

**CITY OF GROSSE POINTE WOODS**  
**NOTICE OF REGULAR MEETING**  
**Pension Retirement System Board of Trustees**  
**Thursday, May 5, 2022**  
**6:00 PM**

**City Hall Conference Room at 20025 Mack Plaza, Grosse Pointe Woods, MI**

**AGENDA**

1. Call to order
2. Roll call
3. Acceptance of the meeting agenda.
4. Meeting minutes dated February 10, 2022
5. Trial Balance through March 31, 2022
6. Employee Contribution Refund
  - a. Michael Dickey
  - b. Charlisse Smith
7. Reciprocal Act 88 Service Credit Request
  - a. Paul Antolin
8. Retirement Application
  - a. Thomas Willmer-retired February 18, 2022
  - b. Robert Fournier-retired February 28, 2022
9. 1<sup>st</sup> Quarter 2022 Fund Evaluation Group Report
  - a. FEG Global Infrastructure Memo
  - b. Cohen & Steers Global Infrastructure Summary Report
  - c. FEG Education Piece, "Real Assets Portfolio Construction"
  - d. City of Grosse Pointe Woods Retirement System Asset Allocation Study
10. Consideration of the Foster & Foster Consulting Actuaries, Inc. contract
11. Payment of Invoices -

a. FEG	\$14,840.00
b. Comerica Quarterly Invoice	\$ 1,500.00
c. Rosati, Schultz, Joppich & Amtsbuechler, P.C.	\$ 43.50
d. Rosati, Schultz, Joppich & Amtsbuechler, P.C.	\$ 665.84
12. Closed Executive Session: Legal Opinion
13. New Business/Public Comment
14. Adjournment

**Next Regular Board Meeting – August 4, 2022**

**6:00 PM**

**Submitted by: \_\_\_\_\_, Pension Administrator**

In accordance with Public Act 267 of 1976 (Open Meetings Act), all members of the above Commission/Committee, as well as the general public, are invited to attend this meeting.

Necessary, reasonable auxiliary aids and services to aid individuals with disabilities will be provided. All such requests must be made at least five (5) days prior to a meeting. Individuals with disabilities requiring auxiliary aids or services should contact the City of Grosse Pointe Woods by writing or call the Pension Administrator at (313) 343-2604 or Telecommunications Device for the Deaf (TDD) (313) 343-9249.

MINUTES OF A REGULAR MEETING OF THE BOARD OF TRUSTEES FOR THE RETIREMENT SYSTEM (i.e. The Board) OF THE CITY OF GROSSE POINTE WOODS, HELD ON THURSDAY, FEBRUARY 10, 2022, IN THE CONFERENCE ROOM OF THE MUNICIPAL BUILDING, 20025 MACK PLAZA, GROSSE POINTE WOODS, MICHIGAN.

The meeting was called to order at 6:12 p.m. by Chairperson Mayor Arthur Bryant.

The following members were present:

Chairperson Mayor Arthur Bryant  
Council Representative Victoria Granger  
General Employee Representative Matt Crook  
Public Safety Representative Brian Conigliaro  
Citizen Representative Gary Zarb

Also present:

Pension Administrator, Shawn Murphy  
City Attorney, Debra Walling  
Pension Attorney, Michael VanOverbeke  
Fund Evaluation Group (FEG), Jeffrey Davis  
Foster & Foster Actuary & Consultants, Jason Franken  
Recording Secretary, Tina Hoenicke

Motion by Granger, supported by Crook that all items on today's agenda be received and placed on file and move the June 30, 2021 Actuarial Reports from Foster & Foster Actuaries and Consultants (item #9) to the top of the agenda.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Granger, supported by Zarb to accept the following actuarial reports from Foster & Foster Actuaries and Consultants for Fiscal Year ending June 30, 2021: Actuarial Valuation as of June 30, 2021, Grosse Pointe Woods Retirement System GASB 67/68 Disclosure Information as of June 30, 2021 & June 30, 2021 Summary Annual Report.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

The Pension Board was in recess from 6:39 p.m. until 6:48 p.m.

