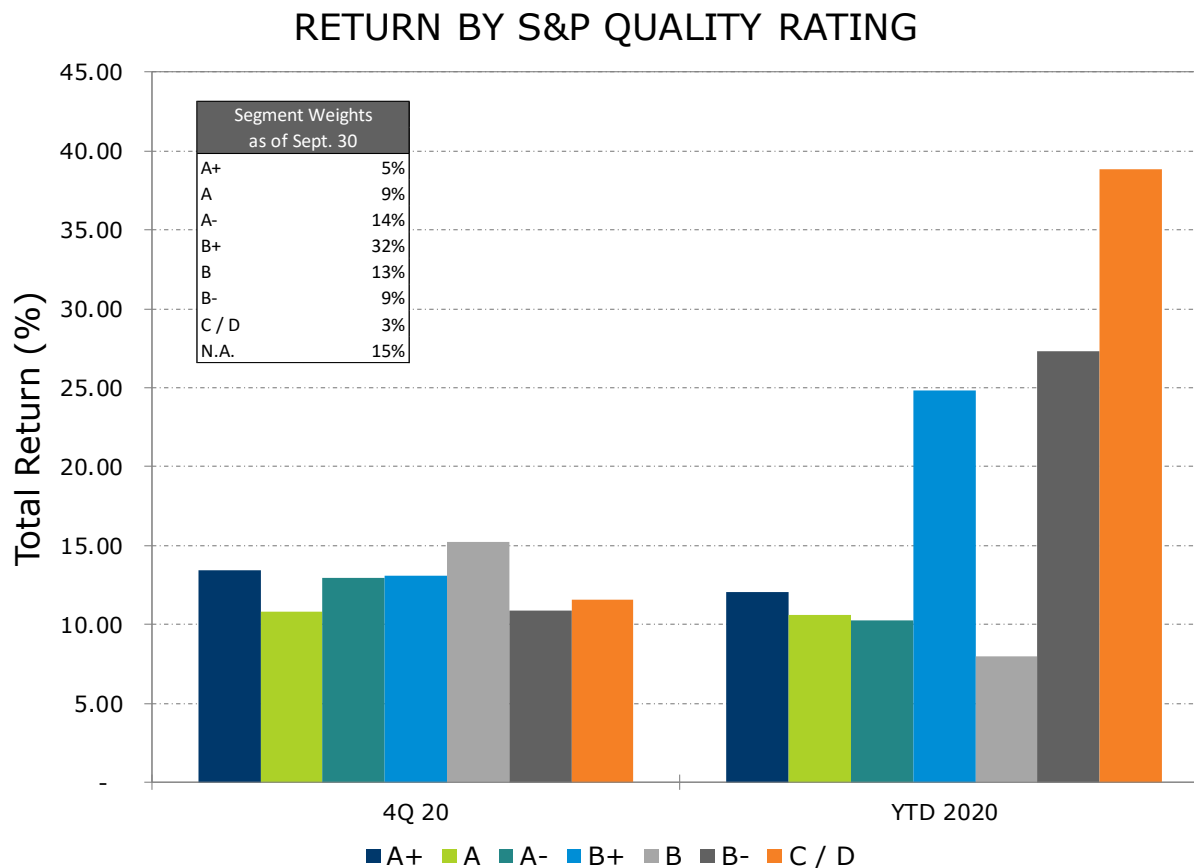
Risk Monitor



Data Sources: Bloomberg

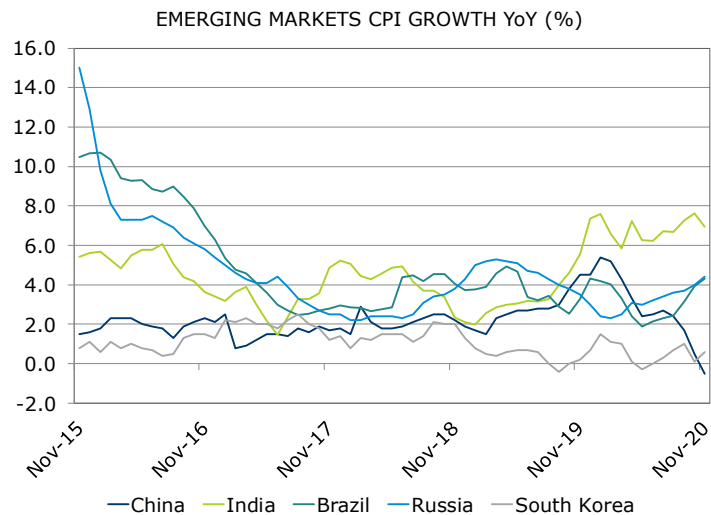
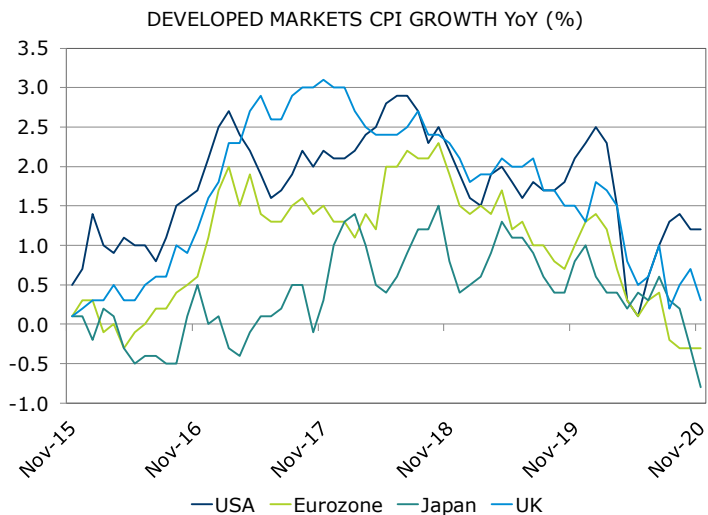
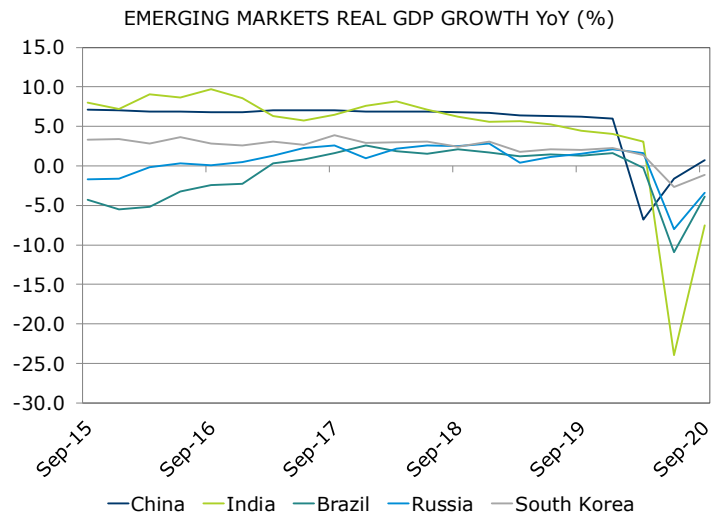
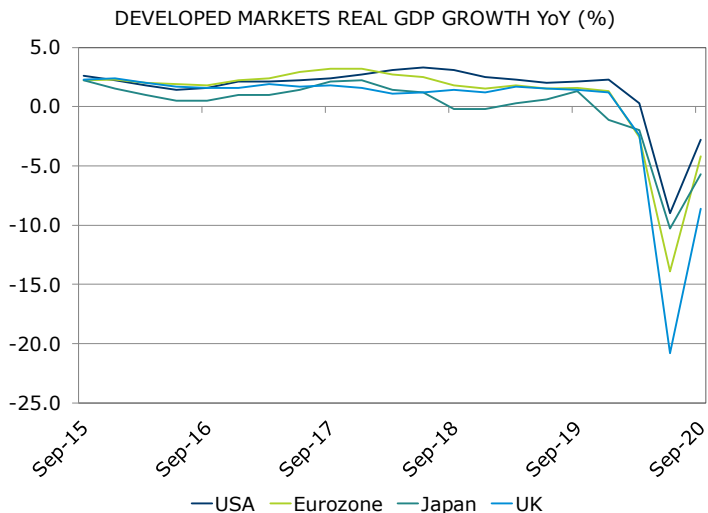
Returns by Quality Segment

Although gains were broad based for the quarter, lower quality names led for the year



Data Sources: Wilshire Atlas

Non-U.S. Growth and Inflation

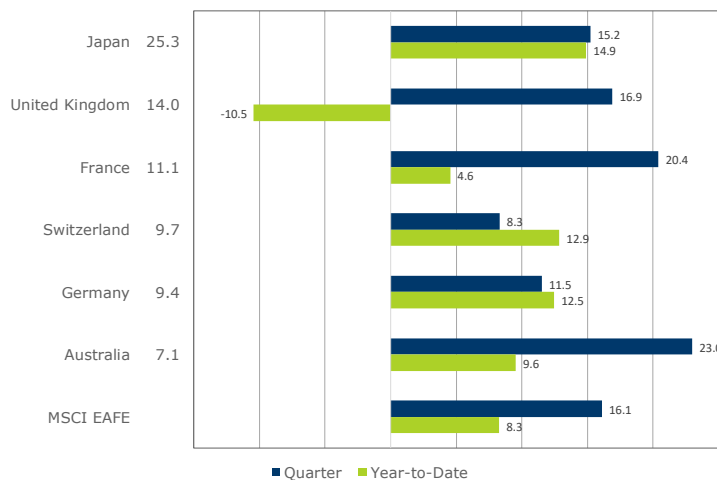


Data Sources: Bloomberg

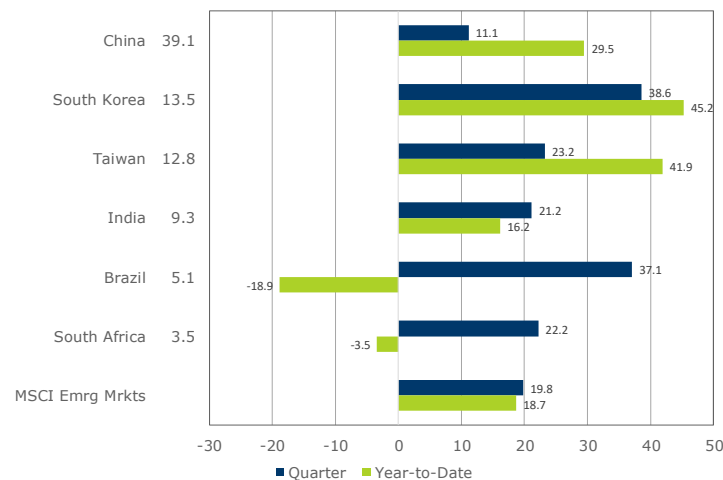
Non-U.S. Equity Market

AS OF 12/31/2020	QTR	YTD	1 YR	3 YR	5 YR	10 YR
MSCI ACWI EX-US (\$G)	17.1	11.1	11.1	5.4	9.4	5.4
MSCI EAFE (\$G)	16.1	8.3	8.3	4.8	8.0	6.0
MSCI EMERGING MARKETS (\$G)	19.8	18.7	18.7	6.6	13.2	4.0
MSCI FRONTIER MARKETS (\$G)	17.5	-2.4	-2.4	-1.5	5.1	1.7
MSCI ACWI EX-US GROWTH (\$G)	14.0	22.6	22.6	10.4	12.4	7.3
MSCI ACWI EX-US VALUE (\$G)	20.6	0.5	0.5	0.4	6.6	3.6
MSCI ACWI EX-US SMALL (\$G)	18.6	14.7	14.7	5.0	9.8	6.3
MSCI ACWI MINIMUM VOLATILITY	6.5	3.3	3.3	7.6	9.8	9.8
MSCI EAFE MINIMUM VOLATILITY	8.0	0.6	0.6	3.8	6.2	7.2
FTSE RAFI DEVELOPED EX-US	21.3	3.0	3.0	1.1	6.6	4.2
MSCI EAFE LC (G)	11.4	1.3	1.3	3.5	6.3	7.3
MSCI EMERGING MARKETS LC (G)	16.1	19.5	19.5	8.5	13.0	7.0

DEVELOPED MARKETS WEIGHT AND RETURN (%)



EMERGING MARKETS WEIGHT AND RETURN (%)

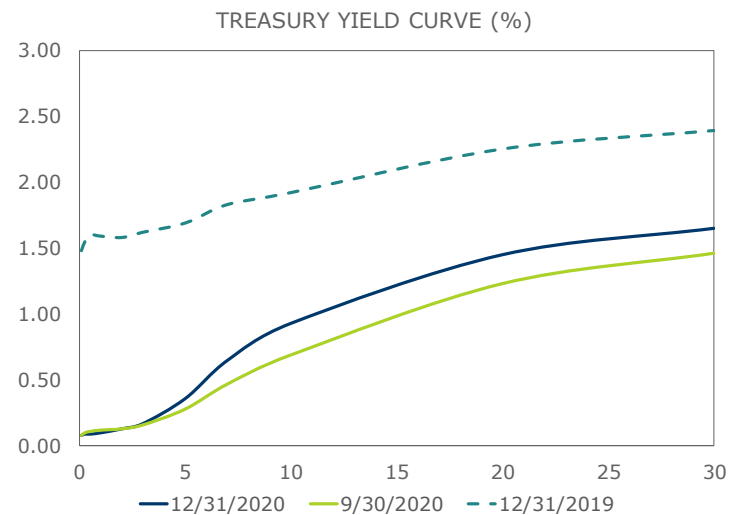
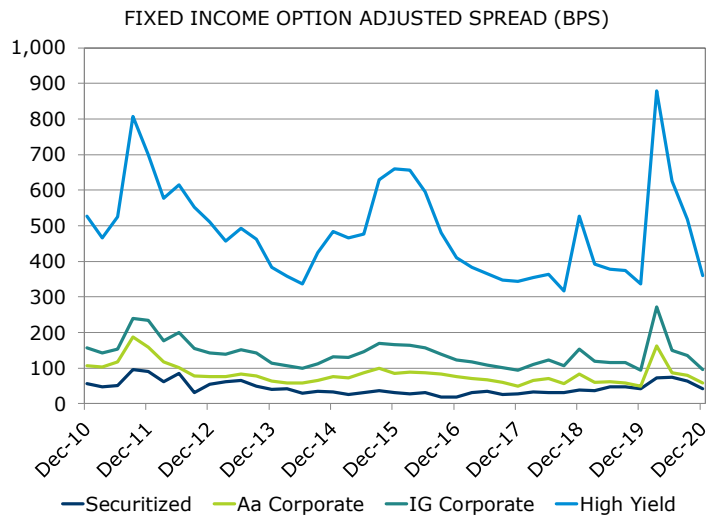


Data Sources: Bloomberg

U.S. Fixed Income

AS OF 12/31/2020	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS AGGREGATE	1.1	6.2	0.7	7.5	7.5	5.3	4.4	3.8
BLOOMBERG BARCLAYS TREASURY	0.6	7.2	-0.8	8.0	8.0	5.2	3.8	3.3
BLOOMBERG BARCLAYS GOV'T-REL.	1.1	6.0	0.9	5.9	5.9	5.0	4.4	3.6
BLOOMBERG BARCLAYS SECURITIZED	1.2	2.6	0.3	4.2	4.2	3.8	3.2	3.1
BLOOMBERG BARCLAYS CORPORATE	1.7	8.8	3.0	9.9	9.9	7.1	6.7	5.6
BLOOMBERG BARCLAYS LT G/C	2.3	16.8	1.7	16.1	16.1	9.8	9.3	8.2
BLOOMBERG BARCLAYS LT TREASURY	1.5	19.2	-3.0	17.7	17.7	9.9	7.8	7.8
BLOOMBERG BARCLAYS LT GOV't-REL.	2.7	13.8	2.7	9.6	9.6	8.0	8.4	7.7
BLOOMBERG BARCLAYS LT CORP.	2.8	15.5	5.1	13.9	13.9	9.4	10.2	8.3
BLOOMBERG BARCLAYS U.S. TIPS *	0.8	8.0	1.6	11.0	11.0	5.9	5.1	3.8
BLOOMBERG BARCLAYS HIGH YIELD	4.2	3.6	6.5	7.1	7.1	6.2	8.6	6.8
TREASURY BILLS	0.1	0.3	0.0	0.7	0.7	1.6	1.2	0.7

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



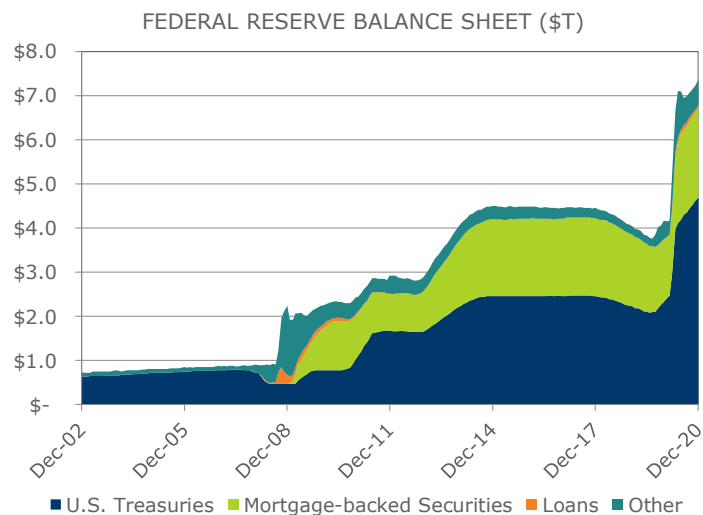
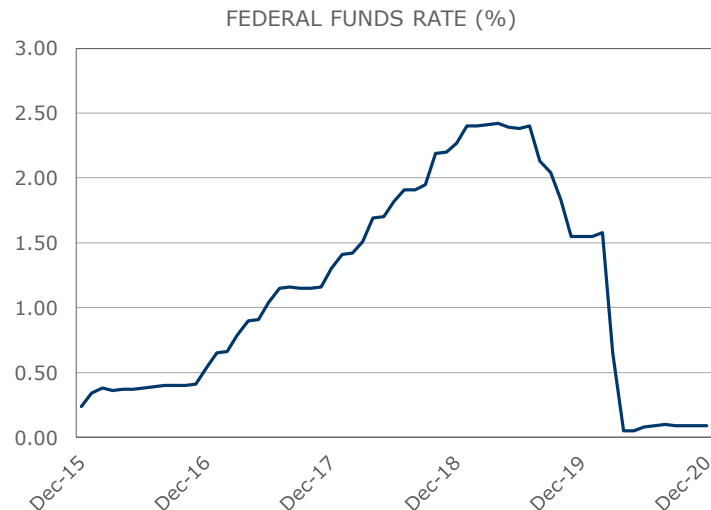
Data Sources: Bloomberg

Federal Reserve

- **Current expectation for the Fed-funds rate is to remain near zero through 2023**
- **Federal Reserve has added more than \$3 trillion in assets to their balance sheet just this year**
- **Unlike after the GFC, the Fed is also buying corporate and municipal bonds in addition to Treasuries and MBS**

	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		\$3,245

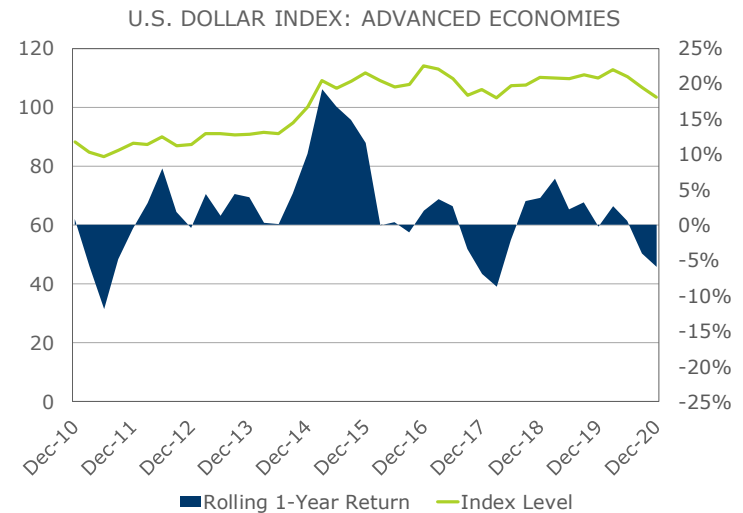
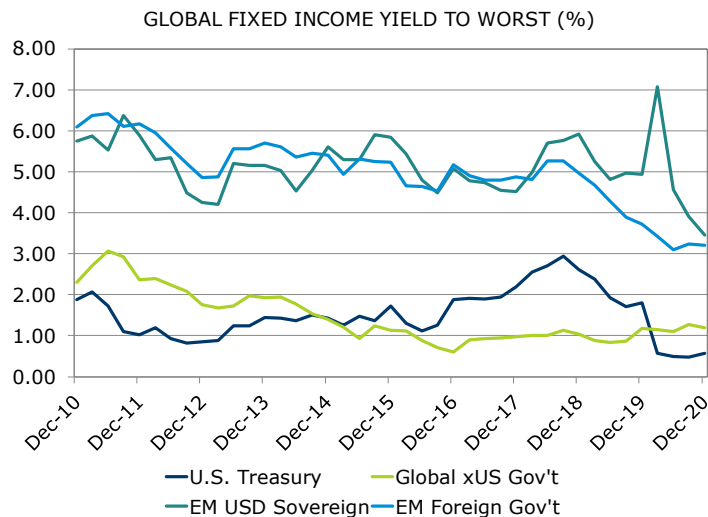
Data Sources: Bloomberg



Non-U.S. Fixed Income

AS OF 12/31/2020	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DEVELOPED MARKETS						
BLMBRG BRCLYS GLBL AGGREGATE xUS	5.1	10.1	10.1	4.2	4.9	2.0
BLMBRG BRCLYS GLBL AGGREGATE xUS *	0.9	3.9	3.9	4.9	4.4	4.4
BLMBRG BRCLYS GLOBAL INF LNKD xUS	7.0	13.4	13.4	4.8	6.0	4.3
BLMBRG BRCLYS GLOBAL INF LNKD xUS *	1.9	8.4	8.4	5.9	7.0	6.2
EMERGING MARKETS (HARD CURRENCY)						
BLMBRG BRCLYS EM USD AGGREGATE	4.5	6.5	6.5	5.5	6.9	6.0
EMERGING MARKETS (FOREIGN CURRENCY)						
BLMBRG BRCLYS EM LOCAL CURR. GOV'T	7.1	5.3	5.3	3.7	6.1	2.7
BLMBRG BRCLYS EM LOCAL CURR. GOV'T *	0.9	3.2	3.2	4.8	4.2	3.4
EURO vs. DOLLAR	4.2	8.9	8.9	0.6	2.4	-0.9
YEN vs. DOLLAR	2.2	5.2	5.2	3.0	3.1	-2.4
POUND vs. DOLLAR	5.8	3.1	3.1	0.4	-1.5	-1.3

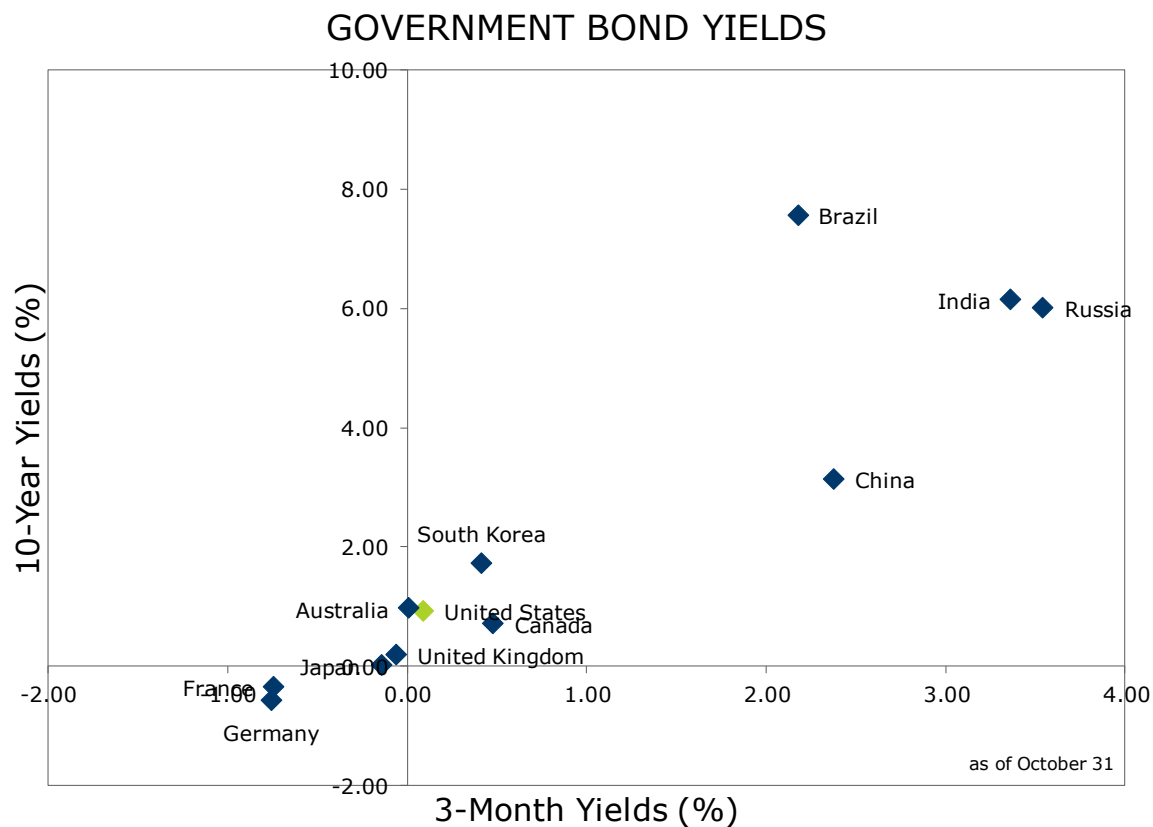
* Returns are reported in terms of local market investors, which removes currency effects.