Motion by Granger, supported by Zarb to accept and place on file the minutes of the Pension Board meeting dated November 4, 2021.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Crook, supported by Zarb to receive and place on file the trial balance report as presented through December 31, 2021.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Crook, supported by Zarb to authorize the Pension Administrator to refund former unvested employee Erin Bremer the employee portion of her pension contribution, with interest in the amount of \$2,330.84.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Crook, supported by Zarb to acknowledge receipt of the correspondence received from the Charter Township of West Bloomfield regarding Marilyn Robbins' prior service of 5 years, 7 months under Reciprocal Act 88 of 1961.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb  
NO: None  
ABSENT: None

Motion by Crook, supported Zarb by to acknowledge receipt of the correspondence received from the City of Grosse Pointe Shores regarding PSO David Empsons' prior service of 4 years, 10 months under Reciprocal Act 88 of 1961.



Pension Board Meeting

2/10/2022

Page 3

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Crook, supported by Zarb to accept and place on file the retirement application received from Agnes Burcar.

The Pension Administrator confirmed that she had met the retirement provisions as prescribed in the pension ordinance.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Granger, supported by Crook to receive and place on file an excerpt from the City of Grosse Pointe Woods Annual Comprehensive Financial Report for Fiscal Year End June 30, 2021: Required Supplemental Information-Pension Plan and Supplemental Annuity.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Jeffrey Davis, from FEG provided a review of the 4<sup>th</sup> Quarter Fund Evaluation Group Report ending December 31, 2021. No changes to the plan are recommended at this time.

Motion by Granger, supported by Zarb, to accept the 4<sup>th</sup> Quarter Fund Evaluation Group Report.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Granger, supported by Zarb to authorize payment of the invoices from FEG in the amount of \$14,519.00, Comerica in the amount of \$1,500.00, Rotsati, Schultz, Joppich & Amtsbuechler, PC for the following amounts: \$31.00, \$310.00 & \$15.50 and VanOverbeke, Michaud & Timmony, Pc in the amount of \$780.00.

Pension Board Meeting

2/10/2022

Page 4

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Crook, supported by Zarb that the Pension Board recess the regularly scheduled Pension Board Meeting at 7:16 pm and convene in Closed Session to consider a written attorney letter exempt from disclosure under Section 13(1)(g) of the Freedom of Information Act, at which time this body may or may not reconvene in regular session to address additional items as necessary.

Motion carried by the following roll call vote:

Chairperson Mayor Arthur Bryant: Yes

Council Representative Victoria Granger: Yes

General Employee Representative Matt Crook: Yes

Public Safety Representative Brian Conigliaro: Yes

Citizen Representative Gary Zarb: Yes

The Pension Board moved to a closed session at 7:16 p.m. and re-convened the open meeting at 7:43 p.m.

New Business/Public Comment:

Motion by Crook, supported by Zarb to authorize the Pension Administrator to refund former unvested employee Jeffrey Malinowski the employee portion of his pension contribution, with interest in the amount of \$4,095.51.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Granger, supported by Crook to accept and place on file the retirement application received from Lisa Kay Hathaway.

The Pension Administrator confirmed that she had met the retirement provisions as prescribed in the pension ordinance.

Pension Board Meeting

2/10/2022

Page 5

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Granger, supported by Zarb to adjourn at 7:50 p.m.

Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Minutes recorded by Tina Hoenicke

Approved by the Pension Board:

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Shawn Murphy, Pension Administrator