Data Sources: Bloomberg

Global Interest Rates

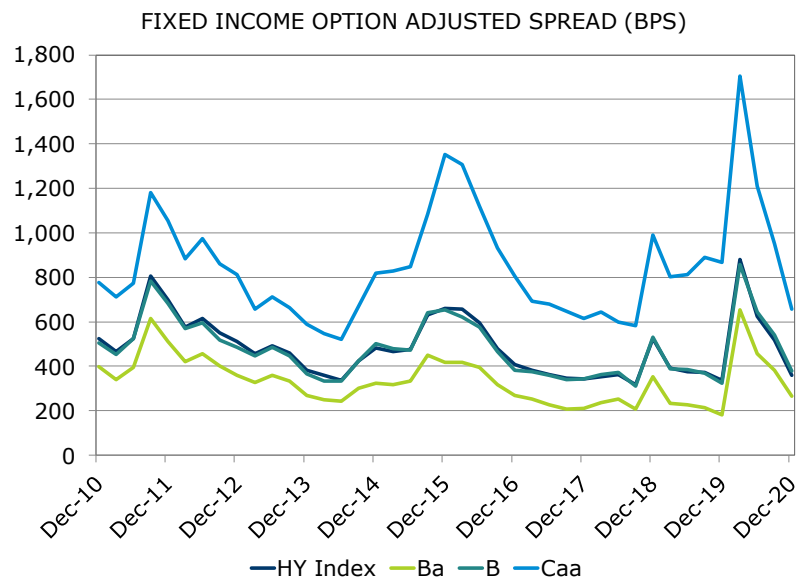
Negative rates found in Germany and France; low but positive rates, and at similar levels, in the U.S. and Australia while the U.K. approaches zero



Data Sources: Bloomberg

High Yield Bond Market

AS OF 12/31/2020		YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS HIGH YIELD		4.2	6.5	7.1	7.1	6.2	8.6	6.8
S&P LSTA LEVERAGE LOAN INDEX		4.0	3.4	2.8	2.8	4.2	5.3	4.0
HIGH YIELD QUALITY DISTRIBUTION	WEIGHT							
Ba U.S. HIGH YIELD	54.4%	3.2	5.7	10.2	10.2	7.5	8.5	7.3
B U.S. HIGH YIELD	32.7%	4.4	5.8	4.6	4.6	5.8	7.9	6.3
Caa U.S. HIGH YIELD	12.1%	7.1	9.9	2.3	2.3	2.5	9.3	6.4
Ca to D U.S. HIGH YIELD	0.8%	15.6	34.1	2.6	2.6	0.3	16.1	-3.9
Non-Rated U.S. HIGH YIELD	0.0%	0.0	0.0	-6.5	-6.5	0.2	3.0	3.2

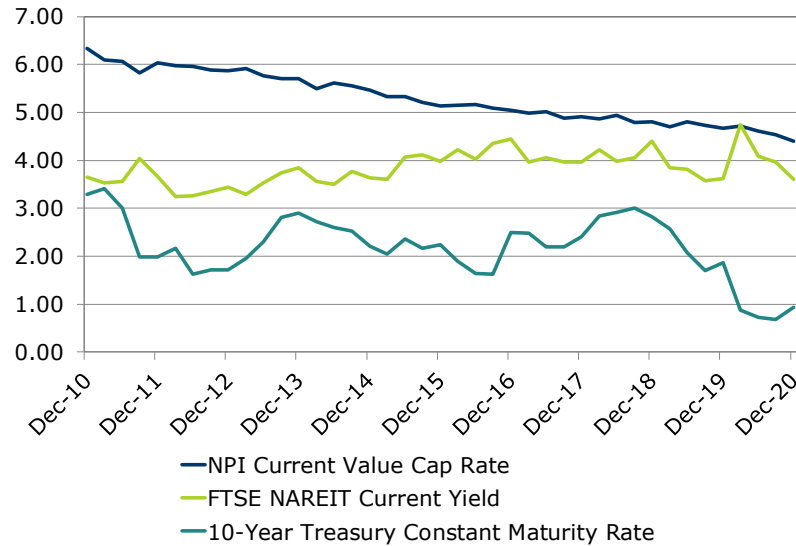


Data Sources: Bloomberg

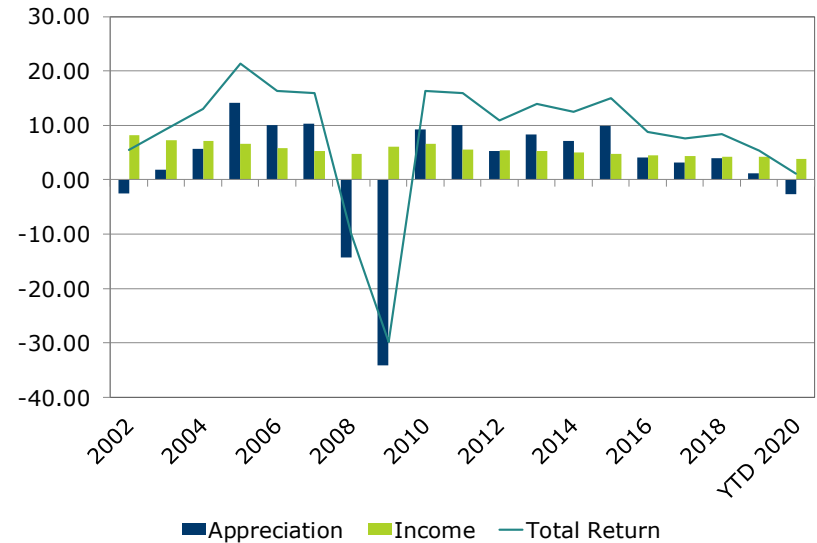
Real Assets

AS OF 12/31/2020	QTR	YTD	1 YR	3 YR	5 YR	10 YR
BLOOMBERG BARCLAYS U.S. TIPS	1.6	11.0	11.0	5.9	5.1	3.8
BLOOMBERG COMMODITY INDEX	10.2	-3.1	-3.1	-2.5	1.0	-6.5
BLOOMBERG GOLD INDEX	-0.4	20.9	20.9	11.5	11.0	2.1
WILSHIRE GLOBAL RESI INDEX	13.4	-8.5	-8.5	2.5	4.6	7.1
NCREIF ODCE FUND INDEX	1.3	1.2	1.2	4.9	6.2	9.9
NCREIF TIMBERLAND INDEX	0.6	0.8	0.8	1.8	2.3	4.6
ALERIAN MIDSTREAM ENERGY	20.1	-23.4	-23.4	-6.2	1.5	n.a.

REAL ESTATE VALUATION (%)



NCREIF ODCE FUND INDEX RETURN (%)



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

Asset Class Performance

ASSET CLASS RETURNS - BEST TO WORST						ANNUALIZED 5-YEAR AS OF 12/20
2015	2016	2017	2018	2019	2020 YTD	
REITs 4.2%	MLPs 18.3%	Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	U.S. Equity 15.5%
U.S. Equity 0.7%	High Yield 17.1%	Developed 25.6%	Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Emrg Mrkts 13.2%
Core Bond 0.6%	U.S. Equity 13.4%	U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	High Yield 8.6%
T-Bills 0.1%	Commodities 11.8%	High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 8.0%
Developed -0.4%	Emrg Mrkts 11.6%	REITs 4.2%	REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 5.1%
U.S. TIPS -1.4%	REITs 7.2%	Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	Core Bond 4.4%
High Yield -4.5%	U.S. TIPS 4.7%	U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	REITs 4.3%
Emrg Mrkts -14.6%	Core Bond 2.6%	Commodities 1.7%	MLPs -12.4%	Commodities 7.7%	Commodities -3.1%	Midstream 1.5%
Commodities -24.7%	Developed 1.5%	T-Bills 0.8%	Developed -13.4%	MLPs 6.6%	REITs -7.9%	T-Bills 1.2%
MLPs -32.6%	T-Bills 0.3%	MLPs -6.5%	Emrg Mrkts -14.2%	T-Bills 2.3%	Midstream -23.4%	Commodities 1.0%

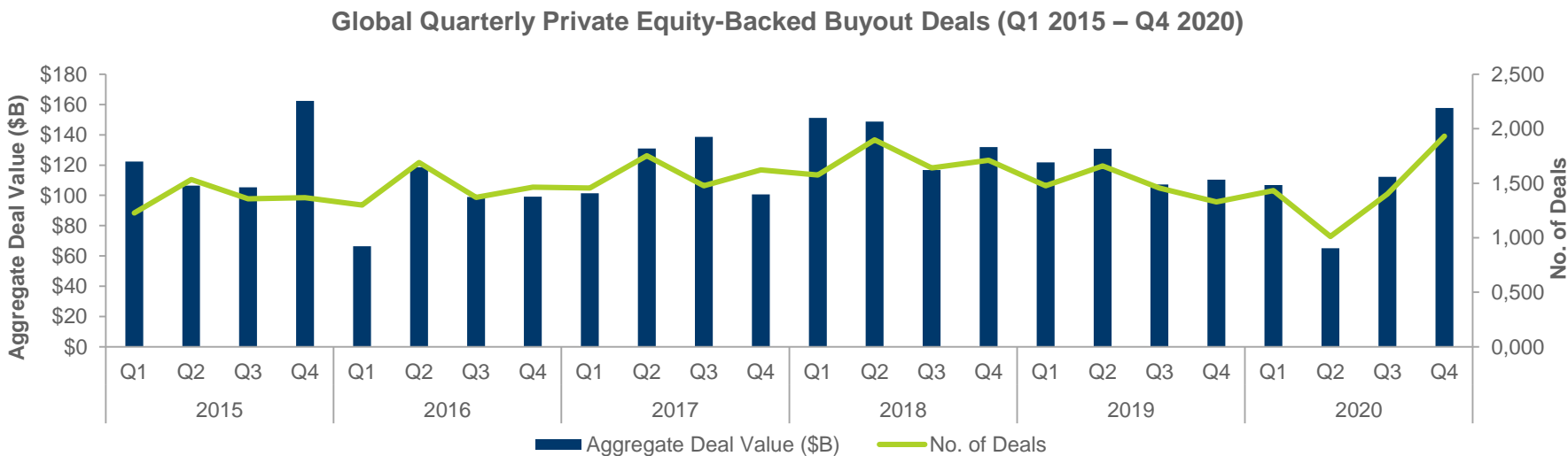
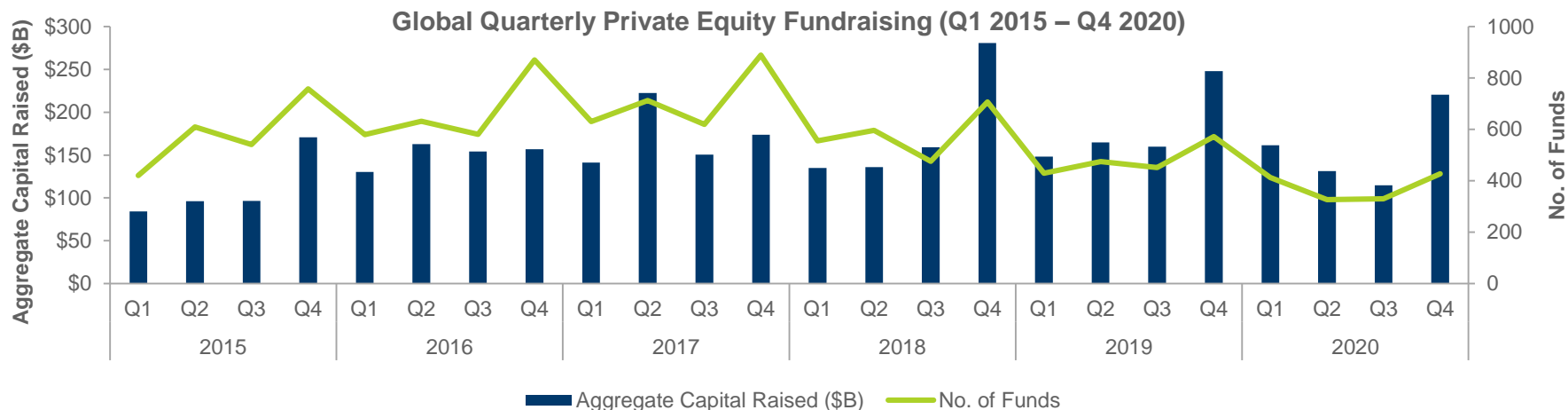
Data Sources: Bloomberg

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

Appendix: Private Market Trends

Wilshire

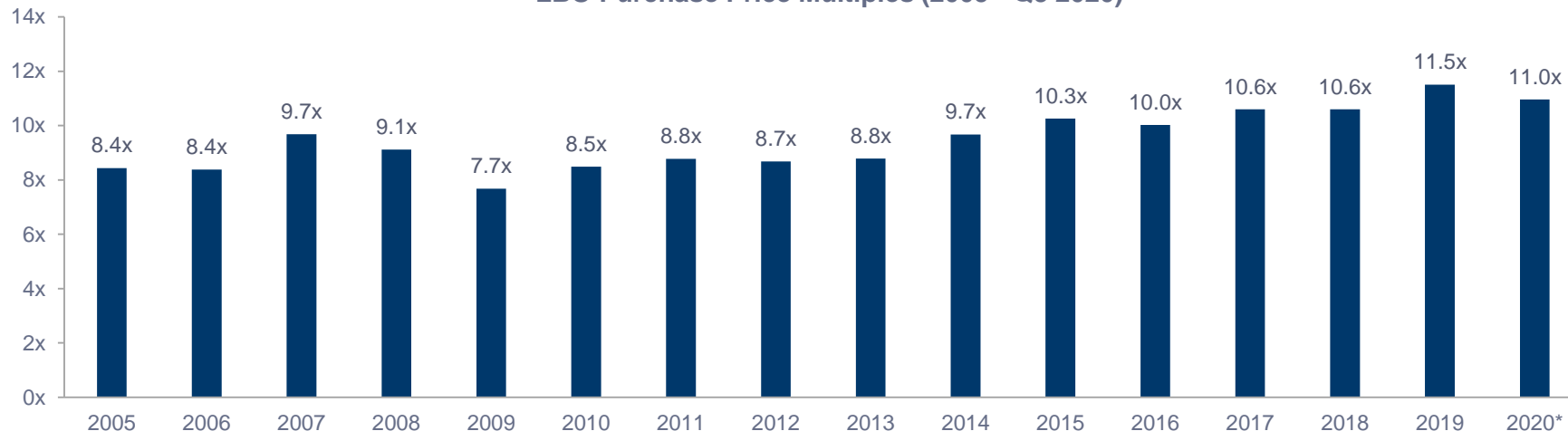
Private Equity – Fundraising & Investment Activity



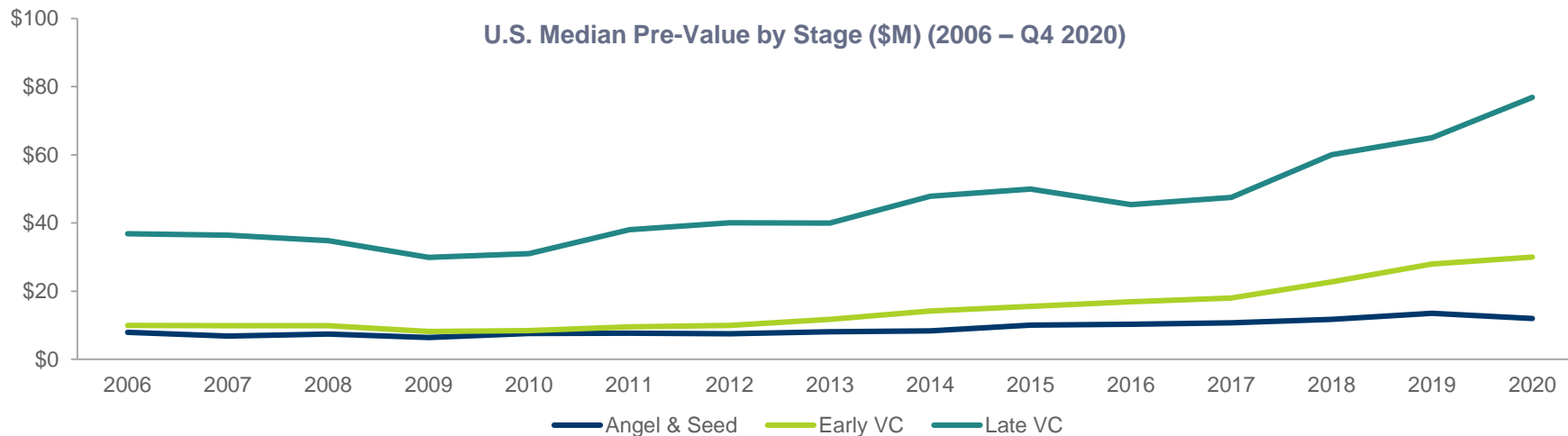
Data Sources: Preqin, as of December 31, 2020

Private Equity – Pricing & Valuations

LBO Purchase Price Multiples (2005 - Q3 2020)

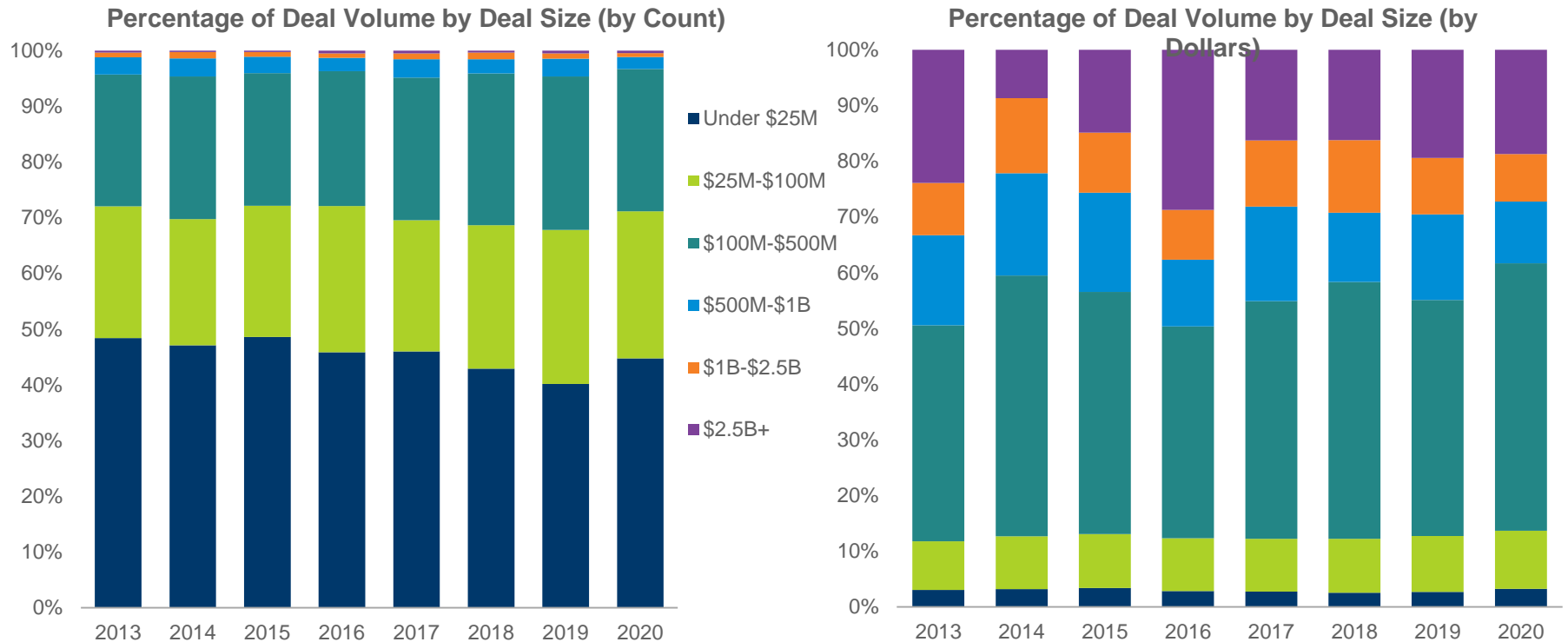


U.S. Median Pre-Value by Stage (\$M) (2006 – Q4 2020)



Data Sources: S&P LBO; PitchBook, as of December 31, 2020.

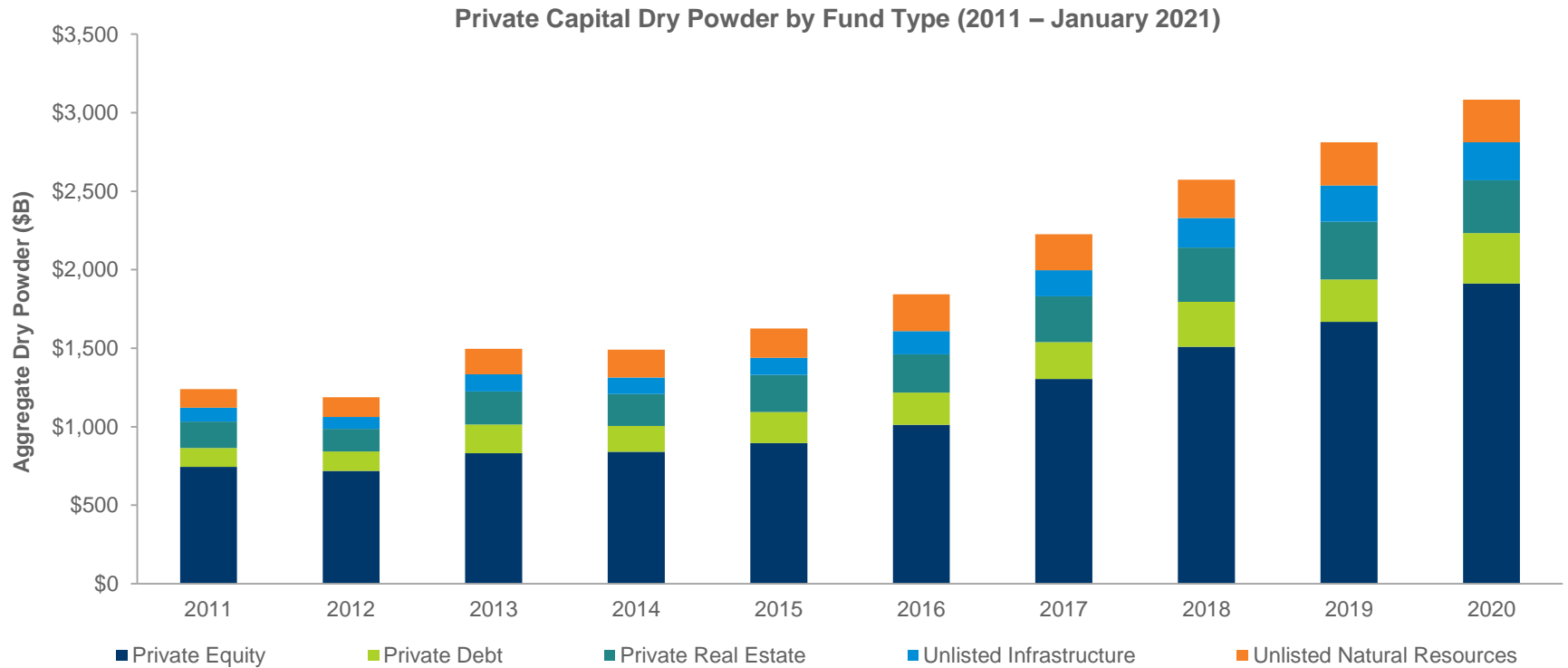
U.S. Investment Activity by Deal Size



- Deal volume continues to be dominated by lower middle market deals with investment sizes below \$100 million through the fourth quarter of 2020
- However, deals with below \$100 million check sizes comprised only 14% of all deal volume by amount of capital invested in the fourth quarter of 2020

Data Sources: PitchBook, as of December 31, 2020

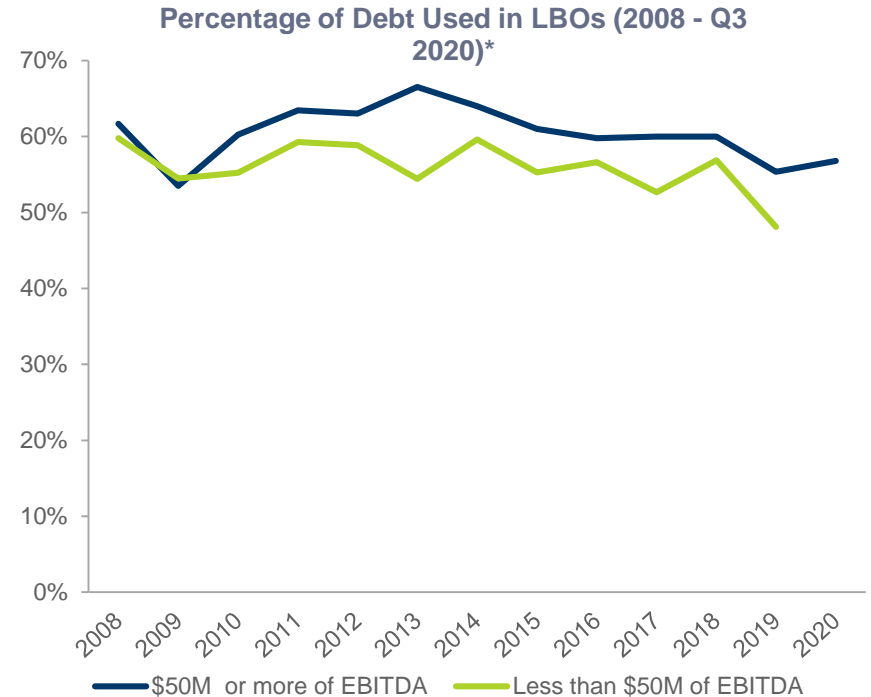
Private Capital Dry Powder



- Global private capital dry powder continues to increase, topping \$3.0 trillion across all fund types
- Private equity comprises just over 60% of total dry power in the market as of January 2021

Data Sources: Preqin, as of January 25, 2021

Private Equity – U.S. Debt Markets

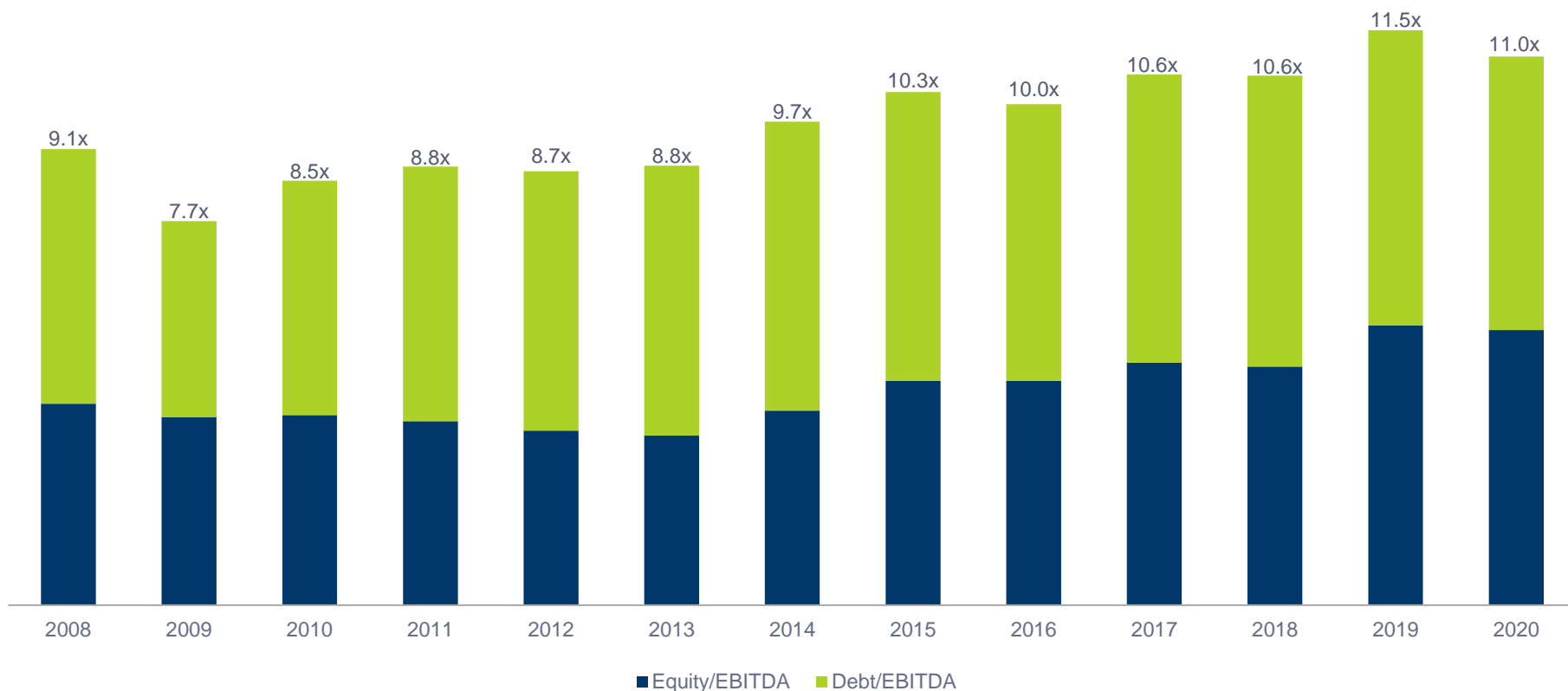


- 2020 has generated approximately \$51 billion in loan volume so far and is on pace to see a slight decrease in loan volume from 2019
- As debt multiples have decreased, the percentage of debt used to finance leveraged buyouts through the third quarter of 2020 has slightly increased from 2019 marks

Data Sources: S&P LBO, *as of September 30, 2020. "Less than \$50M of EBITDA" data for 2020 not yet available

Private Equity – U.S. LBO Purchase Price Multiples

Purchase Price Multiples of U.S. LBO Transactions (2008 - Q3 2020)*



- Purchase price multiples for U.S. LBOs have slightly decreased through Q3 2020, relative to 2019 levels

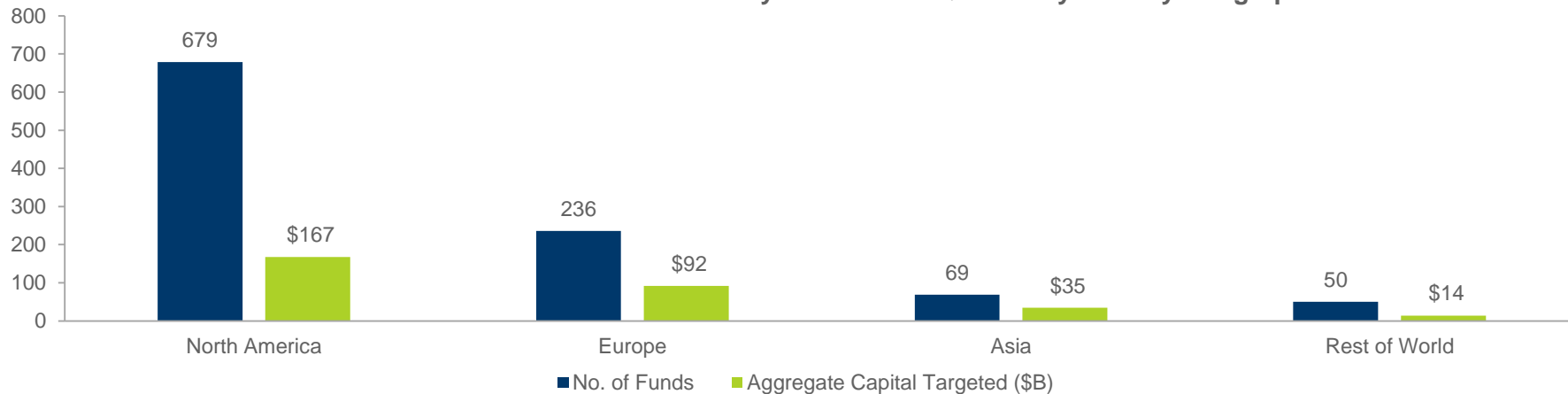
Data Sources: S&P LBO, *as of September 30, 2020

Private Real Estate – Fundraising Activity

Global Quarterly Closed-End Private Real Estate Fundraising (Q1 2015 – Q4 2020)



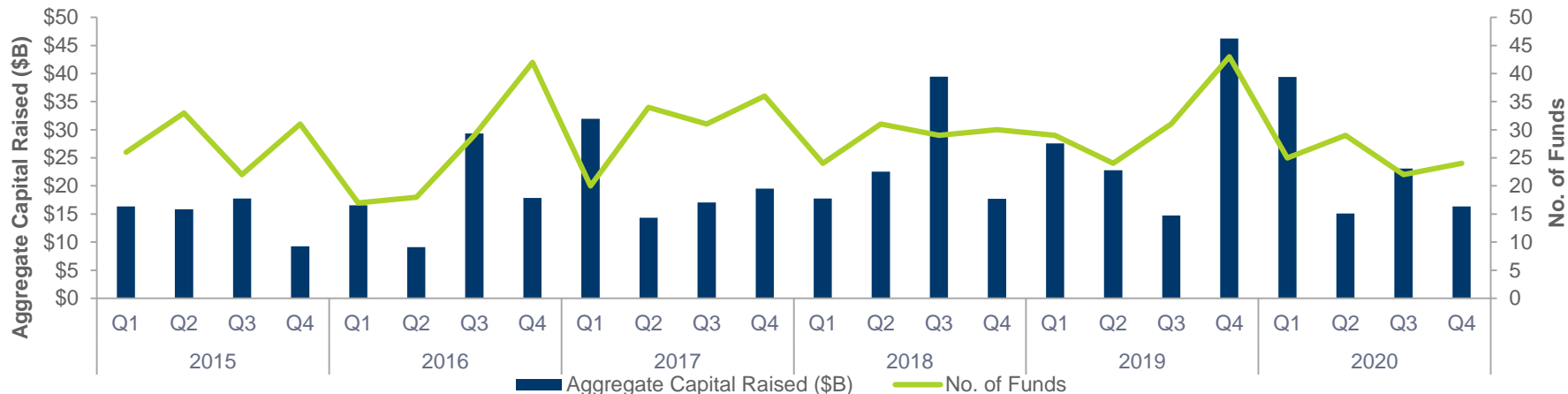
Closed-End Private Real Estate Funds Actively in Market in Q4 2020 by Primary Geographic Focus



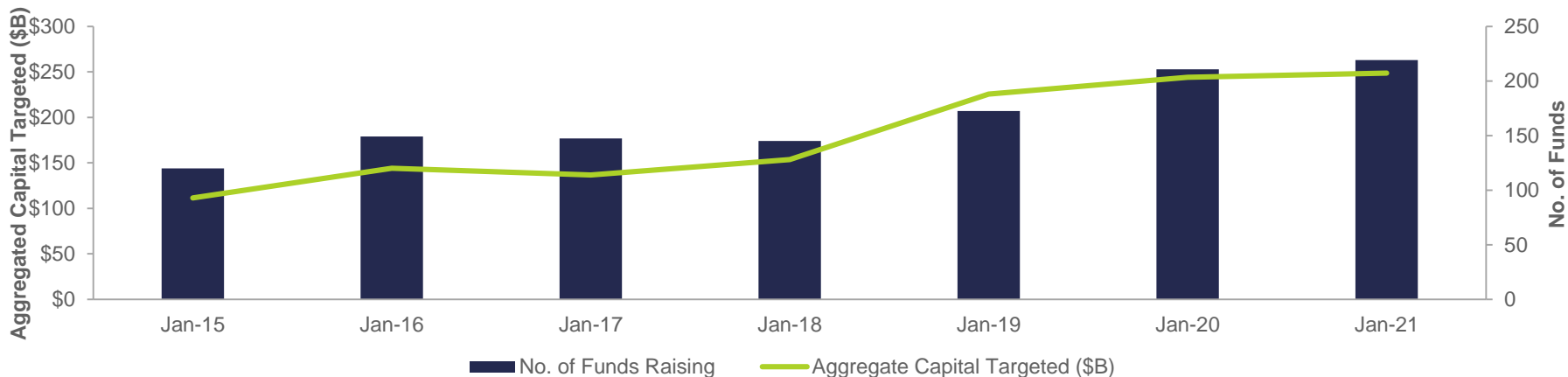
Data Sources: Preqin as of December 31, 2020

Unlisted Infrastructure – Fundraising & Investment Activity

Global Quarterly Unlisted Infrastructure Fundraising (Q1 2015 – Q4 2020)



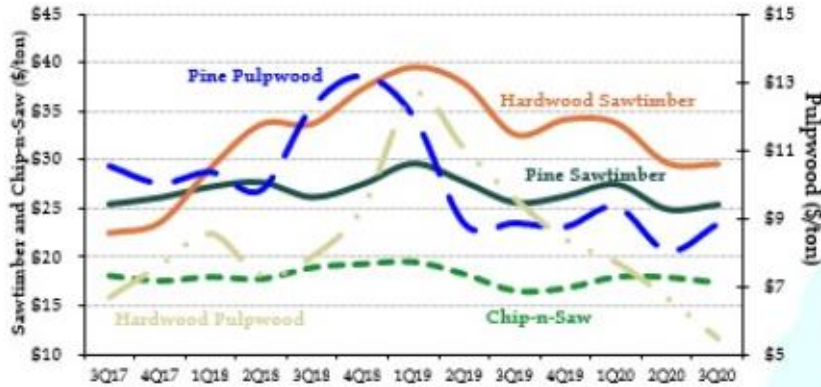
Unlisted Infrastructure Funds in Market Over Time (January 2015 – January 2021)



Data Sources: Preqin as of December 31, 2020

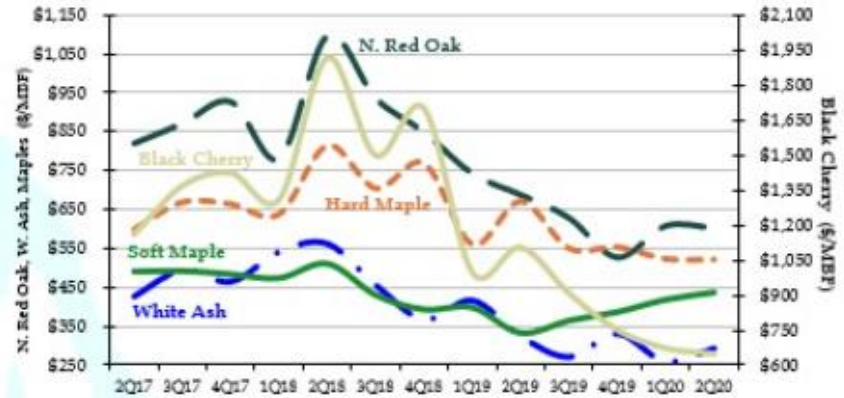
Timber Investments

Southeastern Timber Prices



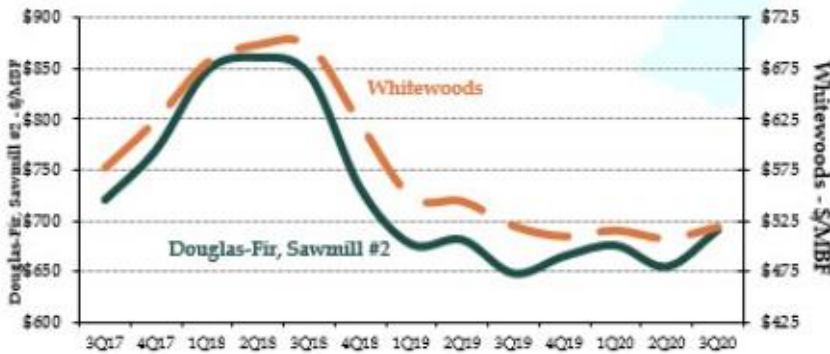
Source: Forest2Market®

Northeastern Hardwood Timber Prices



Source: Pennsylvania Woodlands Timber Market Report - Northwest Region

Pacific Northwest Timber Prices



Source: Fastmarkets RISI - Log Lines®

Pulp and Paper

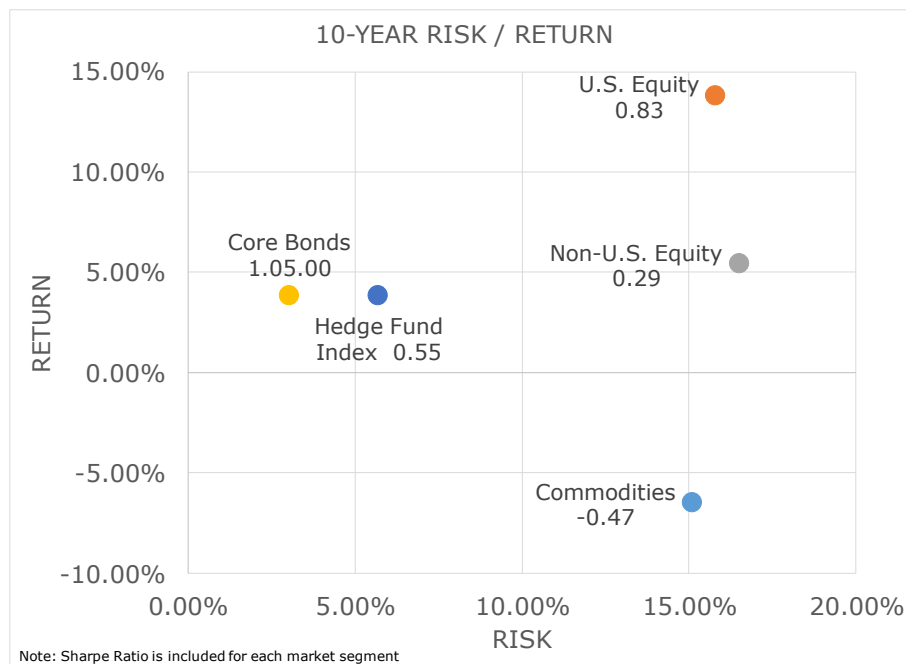


Source: Fastmarkets RISI

Data Sources: Forest Investment Associates

Hedge Fund Performance

AS OF 12/31/2020	QTR	YTD	1 YR	3 YR	5 YR	10 YR
DJ CS HEDGE FUND INDEX	6.4	6.4	6.4	4.0	4.1	3.8
EVENT DRIVEN	10.4	7.0	7.0	3.6	3.9	3.0
GLOBAL MACRO	6.0	6.5	6.5	5.5	4.4	4.1
LONG/SHORT EQUITY	7.6	7.9	7.9	4.9	4.8	5.0
MULTI-STRATEGY	5.0	5.6	5.6	3.9	4.6	5.7
WILSHIRE 5000	14.5	20.8	20.8	14.5	15.5	13.8
MSCI ACWI EX-US (\$G)	17.1	11.1	11.1	5.4	9.4	5.4
BLOOMBERG BARCLAYS AGGREGATE	0.7	7.5	7.5	5.3	4.4	3.8
BLOOMBERG COMMODITY INDEX	10.2	-3.1	-3.1	-2.5	1.0	-6.5



Data Sources: Bloomberg

EXECUTIVE SUMMARY OF PERFORMANCE

Employees' Retirement Fund of the City of Dallas





Capital Market Overview

U.S. Equity Market

The U.S. stock market, represented by the Wilshire 5000 Total Market IndexSM, was up 14.47% for the fourth quarter of 2020 and 20.82% for the year. All eleven sectors were in positive territory this quarter, with Energy (+29.1%) and Financials (+24.9%) representing the best performing sectors. There was significant dispersion among sectors, with the main laggard being Consumer Staples, up +7.0%. Although Coronavirus infections are accelerating and many cities are re-imposing restrictions, both consumer and business surveys are moderating at encouraging levels. However, job growth has slowed dramatically and initial jobless claims remain at what would normally be historic levels. The big news on the virus front is the commencement of vaccine distribution but that does not mean we are close to any normalization of everyday activities. Equities may appear to be “priced for perfection” but are not necessarily expensive given very low government bond yields, and a rebound in economic growth and earnings may be supportive of strong equity returns in 2021.

Small capitalization stocks outperformed large caps by a significant margin for the quarter as the Wilshire Small-Cap Index was up 30.96% versus 13.19% for the Wilshire US Large-Cap Index. Growth stocks led value during the third quarter and have significantly outperformed during the past twelve months.

Fixed Income Market

The U.S. Treasury yield curve was up across most maturities during the fourth quarter after a dramatic drop earlier this year. Although the curve is down meaningfully for the year, the long-end managed to push above 1.50% by year-end. The 10-year Treasury yield ended the quarter at 0.93%, up 24 basis points from September. The Federal Open Market Committee met twice during the quarter, as scheduled, with no change to their overnight rate, which they expect will be near zero through at least 2023. The Committee reiterated its pledge to support the economic recovery, including an increase in its bond-buying activities. Credit spreads continued to tighten during the quarter, boosting investment grade and high yield returns.

Non-U.S. Markets

Equity markets outside of the U.S. also enjoyed a strong quarter, with emerging markets outperforming all developed markets. The U.K. was on a path to recovery, with Q3 GDP up a record +16.0%, but concerns about a new variant of the COVID-19 virus have led to renewed restrictions and the withdrawal of social accommodations granted for holiday gatherings. A second wave of infections is hindering other European countries, as well, and the ECB responded by expanding its money-printing program by hundreds of billions of euros. Among the largest countries within emerging markets, South Korea (+29% in local currency terms) and Brazil (+26%) led the gains this quarter. China is the largest weighted country in the MSCI Emerging Markets Index (at 40%) and was up +11%. The Chinese economy is poised for growth this year, unlike most other countries, but that is driven by the PRC's traditional strengths, such as exports, while domestic demand is still weak.

Real Assets Markets

Real estate securities were up during the fourth quarter in both the U.S. and abroad. Sector performance was mixed with Hotel & Resort assets (+47%) and Retail REITs (+33%) leading the market while Industrials lagged. Commodity results were positive for the quarter as crude oil was up 20.6% to \$48.52 per barrel. Natural gas prices were up 0.5%, ending the quarter at \$2.54 per million BTUs, as the U.S. exported a record amount of liquefied natural gas (LNG). Midstream energy surged during the fourth quarter while the broader infrastructure segment was also positive. Finally, gold prices were up 0.4% and finished at approximately \$1,895 per troy ounce.



Summary of Index Returns

For Periods Ended December 31, 2020

	<u>Quarter</u>	<u>One Year</u>	<u>Three Years</u>	<u>Five Years</u>	<u>Ten Years</u>
Domestic Equity					
Standard & Poor's 500	12.15%	18.40%	14.18%	15.22%	13.89%
Wilshire 5000	14.47	20.82	14.46	15.52	13.79
Wilshire 4500	28.30	31.99	15.21	16.39	13.40
Wilshire Large Cap	13.19	21.17	14.97	15.80	14.05
Wilshire Small Cap	30.96	17.42	9.73	12.91	11.51
Wilshire Micro Cap	31.94	16.63	5.06	9.59	9.43
Domestic Equity					
Wilshire Large Value	13.62%	7.37%	8.85%	11.61%	11.63%
Wilshire Large Growth	12.77	35.36	21.01	19.79	16.39
Wilshire Mid Value	23.37	-2.11	3.45	8.58	9.95
Wilshire Mid Growth	23.18	31.65	15.67	16.58	13.34
Wilshire Small Value	32.20	6.16	4.75	9.53	9.73
Wilshire Small Growth	29.73	29.66	14.87	16.21	13.19
International Equity					
MSCI All World ex U.S. (USD)	17.01%	10.65%	4.88%	8.92%	4.92%
MSCI EAFE	16.05	7.81	4.28	7.45	5.51
MSCI Europe	15.61	5.38	3.55	6.78	5.32
MSCI Pacific	16.72	11.93	5.50	8.80	5.95
MSCI Emerging Markets Index	19.70	18.31	6.17	12.81	3.63
Domestic Fixed Income					
Barclays Aggregate Bond	0.67%	7.51%	5.34%	4.44%	3.84%
Barclays Treasury	-0.83	8.00	5.19	3.77	3.34
Barclays Mortgage	0.24	3.87	3.71	3.05	3.01
Barclays Credit	2.79	9.35	6.80	6.44	5.40
Barclays US TIPS	1.62	10.99	5.92	5.08	3.81
Citigroup High Yield Cash Pay	6.41	6.23	5.83	8.32	6.46
91-Day Treasury Bill	0.03	0.67	1.61	1.20	0.64
Currency*					
Euro vs. \$	4.34%	9.01%	0.63%	2.41%	-0.91%
Yen vs. \$	2.21	5.26	2.95	3.10	-2.39
Pound vs. \$	5.74	3.18	0.35	-1.49	-1.34
Real Estate					
Wilshire REIT Index	10.62%	7.90%	3.30%	4.25%	8.27%
Wilshire RESI	10.72	-7.95	3.30	4.46	8.38

*Positive values indicate dollar depreciation



Total Fund Overview

Asset Class Performance

	Assets		Performance (%)					
	(\$Mil)	(%)	QTR	YTD	1-year	3-year	5-year	10-year
U.S. Equity	531.0	14.5	19.17	16.39	16.39	11.12	13.58	12.62
International Equity	489.5	13.4	18.00	15.57	15.57	5.41	9.77	6.44
Global Equity	273.7	7.5	12.09	16.11	16.11	8.97	11.19	
Global Low Volatility	442.3	12.1	7.19	-0.05	-0.05	5.48	8.73	
Real Estate	379.4	10.4	5.11	-1.73	-1.73	4.63	5.09	8.65
Global Fixed Income	516.2	14.1	1.59	8.62	8.62	5.66	5.02	4.53
High Yield	360.8	9.8	5.83	6.60	6.60	5.64	7.47	6.29
Credit Opportunities	179.7	4.9	5.77	5.17	5.17	4.85		
Global Listed Infra.	187.6	5.1	17.02	-25.83	-25.83	-9.63	-3.21	
Private Equity	270.4	7.4	6.36	2.99	2.99	9.81	9.92	10.80
Cash Equivalents	34.1	0.9	0.03	0.67	0.67	1.61	1.19	0.64
Total Fund	3,664.9	100.0	9.49	5.76	5.76	5.93	8.03	7.58
Asset Allocation Policy			10.22	7.47	7.47	6.69	8.47	7.54
<i>Value Added vs Policy</i>			<i>-0.73</i>	<i>-1.71</i>	<i>-1.71</i>	<i>-0.75</i>	<i>-0.45</i>	<i>0.04</i>
Actuarial Rate			1.77	7.25	7.25	7.42	7.60	7.90
Wilshire 5000 Index			14.47	20.82	20.82	14.46	15.52	13.79
S&P 500 Index			12.15	18.40	18.40	14.18	15.22	13.88
MSCI ACWI x-U.S. IMI Index			17.22	11.12	11.12	4.83	8.98	5.06
MSCI EAFE Index			16.05	7.82	7.82	4.28	7.45	5.51
Bloomberg Aggregate Bond Index			0.67	7.51	7.51	5.34	4.44	3.84
Citigroup High Yield Cash Pay			6.41	6.23	6.23	5.83	8.32	6.46
Wilshire RE Securities Index			10.72	-7.95	-7.95	3.30	4.46	8.38
91-Day Treasury Bill			0.03	0.67	0.67	1.61	1.18	0.62

Total Fund Asset Growth

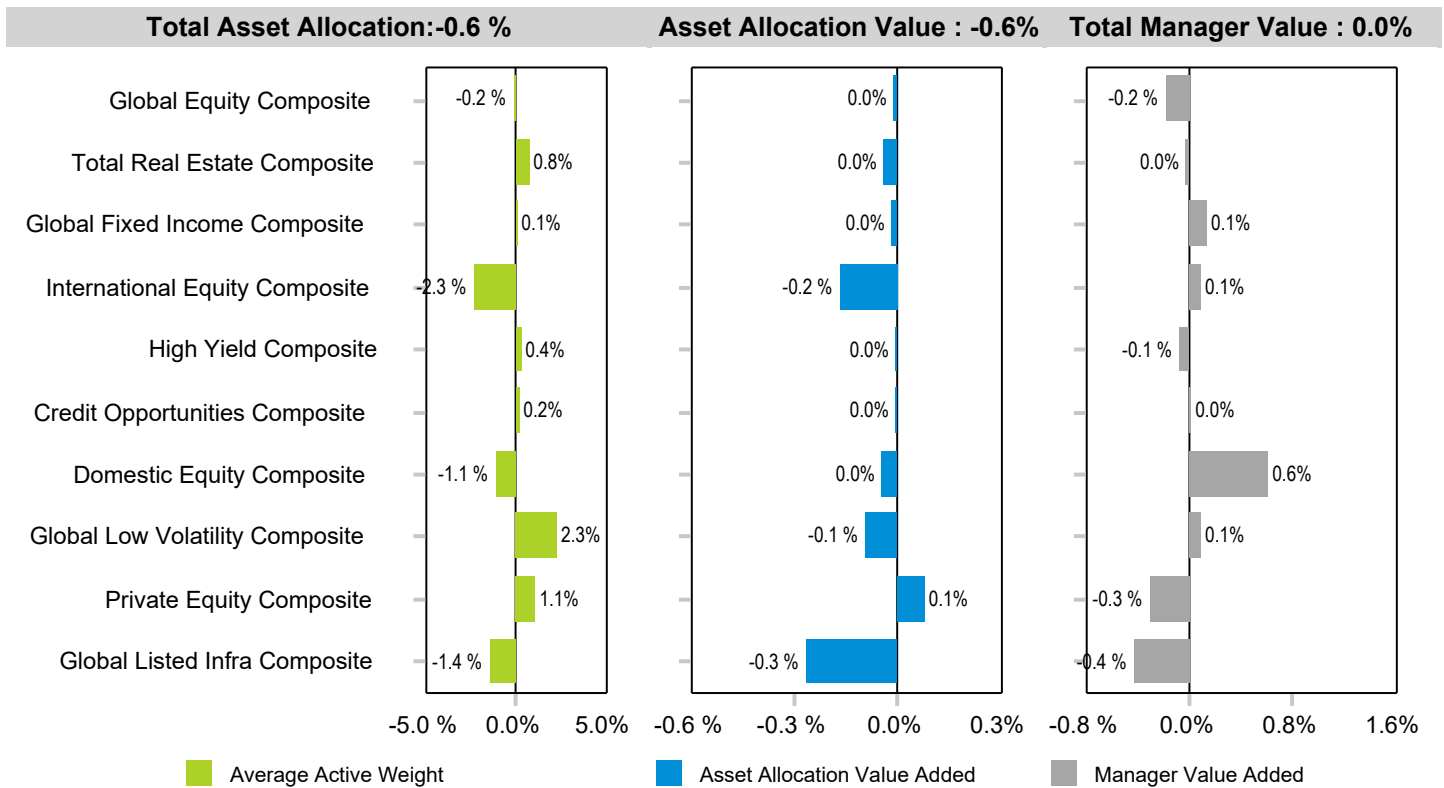
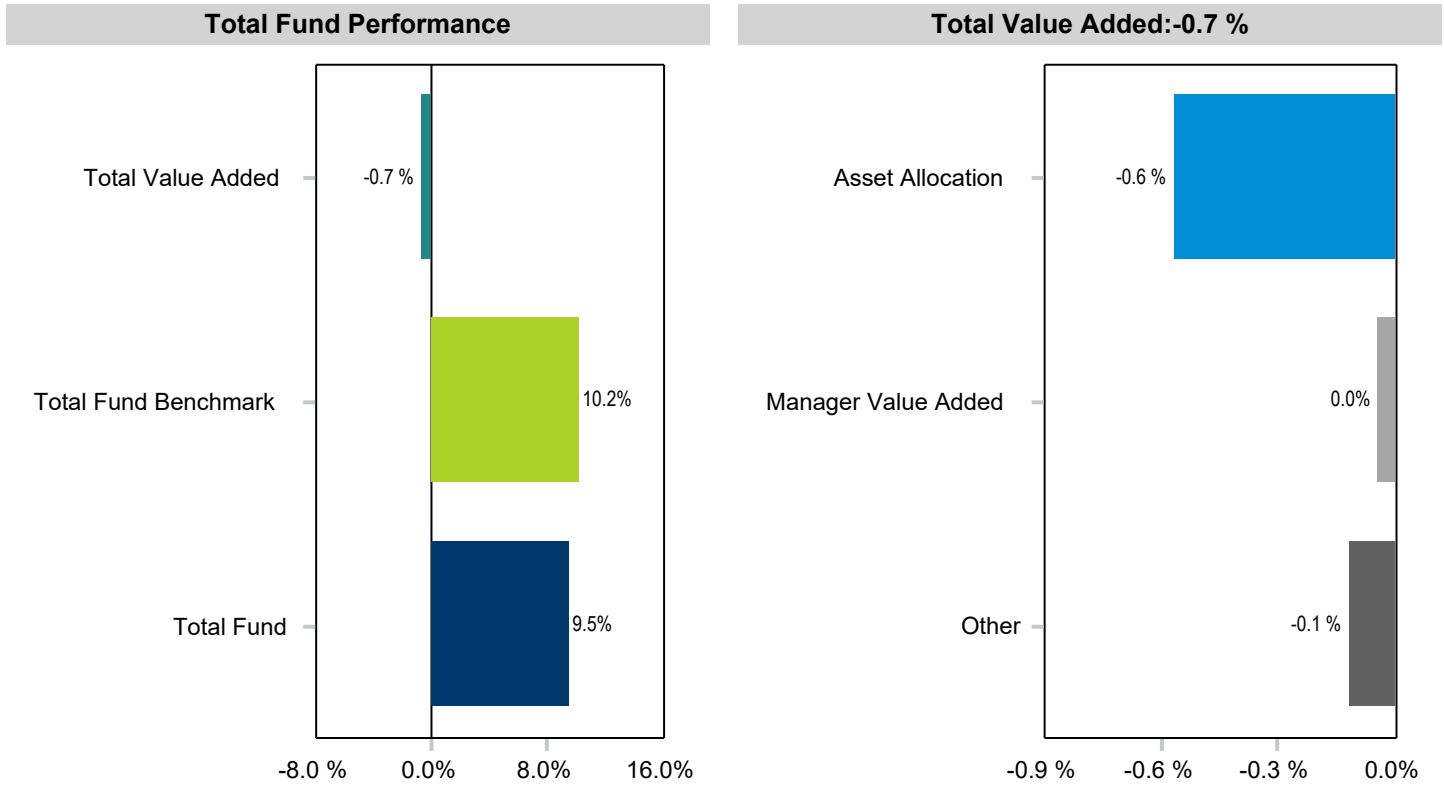
	Beg. Mkt (\$Millions)	Net Value	Net Contrib.	Net Distrib.	Investment Fees	Investment Gain/Loss	End Mkt Value	Total Return
1Q16	3,199.2	89.0	127.7	3.0	40.9	3,198.3	1.28%	
2Q16	3,198.3	70.8	105.2	2.8	116.2	3,277.3	3.54%	
3Q16	3,277.3	32.9	67.4	2.9	117.3	3,357.2	3.48%	
4Q16	3,357.2	28.1	66.0	3.0	21.4	3,337.8	0.62%	
1Q17	3,337.8	36.2	74.6	2.6	140.0	3,436.7	4.15%	
2Q17	3,436.7	24.9	68.7	3.2	86.6	3,476.4	2.46%	
3Q17	3,476.4	47.8	84.0	3.5	110.0	3,546.6	3.10%	
4Q17	3,546.6	31.1	74.1	3.3	107.5	3,607.8	3.02%	
1Q18	3,607.8	31.9	74.7	3.1	(37.9)	3,524.0	-1.09%	
2Q18	3,524.0	27.2	71.0	3.6	68.0	3,544.4	1.83%	
3Q18	3,544.4	31.6	75.1	3.3	101.0	3,598.8	2.74%	
4Q18	3,598.8	27.5	73.9	3.5	(274.6)	3,274.3	-7.66%	
1Q19	3,274.3	32.4	71.8	3.2	292.5	3,524.2	8.90%	
2Q19	3,524.2	27.7	76.6	3.4	108.0	3,579.9	3.04%	
3Q19	3,579.9	32.8	76.2	3.2	20.4	3,553.7	0.49%	
4Q19	3,553.7	27.7	79.8	3.6	154.3	3,653.6	4.31%	
1Q20	3,653.6	32.7	75.8	3.8	(570.4)	3,036.3	-15.91%	
2Q20	3,036.3	28.3	76.4	3.2	337.8	3,322.8	11.03%	
3Q20	3,322.8	31.5	77.0	3.1	115.4	3,389.6	3.46%	
4Q20	3,389.6	33.0	76.5	3.4	322.3	3,664.9	9.49%	

- At the end of the fourth quarter of 2020, the Fund's market value was \$3,664.9 million, which represented an increase of \$275 million in total net asset value over the previous quarter. The change in the Fund's value was driven by \$33 million in net contributions, \$322.3 million investment gain, \$76.5 million in net distributions and \$3.4 million in investment management fees.