Fund 731 PENSION FUND

GL Number	Description	Balance
*** Assets ***		
731-000-001.000	CASH	0.00
731-000-005.000	CASH	183,293.03
731-000-005.001	SCHWAB CASH	217,127.34
731-000-005.100	PENSION PETTY CASH	0.00
731-000-017.000	CASH -MERRILL LYNCH	0.00
731-000-018.000	MUTUAL FUNDS	0.00
731-000-040.000	ACCOUNT RECEIVABLE	0.00
731-000-050.000	CONTRIBUTIONS RECEIVABLE-ER	0.00
731-000-050.100	CONTRIBUTION RECEIVABLE-EE	0.00
731-000-050.200	MEDICARE CONTRIB RECEIVABLE	0.00
731-000-056.000	INTEREST REC	34.44
731-000-067.101	DUE F/GENERAL FUND	0.00
731-000-110.000	PREPAID EXPENSE	0.00
731-000-119.000	PREMIUM ON PURCHASE	0.00
731-000-120.000	US GOVT SECURTIES	0.00
731-000-121.000	BONDS	7,045,964.79
731-000-122.000	STOCKS	16,136,839.85
731-000-123.000	INDEXES	20,074,208.48
731-000-124.000	REAL ESTATE INV.	0.00
<b>Total Assets</b>		<b>43,657,467.93</b>
*** Liabilities ***		
731-000-201.000	WEEKLY A/P	0.00
731-000-202.000	ACCOUNTS PAYABLE	0.00
<b>Total Liabilities</b>		<b>0.00</b>
*** Fund Balance ***		
731-000-378.299	EMPLOYEE RESERVE-GEN	0.00
731-000-378.436	EMPLOYEE RESERVE-PS	0.00
731-000-379.299	EMPLOYER RES-GEN	0.00
731-000-379.436	EMPLOYER RES-PS	0.00
731-000-381.000	RETIREE BENEFITS RES	33,151,402.56
731-000-390.000	CURRENT FUND BALANCE	0.00
731-000-395.000	PRIOR FUND BALANCE	12,792,225.44
<b>Total Fund Balance</b>		<b>45,943,628.00</b>
<b>Beginning Fund Balance</b>		<b>45,943,628.00</b>
<b>Net of Revenues VS Expenditures</b>		<b>(2,286,160.07)</b>
<b>Ending Fund Balance</b>		<b>43,657,467.93</b>
<b>Total Liabilities And Fund Balance</b>		<b>43,657,467.93</b>

Fund 732 SUPPLEMENTAL ANNUITY FUND

GL Number	Description	Balance
*** Assets ***		
732-000-001.000	CASH	0.00
732-000-004.000	CASH-TRUST	0.00
732-000-005.000	CASH	9,051.84
732-000-005.001	SCHWAB CASH	365,826.22
732-000-016.000	CASH	0.00
732-000-017.000	CASH -MERRILL LYNCH	0.00
732-000-056.000	INTEREST RECEIVABLE	0.11
732-000-056.100	CONTRIBUTIONS RECEIVABLE	0.00
732-000-067.101	DUE F/GENERAL FD	0.00
732-000-110.000	PREPAID EXPENSE	0.00
732-000-120.000	US GOVT SEC	0.00
732-000-121.100	BONDS	423,839.45
732-000-122.000	STOCKS	994,579.69
732-000-123.000	INDEXES	1,162,031.76
<b>Total Assets</b>		<b>2,955,329.07</b>
*** Liabilities ***		
732-000-201.000	WEEKLY A/P	0.00
732-000-202.000	ACCOUNTS PAYABLE	0.00
<b>Total Liabilities</b>		<b>0.00</b>
*** Fund Balance ***		
732-000-382.000	SUPPLEMENTAL ANNUITY RESERVE	788,255.00
732-000-390.000	CURRENT FUND BALANCE	1,751,652.07
732-000-395.000	PRIOR FUND BALANCE	65,928.00
<b>Total Fund Balance</b>		<b>2,605,835.07</b>
<b>Beginning Fund Balance</b>		<b>2,605,835.07</b>
<b>Net of Revenues VS Expenditures</b>		<b>349,494.00</b>
<b>Ending Fund Balance</b>		<b>2,955,329.07</b>
<b>Total Liabilities And Fund Balance</b>		<b>2,955,329.07</b>



## CITY OF GROSSE POINTE WOODS MEMORANDUM

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**Date:** April 22, 2022  
**To:** Pension Board Trustees  
**From:** Shawn Murphy, Pension Administrator  
**Re:** Refund Employee Contributions

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On March 25, 2022, Michael Dickey resigned from the City of Grosse Pointe Woods. Mr. Dickey made contributions to the pension system, but he did not vest.

I respectfully request authorization from the Board to refund Michael Dickey's employee contributions in the amount of \$5,462.81 and interest earnings in the amount of \$163.59, totaling \$5,626.40.

Thank you.



## CITY OF GROSSE POINTE WOODS MEMORANDUM

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**Date:** April 22, 2022  
**To:** Pension Board Trustees  
**From:** Shawn Murphy, Pension Administrator  
**Re:** Refund Employee Contributions

---

On April 18, 2022, Charlisse Smith resigned from the City of Grosse Pointe Woods. Ms. Smith made contributions to the pension system, but she did not vest.