Total Fund Attribution

Dallas Total Fund

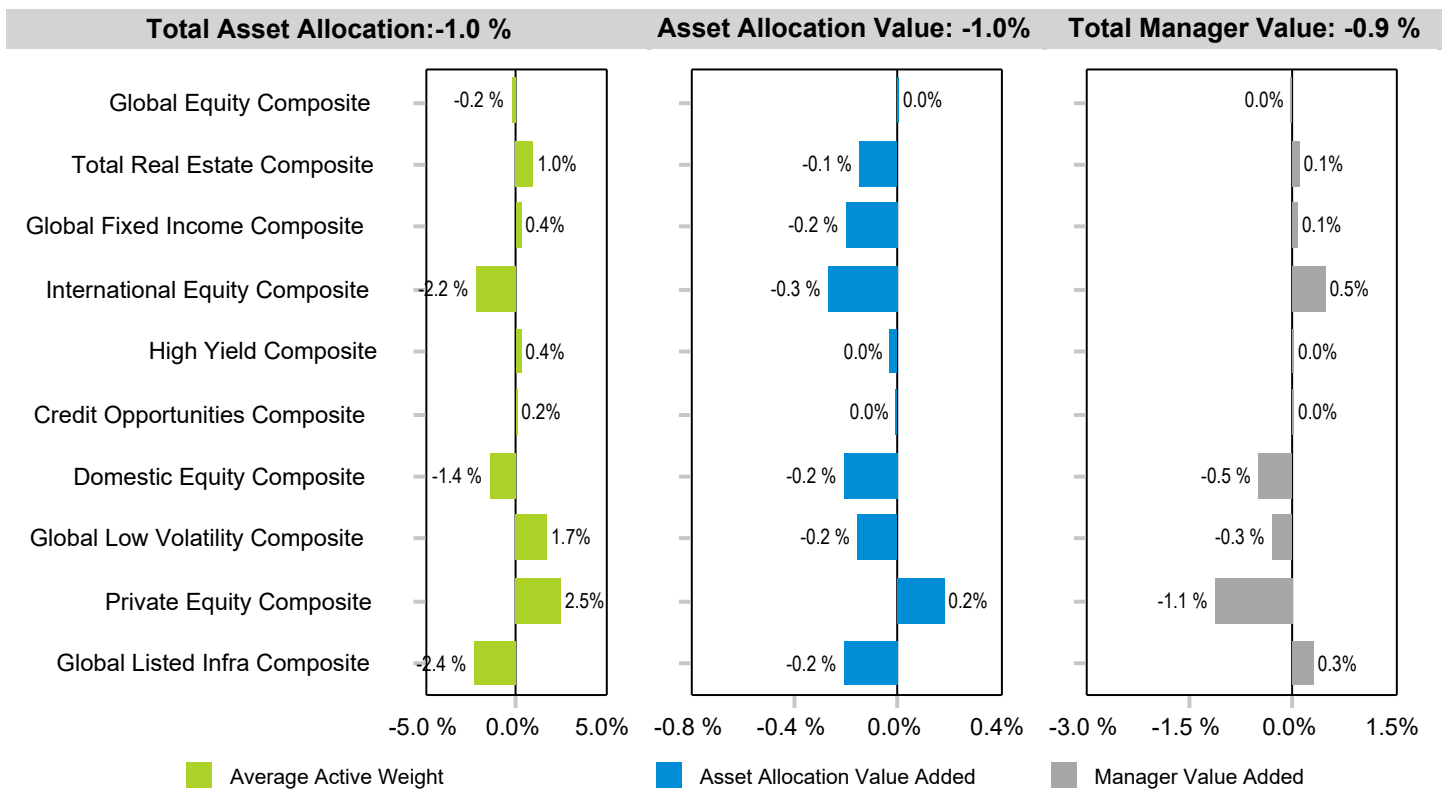
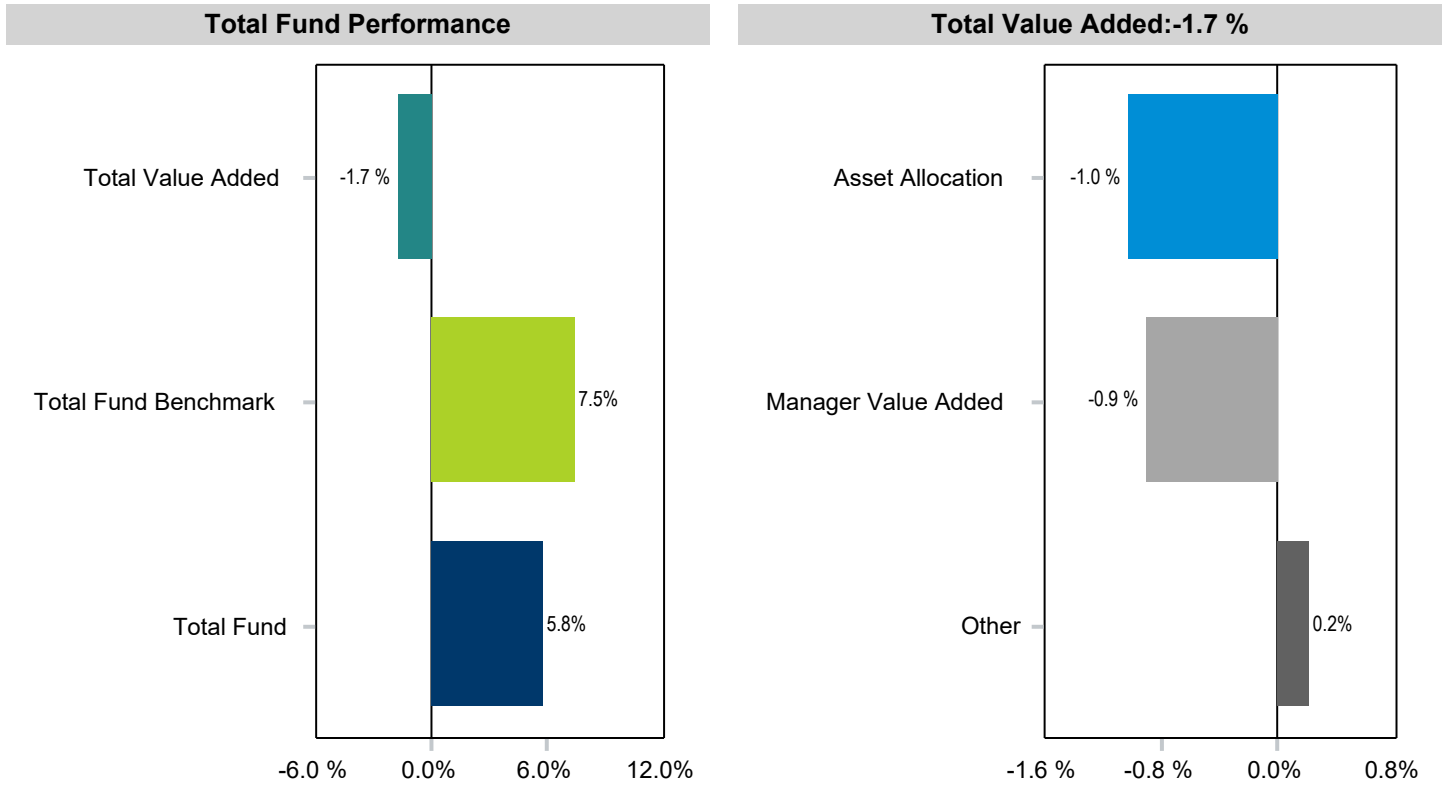
Periods Ended 1 Quarter Ending December 31, 2020



Total Fund Attribution

Dallas Total Fund

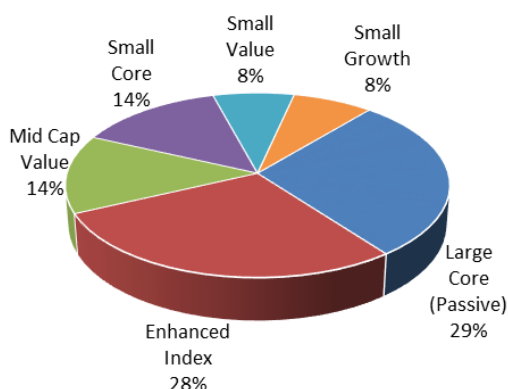
Periods Ended 1 Year Ending December 31, 2020



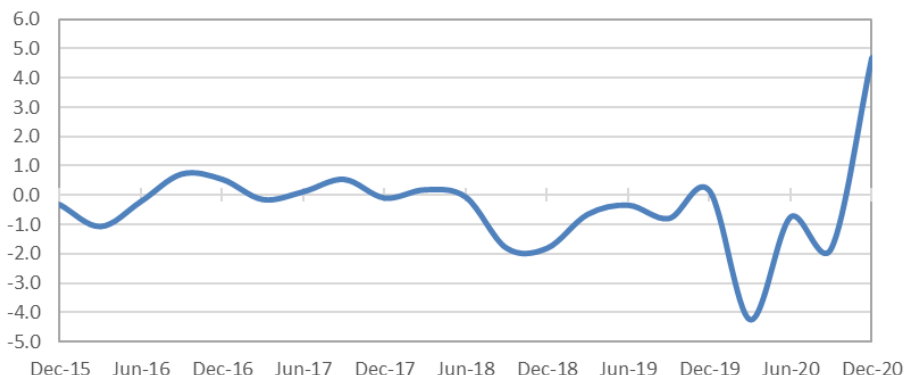


U.S. Equity Overview

U.S. Equity Structure



U.S. Equity Composite Quarterly Excess Return



Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Total U.S. Equity (Gross)	\$ 531.0	19.30	16.88	16.88	11.58	14.02	13.03
Total U.S. Equity (Net)		19.17	16.39	16.39	11.12	13.58	12.62
Custom Benchmark ¹		14.47	20.82	20.82	14.46	15.52	13.79
<i>Net of Fee Value Added vs Benchmark</i>		<i>4.70</i>	<i>-4.43</i>	<i>-4.43</i>	<i>-3.34</i>	<i>-1.94</i>	<i>-1.17</i>
Small Cap Composite	\$ 155.4	28.30	16.64	16.64	6.78	11.63	10.52
Wilshire 5000 Index		14.47	20.82	20.82	14.46	15.52	13.79
S&P 500 Index		12.15	18.40	18.40	14.18	15.22	13.88
Russell 2000 Index		31.37	19.96	19.96	10.25	13.26	11.20

U.S. Equity Managers

	Assets		Performance (%)				Since Inception	Inception Date
	(Millions)	QTR	YTD	1-year	3-year	5-year		
Large Core - Passive								
Northern Trust S&P 500 (Gross)	\$ 151.7	12.15	18.24	18.24	14.15	15.20	10.59	Dec-94
Northern Trust S&P 500 (Net)		12.15	18.24	18.24	14.15	15.20	10.56	Dec-94
S&P 500 Index		12.15	18.40	18.40	14.18	15.22	10.52	Dec-94
<i>Net of Fee Value Added vs Benchmark</i>		<i>0.00</i>	<i>-0.16</i>	<i>-0.16</i>	<i>-0.03</i>	<i>-0.02</i>	<i>0.04</i>	
Enhanced Index								
T. Rowe Price (Gross)	\$ 150.8	13.58	20.45	20.45	15.47	16.27	10.70	Mar-06
T. Rowe Price (Net)		13.48	20.08	20.08	15.12	15.92	10.38	Mar-06
S&P 500 Index		12.15	18.40	18.40	14.18	15.22	9.75	Mar-06
<i>Net of Fee Value Added vs Benchmark</i>		<i>1.33</i>	<i>1.68</i>	<i>1.68</i>	<i>0.94</i>	<i>0.70</i>	<i>0.63</i>	
Information Ratio				0.97	0.79	0.50		
Sharpe Ratio				0.72	0.69	0.93		

¹ Domestic Equity Custom Benchmark: Wilshire 5000 Index (3q99 – Present); S&P 500 Index (1q90 – 2q99).



U.S. Equity Overview (Continued)

U.S. Equity Managers

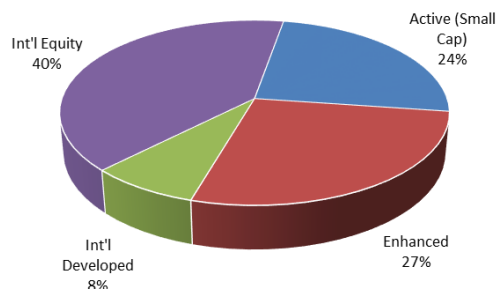
	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
Small Core - Active								
Systematic Financial (Gross)	\$ 73.9	28.56	5.21	5.21	4.30	11.95	11.36	Jun-03
Systematic Financial (Net)		28.29	4.31	4.31	3.42	11.00	10.53	Jun-03
Russell 2000 Index		31.37	19.96	19.96	10.25	13.26	9.97	Jun-03
<i>Net of Fee Value Added vs Benchmark</i>			-3.08	-15.65	-15.65	-6.83	-2.26	0.56
Information Ratio				-2.52	-1.36	-0.44		
Sharpe Ratio				0.11	0.07	0.48		
Small Value - Active								
Channing Capital Management (Gross) *	\$ 41.0	35.77	17.42	17.42	7.24	11.42	8.38	Oct-13
Channing Capital Management (Net) *		35.45	16.29	16.29	6.22	10.35	7.38	Oct-13
Russell 2000 Value Index		33.36	4.63	4.63	3.72	9.65	6.46	Oct-13
<i>Net of Fee Value Added vs Benchmark</i>			2.09	11.65	11.65	2.49	0.70	0.92
Information Ratio				1.83	0.41	0.13		
Sharpe Ratio				0.40	0.16	0.39		
Small Growth - Active								
Redwood Investments (Gross) *	\$ 40.5	22.26	43.21	43.21	14.11		14.55	Sep-16
Redwood Investments (Net) *		22.04	42.23	42.23	13.31		13.85	Sep-16
Russell 2000 Growth Index		29.61	34.63	34.63	16.20		17.51	
<i>Net of Fee Value Added vs Benchmark</i>			-7.57	7.59	7.59	-2.88		-3.66
Information Ratio				0.37	-0.25	--		
Sharpe Ratio				1.69	0.53	--		
Mid Cap Value - Active								
Smith Graham Mid Cap Value (Gross) *	\$ 73.2	29.80	3.53	3.53	4.80		4.80	Dec-17
Smith Graham Mid Cap Value (Net) *		29.56	2.73	2.73	4.06		4.06	Dec-17
Russell Midcap Index		19.91	17.10	17.10	11.61		11.61	
<i>Net of Fee Value Added vs Benchmark</i>			9.65	-14.37	-14.37	-7.55		-7.55
Information Ratio				-0.93	-0.68	--		
Sharpe Ratio				0.05	0.08	--		

- ◆ The Fund's domestic equity composite generated a return of 19.17% (net of fees) during the fourth quarter of 2020, trailing the Wilshire 5000 Total Market Index, which returned 14.47%. Relative performance was positive during the quarter for Channing Capital and Smith Graham, while negative for Systematic and Redwood Investments. Following this quarter's results, the domestic equity composite is trailing its benchmark over the one-, three-, five- and ten- year periods.

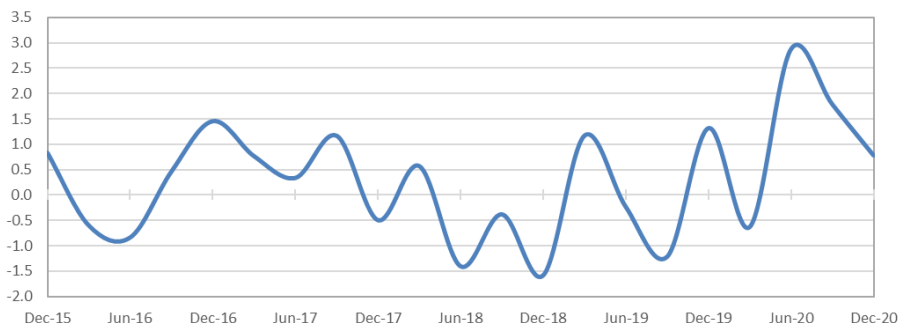


International Equity Overview

International Equity Structure



International Equity Composite
 Quarterly Excess Return



International Equity Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Total International Equity (Gross)	\$ 489.5	18.18	16.26	16.26	5.92	10.29	6.91
Total International Equity (Net)		18.00	15.57	15.57	5.41	9.77	6.44
Custom Benchmark ¹		17.22	11.12	11.12	4.83	8.98	5.06
<i>Net of Fee Value Added vs Benchmark</i>		<i>0.78</i>	<i>4.45</i>	<i>4.45</i>	<i>0.57</i>	<i>0.78</i>	<i>1.38</i>
MSCI ACWI x-US IMI (Net)		17.22	11.12	11.12	4.83	8.98	5.06
MSCI ACWI x-US (Net)		17.01	10.65	10.65	4.88	8.93	4.92
MSCI EAFE (Net)		16.05	7.82	7.82	4.28	7.45	5.51
MSCI Emerging Markets		19.70	18.31	18.31	6.17	12.81	3.63

International Equity Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
Int'l Small Cap - Active								
Acadian International (Gross)	\$ 119.6	17.97	14.43	14.43	4.01	11.30	9.01	Mar-89
Acadian International (Net)		17.80	13.80	13.80	3.39	10.68	8.55	Mar-89
Custom Benchmark		18.56	14.24	14.24	4.59	9.37		Mar-89
<i>Net of Fee Value Added vs Benchmark</i>		<i>-0.76</i>	<i>-0.44</i>	<i>-0.44</i>	<i>-1.20</i>	<i>1.31</i>		
Information Ratio				-0.07	-0.26	0.29		
Sharpe Ratio				0.44	0.08	0.53		

² International Equity Custom Benchmark: MSCI ACWI x-US IMI (2q10 – Present); MSCI ACWI x-US (1q99 – 1q10); Wilshire Non-US/Non-SA (2q96 – 4q98); MSCI EAFE (4q89 – 1q96)

³ Acadian Custom Benchmark: MSCI ACWI x-US Small Cap (3q09 – Present); MSCI EAFE Small Cap (4q99 – 2q09); S&P/Citigroup Eur/Pac EMI Index (2q96 – 3q99); MSCI EAFE (2q89 – 1q96). Performance Objective: Custom Benchmark +2% (1q05 – Present); +1% (2q89 – 4q04).



International Equity Overview (Continued)

International Equity Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
Int'l Enhanced Index								
AQR Capital Management (Gross)	\$ 133.8	15.77	14.11	14.11	4.15	9.17	4.67	Mar-06
AQR Capital Management (Net)		15.60	13.34	13.34	3.56	8.55	4.14	Mar-06
Custom Benchmark		17.01	10.65	10.65	4.88	8.93	3.70	Mar-06
<i>Net of Fee Value Added vs Benchmark</i>		-1.41	2.68	2.68	-1.32	-0.38	0.44	
Information Ratio				0.93	-0.44	-0.14		
Sharpe Ratio				0.50	0.10	0.46		
Int'l Developed								
Ativo International Developed (Gross) *	\$ 38.7	9.97	2.62	2.62	3.58		3.58	Dec-17
Ativo International Developed (Net) *		9.81	2.02	2.02	2.98		2.98	Dec-17
MSCI EAFE Index		16.05	7.82	7.82	4.28		4.28	
<i>Net of Fee Value Added vs Benchmark</i>		-6.23	-5.79	-5.79	-1.31		-1.31	
Information Ratio				-0.71	-0.25	--		
Sharpe Ratio				0.05	0.07	--		
Int'l Equity (Active)								
Baillie Gifford (Gross)	\$ 99.2	15.73	27.50	27.50			25.80	Mar-19
Baillie Gifford (Net)		15.56	26.83	26.83			25.30	Mar-19
MSCI ACWI x-US (Net)		17.01	10.65	10.65			11.97	
<i>Net of Fee Value Added vs Benchmark</i>		-1.46	16.17	16.17			13.32	
Information Ratio				--	--	--		
Sharpe Ratio				--	--	--		
Int'l Equity (Active)								
Earnest Partners (Gross) *	\$ 98.1	28.66	14.19	14.19			13.99	Mar-19
Earnest Partners (Net) *		28.46	13.50	13.50			13.38	Mar-19
MSCI ACWI x-US (Net)		17.01	10.65	10.65			11.97	
<i>Net of Fee Value Added vs Benchmark</i>		11.45	2.85	2.85			1.40	
Information Ratio				--	--	--		
Sharpe Ratio				--	--	--		

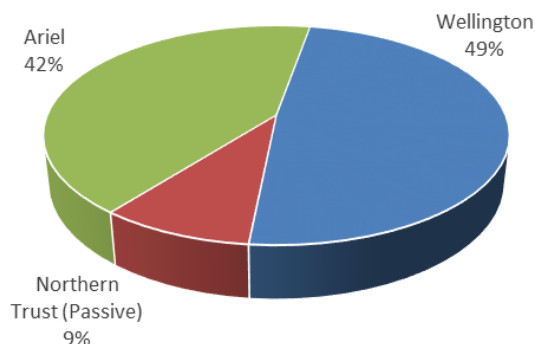
- ◆ The Fund's international equity composite returned 18.00% (net of fees) during the fourth quarter of 2020, outperforming the MSCI ACWI x-US Investable Market Index (IMI) which returned 17.22%. Active management was consistent for the Fund's international equity program with the majority of managers underperforming their respective benchmarks and only one outperforming. The program's long-standing small cap international equity mandate managed by Acadian trailed its benchmark by a modest margin. The program's positive performance was buoyed by Earnest Partners and lead to composite outperformance for the quarter. The recently funded Baillie Gifford portfolio trailed its benchmark during the period but still outperforms its benchmark over longer periods. The international equity composite is currently outperforming against its benchmark for all time periods.

⁵ AQR Custom Benchmark: MSCI ACWI x-US (2q10 – Present); MSCI EAFE (1q06 – 1q10); Performance Objective: Custom Benchmark + 1.5%.



Global Equity Overview

Global Equity Structure



Global Equity Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Total Global Equity (Gross)	\$ 273.7	12.26	16.77	16.77	9.56	11.70	
Total Global Equity (Net)		12.09	16.11	16.11	8.97	11.19	
MSCI ACWI (Net)		14.68	16.25	16.25	10.06	12.26	
<i>Net of Fee Value Added vs Index</i>		<i>-2.60</i>	<i>-0.14</i>	<i>-0.14</i>	<i>-1.09</i>	<i>-1.07</i>	
MSCI ACWI IMI (Net)		15.70	16.25	16.25	9.72	12.15	9.09
MSCI ACWI (Net)		14.68	16.25	16.25	10.06	12.26	9.13
MSCI World (Net)		13.96	15.90	15.90	10.54	12.19	9.87

Global Equity Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
Global Equity - Active								
Wellington (Gross)	\$ 133.5	13.10	23.84	23.84	11.67	12.48	13.70	Aug-12
Wellington (Net)		12.90	23.10	23.10	11.01	11.82	13.07	Aug-12
MSCI ACWI (Net)		14.68	16.25	16.25	10.06	12.26	10.87	Aug-12
<i>Net of Fee Value Added vs Benchmark</i>		<i>-1.78</i>	<i>6.84</i>	<i>6.84</i>	<i>0.95</i>	<i>-0.44</i>	<i>2.20</i>	
Information Ratio				1.62	0.24	-0.12		
Sharpe Ratio				0.88	0.48	0.66		
Global Equity - Active								
Ariel (Gross) *	\$ 115.4	10.60	8.54	8.54	6.90		6.90	Dec-17
Ariel (Net) *		10.42	7.86	7.86	6.28		6.28	Dec-17
MSCI ACWI (Net)		14.68	16.25	16.25	10.06		10.06	
<i>Net of Fee Value Added vs Benchmark</i>		<i>-4.26</i>	<i>-8.40</i>	<i>-8.40</i>	<i>-3.78</i>		<i>-3.78</i>	
Information Ratio				-0.66	-0.50	--		
Sharpe Ratio				0.39	0.32	--		
Global Equity - Passive								
Northern Trust (Gross)	\$ 24.7	15.69	16.77	16.77	10.30	12.70	13.11	Oct-15
Northern Trust (Net)		15.69	16.77	16.77	10.28	12.66	13.07	Oct-15
MSCI ACWI IMI (Net)		15.70	16.25	16.25	9.72	12.15	12.56	Oct-15
<i>Net of Fee Value Added vs Benchmark</i>		<i>-0.01</i>	<i>0.52</i>	<i>0.52</i>	<i>0.56</i>	<i>0.51</i>	<i>0.51</i>	



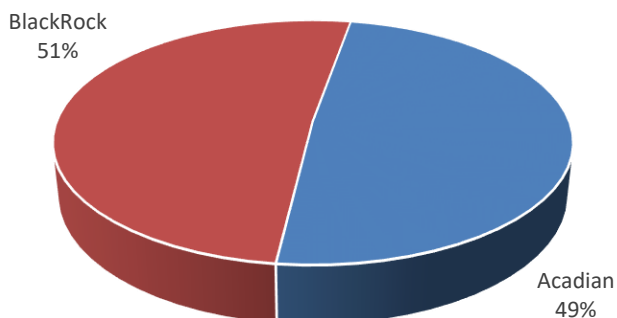
Global Equity Overview (Continued)

- ◆ The global equity composite is comprised of an actively-managed strategy (with a U.S. bias relative to the benchmark) managed by Wellington. This strategy is complemented by a passively-managed strategy provided by Northern Trust. The composite also added an exposure to the Ariel Global Product strategy three years ago. The current structure favors active management (currently 91% active/9% passive) versus the previous 50%/50% allocation between active and passively managed funds within the composite. During the fourth quarter, both actively managed mandates trailed their benchmarks. The global equity composite is currently trailing its benchmark over all time periods.



Global Low Volatility Equity Overview

Global Low Volatility Structure



Global Low Volatility Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Total Global Low Volatility (Gross)	\$ 442.3	7.24	0.13	0.13	5.68	8.92	
Total Global Low Volatility (Net)		7.19	-0.05	-0.05	5.48	8.73	
MSCI ACWI Minimum Volatility (Net)		6.41	2.69	2.69	6.96	9.17	
<i>Net of Fee Value Added vs Index</i>		<i>0.78</i>	<i>-2.74</i>	<i>-2.74</i>	<i>-1.48</i>	<i>-0.44</i>	
MSCI ACWI Minimum Volatility (Net)		6.41	2.69	2.69	6.96	9.17	9.13
MSCI World x-US Minimum Volatility (Net)		7.53	0.15	0.15	3.48	6.33	6.89
MSCI ACWI (Net)		14.68	16.25	16.25	10.06	12.26	9.13

Global Equity Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
Global Low Volatility - Active								
Acadian Global Low Vol (Gross)	\$ 218.7	7.96	-1.67	-1.67	4.32	8.38	7.52	Jun-15
Acadian Global Low Vol (Net)		7.86	-1.99	-1.99	3.97	8.02	7.18	Jun-15
MSCI ACWI (Net)		14.68	16.25	16.25	10.06	12.26	10.08	Jun-15
<i>Net of Fee Value Added vs MSCI ACWI</i>		<i>-6.82</i>	<i>-18.25</i>	<i>-18.25</i>	<i>-6.09</i>	<i>-4.24</i>	<i>-2.90</i>	
MSCI ACWI Min Vol (Net)		9.72	-7.83	-2.50	5.75	6.94	6.94	Jun-15
<i>Net of Fee Value Added vs MSCI ACWI Min Vol</i>		<i>-1.86</i>	<i>5.84</i>	<i>0.51</i>	<i>-1.77</i>	<i>1.08</i>	<i>0.23</i>	
Information Ratio				-2.86	-0.92	-0.67		
Sharpe Ratio				-0.12	0.16	0.55		
Global Low Volatility - Passive								
BlackRock Global Low Vol (Gross)	\$ 223.7	6.56	1.97	1.97	7.04	9.45	8.71	Jun-15
BlackRock Global Low Vol (Net)		6.55	1.93	1.93	7.00	9.42	8.68	Jun-15
MSCI ACWI Min Vol (Net)		6.41	2.69	2.69	6.96	9.17	8.40	Jun-15
<i>Net of Fee Value Added vs Benchmark</i>		<i>0.13</i>	<i>-0.76</i>	<i>-0.76</i>	<i>0.03</i>	<i>0.25</i>	<i>0.28</i>	

*Acadian Info Ratio/Sharpe Ratio statistics based on MSCI ACWI Min Vol benchmark.