I respectfully request authorization from the Board to refund Charlisse Smith's employee contributions in the amount of \$10,707.06 and interest earnings in the amount of \$627.80, totaling \$11,334.86.

Thank you.



## CITY OF GROSSE POINTE WOODS MEMORANDUM

---

**Date:** April 22, 2022

**To:** Pension Board Trustees

**From:** Shawn Murphy, Pension Administrator

**Re:** Prior Service Credit – Paul Antolin

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Please find attached a request from Paul Antolin requesting recognition of his service credit for vesting purposes from his employment with The City of Romulus.

Mr. Antolin was employed with The City of Romulus from February 14, 2001 through March 9, 2018. Total service credit is seventeen (17) years twenty four (24) days

I am requesting a motion to accept Paul Antolin's prior municipal service with the City of Romulus Reciprocal Act 88 for vesting purposes only.

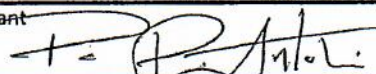
Thank you for your consideration.




**CITY OF GROSSE POINTE WOODS PENSION SYSTEM**  
**20025 Mack Plaza Drive**  
**Grosse Pointe Woods, MI 48236**

**VERIFICATION FOR CREDITING OF OTHER GOVERNMENTAL SERVICE**  
 As provided under the Reciprocal Retirement Act, 1961 Public Act 88

**To be completed by applicant**

Name (Last, First, Middle) <b>ANTOLIN, PAUL P.</b>		Phone Number <b>734-716-3243 / (734) 941-8460</b>	
Address <b>15882 ORCHARD ST.</b>	City <b>ROMULUS</b>	State <b>MI</b>	Zip <b>48174</b>
Signature of Applicant 		Date <b>4/19/22</b>	

**To be completed by an Official of the Governmental Unit**

Name of Reciprocal Governmental Unit <b>City of Romulus</b>			
Beginning Date <b>2-14-2001</b>		Ending Date <b>3-9-2018</b>	
Full-Time <b>yes</b>	Part-Time (Less than 10 (8-hour) days in a month)		
Total Credited Service by Certifying Unit: <b>17</b> Years <b>24</b> Months <b>days</b>			
Verified by: Signature 		Name (Type or Print Clearly) <b>Dana Ferguson</b>	
Title <b>HR Generalist</b>		Phone Number <b>734-955-4551</b>	
Address <b>11111 Wayne Rd.</b>	City <b>Romulus</b>	State <b>MI</b>	Zip <b>48174</b>

**To be completed by the Governmental Unit Retirement System**

Is the applicant entitled to a pension benefit under your System's plan for the service certified in the above section? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Has the applicant received any refund of employee contributions? <input type="checkbox"/> Yes      Date of Refund: _____ <input type="checkbox"/> No			
Has applicant purchased military service time or prior service time that is also reflected in the certified service in the above section? _____ Governmental Unit      _____ Years <input type="checkbox"/> No			
Verified by: Signature		Name (Type or Print Clearly)	
Title		Phone Number	
Address	City	State	Zip

Please return completed form to applicant

**EMPLOYEES RETIREMENT SYSTEM  
APPLICATION FOR SERVICE RETIREMENT**

Pension Membership No. 481

To the Board of Trustees, City of Grosse Pointe Woods Employees Retirement System:

I, Thomas Willmer a member of the Retirement System, hereby apply (select one).

- 1. Service & Age Retirement
- 2. Disability Retirement

Date of birth: 05-08-1965 I request my retirement be effective: FEB 18, 2022

My title on the payroll is: Assistant II Department: DEPT OF PUBLIC WORKS

Dated at Grosse Pointe Woods, MI this \_\_\_\_\_ day of \_\_\_\_\_, 2012.

Shawn Murphy  
Signature of Witness

Thomas Willmer  
Signature of Member

I elect to receive my retirement allowance in the following manner. (Place an X next to the option requested.) **PLEASE NOTE:** This is an irrevocable selection.

- Regular service retirement
- Option I cash refund annuity
- Option II joint and last survivorship annuity
- Option III modified joint & last survivorship annuity

Write plan of retirement elected REGULAR SERVICE RETIREMENT STRAIGHT LIFE PENSION

I wish to withdraw my accumulative contribution in the amount of \$ \_\_\_\_\_

I do not wish to withdraw my accumulated contribution

I certify that my (wife) (husband) at this date of retirement is: \_\_\_\_\_

Supplemental annuity payment (if applicable) per month will be: \$ 400.00

Shawn Murphy  
Signature of Witness & Date

Thomas Willmer  
Signature of Member & Date

**NOMINATION OF BENEFICIARY**

I nominate as my beneficiary:  
ELIZABETH SLIWINSKI

Beneficiary's date of birth: MAY 29, 1972

Beneficiary's relationship to me: SISTER

Sex: F

Beneficiary's place of birth: DETROIT MICH

Beneficiary's address:  
21137 WALTON

ST. CLAIR SHORES MI  
Dated at Grosse Pointe Woods, MI this 16 day of FEB, 2012

Signed: Thomas Willmer



**EMPLOYEES RETIREMENT SYSTEM  
APPLICATION FOR SERVICE RETIREMENT**

Pension Membership No. 472

To the Board of Trustees, City of Grosse Pointe Woods Employees Retirement System:

I, Robert Fournier a member of the Retirement System, hereby apply (select one).

1. Service & Age Retirement   
2. Disability Retirement

Date of birth: July 7, 1961 I request my retirement be effective: February 28, 2022

My title on the payroll is: Mechanic Department: Department of Public Works

Dated at Grosse Pointe Woods, MI this day of 15, 2022.

Shawn Murphy  
Signature of Witness

Robert Fournier  
Signature of Member

I elect to receive my retirement allowance in the following manner. (Place an X next to the option requested.) **PLEASE NOTE:** This is an irrevocable selection.

- Regular service retirement  
 Option I cash refund annuity  
 Option II joint and last survivorship annuity  
 Option III modified joint & last survivorship annuity

Write plan of retirement elected Option II joint and last survivorship annuity

- I wish to withdraw my accumulative contribution in the amount of \$ \_\_\_\_\_  
 I do not wish to withdraw my accumulated contribution  
 I certify that my (wife) (husband) at this date of retirement is: Gail Fournier

Supplemental annuity payment (if applicable) per month will be: \$ 400.00

Shawn Murphy  
Signature of Witness & Date

Robert Fournier 2-15-22  
Signature of Member & Date

**NOMINATION OF BENEFICIARY**

I nominate as my beneficiary: Beneficiary's date of birth: July 5, 1959

Gail Fournier Beneficiary's relationship to me: wife

Beneficiary's address: Sex: F

18119 Southwind Fraser Michigan Beneficiary's place of birth: Detroit Michigan

Dated at Grosse Pointe Woods, MI this day of 15, 2022.

Signed: Robert Fournier



# COMPOSITE PERFORMANCE REVIEW

Report for Periods Ending March 31, 2022

## City of Grosse Pointe Woods Employees Retirement System



*Presented by:*

Jeffrey A. Davis, CFA, CAIA  
Vice President / Advisor



# City of Grosse Pointe Woods Employees Retirement System

## Table of Contents

<b>Description</b>	<b>Page</b>
Market Summary	1
Total Composite	2-8
Long Term Manager Performance	9-59

# FIRST QUARTER 2022 MARKET SUMMARY

*Multi-decade high inflation, the interest rate liftoff by the Federal Reserve (Fed), sharply rising energy prices, and Russia's invasion of Ukraine were a few of the key drivers behind the spike in volatility across markets in the first quarter of 2022. Despite a sense of unease, the month of March presented global asset allocators with gains across most major domestic equity and real assets sectors, while bond returns continued to face headwinds from rising interest rates.*