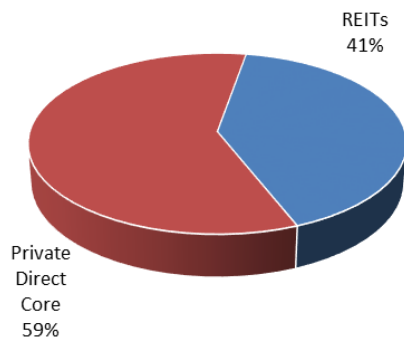
Global Low Volatility Equity Overview (Continued)

- ◆ In 2015, the Board elected to transfer assets from existing strategies elsewhere in the Fund into two new global low volatility equity portfolios. The first portfolio is actively-managed and run by Acadian. Its primary mandate is to provide the Fund with a better risk/return profile relative to the broad MSCI ACWI, its primary benchmark (the Acadian portfolio's performance is also measured against the MSCI ACWI Minimum Volatility as a secondary benchmark). The second portfolio is a passively-managed index fund provided through BlackRock. Taken together, both funds will add diversification benefits to the existing suite of public equity managers. The global low volatility equity composite currently trails the MSCI ACWI Minimum Volatility Index across longer time-periods but outperformed for the quarter.

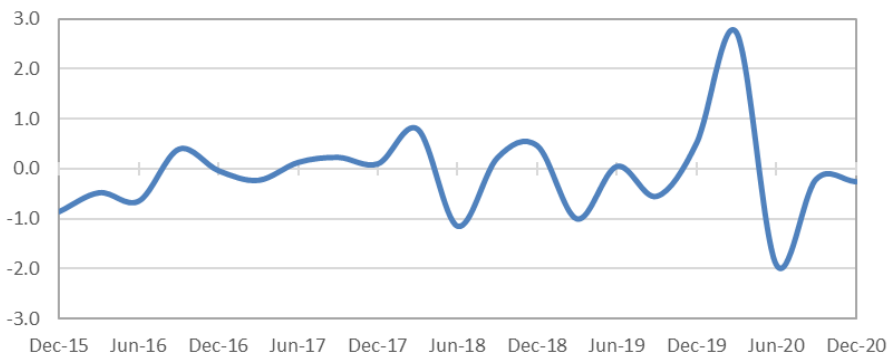


Real Estate Overview

Real Estate Structure



Total Real Estate Composite
 Quarterly Excess Return



Real Estate Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Total Real Estate (Gross)	\$ 379.4	5.26	-1.15	-1.15	5.23	5.71	9.39
Total Real Estate (Net)		5.11	-1.73	-1.73	4.63	5.09	8.65
Custom Benchmark ¹		5.37	-2.48	-2.48	4.53	5.13	8.65
<i>Net of Fee Value Added vs Benchmark</i>		-0.26	0.75	0.75	0.10	-0.05	0.00
REIT Strategies	\$ 156.1	11.44	-4.76	-4.76	4.79	4.85	8.43
Private Core Real Estate	\$ 223.3	1.10	0.34	0.34	4.41	5.06	8.70
Wilshire Real Estate Securities Index		10.72	-7.95	-7.95	3.30	4.46	8.38
NCREIF Open Diversified Core Equity (Net)		1.09	0.34	0.34	3.99	5.27	8.87

Real Estate Managers

	Assets		Performance (%)				Since Inception	Inception Date
	(Millions)	QTR	YTD	1-year	3-year	5-year		
Real Estate Securities - Public								
Adelante Capital Management (Gross)	\$ 77.4	11.05	-4.61	-4.61	5.11	5.46	9.90	Sep-01
Adelante Capital Management (Net)		10.88	-5.19	-5.19	4.50	4.85	9.32	Sep-01
Wilshire Real Estate Securities		10.72	-7.95	-7.95	3.30	4.46	9.47	Sep-01
<i>Net of Fee Value Added vs Index</i>		0.17	2.76	2.76	1.20	0.39	-0.15	
Information Ratio				1.06	0.56	0.19		
Sharpe Ratio				-0.23	0.16	0.23		
CenterSquare (Gross)	\$ 78.7	12.13	-3.84	-3.84			7.53	May-18
CenterSquare (Net)		11.98	-4.34	-4.34			7.04	May-18
Wilshire Real Estate Securities		10.72	-7.95	-7.95			4.95	May-18
<i>Net of Fee Value Added vs Index</i>		1.27	3.61	3.61			2.09	
Information Ratio				1.98	--	--		
Sharpe Ratio				-0.18	--	--		

⁶ Real Estate Custom Benchmark: 50% Wilshire RESI / 39% NCREIF ODCE NOF/11% Invesco Custom Benchmark (4q13 – Present); Wilshire RESI (4q89 – 4q10).



Real Estate Overview (Continued)

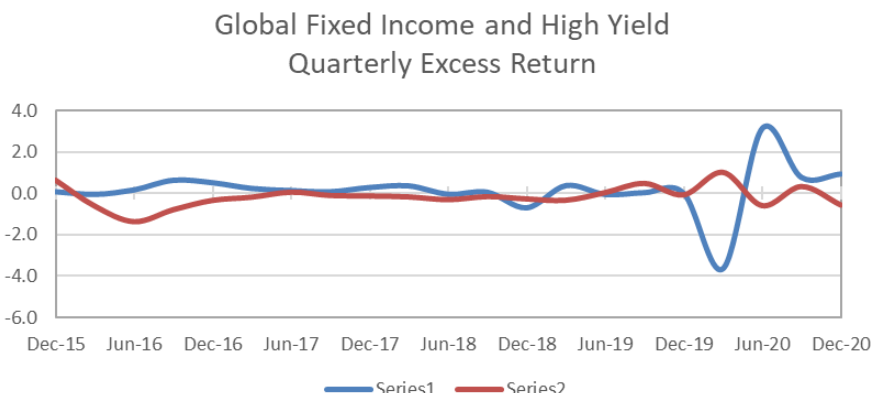
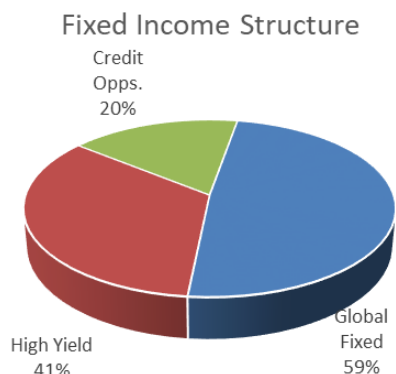
Real Estate Managers

	Assets (Millions)	QTR	Performance (%)			5-year	Since Inception	Inception Date
			YTD	1-year	3-year			
Direct Core Real Estate - Private								
Heitman America Real Estate Trust (Gross)	\$ 82.5	1.84	-1.00	-1.00	2.85	5.05	10.03	Aug-10
Heitman America Real Estate Trust (Net)		1.61	-1.89	-1.89	1.93	4.12	9.01	Aug-10
NCREIF Open-End Diversified Core (Net)		1.09	0.34	0.34	3.99	5.27	9.29	Aug-10
<i>Net of Fee Value Added vs Index</i>		0.52	-2.22	-2.22	-2.06	-1.15	-0.29	
Invesco Core Real Estate USA (Gross)	\$ 69.3	1.86	-0.74	-0.74	5.61	7.25	10.70	Aug-10
Invesco Core Real Estate USA (Net)		1.64	-1.59	-1.59	4.72	6.34	9.73	Aug-10
NCREIF Open-End Diversified Core (Net)		1.09	0.34	0.34	3.99	5.27	9.29	Aug-10
<i>Net of Fee Value Added vs Index</i>		0.55	-1.93	-1.93	0.73	1.07	0.44	
Invesco II	\$ 71.6	0.00	8.09	8.09	7.98	4.46	3.06	Oct-13

- ◆ The Fund's total real estate composite is comprised of both public market real estate securities (REITs) and private investment in direct core real estate. The total segment returned 5.11% (net of fees) during the fourth quarter, trailing its benchmark (split 50% Wilshire Real Estate Securities Index, 39% NCREIF Open-End Diversified Core Index and 11% Invesco II Custom Benchmark) which returned 5.37%. On the public side, both REIT exposures outperformed the Wilshire Real Estate Securities Index. On the private side, both Heitman and Invesco outperformed the NCREIF ODCE Index. Currently, the Fund's total real estate composite outperforms its benchmark over the YTD-, one- and three- year periods.



Fixed Income Overview



Fixed Income Composites

	Assets (Millions)	Performance					
		QTR	YTD	1-year	3-year	5-year	10-year
Global Fixed Income (Gross)	\$ 516.2	1.64	8.85	8.85	5.89	5.24	4.73
Global Fixed Income (Net)		1.59	8.62	8.62	5.66	5.02	4.53
Bloomberg Aggregate Bond Index		0.67	7.51	7.51	5.34	4.44	3.84
<i>Net of Fee Value Added vs Benchmark</i>		0.92	1.12	1.12	0.32	0.58	0.69
High Yield (Gross)	\$ 360.8	5.92	7.13	7.13	6.16	7.99	6.80
High Yield (Net)		5.83	6.60	6.60	5.64	7.47	6.29
Custom Benchmark ¹		6.41	6.23	6.23	5.83	8.32	6.46
<i>Net of Fee Value Added vs Benchmark</i>		-0.58	0.37	0.37	-0.19	-0.86	-0.16
Bloomberg Aggregate		0.67	7.51	7.51	5.34	4.44	3.84
Citigroup High Yield Cash Pay		6.41	6.23	6.23	5.83	8.32	6.46
BofA ML High Yield Master II		6.48	6.17	6.17	5.88	8.43	6.62

Global Fixed Income Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year	Inception	Date
Global Fixed Income								
Securian Asset Mgmt. (Gross)	\$ 223.9	1.91	7.04	7.04	5.45	5.20	5.09	May-07
Securian Asset Mgmt. (Net)		1.87	6.86	6.86	5.27	5.02	4.91	May-07
Bloomberg Aggregate		0.67	7.51	7.51	5.34	4.44	4.59	May-07
<i>Net of Fee Value Added vs Benchmark</i>		1.20	-0.65	-0.65	-0.07	0.58	0.32	
Information Ratio				-0.10	-0.02	0.20		
Sharpe Ratio				0.75	0.69	0.87		
Aberdeen (Gross)	\$ 224.3	1.63	10.95	10.95	6.48	5.49	5.40	Apr-07
Aberdeen (Net)		1.57	10.69	10.69	6.23	5.24	5.18	Apr-07
Bloomberg Aggregate		0.67	7.51	7.51	5.34	4.44	4.46	Apr-07
<i>Net of Fee Value Added vs Benchmark</i>		0.90	3.19	3.19	0.89	0.80	0.72	
Information Ratio				1.00	0.44	0.49		
Sharpe Ratio				1.82	1.08	1.08		

⁷ High Yield Custom Benchmark: Citigroup High Yield Cash Pay (4q99 – Present); Citigroup High Yield Composite Index (1q97 – 3q99).



Fixed Income Overview (Continued)

Global Fixed Income Managers								
	Assets	Performance (%)					Since	Inception
	(Millions)	QTR	YTD	1-year	3-year	5-year	Inception	Date
Global Fixed Income								
Garcia Hamilton (Gross)	\$ 68.0	0.79	7.92	7.92	5.34	4.62	4.40	Oct-13
Garcia Hamilton (Net)		0.73	7.64	7.64	5.07	4.35	4.14	Oct-13
Bloomberg Aggregate		0.67	7.51	7.51	5.34	4.44	3.85	Oct-13
<i>Net of Fee Value Added vs Benchmark</i>		<i>0.06</i>	<i>0.14</i>	<i>0.14</i>	<i>-0.27</i>	<i>-0.09</i>	<i>0.28</i>	
Information Ratio			0.07	-0.19	-0.07			
Sharpe Ratio			1.78	1.09	1.06			

- ◆ The Fund's global fixed income segment returned 1.59% (net of fees) during the fourth quarter of 2020, outperforming the Bloomberg Aggregate Bond Index, which returned 0.67%. The segment is comprised of three actively managed strategies: (1) Securian Asset Management (previously Advantus Capital Management), (2) Aberdeen Asset Management, and (3) Garcia Hamilton. During the period, all three actively managed portfolios outperformed the Bloomberg Aggregate Index. Securian and Aberdeen (both with early 2007 inception dates) manage roughly the same level of assets for the Fund while the Garcia Hamilton portfolio has a smaller mandate. Therefore, quarter to quarter performance is largely driven by the results of the Securian and Aberdeen accounts while the Garcia Hamilton account does not have the ability to move the needle as much, so to speak, on account of its smaller size. Following this period's results, the global fixed income composite now outperforms the Bloomberg Aggregate over the YTD, one-, three-, five- and ten- year periods.



Fixed Income Overview (Continued)

High Yield/Credit Opportunities Managers

	Assets (Millions)	Performance (%)					Since Inception	Inception Date
		QTR	YTD	1-year	3-year	5-year		
High Yield								
Oaktree Capital Management (Gross)	\$ 181.9	6.38	7.21	7.21	5.67	7.91	7.25	Dec-96
Oaktree Capital Management (Net)		6.25	6.69	6.69	5.15	7.38	6.47	Dec-96
Custom Benchmark		6.41	6.23	6.23	5.83	8.32		Dec-96
<i>Net of Fee Value Added vs Benchmark</i>		-0.16	0.46	0.46	-0.68	-0.95		
Information Ratio				0.24	-0.59	-0.87		
Sharpe Ratio				0.42	0.39	0.82		
BlackRock High Yield (Gross)								
BlackRock High Yield (Gross)	\$ 178.9	5.45	7.00	7.00	6.62	8.05	7.02	Sep-06
BlackRock High Yield (Net)		5.41	6.46	6.46	6.12	7.55	6.54	Sep-06
Citigroup High Yield Cash Pay		6.67	7.29	7.29	6.89	9.40	8.05	Sep-06
<i>Net of Fee Value Added vs Benchmark</i>		-1.26	-0.83	-0.83	-0.77	-1.85	-1.51	
Information Ratio				0.04	0.09	-0.28		
Sharpe Ratio				0.37	0.47	0.82		
Credit Opportunities								
Neuberger Berman (Gross)	\$ 179.7	5.88	5.48	5.48	5.18		7.34	Jan-16
Neuberger Berman (Net)		5.77	5.17	5.17	4.85		7.05	Jan-16
Custom Benchmark		5.36	4.85	4.85	5.01		7.24	Jan-16
<i>Net of Fee Value Added vs Benchmark</i>		0.41	0.32	0.32	-0.16		-0.19	
Information Ratio				0.11	-0.08	--		
Sharpe Ratio				0.25	0.30	--		

- ◆ The high yield composite returned 5.83% (net of fees) during the fourth quarter, trailing the Citigroup High Yield Cash Pay Index, which returned 6.41%. The composite is currently split equally between the two actively-managed strategies. During the period, both strategies trailed the benchmark. The high yield composite is currently outperforming its benchmark over the YTD and one-year time periods.

⁸ Oaktree Capital Management Performance Objective: Citigroup High Yield Cash Pay + 1% (4q99 – Present); Citigroup High Yield Composite Index + 1% (2q97 – Present).



Private Equity Overview

Private Equity Composite

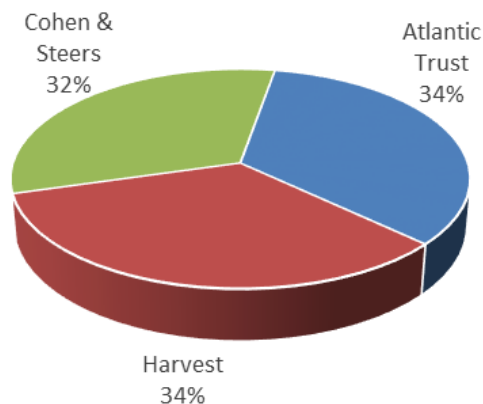
	Total Commitment	Commit. Year	Cumulative Capital Called		Cumulative Distributions	Capital Balance	Multiple	Calculated IRR
Hamilton Lane Fund VII LP (Series A)	30,000,000	2010	27,569,673	91.9%	31,913,679	12,443,062	1.61	10.9%
Hamilton Lane Fund VII LP (Series B)	20,000,000	2010	18,031,161	90.2%	13,046,582	8,072,181	1.17	3.2%
<i>Hamilton Lane Fund VII LP (Total)</i>	<i>50,000,000</i>		<i>45,600,834</i>	<i>91.2%</i>	<i>44,960,261</i>	<i>20,515,243</i>	<i>1.44</i>	<i>5.6%</i>
Hamilton Lane Secondary Fund II LP	25,000,000	2009	22,058,532	88.2%	30,828,594	1,017,156	1.44	13.8%
Hamilton Lane Secondary Fund III LP	30,000,000	2012	23,372,292	77.9%	22,657,222	7,142,411	1.27	9.4%
Hamilton Lane Secondary Fund IV LP	30,000,000	2017	25,907,343	86.4%	9,112,329	22,892,451	1.24	14.1%
Hamilton Lane Secondary Fund V LP	40,000,000	2020	7,000,000	17.5%	-	8,070,129	1.15	19.2%
Hamilton Lane Fund VIII LP (Global)	30,000,000	2012	22,131,848	73.8%	7,865,459	19,133,408	1.22	4.6%
GCM Grosvenor - Partnership, L.P.	75,000,000	2011	84,962,430	113.3%	98,193,733	37,385,751	1.60	13.9%
GCM Grosvenor - Partnership II, L.P. (2014)	60,000,000	2014	68,097,889	113.5%	32,850,434	55,973,706	1.30	11.1%
GCM Grosvenor - Partnership II, L.P. (2015)	30,000,000	2015	30,086,571	100.3%	5,603,995	35,192,320	1.36	13.0%
GCM Grosvenor - Partnership II, L.P. (2017)	30,000,000	2018	14,703,054	49.0%	498,336	14,222,571	1.00	0.5%
Fairview Capital - Lone Star Fund I	40,000,000	2015	33,953,847	84.9%	2,934,533	40,856,023	1.29	10.7%
Fairview Capital - Lone Star Fund II	30,000,000	2018	8,697,892	29.0%	-	8,013,256	0.92	-6.6%
Total Private Equity Program	470,000,000	2009	386,572,532	82.2%	255,504,895	270,414,425	1.36	10.9%

- Multiple calculation = (market value + distributions) / capital called
- Internal Rate of Return shown here is calculated by Wilshire based on cumulative cash flows and annualized since inception.



Global Listed Infrastructure Overview

Global Listed Infrastructure



MLP Composite

	Assets		Performance				
	(Millions)	QTR	YTD	1-year	3-year	5-year	10-year
Global Listed Infra (Gross)	\$ 187.6	17.27	-25.24	-25.24	-8.99	-2.55	
Global Listed Infra (Net)		17.02	-25.83	-25.83	-9.63	-3.21	
GLI Custom Benchmark		27.80	-31.19	-31.19	-13.73	-6.62	
<i>Net of Fee Value Added vs Index</i>		-10.79	5.35	5.35	4.10	3.40	
Alerian MLP Index		32.45	-28.69	-28.69	-12.69	-5.95	-2.31
S&P MLP Index		25.48	-36.23	-36.23	-19.19	-12.18	-8.18
Bloomberg Commodities Index		10.19	-3.12	-3.12	-2.53	1.03	-6.50
FTSE Global Core Infra 50/50 Idx Net		8.47					

Managers

	Assets (Millions)	QTR	Performance (%)			5-year	Since	Inception
			YTD	1-year	3-year		Inception	Date
MLPs								
Harvest Fund Advisors (Gross)	\$ 63.1	22.78	-20.32	-20.32	-6.50	-1.52	1.72	
Harvest Fund Advisors (Net)		22.48	-21.03	-21.03	-7.24	-2.28	0.99	Dec-11
Alerian MLP Index		32.45	-28.69	-28.69	-12.69	-5.95	-3.96	Dec-11
<i>Net of Fee Value Added vs Benchmark</i>		-9.97	7.66	7.66	5.46	3.67	4.95	
Information Ratio				0.44	0.44	0.35		
Sharpe Ratio				-0.38	-0.24	-0.11		
Atlantic Trust CIBC (Gross)	\$ 64.1	25.65	-21.41	-21.41	-8.07	-1.40	1.87	
Atlantic Trust CIBC (Net)		25.41	-21.94	-21.94	-8.62	-1.97	1.30	Dec-11
Alerian MLP Index		32.45	-28.69	-28.69	-12.69	-5.95	-3.96	Dec-11
<i>Net of Fee Value Added vs Benchmark</i>		-7.04	6.75	6.75	4.07	3.97	5.26	
Information Ratio				0.61	0.50	0.56		
Sharpe Ratio				-0.34	-0.25	-0.09		



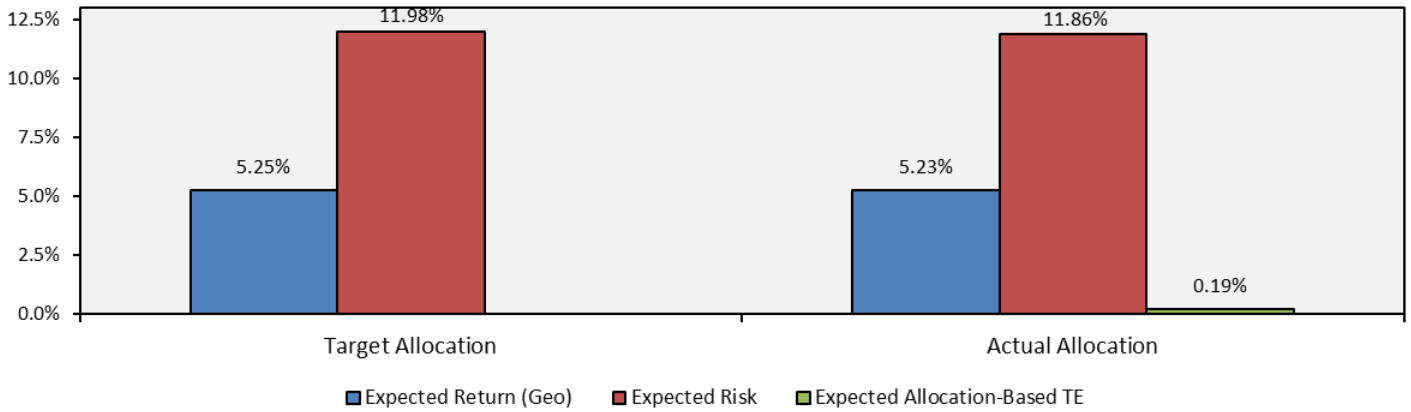
Global Listed Infrastructure Overview (Continued)

- ◆ The Fund's Master Limited Partnership (MLP) program, which is comprised of Harvest Fund Advisors and Atlantic Trust, was joined this quarter by a Global Listed Infrastructure strategy managed by Cohen & Steers. The three managers will now make up the Global Listed Infrastructure composite. Commodity results were positive for the quarter as crude oil was up 20.6% to \$48.52 per barrel. Natural gas prices were up 0.5%, ending the quarter at \$2.54 per million BTUs, as the U.S. exported a record amount of liquefied natural gas (LNG). Midstream energy surged during the fourth quarter while the broader infrastructure segment was also positive. Although the Global Listed Infrastructure composite trailed its benchmark for the quarter, it is outperforming across all longer time periods including since inception.

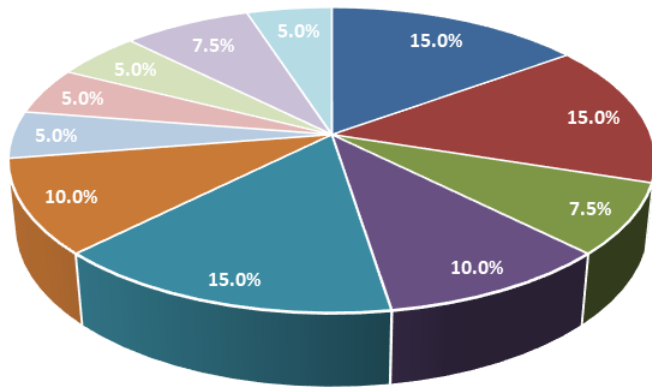
Appendix: Risk Analysis & Performance Objectives



Expected Return and Risk

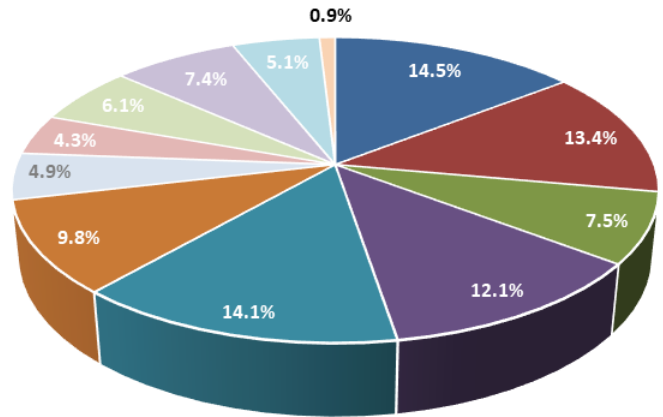


Target Asset Allocation



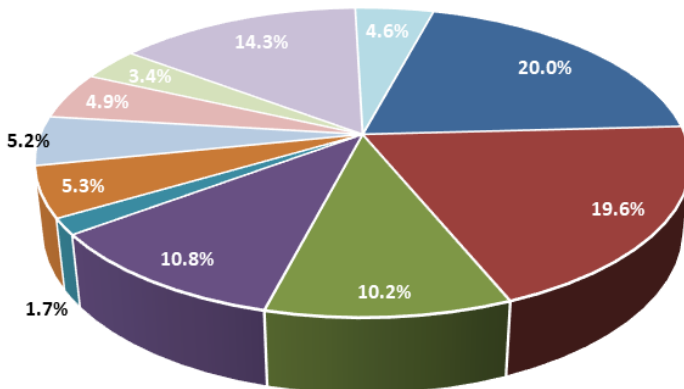
■ Domestic Equity ■ Int'l Equity ■ Global Equity ■ Global Low Vol ■ Global Fixed Income ■ High Yield
 ■ Opp Credit ■ Public REITs ■ Private Real Est.

Actual Asset Allocation



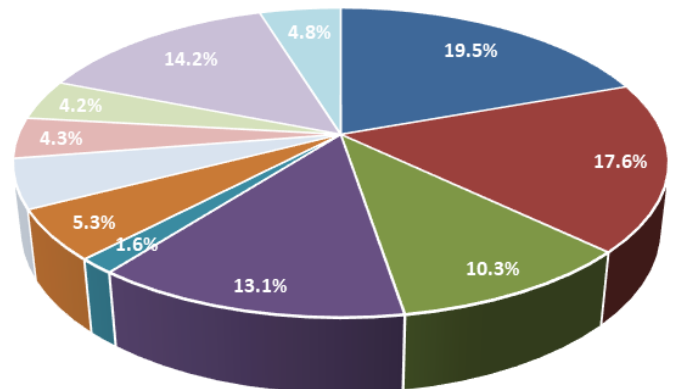
■ Global Low Vol ■ Global Fixed Income ■ High Yield ■ Private Equity ■ Global Listed Infra ■ Cash

Contribution to Total Risk - Target Allocation



■ Domestic Equity ■ Int'l Equity ■ Global Equity ■ Global Low Vol ■ Global Fixed Income ■ High Yield
 ■ Opp Credit ■ Public REITs ■ Private Real Est.