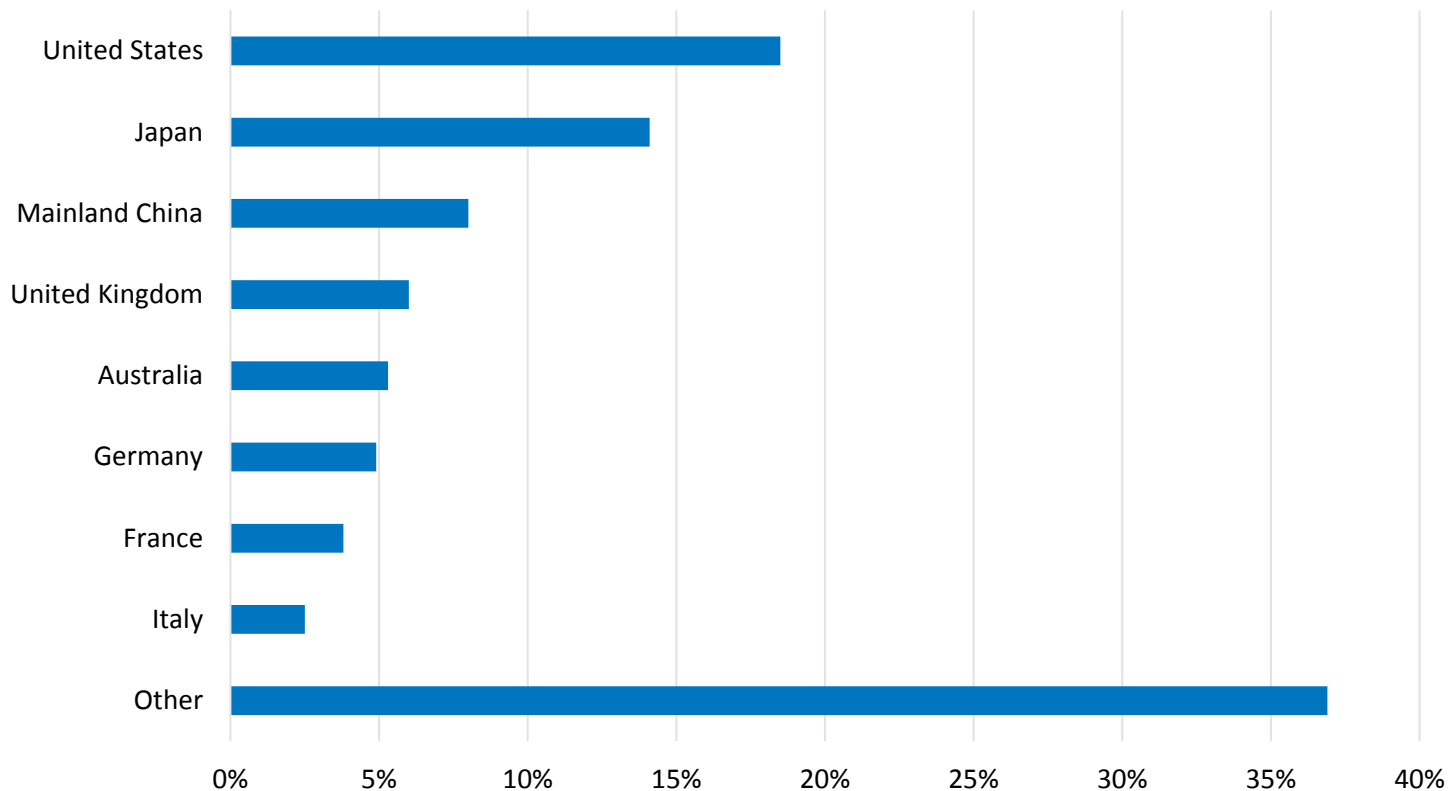
*For the quarter, domestic equities outperformed international—particularly emerging markets—and large cap relatively outperformed small cap. Stylistically, value strongly outperformed growth, buoyed by a 39% return for the S&P 500 Energy Sector Total Return Index—the strongest quarterly performance by the sub-index since the index's inception in 1989. Fixed income performance, particularly among rate-sensitive sectors, struggled throughout the quarter as persistent inflationary pressures and an expected steep Fed policy path discounted by the bond market helped send interest rates higher. Performance across real assets continued to appear robust, especially among the energy-related corners of the universe. At the same time, REIT returns were pressured lower by the sharp rise in Treasury rates and the renewed potential for an economic slowdown.*

# MARKET INSIGHTS

- The war in Ukraine, global inflation, and Europe’s Russian-energy dependency has brought about recessionary concerns in Europe.
- Although the majority of companies in the developed markets are domiciled in Japan, the UK, and France, the revenue sources of the MSCI EAFE Index are globally diversified.

## THE DEVELOPED INTERNATIONAL EQUITY MARKET’S REVENUE IS GLOBALLY DIVERSE

MSCI EAFE Index Revenue Exposure By Country



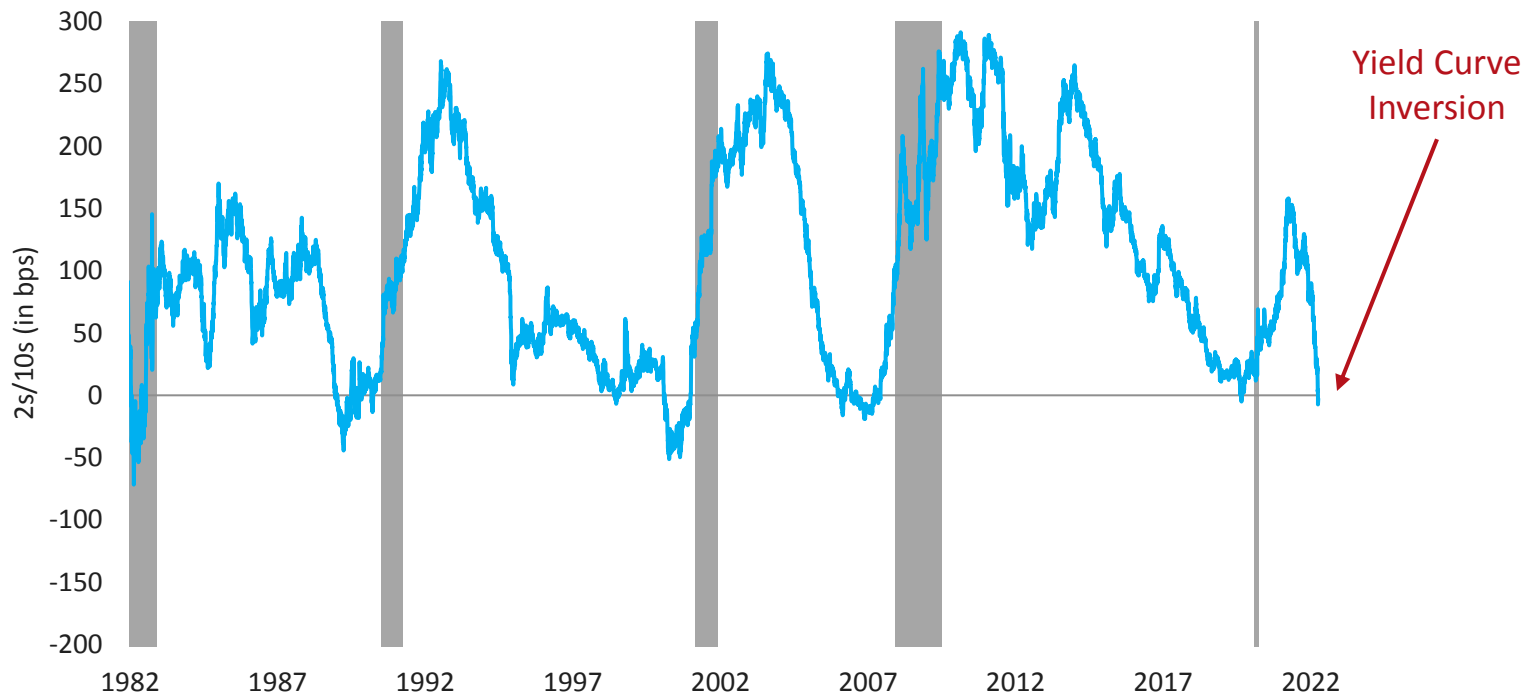
Data source: FactSet

# ECONOMIC INSIGHTS

- The Fed has initiated a tightening campaign at a time when much of the Treasury yield curve beyond the 2-year maturity portion appears flat or inverted. The widely referenced spread between 2-year and 10-year Treasury notes inverted at the tail end of the quarter and into the early trading days of April.
- The deliberate tempering of inflationary pressures by the Fed could ease rising cost pressures over the near term, but it might come at the expense of a slowdown in business activity as well as a rise in risk premiums. An inverted yield curve has historically been reflective of conditions that have preceded recessions.