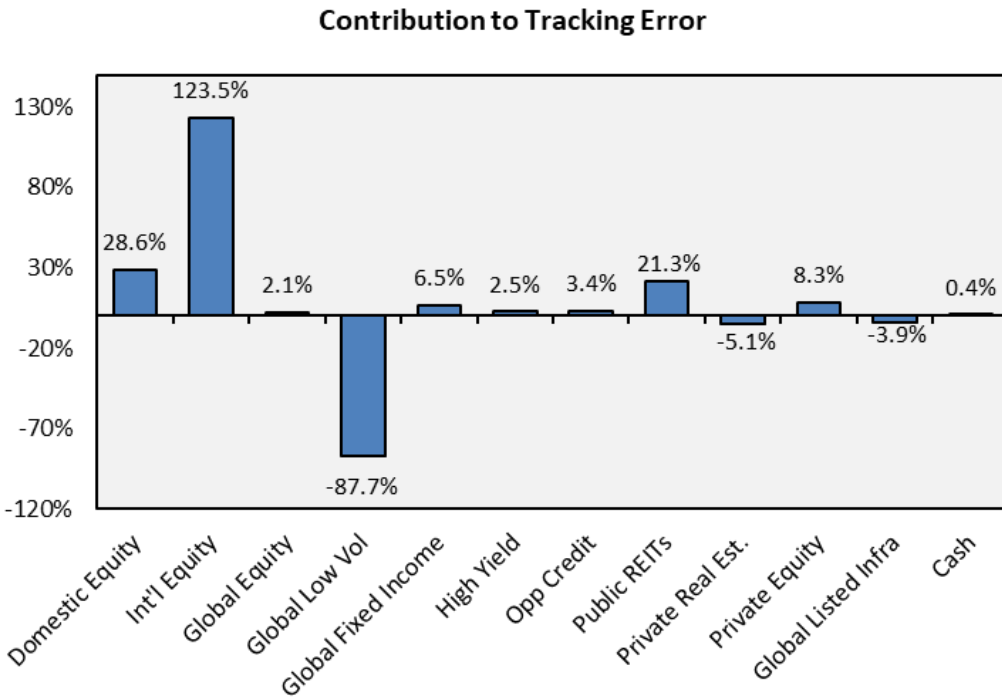
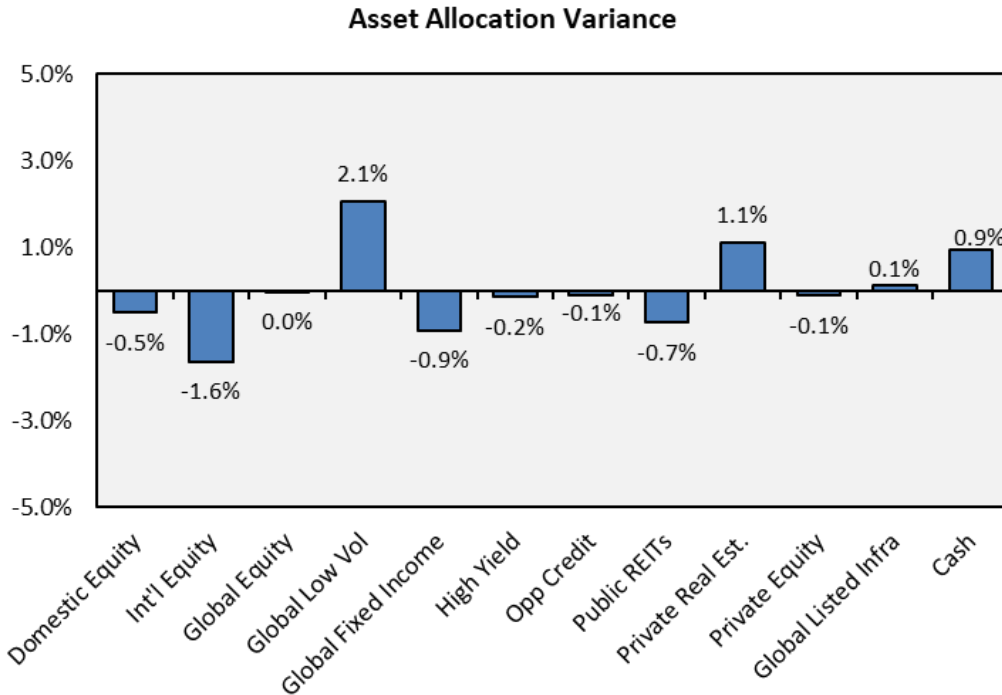
Contribution to Total Risk - Actual Allocation



■ Global Low Vol ■ Global Fixed Income ■ High Yield ■ Private Equity ■ Global Listed Infra ■ Cash



Expected Return and Tracking Error based on Wilshire's Asset Assumptions



- ◆ The variance between the Fund's actual asset allocation and the target allocation is a source of tracking error for the Fund. This "asset allocation tracking error" is currently forecasted to be 0.19% (for the one-year period) at quarter-end. International equity and Global Low Volatility provided the largest contributions to tracking error at the total fund level.



Manager Risk Statistics

U.S. Equity					Non-U.S. Equity				
<u>T. Rowe Price (Enhanced Index)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Acadian (Int'l Small Cap)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation	26.67	19.22	15.64	13.86	Standard Deviation	29.52	20.98	17.72	16.51
Standard Deviation (Index)	25.95	18.79	15.26	13.54	Standard Deviation (Index)	32.21	21.28	17.87	16.35
Sharpe Ratio	0.72	0.69	0.93	0.99	Sharpe Ratio	0.44	0.08	0.53	0.45
Sharpe Ratio (Index)	0.68	0.66	0.91	0.97	Sharpe Ratio (Index)	0.42	0.14	0.45	0.32
Excess Risk	1.46	1.04	1.22	1.05	Excess Risk	5.26	4.46	4.15	3.71
Information Ratio	0.97	0.79	0.50	0.43	Information Ratio	-0.07	-0.26	0.29	0.57
<u>Systematic (Small Core)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>AQR (Int'l Equity)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation	33.66	23.98	20.26	18.19	Standard Deviation	25.28	18.94	15.91	15.74
Standard Deviation (Index)	36.41	25.63	21.54	18.88	Standard Deviation (Index)	25.84	4.88	8.92	4.92
Sharpe Ratio	0.11	0.07	0.48	0.55	Sharpe Ratio	0.50	0.10	0.46	0.33
Sharpe Ratio (Index)	0.53	0.33	0.55	0.56	Sharpe Ratio (Index)	0.38	0.18	0.50	0.28
Excess Risk	5.17	4.54	4.52	4.00	Excess Risk	2.61	2.85	2.52	2.53
Information Ratio	-2.52	-1.36	-0.44	-0.11	Information Ratio	0.93	-0.44	-0.14	0.38
<u>Channing Capital (Small Value)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Ativo (Int'l Developed)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation	38.88	27.60	23.22	n/a	Standard Deviation	27.30	18.24	n/a	n/a
Standard Deviation (Index)	38.97	26.49	22.34	n/a	Standard Deviation (Index)	26.49	18.14	n/a	n/a
Sharpe Ratio	0.40	0.16	0.39	n/a	Sharpe Ratio	0.05	0.07	n/a	n/a
Sharpe Ratio (Index)	0.10	0.08	0.37	n/a	Sharpe Ratio (Index)	0.27	0.15	n/a	n/a
Excess Risk	6.10	5.8	5.06	n/a	Excess Risk	7.60	5.00	n/a	n/a
Information Ratio	1.83	0.41	0.13	n/a	Information Ratio	-0.71	-0.25	n/a	n/a
<u>Redwood (Small Growth)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	Global Equity				
Standard Deviation	24.46	21.60	n/a	n/a	<u>Wellington (Global Equity)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation (Index)	34.45	25.46	n/a	n/a	Standard Deviation	25.37	19.22	16.01	n/a
Sharpe Ratio	1.69	0.53	n/a	n/a	Standard Deviation (Index)	26.01	18.38	15.08	n/a
Sharpe Ratio (Index)	0.98	0.56	n/a	n/a	Sharpe Ratio	0.88	0.48	0.66	n/a
Excess Risk	15.39	9.98	n/a	n/a	Sharpe Ratio (Index)	0.60	0.45	0.72	n/a
Information Ratio	0.37	-0.25	n/a	n/a	Excess Risk	3.63	3.55	3.36	n/a
<u>Smith Graham (Mid-Cap)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	Information Ratio	1.62	0.24	-0.12	n/a
Standard Deviation	41.16	28.55	n/a	n/a	<u>Ariel (Global Equity)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation (Index)	32.07	22.13	n/a	n/a	Standard Deviation	18.49	14.58	n/a	n/a
Sharpe Ratio	0.05	0.08	n/a	n/a	Standard Deviation (Index)	26.01	18.38	n/a	n/a
Sharpe Ratio (Index)	0.51	0.44	n/a	n/a	Sharpe Ratio	0.39	0.32	n/a	n/a
Excess Risk	13.18	9.95	n/a	n/a	Sharpe Ratio (Index)	0.60	0.45	n/a	n/a
Information Ratio	-0.93	-0.68	n/a	n/a	Excess Risk	10.94	6.86	n/a	n/a
Real Estate Investment Trusts					Information Ratio	-0.66	-0.50	n/a	n/a
<u>Adelante (REIT)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	Global Low Volatility				
Standard Deviation	25.57	18.24	15.89	15.46	<u>Acadian (Global Low Volatility)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation (Index)	27.45	19.37	16.78	16.30	Standard Deviation	21.49	14.62	12.27	n/a
Sharpe Ratio	-0.23	0.16	0.23	0.52	Standard Deviation (Index)	26.01	18.38	15.08	n/a
Sharpe Ratio (Index)	-0.31	0.09	0.19	0.47	Sharpe Ratio	-0.12	0.16	0.55	n/a
Excess Risk	2.82	2.08	1.99	1.80	Sharpe Ratio (Index)	0.60	0.45	0.72	n/a
Information Ratio	1.06	0.56	0.19	0.21	Excess Risk	5.48	5.98	5.67	n/a
Real Estate Investment Trusts					Information Ratio	-2.86	-0.92	-0.67	n/a
<u>Centersquare (REIT)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	Fixed Income (Core)				
Standard Deviation	27.19	n/a	n/a	n/a	<u>Securian (Core Fixed Income)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation (Index)	27.45	n/a	n/a	n/a	Standard Deviation	8.19	5.24	4.33	3.61
Sharpe Ratio	-0.18	n/a	n/a	n/a	Standard Deviation (Index)	3.41	3.40	3.16	2.93
Sharpe Ratio (Index)	-0.31	n/a	n/a	n/a	Sharpe Ratio	0.75	0.69	0.87	1.12
Excess Risk	1.99	n/a	n/a	n/a	Sharpe Ratio (Index)	1.99	1.08	1.01	1.09
Information Ratio	1.98	n/a	n/a	n/a	Excess Risk	6.18	3.51	2.73	1.98
					Information Ratio	-0.10	-0.02	0.20	0.42



Manager Risk Statistics

High Yield Fixed Income					Fixed Income (Core)				
<u>BlackRock (High Yield)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Aberdeen (Core Fixed Income)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation	15.52	9.54	7.69	6.78	Standard Deviation	5.46	4.24	3.72	3.34
Standard Deviation (Index)	15.34	9.49	7.92	7.13	Standard Deviation (Index)	3.41	3.40	3.16	2.93
Sharpe Ratio	0.37	0.47	0.82	0.84	Sharpe Ratio	1.82	1.08	1.08	1.12
Sharpe Ratio (Index)	0.36	0.44	0.89	0.81	Sharpe Ratio (Index)	1.99	1.08	1.01	1.09
Excess Risk	5.42	3.07	2.53	2.08	Excess Risk	2.97	1.91	1.57	1.35
Information Ratio	0.04	0.09	-0.28	-0.03	Information Ratio	1.00	0.44	0.49	0.39
<u>Oaktree (High Yield)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Garcia Hamilton (Core Fixed Income)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation	14.25	8.97	7.46	6.76	Standard Deviation	3.89	3.12	2.93	<i>n/a</i>
Standard Deviation (Index)	15.34	9.49	7.92	7.13	Standard Deviation (Index)	7.51	5.34	4.44	<i>n/a</i>
Sharpe Ratio	0.42	0.39	0.82	0.78	Sharpe Ratio	1.78	1.09	1.06	<i>n/a</i>
Sharpe Ratio (Index)	0.36	0.44	0.89	0.81	Sharpe Ratio (Index)	1.99	1.08	1.01	<i>n/a</i>
Excess Risk	1.77	1.09	1.01	1.05	Excess Risk	1.92	1.38	1.25	<i>n/a</i>
Information Ratio	0.24	-0.59	-0.87	-0.46	Information Ratio	0.07	-0.19	-0.07	<i>n/a</i>
<u>Neuberger Berman (Credit Opps)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Master Limited Partnerships</u>				
Standard Deviation	18.09	10.71	<i>n/a</i>	<i>n/a</i>	<u>Harvest (MLP)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
Standard Deviation (Index)	15.71	9.39	<i>n/a</i>	<i>n/a</i>	Standard Deviation	57.31	36.73	30.26	<i>n/a</i>
Sharpe Ratio	0.25	0.30	<i>n/a</i>	<i>n/a</i>	Standard Deviation (Index)	79.91	47.85	38.25	<i>n/a</i>
Sharpe Ratio (Index)	0.26	0.36	<i>n/a</i>	<i>n/a</i>	Sharpe Ratio	-0.38	-0.24	-0.11	<i>n/a</i>
Excess Risk	2.72	1.78	<i>n/a</i>	<i>n/a</i>	Sharpe Ratio (Index)	-0.36	-0.29	-0.18	<i>n/a</i>
Information Ratio	0.11	-0.08	<i>n/a</i>	<i>n/a</i>	Excess Risk	24.37	14.10	11.05	<i>n/a</i>
					Information Ratio	0.44	0.44	0.35	<i>n/a</i>
					<u>Atlantic Trust CIBC (MLP)</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>
					Standard Deviation	65.57	40.55	33.35	26.99
					Standard Deviation (Index)	79.91	47.85	38.25	29.43
					Sharpe Ratio	-0.34	-0.25	-0.09	0.00
					Sharpe Ratio (Index)	-0.36	-0.29	-0.18	-0.10
					Excess Risk	15.51	9.29	7.52	7.93
					Information Ratio	0.61	0.50	0.56	0.37



Manager Performance Objectives

Domestic Equity	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<u>Enhanced Index</u>				
T. Rowe Price (Net)	15.12	15.92	10.38	Mar-06
S&P 500 Index + 1%	15.31	16.36	10.88	Mar-06
<i>Net of Fee Value Added vs Objective</i>	-0.19	-0.44	-0.50	
S&P 500 Index	14.18	15.22	9.75	Mar-06
<i>Net of Fee Value Added vs Benchmark</i>	0.94	0.70	0.63	
<u>Small Core - Active</u>				
Systematic Financial (Net)	3.42	11.00	10.53	Jun-03
Russell 2000 Index + 1.25%	11.62	14.67	11.34	Jun-03
<i>Net of Fee Value Added vs Objective</i>	-8.20	-3.67	-0.81	
Russell 2000 Index	10.25	13.26	9.97	Jun-03
<i>Net of Fee Value Added vs Benchmark</i>	-6.83	-2.26	0.56	
<u>Small Value - Active</u>				
Channing Capital Management (Net) *	6.22	10.35	7.38	Oct-13
Russell 2000 Value Index + 1.25%	5.03	11.03	7.79	Oct-13
<i>Net of Fee Value Added vs Objective</i>	1.19	-0.68	-0.41	
Russell 2000 Value Index	3.72	9.65	6.46	Oct-13
<i>Net of Fee Value Added vs Benchmark</i>	2.49	0.70	0.92	
<u>Small Growth - Active</u>				
Redwood Investments (Net) *	13.31		13.85	Sep-16
Russell 2000 Growth Index + 1.50%	17.93		19.28	Sep-16
<i>Net of Fee Value Added vs Objective</i>	-4.62		-5.43	
Russell 2000 Growth Index	16.20		17.51	
<i>Net of Fee Value Added vs Benchmark</i>	-2.88		-3.66	
<u>Mid Cap Value - Active</u>				
Smith Graham Mid Cap Value (Net) *	4.06		4.06	Dec-17
Russell Midcap Index + 2%	13.84		13.84	Dec-17
<i>Net of Fee Value Added vs Objective</i>	-9.78		-9.78	
Russell Midcap Index	11.61		11.61	
<i>Net of Fee Value Added vs Benchmark</i>	-7.55		-7.55	



Manager Performance Objectives

International Equity	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	
<u>Int'l Small Cap - Active</u>				
Acadian International (Net)	3.39	10.68	8.55	Mar-89
Custom Benchmark + 2%	6.69	11.56	8.38	Mar-89
<i>Net of Fee Value Added vs Objective</i>	<i>-3.30</i>	<i>-0.88</i>	<i>0.17</i>	
Custom Benchmark	4.59	9.37	9.37	Mar-89
<i>Net of Fee Value Added vs Benchmark</i>	<i>-1.20</i>	<i>1.31</i>	<i>1.31</i>	
<u>Int'l Enhanced Index</u>				
AQR Capital Management (Net)	3.56	8.55	4.14	Mar-06
Custom Benchmark + 1.5%	6.45	10.56	5.26	Mar-06
<i>Net of Fee Value Added vs Objective</i>	<i>-2.89</i>	<i>-2.01</i>	<i>-1.12</i>	
Custom Benchmark	4.88	8.93	3.70	Mar-06
<i>Net of Fee Value Added vs Benchmark</i>	<i>-1.32</i>	<i>-0.38</i>	<i>0.44</i>	
<u>Int'l Developed</u>				
Ativo International Developed (Net) *	2.98		2.98	Dec-17
MSCI EAFE Index + 2%	6.38		6.81	
<i>Net of Fee Value Added vs Objective</i>	<i>-3.40</i>		<i>-3.83</i>	
MSCI EAFE Index	4.28		4.28	
<i>Net of Fee Value Added vs Benchmark</i>	<i>-1.31</i>		<i>-1.31</i>	
<u>Int'l Equity (Active)</u>				
Baillie Gifford (Net)	-.-	-.-	25.30	Mar-19
MSCI ACWI x-US (Net) + 2%	-.-	-.-	14.00	
<i>Net of Fee Value Added vs Objective</i>			<i>11.30</i>	
MSCI ACWI x-US (Net)	-.-	-.-	11.97	
<i>Net of Fee Value Added vs Benchmark</i>			<i>13.32</i>	
<u>Int'l Equity (Active)</u>				
Earnest Partners (Net) *	-.-	-.-	13.38	Mar-19
MSCI ACWI x-US (Net) + 2%	-.-	-.-	14.00	
<i>Net of Fee Value Added vs Objective</i>			<i>-0.62</i>	
MSCI ACWI x-US (Net)	-.-	-.-	11.97	
<i>Net of Fee Value Added vs Benchmark</i>			<i>1.40</i>	



Manager Performance Objectives

Global Equity	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<u>Global Equity - Active</u>				
Wellington (Net)	11.01	11.82	13.07	Aug-12
MSCI ACWI (Net) + 2%	12.27	14.50	13.09	Aug-12
<i>Net of Fee Value Added vs Objective</i>	<i>-1.26</i>	<i>-2.68</i>	<i>-0.02</i>	
MSCI ACWI (Net)	10.06	12.26	10.87	Aug-12
<i>Net of Fee Value Added vs Benchmark</i>	<i>0.95</i>	<i>-0.44</i>	<i>2.20</i>	
<u>Global Equity - Active</u>				
Ariel (Net) *	6.28		6.28	Dec-17
MSCI ACWI (Net) + 1.5%	11.71	--	11.71	
<i>Net of Fee Value Added vs Objective</i>	<i>-5.43</i>		<i>-5.43</i>	
MSCI ACWI (Net)	10.06		10.06	
<i>Net of Fee Value Added vs Benchmark</i>	<i>-3.78</i>		<i>-3.78</i>	
<u>Global Low Volatility - Active</u>				
Acadian Global Low Vol (Net)	3.97	8.02	7.18	Jun-15
MSCI ACWI (Net) + 2%	12.27	14.50	11.64	Jun-15
<i>Net of Fee Value Added vs Objective</i>	<i>-8.30</i>	<i>-6.48</i>	<i>-4.46</i>	
MSCI ACWI (Net)	10.06	12.26	10.08	Jun-15
<i>Net of Fee Value Added vs MSCI ACWI</i>	<i>-6.09</i>	<i>-4.24</i>	<i>-2.90</i>	
MSCI ACWI Min Vol (Net)	5.75	6.94	6.94	Jun-15
<i>Net of Fee Value Added vs MSCI ACWI Min Vol</i>	<i>-1.77</i>	<i>1.08</i>	<i>0.23</i>	



Manager Performance Objectives

Real Estate	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<u>Real Estate Securities - Public</u>				
Adelante Capital Management (Net)	4.50	4.85	9.32	Sep-01
Wilshire Real Estate Securities + 1%	4.34	5.51	10.56	Sep-01
<i>Net of Fee Value Added vs Objective</i>	0.16	-0.66	-1.24	
Wilshire Real Estate Securities	3.30	4.46	9.47	Sep-01
<i>Net of Fee Value Added vs Index</i>	1.20	0.39	-0.15	
<hr/>				
CenterSquare (Net)	--	--	7.04	May-18
Wilshire Real Estate Securities + 1%	--	--	6.00	May-18
<i>Net of Fee Value Added vs Objective</i>			1.04	
Wilshire Real Estate Securities	--	--	4.95	May-18
<i>Net of Fee Value Added vs Index</i>			2.09	



Manager Performance Objectives

Fixed Income	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Global Fixed Income				
Securian Asset Mgmt. (Net)	5.27	5.02	4.91	May-07
Bloomberg Aggregate + 0.5%	5.87	4.96	5.07	May-07
<i>Net of Fee Value Added vs Objective</i>	-0.60	0.06	-0.16	
Bloomberg Aggregate	5.34	4.44	4.59	May-07
<i>Net of Fee Value Added vs Benchmark</i>	-0.07	0.58	0.32	
<hr/>				
Aberdeen (Net)	6.23	5.24	5.18	Apr-07
Bloomberg Aggregate + 0.5%	5.87	4.96	4.98	Apr-07
<i>Net of Fee Value Added vs Objective</i>	0.36	0.28	0.20	
Bloomberg Aggregate	5.34	4.44	4.46	Apr-07
<i>Net of Fee Value Added vs Benchmark</i>	0.89	0.80	0.72	
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Garcia Hamilton (Net)	5.07	4.35	4.14	Oct-13
Bloomberg Aggregate + 0.5%	5.87	4.96	4.37	Oct-13
<i>Net of Fee Value Added vs Objective</i>	-0.80	-0.61	-0.23	
Bloomberg Aggregate	5.34	4.44	3.85	Oct-13
<i>Net of Fee Value Added vs Benchmark</i>	-0.27	-0.09	0.28	
<hr/>				
	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
High Yield				
Oaktree Capital Management (Net)	5.15	7.38	6.47	Dec-96
Performance Objective	6.89	9.41	8.10	Dec-96
<i>Net of Fee Value Added vs Objective</i>	-1.74	-2.03	-1.63	
Custom Benchmark	5.83	8.32		Dec-96
<i>Net of Fee Value Added vs Benchmark</i>	-0.68	-0.95		
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BlackRock High Yield (Net)	6.12	7.55	6.54	Sep-06
Citigroup High Yield Cash Pay + 1%	6.89	9.40	8.05	Sep-06
<i>Net of Fee Value Added vs Objective</i>	-0.77	-1.85	-1.51	
Citigroup High Yield Cash Pay	6.89	9.40	8.05	Sep-06
<i>Net of Fee Value Added vs Benchmark</i>	-0.77	-1.85	-1.51	
<hr/>				
Credit Opportunities				
Neuberger Berman (Net)	4.85		7.05	Jan-16
Custom Benchmark + 1%	6.06		8.31	Jan-16
<i>Net of Fee Value Added vs Objective</i>	-1.21		-1.26	
Custom Benchmark	5.01		7.24	Jan-16
<i>Net of Fee Value Added vs Benchmark</i>	-0.16		-0.19	



Manager Performance Objectives

MLP's	<u>3-year</u>	<u>5-year</u>	<u>Since Inception</u>	<u>Inception Date</u>
MLPs				
Harvest Fund Advisors (Net)	-7.24	-2.28	0.99	Dec-11
Alerian MLP Index + 1.5%	-11.34	-4.51	-1.86	Dec-11
<i>Net of Fee Value Added vs Objective</i>	4.10	2.23	2.85	
Alerian MLP Index	-12.69	-5.95	-3.96	Dec-11
<i>Net of Fee Value Added vs Benchmark</i>	5.46	3.67	4.95	
Atlantic Trust CIBC (Net)				
Alerian MLP Index + 1.5%	-11.34	-4.51	-1.86	Dec-11
<i>Net of Fee Value Added vs Objective</i>	2.72	2.54	3.16	
Alerian MLP Index	-12.69	-5.95	-3.96	Dec-11
<i>Net of Fee Value Added vs Benchmark</i>	4.07	3.97	5.26	

Employees' Retirement Fund of the City of Dallas

Asset Assumptions Update

Thomas Toth, CFA, Managing Director

Ali Kazemi, Managing Director

February 2021



Wilshire

Summary Changes

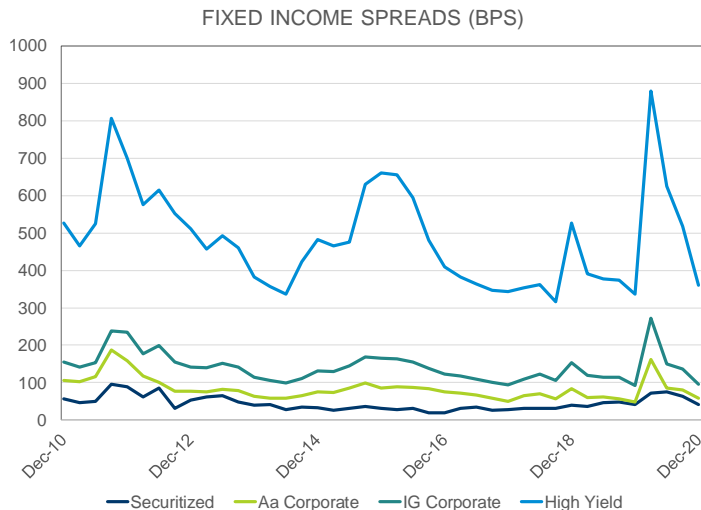
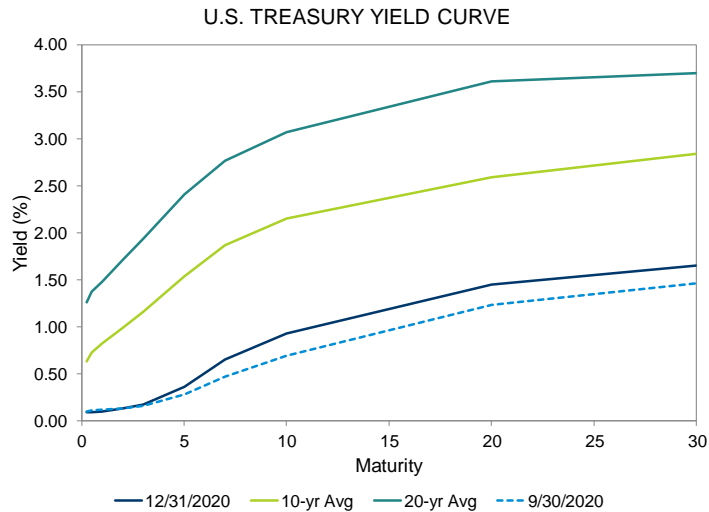
- **Breakeven, Treasury yields and the forward curve are all up**
 - Conditions pushed market-duration forecasts higher
 - Credit spreads tightened across all segments; weighing heavily on high yield
- **Real asset yields are down while inflation is up**
- **Equity forecasts are down largely due to negative valuation prospects**
- **Non-U.S. Equity return premium is up on attractive relative valuations**

	TOTAL RETURN (%)			RISK (%)
	SEPT 2020	CHANGE	DEC 2020	
INFLATION	1.80	0.35	2.15	1.75
CASH EQUIVALENTS	0.55	0.15	0.70	0.75
TREASURIES	0.20	0.30	0.50	4.50
CORE BONDS	1.05	0.25	1.30	4.30
LT CORE BONDS	1.75	0.00	1.75	10.00
HIGH YIELD BONDS	3.45	-0.35	3.10	8.85
GLOBAL RE SECURITIES	5.40	0.00	5.40	15.85
PRIVATE REAL ESTATE	6.65	-0.45	6.20	14.00
U.S. STOCKS	5.50	-0.50	5.00	17.00
DEV. EX-U.S. STOCKS	6.00	-0.25	5.75	18.00
EMERGING MARKET STOCKS	6.00	-0.25	5.75	26.00
PRIVATE EQUITY	7.45	-0.50	6.95	28.00
GLOBAL 60/40 (ACWI/U.S. Core)	4.30	-0.15	4.15	10.75

	RELATIVE RETURN CHANGES (%)		
	SEPT 2020	CHANGE	DEC 2020
CASH - INFLATION	-1.25	-0.20	-1.45
TREASURY - CASH	-0.35	0.15	-0.20
CORE - TREASURY	0.85	-0.05	0.80
LONG-TERM CORE - CORE	0.70	-0.25	0.45
HIGH YIELD - CORE	2.40	-0.60	1.80
GLOBAL RESI - CORE	4.35	-0.25	4.10
U.S. STOCKS - CORE	4.45	-0.75	3.70
PRIVATE EQUITY - U.S. STOCKS	1.95	0.00	1.95
RETURNS MINUS INFLATION			
U.S. STOCKS	3.70	-0.85	2.85
U.S. BONDS	-0.75	-0.10	-0.85
CASH EQUIVALENTS	-1.25	-0.20	-1.45

ASSUMPTIONS UPDATE

Fixed Income

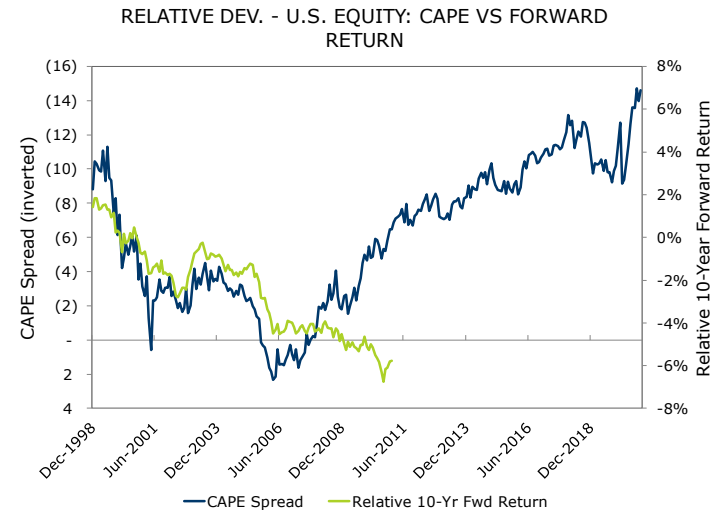
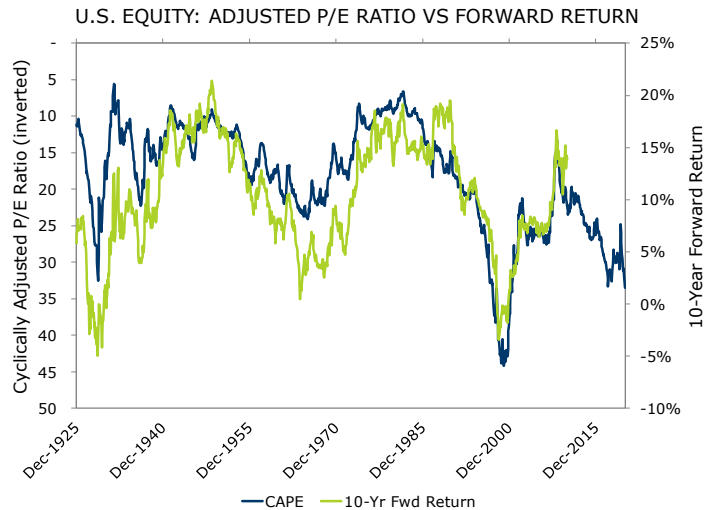
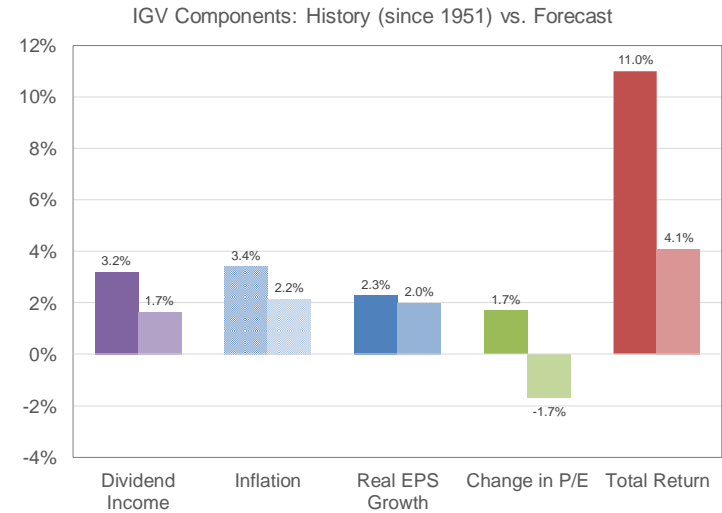


INFLATION & FIXED INCOME		SEP 2020	CHANGE	DEC 2020
INFLATION	10-Year Treasury	0.69	0.24	0.93
	10-Year Real	<u>-0.94</u>	-0.12	<u>-1.06</u>
	Breakeven	1.63	0.36	1.99
	Wilshire ACA	1.80	0.35	2.15
CASH	91-Day T-Bill	0.10	-0.01	0.09
	Yield Forecast in Year 10	1.35	0.30	1.65
	Wilshire ACA	0.55	0.15	0.70
CORE	U.S. Treasury Index	0.48	0.09	0.57
	Yield Forecast in Year 10	1.85	0.20	2.05
	Wilshire ACA	0.20	0.30	0.50
SPREAD	U.S. Corporate Spread	1.35	-0.40	0.95
	Spread Forecast in Year 10	1.64	-0.02	1.62
	Wilshire ACA	1.50	0.00	1.50
	Core Bonds ACA	1.05	0.25	1.30
	High Yield Spread	5.47	-1.60	3.87
DURATION	Long-Term Treasury	1.32	0.19	1.51
	Yield Forecast in Year 10	2.05	0.12	2.17
	Wilshire ACA	0.55	0.35	0.90
	Long G/C ACA	1.75	0.00	1.75

ASSUMPTIONS UPDATE

Equity Markets

EQUITY: PUBLIC & PRIVATE		SEP 2020	CHANGE	DEC 2020
US EQUITY	DDM	6.00	0.50	6.50
	IGV	5.20	-1.10	4.10
	CAPE	5.25	-1.65	3.60
	Wilshire ACA	5.50	-0.50	5.00
	Global ex-US ACA	6.25	-0.25	6.00
PRIVATE	Cost of Debt - Public	3.10	0.15	3.25
	Cost of Debt - Private	5.45	0.00	5.45
	Wilshire ACA	7.45	-0.50	6.95



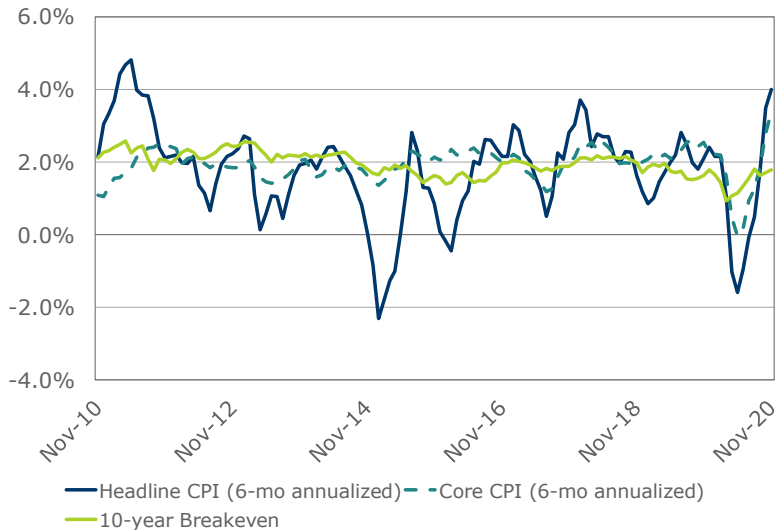
ASSUMPTIONS UPDATE

Real Assets

- **Breakeven dipped to 0.5% in mid-March and has been steadily increasing since then**
- **Assumption of 2.15% is higher than actual BE, which was the case in Sept.**
- **Real asset yields are down**

	TOTAL RETURN (%)			RISK (%)
	SEPT 2020	CHANGE	DEC 2020	
U.S. TIPS	0.40	0.40	0.80	6.00
GLOBAL RE SECURITIES	5.40	0.00	5.40	15.85
PRIVATE REAL ESTATE	6.65	-0.45	6.20	14.00
COMMODITIES	2.35	0.50	2.85	15.00
INFLATION	1.80	0.35	2.15	1.75

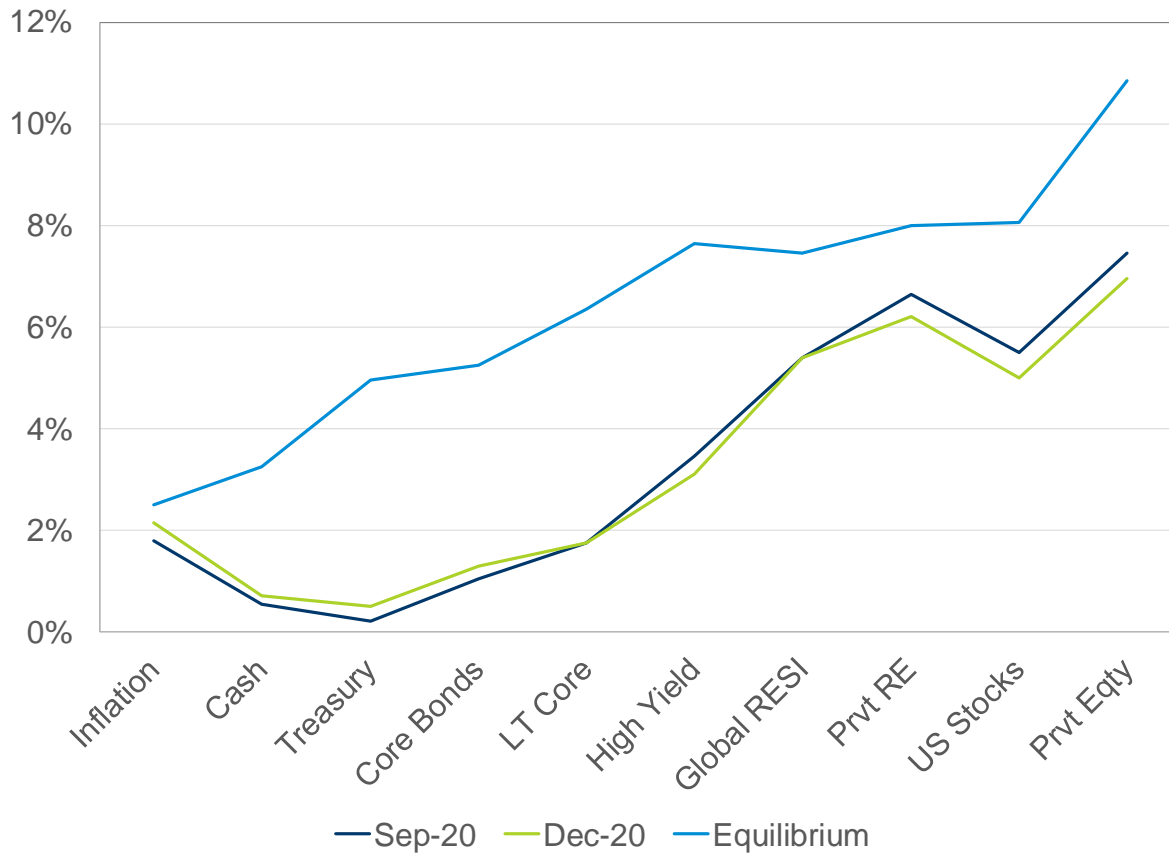
INFLATION: ACTUAL & EXPECTED



REAL ASSETS		SEP 2020	CHANGE	DEC 2020
LISTED	Inflation Capture	1.35	0.25	1.60
	REIT Yield	3.85	-0.25	3.60
	Midstream Yield	9.90	-2.00	7.90
	Infrastructure Yield	3.60	-0.50	3.10
	Commodities (π + Cash)	2.35	0.50	2.85
PRIVATE	RE Assumed Cap Rate	4.25	-0.25	4.00
	Cost of Debt - Private	3.25	0.20	3.45
	Prvt. Infra. Prm/Dsct vs. PRE	-0.25	-0.25	-0.50
	Leverage vs. Real Estate	2.5	0.00	2.5

Equilibrium Assumptions

Current versus Equilibrium Asset Class Assumptions



ASSUMPTIONS UPDATE

Q4 2020 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	Dev ex-US Bond (Hdg)	Real Estate			Cmtdy	Real Assets	US CPI	
		US RES	Global RES	Private RE															
COMPOUND RETURN (%)	5.00	5.75	5.75	6.00	5.55	6.95	0.70	1.30	1.75	0.80	3.10	0.35	5.20	5.40	6.20	2.85	5.65	2.15	
ARITHMETIC RETURN (%)	6.35	7.25	8.75	7.65	6.90	10.35	0.70	1.40	2.15	1.00	3.60	0.45	6.55	6.55	7.10	3.90	6.15	2.15	
EXPECTED RISK (%)	17.00	18.00	26.00	19.15	17.15	28.00	0.75	4.30	8.85	6.00	10.00	4.30	17.00	15.85	14.00	15.00	10.15	1.75	
CASH YIELD (%)	1.50	2.25	1.75	2.10	1.75	0.00	0.70	2.35	3.00	1.60	7.00	1.35	3.60	3.60	2.50	0.70	2.00	0.00	
GROWTH EXPOSURE	8.00	8.00	8.00	8.00	8.00	13.50	0.00	-0.80	-2.10	-3.00	4.00	-1.00	6.00	6.00	3.50	0.00	1.80	0.00	
INFLATION EXPOSURE	-3.00	0.00	5.00	1.55	-1.10	-3.80	0.00	-2.45	-6.55	2.50	-1.00	-3.00	1.00	1.95	1.00	12.00	4.90	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	0.83	0.96	0.87	1.00															
Global Stock	0.95	0.92	0.83	0.94	1.00														
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00													
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00												
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00											
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.92	1.00										
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.59	0.47	1.00									
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00								
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.17	0.18	0.26	0.10	0.66	0.65	0.39	0.26	1.00							
US RE Securities	0.58	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00						
Global RE Securities	0.64	0.58	0.56	0.61	0.65	0.58	-0.05	0.17	0.22	0.11	0.61	0.03	0.96	1.00					
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.75	1.00				
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00			
Real Assets	0.48	0.51	0.58	0.57	0.54	0.47	-0.02	0.23	0.25	0.39	0.56	0.05	0.70	0.75	0.70	0.65	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	-0.08	0.05	0.03	0.05	0.44	0.26	1.00	

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Prepared for



Employees' Retirement Fund
of the City of DALLAS



Fee Analysis

Thom Toth, Managing Director
Ali Kazemi, Managing Director

FEE COMPARISON

	Dallas ERF Fee (bps)	Wilshire Median	Greenwich Mean *		Dallas ERF Fee (bps)	Wilshire Median	Greenwich Mean *
US Equity	60.2	73.2	51.7	High Yield	47.4	50.0	
Channing Capital Mgt	96.7	90.0		BlackRock	45.8	50.0	
Systematic	81.9	90.0		Oaktree Capital Mgmt	48.9	50.0	
Redwood	70.0	90.0		Credit Opportunities	30.9	34.0	
Smith Graham	75.0	75.0		Neuberger Berman	30.9	34.0	
T Rowe Price	30.0	55.0		MLPs	63.7	75.0	
International Equity	56.7	76.5	57.9	Harvest Fund Advisors	68.1	75.0	
Acadian Asset Mgmt	56.0	90.0		Atlantic Trust MLP	59.4	75.0	
AQR	58.9	70.0		REITs	53.1	69.0	51.7
Ativo	56.0	70.0		Adelante	57.8	69.0	
Earnest Partners	58.7	74.0		CenterSquare	48.5	69.0	
Baillie Gifford	52.8	74.0		Private Real Estate	88.0		100.3
Global Equity	60.5	70.0	57.9	Heitman	85.3	100bps + 10% carry	
Ariel	62.2	70.0		Invesco	91.3		
Wellington	59.0	70.0		Private Equity	80.8		141.8
Global Low Vol Equity	33.9	70.0	57.9	Grosvenor	80.0	200bps + 20% carry	
Acadian Low Volatility	33.9	70.0		Hamilton Lane	95.0		
Fixed Income	21.1	30.0	30.8	Fairview	60.0		
Garcia Hamilton	25.7	30.0					
Securian	17.5	30.0					
Aberdeen Global Bonds	23.3	30.0					

* Greenwich Mean figures represent Actively Managed funds within Public Plans in 2019.

DATA AS OF 12/31/20

IMPORTANT INFORMATION

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DISCUSSION SHEET

Employees' Retirement Fund Board of Trustees Meeting

February 9, 2021

Issue: Redwood Investments

Attachments: None

Discussion: Redwood investment returns had underperformed their benchmark (the Russell 2000 Growth Index) for the 3-year period ending September 30, 2019. Our recommendation at that time was to place Redwood on watch for six months and then re-evaluate their performance. At the August 2020 Board meeting, staff requested a six-month extension of the watch period to continue to observe performance until year-end.

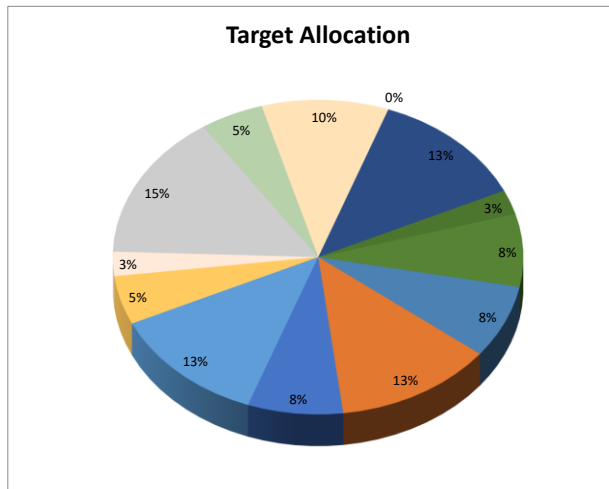
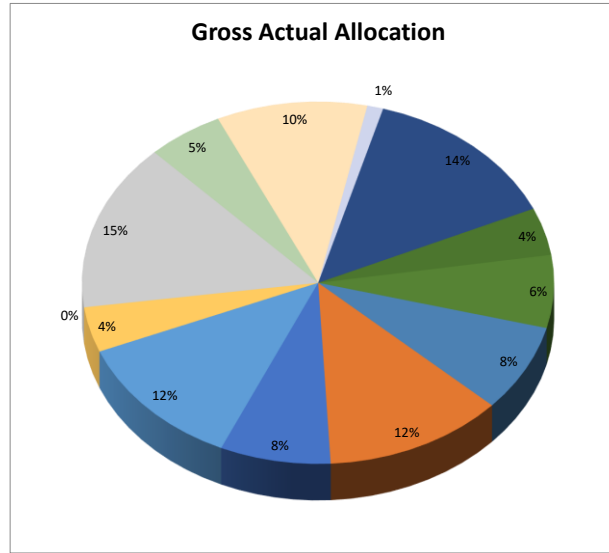
Given their investment outperformance during 2020, a most challenging year, we recommend removing Redwood from the watch list.

Recommendation: Suggested motion for approval is as follows: Move to approve Redwood's removal from the ERF Investments watch list.

Asset Allocation: Actual vs. Target

December 31, 2020

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	40,953,705.20	1.12		
REDWOOD- SL	40,513,999.23	1.11		
SYSTEMATIC	73,921,281.11	2.02		
<i>Total Small Cap</i>	155,388,985.54	4.24		
SMITH GRAHAM	73,175,628.44	2.00		
T. ROWE PRICE	150,818,745.89	4.12		
<i>Total Domestic/Enhanced equity</i>	223,994,374.33	6.12		
NTGI S&P 500 EQUITY INDEX	151,652,836.18	4.14		
<i>Total Index</i>	151,652,836.18	4.14		
<i>Total Domestic</i>	531,036,196.05	14.50	12.50	2.00
ADELANTE CAPITAL	77,444,702.45	2.11		
CENTERSQUARE-SL	78,675,131.44	2.15		
<i>Total REITS</i>	156,119,833.89	4.26	2.50	1.76
HEITMAN	81,721,117.36	2.23		
INVESCO	71,550,591.00	1.95		
INVESCO - SA	68,702,236.35	1.88		
VALUE ADD REAL ESTATE				
<i>Total Real Estate</i>	221,973,944.71	6.06	7.50	-1.44
FAIRVIEW CAPITAL	48,869,279.00	1.33		
GROSVENOR GCM - CFG	142,774,348.00	3.90		
HAMILTON LANE	78,770,798.00	2.15		
<i>Total Private Equity</i>	270,414,425.00	7.38	7.50	-0.12
ACADIAN	119,599,831.45	3.27		
AQR CAPITAL	133,836,786.81	3.65		
ATIVO	38,746,830.39	1.06		
BAILLIE GIFFORD	99,234,957.72	2.71		
BLACKROCK ACW-EXUS-SL	0.62	0.00		
EARNEST PARTNERS	97,497,084.54	2.66		
GLOBAL TRANSITION ACCOUNT	940.39	0.00		
<i>Total International</i>	488,916,431.92	13.35	12.50	0.85
ARIEL	115,433,852.87	3.15		
NORTHERN TRUST INTL EQ ACWI INDEX	24,683,657.64	0.67		
WELLINGTON MGMT	133,541,693.20	3.65		
<i>Total Global Equity</i>	273,659,203.71	7.47	7.50	-0.03
ACADIAN-LVG	218,650,941.56	5.97		
BLACKROCK	223,697,195.84	6.11		
<i>Total Global Low Volatility Equity</i>	442,348,137.40	12.08	12.50	-0.42
ATLANTIC TRUST	64,084,925.23	1.75		
HARVEST FUND	63,126,438.17	1.72		
COHEN & STEERS	60,431,216.82	1.65		
<i>Total Global Listed Infrastructure</i>	187,642,580.22	5.12	5.00	0.12
<i>Total Marketable Alternatives</i>	-	0.00	2.50	-2.50
TOTAL EQUITY	2,572,110,752.90	70.23	70.00	0.23
FIXED INCOME				
ABERDEEN ASSET MGMT	224,284,305.31	6.12		
GARCIA HAMILTON	68,049,286.55	1.86		
SECURIAN ASSET MANAGEMENT	223,913,342.26	6.11		
<i>Total Investment Grade</i>	516,246,934.12	14.10	15.00	-0.90
NEUBERGER BERMAN	178,969,119.61	4.89		
<i>Total Opportunistic Credit</i>	178,969,119.61	4.89	5.00	-0.11
BLACKROCK-HY	178,883,471.89	4.88		
OAKTREE	181,898,120.91	4.97		
<i>Total High Yield</i>	360,781,592.80	9.85	10.00	-0.15
CASH ACCOUNT	34,054,399.80	0.93		
<i>Total Short Term</i>	34,054,399.80	0.93	0.00	0.93
TOTAL FIXED INCOME	1,090,052,046.33	29.77	30.00	-0.23
TOTAL FUND	\$ 3,662,162,799.23			

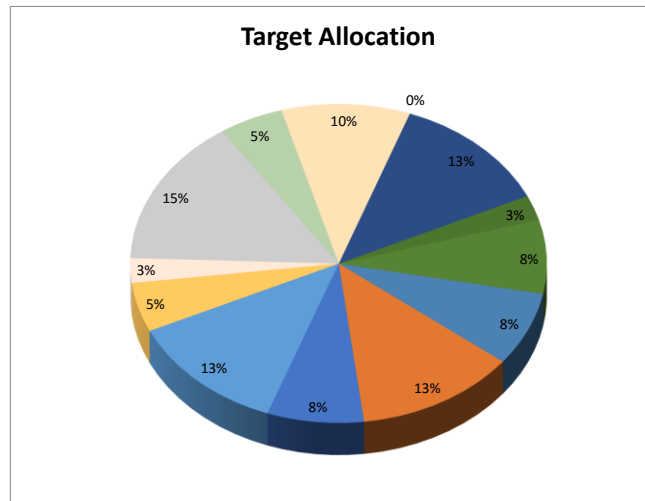
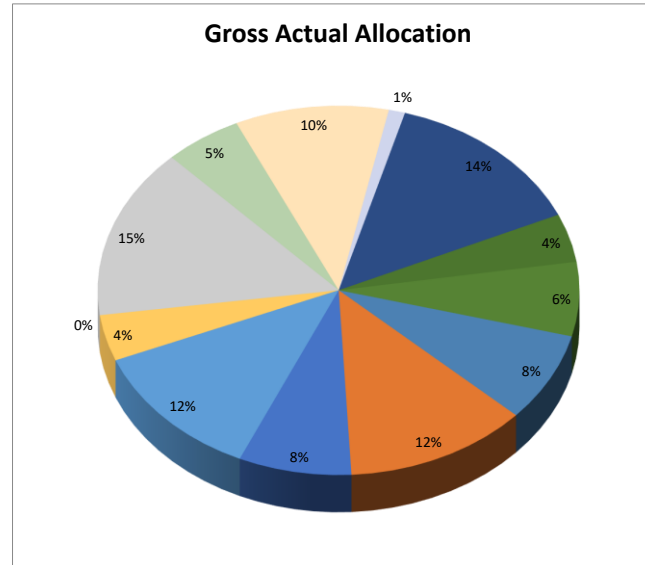


Asset Allocation: Actual vs. Target

January 31, 2021

	Market Value	Gross Actual Allocation	Target Allocation	% Difference from Allocation
EQUITY				
CHANNING CAPITAL	40,430,687.56	1.11		
REDWOOD- SL	41,777,046.27	1.14		
SYSTEMATIC	75,927,220.40	2.08		
Total Small Cap	158,134,954.23	4.33		
SMITH GRAHAM	76,340,020.46	2.09		
T. ROWE PRICE	148,380,016.16	4.07		
Total Domestic/Enhanced equity	224,720,036.62	6.16		
NTGI S&P 500 EQUITY INDEX	150,118,915.62	4.11		
Total Index	150,118,915.62	4.11		
Total Domestic	532,973,906.47	14.61	12.50	2.11
ADELANTE CAPITAL	65,252,965.44	1.79		
CENTERSQUARE-SL	65,319,714.79	1.79		
Total REITS	130,572,680.23	3.58	2.50	1.08
HEITMAN	82,461,169.93	2.26		
INVESCO	71,306,632.00	1.95		
INVESCO - SA	69,261,964.72	1.90		
VIRTUS REAL ESTATE CAP	23,534,721.00	0.65		
Total Real Estate	246,564,487.65	6.76	7.50	-0.74
FAIRVIEW CAPITAL	48,869,279.00	1.34		
GROSVENOR GCM - CFG	136,950,237.02	3.75		
HAMILTON LANE	82,966,066.00	2.27		
Total Private Equity	268,785,582.02	7.37	7.50	-0.13
ACADIAN	119,571,428.41	3.28		
AQR CAPITAL	134,592,923.97	3.69		
ATIVO	38,150,483.60	1.05		
BAILLIE GIFFORD	99,575,347.85	2.73		
BLACKROCK ACW-EXUS-SL	0.62	0.00		
EARNEST PARTNERS	97,386,951.45	2.67		
GLOBAL TRANSITION ACCOUNT	940.39	0.00		
Total International	489,278,076.29	13.41	12.50	0.91
ARIEL	116,594,648.38	3.20		
NORTHERN TRUST INTL EQ ACWI INDEX	24,620,831.76	0.67		
WELLINGTON MGMT	130,970,590.01	3.59		
Total Global Equity	272,186,070.15	7.46	7.50	-0.04
ACADIAN-LVG	217,789,644.64	5.97		
BLACKROCK	220,070,341.63	6.03		
Total Global Low Volatility Equity	437,859,986.27	12.00	12.50	-0.50
ATLANTIC TRUST	66,787,193.71	1.83		
HARVEST FUND	66,660,367.06	1.83		
COHEN & STEERS	59,512,788.63	1.63		
Total Global Listed Infrastructure	192,960,349.40	5.29	5.00	0.29
Total Marketable Alternatives	-	0.00	2.50	-2.50
TOTAL EQUITY	2,571,181,138.48	70.47	70.00	0.47
FIXED INCOME				
ABERDEEN ASSET MGMT	223,352,607.85	6.12		
GARCIA HAMILTON	67,488,583.84	1.85		
SECURIAN ASSET MANAGEMENT	223,023,944.95	6.11		
Total Investment Grade	513,865,136.64	14.08	15.00	-0.92
NEUBERGER BERMAN	179,790,512.80	4.93		
Total Opportunistic Credit	179,790,512.80	4.93	5.00	-0.07
BLACKROCK-HY	178,929,767.26	4.90		
OAKTREE	183,174,777.25	5.02		
Total High Yield	362,104,544.51	9.92	10.00	-0.08
CASH ACCOUNT	21,744,587.78	0.60		
Total Short Term	21,744,587.78	0.60	0.00	0.60
TOTAL FIXED INCOME	1,077,504,781.73	29.53	30.00	-0.47

TOTAL FUND \$ 3,648,685,920.21





WILSHIRE ASSOCIATES

Wilshire Consulting



Employees' Retirement Fund of the City of Dallas

Monthly Investment Summary

December 31, 2020

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	5.23	12.09	16.11	8.97	11.19	10.08	9/1/2012	273,659,204	7.47
Global Low Volatility Composite	2.79	7.19	-0.05	5.48	8.73	7.93	7/1/2015	442,348,137	12.08
Domestic Equity Composite	5.23	19.17	16.39	11.12	13.58	10.39	1/1/1990	531,036,196	14.50
International Equity Composite	6.47	17.85	15.42	5.36	9.74	5.90	1/1/1990	488,916,432	13.35
Global Fixed Income Composite	0.54	1.59	8.62	5.66	5.02	5.20	10/1/1995	516,246,934	14.10
High Yield Composite	1.79	3.99	4.74	5.03	7.09	6.47	1/1/1997	360,781,593	9.85
Credit Opportunities Composite	1.02	5.31	4.71	4.70		6.96	2/1/2016	178,969,120	4.89
Total Real Estate Composite	1.29	4.44	-2.36	4.41	4.95	6.42	1/1/1990	377,113,015	10.30
Global Listed Infrastructure Composite	1.57	19.35	-24.36	-9.03	-2.83	0.88	1/1/2012	187,642,580	5.13
Private Equity Composite	1.03	6.36	2.05	9.47	9.71	12.45	6/1/2009	270,414,425	7.39
Managed Short Term Composite	0.01	0.03	0.67	1.61	1.19	2.86	1/1/1990	34,054,400	0.93
Dallas Total Fund	2.90	9.21	5.42	5.82	7.96	8.99	1/1/1985	3,661,182,036	100.00
Policy Index	2.54	10.14	7.40	6.66	8.46	9.62			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	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	7.41 8.65	28.29 31.37	4.31 19.96	3.42 10.25	11.00 13.26	10.53 9.97	8/1/2003	73,921,281	13.92
Redwood Investments * Russell 2000 Growth Index	7.05 9.35	22.04 29.61	42.23 34.63	13.31 16.20		13.85 17.51	10/1/2016	40,513,999	7.63
Channing Capital * Russell 2000 Value Index	8.37 7.92	35.45 33.36	16.29 4.63	6.22 3.72	10.35 9.65	7.38 6.46	12/1/2013	40,953,705	7.71
Domestic Equity Small Cap Composite	7.57	28.30	16.64	6.78	11.63	9.83	6/1/2003	155,388,986	29.26
Smith Graham * Russell Midcap Index	5.67 4.69	29.56 19.91	2.73 17.10	4.06 11.61		4.06 11.61	1/1/2018	73,175,628	13.78
T. Rowe Price S&P 500	4.09 3.84	13.48 12.15	20.08 18.40	15.12 14.18	15.92 15.22	10.38 9.75	4/1/2006	150,818,746	28.40
Northern Trust S&P 500 (Lending) S&P 500	3.84 3.84	12.15 12.15	18.24 18.40	14.15 14.18	15.20 15.22	10.56 10.52	1/1/1995	151,652,836	28.56
Domestic Equity Composite Custom Benchmark	5.23 4.48	19.17 14.47	16.39 20.82	11.12 14.46	13.58 15.52	10.39 10.61	1/1/1990	531,036,196	100.00

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees						Allocation		
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management	3.00	10.88	-5.19	4.50	4.85	9.32	10/1/2001	77,444,702	20.54
Wilshire U.S. Real Estate Securities Index	2.81	10.72	-7.95	3.30	4.46	9.47			
CenterSquare	3.34	11.98	-4.34			7.04	6/1/2018	78,675,131	20.86
Wilshire U.S. Real Estate Securities Index	2.81	10.72	-7.95			4.95			
REIT Composite	3.17	11.44	-4.76	4.79	4.85	9.45	10/1/2001	156,119,834	41.40
Wilshire U.S. Real Estate Securities Index	2.81	10.72	-7.95	3.30	4.46	9.47			
Heitman America Real Estate Trust, LP	0.00	0.00	-3.44	1.39	3.79	8.84	12/1/2010	81,155,154	21.52
NCREIF ODCE NOF	0.00	0.00	-0.74	3.61	5.04	9.18			
Invesco Core Real Estate USA, LLC	0.00	0.00	-3.18	4.15	5.99	9.56	12/1/2010	68,287,436	18.11
NCREIF ODCE NOF	0.00	0.00	-0.74	3.61	5.04	9.18			
Private Core Real Estate Composite	0.00	0.00	-0.75	4.03	4.83	8.82	10/1/2010	220,993,181	58.60
Custom Benchmark	0.00	0.00	1.15	4.65	5.01	8.41			
Total Real Estate Composite	1.29	4.44	-2.36	4.41	4.95	6.42	1/1/1990	377,113,015	100.00
Custom Benchmark	1.40	5.37	-2.48	4.53	5.13	8.34			

Employees' Retirement Fund of the City of Dallas
 Private Equity & Direct Private Real Estate Monthly Performance and Market Value Summary



Periods Ended 12/31/20

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Invesco II	71,550,591	65,188,333	65,188,333	7,313,270	Jan-14	4.5%	1.2
Total Direct Private Real Estate	71,550,591	65,188,333	65,188,333	7,313,270	Jan-14	4.5%	1.2

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	1,017,156	25,000,000	22,058,532	30,828,594	Jul-09	13.8%	1.4
Hamilton Lane Secondary Fund III	7,142,411	30,000,000	23,372,292	22,657,222	Nov-12	9.4%	1.3
Hamilton Lane Secondary Fund IV	22,892,451	30,000,000	25,907,343	9,112,329	Mar-17	14.1%	1.2
Hamilton Lane Secondary Fund V	8,070,129	40,000,000	7,000,000	-	Mar-20	19.2%	1.2
Hamilton Lane Fund VII Composite	20,515,243	50,000,000	45,600,834	44,960,261	Jan-10	5.6%	1.4
Hamilton Lane Fund VIII (Global)	19,133,408	30,000,000	22,131,848	7,865,459	Nov-12	4.6%	1.2
GCM Grosvenor - Partnership, L.P.	37,385,751	75,000,000	84,962,430	98,193,733	Jun-11	13.6%	1.6
GCM Grosvenor - Partnership II, L.P. (2014)	55,973,706	60,000,000	68,097,889	32,850,434	Jul-14	10.0%	1.3
GCM Grosvenor - Partnership II, L.P. (2015)	35,192,320	30,000,000	30,086,571	5,603,995	Dec-15	11.4%	1.2
GCM Grosvenor - Partnership II, L.P. (2017)	14,222,571	30,000,000	14,703,054	498,336	Jan-18	-6.7%	1.0
Fairview Capital - Lone Star Fund I	40,856,023	40,000,000	33,953,847	2,934,533	Aug-15	10.7%	1.3
Fairview Capital - Lone Star Fund II	8,013,256	30,000,000	8,697,892	-	Dec-18	-6.6%	0.9
Total Private Equity Composite	270,414,425	470,000,000	386,572,532	255,504,896	Jul-09	11.4%	1.4

Public Market Equivalent (PME) ²

424,672,793

18.0%

* Next Generation Manager

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

² The Public Market Equivalent (PME) approach creates a hypothetical investment vehicle that mimics the private equity composite cash flows. The performance difference between the PME vehicle and the private equity portfolio is determined by their net asset value (NAV) at the end of the benchmarking period. The performance of the "public market" is simulated using the monthly S&P 500 index returns, plus a 300 BPs annual hurdle rate.

³ Private Equity cash account

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International Custom Benchmark	7.82 6.99	17.80 18.56	13.80 14.24	3.39 4.59	10.68 9.37	8.55 6.25	4/1/1989	119,599,831	24.46
Ativo International * MSCI EAFE Index (Net)	4.00 4.65	9.81 16.05	2.02 7.82	2.98 4.28		2.98 4.28	1/1/2018	38,746,830	7.93
AQR Capital Management Custom Benchmark	5.75 5.41	15.60 17.01	13.34 10.65	3.56 4.88	8.55 8.93	4.14 3.70	4/1/2006	133,836,787	27.37
Baillie Gifford MSCI AC World ex USA (Net)	5.21 5.41	15.56 17.01	26.83 10.65			25.30 11.97	4/1/2019	99,234,958	20.30
Earnest Partners MSCI AC World ex USA (Net)	8.15 5.41	27.64 17.01	12.77 10.65			12.96 11.97	4/1/2019	97,497,085	19.94
BlackRock ACWI Ex U.S.								1	0.00
International Equity Composite Custom Benchmark	6.47 5.62	17.85 17.22	15.42 11.12	5.36 4.83	9.74 8.98	5.90 4.88	1/1/1990	488,916,432	100.00

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees						Allocation		
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global * MSCI AC World Index (Net)	6.50 4.64	10.42 14.68	7.86 16.25	6.28 10.06		6.28 10.06	1/1/2018	115,433,853	42.18
Wellington MSCI AC World Index (Net)	4.18 4.64	12.90 14.68	23.10 16.25	11.01 10.06	11.82 12.26	13.07 10.87	9/1/2012	133,541,693	48.80
Northern Trust Global Equity MSCI AC World IMI (Net)	5.07 4.97	15.69 15.70	16.77 16.25	10.28 9.72	12.66 12.15	13.07 12.56	10/1/2015	24,683,658	9.02
Global Equity Composite MSCI AC World Index (Net)	5.23 4.64	12.09 14.68	16.11 16.25	8.97 10.06	11.19 12.26	10.08 10.87	9/1/2012	273,659,204	100.00

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	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.	3.18	7.86	-1.99	3.97	8.02	7.18	7/1/2015	218,650,942	49.43
MSCI AC World Index (Net)	4.64	14.68	16.25	10.06	12.26	10.08			
MSCI ACWI Minimum Volatility Index (Net)	2.39	6.41	2.69	6.96	9.17	8.40			
BlackRock Global Low Vol.	2.42	6.55	1.93	7.00	9.42	8.68	7/1/2015	223,697,196	50.57
MSCI ACWI Minimum Volatility Index (Net)	2.39	6.41	2.69	6.96	9.17	8.40			
Global Low Volatility Composite	2.79	7.19	-0.05	5.48	8.73	7.93	7/1/2015	442,348,137	100.00
MSCI ACWI Minimum Volatility Index (Net)	2.39	6.41	2.69	6.96	9.17	8.40			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	1.91	25.41	-21.94	-8.62	-1.97	1.30	1/1/2012	64,084,925	34.15
Alerian MLP Index	0.55	29.91	-30.05	-13.25	-6.31	-4.16			
Harvest Fund Advisors MLP	1.36	22.48	-21.03	-7.24	-2.28	0.99	1/1/2012	63,126,438	33.64
Alerian MLP Index	0.55	29.91	-30.05	-13.25	-6.31	-4.16			
C&S Global Listed Infrastructure	1.43					8.02	11/1/2020	60,431,217	32.21
FTSE Global Core Infrastructure 50/50 (Net)	1.34					9.23			
Global Listed Infrastructure Composite	1.57	19.35	-24.36	-9.03	-2.83	0.88	1/1/2012	187,642,580	100.00
Global Listed Infrastructure Benchmark	0.75	25.96	-32.18	-14.14	-6.89	-4.49			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Securian Asset Management	0.62	1.87	6.86	5.27	5.02	4.91	7/1/2007	223,913,342	43.37
Blmbg. Barc. U.S. Aggregate	0.14	0.67	7.51	5.34	4.44	4.59			
Aberdeen Global Fixed Income	0.57	1.57	10.69	6.23	5.24	5.18	5/1/2007	224,284,305	43.45
Blmbg. Barc. U.S. Aggregate	0.14	0.67	7.51	5.34	4.44	4.46			
Garcia Hamilton *	0.18	0.73	7.64	5.07	4.35	4.14	11/1/2013	68,049,287	13.18
Blmbg. Barc. U.S. Aggregate	0.14	0.67	7.51	5.34	4.44	3.85			
Global Fixed Income Composite	0.54	1.59	8.62	5.66	5.02	5.20	10/1/1995	516,246,934	100.00
Blmbg. Barc. U.S. Aggregate	0.14	0.67	7.51	5.34	4.44	5.28			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	1.02	5.31	4.71	4.70		6.96	2/1/2016	178,969,120	
Custom Benchmark	1.72	5.36	4.85	5.01		7.24			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	1.99	6.25	6.69	5.15	7.38	6.73	2/1/1997	181,898,121	50.42
FTSE High Yield Cash Pay	1.95	6.41	6.23	5.83	8.32	6.88			
BlackRock	1.58	1.74	2.76	4.88	6.79	6.28	10/1/2006	178,883,472	49.58
FTSE High Yield Cash Pay	1.95	6.41	6.23	5.83	8.32	6.98			
High Yield Composite	1.79	3.99	4.74	5.03	7.09	6.47	1/1/1997	360,781,593	100.00
FTSE High Yield Cash Pay	1.95	6.41	6.23	5.83	8.32	6.89			

Asset Allocation & Performance

Dallas Total Fund

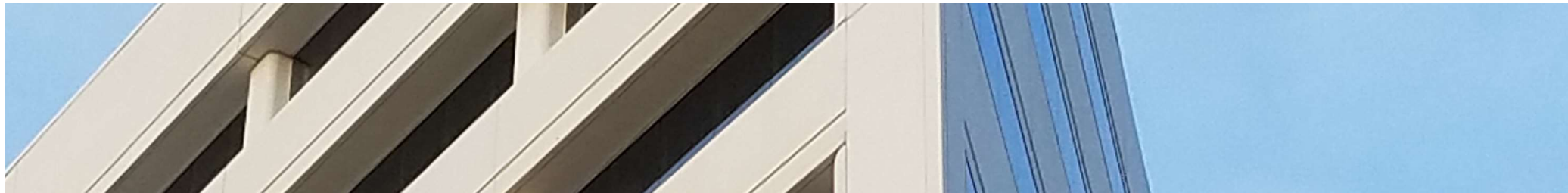
Periods Ended December 31, 2020

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.01	0.03	0.67	1.61	1.19	3.21	1/1/1988	34,054,400	100.00
Managed Short Term Composite	0.01	0.03	0.67	1.61	1.19	2.86	1/1/1990	34,054,400	100.00



WILSHIRE ASSOCIATES

Wilshire Consulting



Employees' Retirement Fund of the City of Dallas

Monthly Investment Summary

January 31, 2021

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Global Equity Composite	-0.54	14.53	16.11	6.70	12.74	9.91	9/1/2012	272,186,070	7.46
Global Low Volatility Composite	-1.01	9.00	-1.58	3.88	8.99	7.61	7/1/2015	437,859,986	12.00
Domestic Equity Composite	0.37	19.58	18.50	9.59	15.21	10.38	1/1/1990	532,973,906	14.61
International Equity Composite	0.03	20.57	18.87	3.45	11.41	5.89	1/1/1990	489,282,327	13.41
Global Fixed Income Composite	-0.46	1.59	6.02	5.79	4.68	5.17	10/1/1995	513,865,137	14.09
High Yield Composite	0.13	7.43	6.98	5.47	7.79	6.53	1/1/1997	362,104,545	9.93
Credit Opportunities Composite	0.02	5.47	4.66	4.78	6.93	6.93	2/1/2016	179,790,513	4.93
Total Real Estate Composite	-0.13	5.98	-2.01	5.20	5.43	6.42	1/1/1990	376,126,272	10.31
Global Listed Infrastructure Composite	2.83	19.75	-20.31	-10.50	-0.07	0.97	1/1/2012	192,960,349	5.29
Private Equity Composite	0.07	5.42	2.96	9.46	10.07	12.45	6/1/2009	268,785,609	7.37
Managed Short Term Composite	0.01	0.03	0.54	1.57	1.20	2.85	1/1/1990	21,744,588	0.60
Dallas Total Fund	-0.02	10.56	6.31	5.02	8.86	8.98	1/1/1985	3,647,679,302	100.00
Policy Index	-0.19	10.97	7.69	5.68	9.25	9.60			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	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	2.71 5.03	26.92 35.15	12.53 30.17	3.53 11.11	13.15 16.50	10.65 10.23	8/1/2003	75,927,220	14.25
Redwood Investments * Russell 2000 Growth Index	3.12 4.82	23.66 34.83	43.45 42.69	13.60 16.54		14.37 18.42	10/1/2016	41,777,046	7.84
Channing Capital * Russell 2000 Value Index	-1.28 5.26	28.43 35.53	20.09 16.42	5.32 5.08	11.97 12.34	7.10 7.14	12/1/2013	40,430,688	7.59
Domestic Equity Small Cap Composite	1.77	26.42	22.38	6.66	14.06	9.89	6/1/2003	158,134,954	29.67
Smith Graham * Russell Midcap Index	4.32 -0.26	28.72 18.84	12.45 17.73	4.03 10.14		5.38 11.18	1/1/2018	76,340,020	14.32
T. Rowe Price S&P 500	-1.62 -1.01	14.43 14.05	17.68 17.25	12.27 11.70	16.95 16.16	10.19 9.62	4/1/2006	148,380,016	27.84
Northern Trust S&P 500 (Lending) S&P 500	-1.01 -1.01	14.04 14.05	17.08 17.25	11.67 11.70	16.14 16.16	10.48 10.44	1/1/1995	150,118,916	28.17
Domestic Equity Composite Custom Benchmark	0.37 -0.33	19.58 16.66	18.50 20.41	9.59 12.40	15.21 16.74	10.38 10.57	1/1/1990	532,973,906	100.00

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Adelante Capital Management	1.07	14.62	-4.98	6.11	6.08	9.34	10/1/2001	65,252,965	17.35
Wilshire U.S. Real Estate Securities Index	0.48	14.07	-8.18	4.80	5.38	9.46			
CenterSquare	-0.46	14.53	-6.00			6.63	6/1/2018	65,319,715	17.37
Wilshire U.S. Real Estate Securities Index	0.48	14.07	-8.18			4.98			
REIT Composite	0.30	14.57	-5.50	6.22	5.89	9.42	10/1/2001	130,572,680	34.72
Wilshire U.S. Real Estate Securities Index	0.48	14.07	-8.18	4.80	5.38	9.46			
Heitman America Real Estate Trust, LP	0.00	1.61	-1.89	1.93	4.12	8.93	12/1/2010	81,863,243	21.76
NCREIF ODCE NOF	0.00	1.10	0.34	3.99	5.27	9.21			
Invesco Core Real Estate USA, LLC	0.00	1.64	-1.59	4.72	6.34	9.65	12/1/2010	68,848,995	18.30
NCREIF ODCE NOF	0.00	1.10	0.34	3.99	5.27	9.21			
Virtus Real Estate Capital III	-3.88					-3.88	1/1/2021	23,534,721	6.26
NCREIF ODCE NOF	0.00					0.00			
Private Core Real Estate Composite	-0.42	0.67	0.43	4.35	4.97	8.81	10/1/2010	245,553,591	65.28
Custom Benchmark	0.00	0.86	2.01	5.02	5.18	8.43			
Total Real Estate Composite	-0.13	5.98	-2.01	5.20	5.43	6.42	1/1/1990	376,126,272	100.00
Custom Benchmark	0.24	7.39	-2.19	5.47	5.68	8.34			

Employees' Retirement Fund of the City of Dallas
Private Equity & Direct Private Real Estate Monthly Performance and Market Value Summary



Periods Ended 01/31/21

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Invesco II	71,306,632	65,188,333	65,188,333	7,557,229	Jan-14	4.5%	1.2
Total Direct Private Real Estate	71,306,632	65,188,333	65,188,333	7,557,229	Jan-14	4.5%	1.2

	Month-End Market Value	Commitment Value	Drawn Down Capital	Cash Distributions	Inception Date	IRR Since Inception	Multiple ³
Hamilton Lane Secondary Fund II	728,790	25,000,000	22,058,532	30,828,594	Jul-09	13.6%	1.4
Hamilton Lane Secondary Fund III	7,251,045	30,000,000	23,372,292	23,142,322	Nov-12	9.9%	1.3
Hamilton Lane Secondary Fund IV	22,892,451	30,000,000	25,907,343	9,112,329	Mar-17	13.6%	1.2
Hamilton Lane Secondary Fund V	12,445,129	40,000,000	11,375,000	-	Mar-20	15.8%	1.1
Hamilton Lane Fund VII Composite	20,515,243	50,000,000	45,600,834	44,960,261	Jan-10	5.5%	1.4
Hamilton Lane Fund VIII (Global)	19,133,408	30,000,000	22,131,848	7,865,459	Nov-12	4.6%	1.2
GCM Grosvenor - Partnership, L.P.	33,198,856	75,000,000	84,967,430	102,385,430	Jun-11	13.9%	1.6
GCM Grosvenor - Partnership II, L.P. (2014)	53,491,585	60,000,000	68,097,889	35,323,333	Jul-14	11.1%	1.3
GCM Grosvenor - Partnership II, L.P. (2015)	34,977,089	30,000,000	30,111,648	5,824,948	Dec-15	13.0%	1.2
GCM Grosvenor - Partnership II, L.P. (2017)	15,282,734	30,000,000	16,059,304	794,423	Jan-18	0.5%	1.0
Fairview Capital - Lone Star Fund I	40,856,023	40,000,000	34,003,847	2,934,533	Aug-15	10.3%	1.3
Fairview Capital - Lone Star Fund II	8,013,256	30,000,000	8,742,892	-	Dec-18	-6.6%	0.9
Total Private Equity Composite	268,785,609	470,000,000	392,428,858	263,171,631	Jul-09	11.3%	1.4

Public Market Equivalent (PME) ²

422,406,990

17.8%

* Next Generation Manager

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

² The Public Market Equivalent (PME) approach creates a hypothetical investment vehicle that mimics the private equity composite cash flows. The performance difference between the PME vehicle and the private equity portfolio is determined by their net asset value (NAV) at the end of the benchmarking period. The performance of the "public market" is simulated using the monthly S&P 500 index returns, plus a 300 BPs annual hurdle rate.

³ Private Equity cash account

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Acadian International	-0.02	20.36	17.38	1.20	12.29	8.53	4/1/1989	119,571,428	24.44
Custom Benchmark	-0.18	21.58	17.72	2.87	11.09	6.22			
Ativo International *	-1.54	13.62	1.75	1.15		2.38	1/1/2018	38,150,484	7.80
MSCI EAFE Index (Net)	-1.07	19.58	8.94	2.23		3.80			
AQR Capital Management	0.87	19.62	17.84	1.81	10.26	4.17	4/1/2006	134,597,175	27.51
Custom Benchmark	0.22	19.84	13.95	3.08	10.52	3.69			
Baillie Gifford	0.34	17.98	29.27			24.25	4/1/2019	99,575,348	20.35
MSCI AC World ex USA (Net)	0.22	19.84	13.95			11.53			
Earnest Partners	-0.75	28.19	16.96			12.27	4/1/2019	97,386,951	19.90
MSCI AC World ex USA (Net)	0.22	19.84	13.95			11.53			
BlackRock ACWI Ex U.S.								1	0.00
International Equity Composite	0.03	20.57	18.87	3.45	11.41	5.89	1/1/1990	489,282,327	100.00
Custom Benchmark	0.16	20.08	14.44	3.04	10.59	4.88			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees						Allocation		
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Ariel Global * MSCI AC World Index (Net)	1.01 -0.45	15.77 17.01	9.74 17.02	4.87 7.90		6.45 9.61	1/1/2018	116,594,648	42.84
Wellington MSCI AC World Index (Net)	-1.92 -0.45	12.85 17.01	20.99 17.02	7.93 7.90	13.28 13.56	12.67 10.70	9/1/2012	130,970,590	48.12
Northern Trust Global Equity MSCI AC World IMI (Net)	-0.25 -0.18	17.90 18.05	18.25 17.60	8.27 7.75	14.06 13.57	12.80 12.31	10/1/2015	24,620,832	9.05
Global Equity Composite MSCI AC World Index (Net)	-0.54 -0.45	14.53 17.01	16.11 17.02	6.70 7.90	12.74 13.56	9.91 10.70	9/1/2012	272,186,070	100.00

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	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.	-0.39	10.40	-2.05	2.50	8.49	6.99	7/1/2015	217,789,645	49.74
MSCI AC World Index (Net)	-0.45	17.01	17.02	7.90	13.56	9.83			
MSCI ACWI Minimum Volatility Index (Net)	-1.61	7.52	-0.36	5.24	9.23	7.96			
BlackRock Global Low Vol.	-1.62	7.65	-1.09	5.27	9.47	8.23	7/1/2015	220,070,342	50.26
MSCI ACWI Minimum Volatility Index (Net)	-1.61	7.52	-0.36	5.24	9.23	7.96			
Global Low Volatility Composite	-1.01	9.00	-1.58	3.88	8.99	7.61	7/1/2015	437,859,986	100.00
MSCI ACWI Minimum Volatility Index (Net)	-1.61	7.52	-0.36	5.24	9.23	7.96			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Atlantic Trust CIBC	4.22	27.28	-14.73	-8.95	1.44	1.75	1/1/2012	66,787,194	34.61
Alerian MLP Index	5.84	34.31	-20.04	-12.67	-2.61	-3.32			
Harvest Fund Advisors MLP	5.60	26.44	-13.14	-7.48	1.46	1.59	1/1/2012	66,660,367	34.55
Alerian MLP Index	5.84	34.31	-20.04	-12.67	-2.61	-3.32			
C&S Global Listed Infrastructure	-1.52	6.38				6.38	11/1/2020	59,512,789	30.84
FTSE Global Core Infrastructure 50/50 (Net)	-1.88	7.18				7.18			
Global Listed Infrastructure Composite	2.83	19.75	-20.31	-10.50	-0.07	0.97	1/1/2012	192,960,349	100.00
Global Listed Infrastructure Benchmark	3.91	27.23	-24.25	-14.23	-3.65	-3.89			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Securian Asset Management	-0.40	1.95	4.40	5.42	4.67	4.85	7/1/2007	223,023,945	43.40
Blmbg. Barc. U.S. Aggregate	-0.72	0.39	4.72	5.49	4.00	4.51			
Aberdeen Global Fixed Income	-0.41	1.65	7.94	6.40	4.98	5.12	5/1/2007	223,352,608	43.47
Blmbg. Barc. U.S. Aggregate	-0.72	0.39	4.72	5.49	4.00	4.37			
Garcia Hamilton *	-0.82	0.23	5.00	5.03	3.80	3.97	11/1/2013	67,488,584	13.13
Blmbg. Barc. U.S. Aggregate	-0.72	0.39	4.72	5.49	4.00	3.71			
Global Fixed Income Composite	-0.46	1.59	6.02	5.79	4.68	5.17	10/1/1995	513,865,137	100.00
Blmbg. Barc. U.S. Aggregate	-0.72	0.39	4.72	5.49	4.00	5.23			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Neuberger Berman	0.02	5.47	4.66	4.78	6.93	6.93	2/1/2016	179,790,513	
Custom Benchmark	0.16	5.31	4.30	4.88	7.15	7.15			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Oaktree Capital Management	0.22	6.08	7.26	5.05	7.71	6.71	2/1/1997	183,174,777	50.59
FTSE High Yield Cash Pay	0.29	6.24	6.59	5.66	8.78	6.87			
BlackRock	0.03	8.83	6.65	5.87	7.86	6.51	10/1/2006	178,929,767	49.41
FTSE High Yield Cash Pay	0.29	6.24	6.59	5.66	8.78	6.96			
High Yield Composite	0.13	7.43	6.98	5.47	7.79	6.53	1/1/1997	362,104,545	100.00
FTSE High Yield Cash Pay	0.29	6.24	6.59	5.66	8.78	6.88			

Asset Allocation & Performance

Dallas Total Fund

Periods Ended January 31, 2021

	Performance (%) net of fees							Allocation	
	1 Month	1 Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date	Market Value \$	%
Cash Account	0.01	0.03	0.54	1.57	1.20	3.20	1/1/1988	21,744,588	100.00
Managed Short Term Composite	0.01	0.03	0.54	1.57	1.20	2.85	1/1/1990	21,744,588	100.00

At A Glance

For period ended December 31, 2020

	2019		2020	
	This Month	YTD	This Month	YTD
Retirements				
Age	13	236	11	187
Service	1	21	1	25
Rule of 78	4	111	2	91
QDRO	<u>1</u>	<u>8</u>	<u>0</u>	<u>6</u>
Total	19	376	14	309
Disability Retirements				
Service	0	2	0	0
Non-service	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>
Total	0	3	0	3
Benefits Paid	\$ 23,669,289.31	\$ 277,865,752.82	\$ 24,273,235.21	\$ 287,484,431.49
Refunds	\$ 953,565.37	\$ 10,343,356.08	\$ 587,808.29	\$ 6,857,418.09
Number of refunds	64	726	51	456
*Contributions	\$ 14,030,250.12	\$ 124,421,319.25	\$ 13,930,700.96	\$ 123,504,924.80

	Members on record at month end				
	Retirees & beneficiaries	Disabilities	Tier A Actives	Tier B Actives	Total Actives
Jan	7,400	161			7,438
Feb	7,414	161			7,441
Mar	7,445	156			7,461
April	7,446	156			7,495
May	7,446	156			7,541
June	7,469	156			7,508
July	7,473	155			7,461
Aug	7,499	152	4,992	2,432	7,424
Sep	7,509	153	4,927	2,414	7,341
Oct	7,522	153	4,885	2,410	7,295
Nov	7,538	152	4,839	2,417	7,256
Dec	7,560	150	4,802	2,439	7,241

At A Glance

For period ended January 31, 2021

	2020		2021		Members on record at month end					
	This Month	YTD	This Month	YTD	Retirees & beneficiaries	Disabilities	Actives	Tier A actives	Tier B Actives	
Retirements										
Age	5	5	13	13	Jan	7,534	151	7,280	4,762	2,518
Service	1	1	1	1	Feb					
Rule of 78	6	6	6	6	Mar					
QDRO	1	1	0	0	April					
<i>Total</i>	13	13	20	20	May					
					June					
					July					
Disability Retirements					Aug					
Service	0	0	0	0	Sep					
Non-service	3	3	0	3	Oct					
<i>Total</i>	3	3	0	3	Nov					
					Dec					
Benefits Paid	\$ 23,360,417.96	\$ 23,360,417.96	\$ 24,416,301.54	\$ 24,416,301.54						
Refunds	\$ 774,359.97	\$ 774,359.97	\$ 706,644.76	\$ 706,644.76						
Number of refunds	51	51	48	48						
*Contributions	\$ 13,832,864.81	\$ 13,832,864.81	\$ 9,099,909.73	\$ 9,099,909.73						