## U.S. YIELD CURVE INVERTED BETWEEN THE 2-YEAR AND 10-YEAR TREASURIES

U.S. Yield Curve and Business Cycles

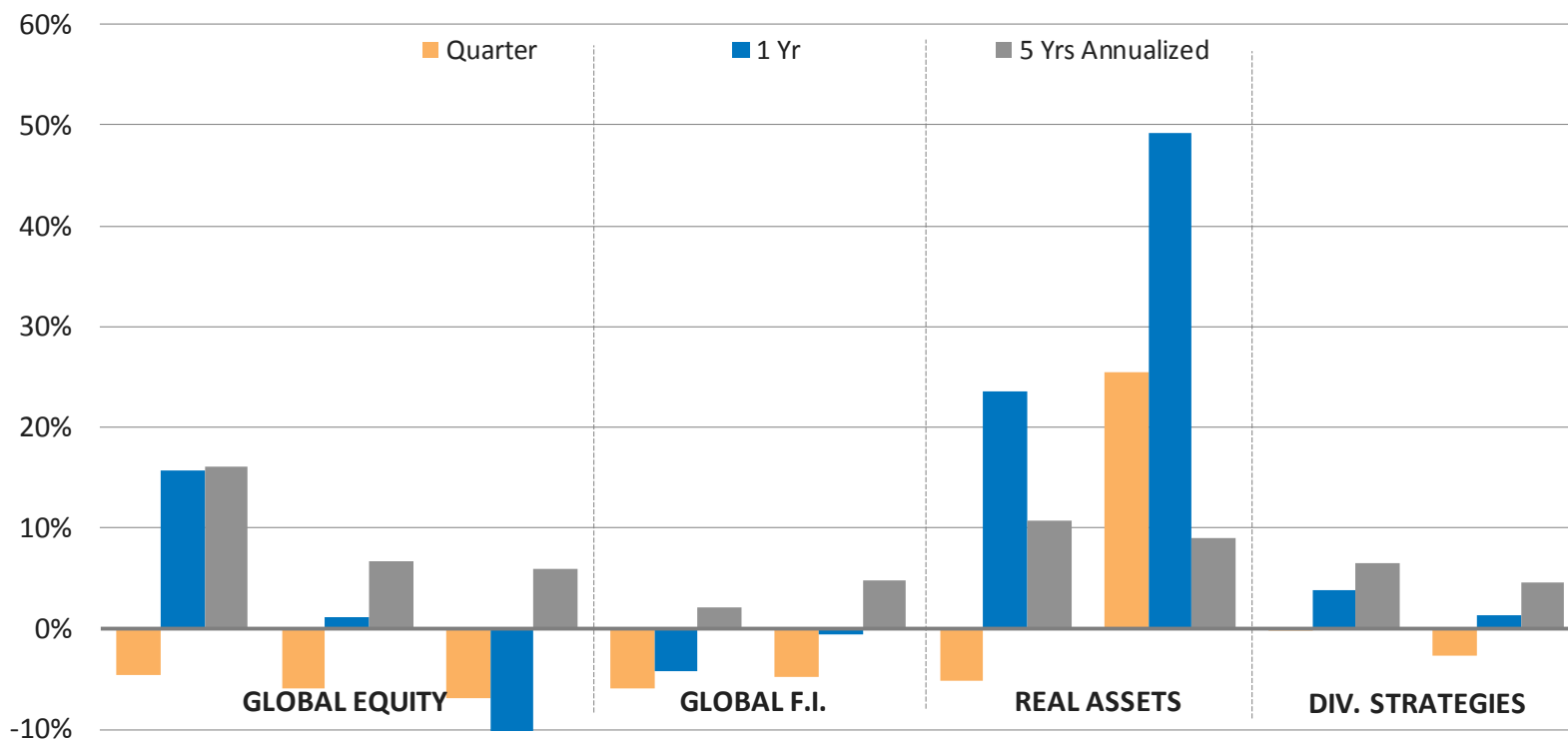


Data sources: BEA, NBER, Bloomberg, L.P.; Data as of April 4, 2022  
Note: Shaded areas represent recessionary periods



# MARKET RETURNS

## MAJOR ASSET CLASS RETURNS



	S&P 500 Index	MSCI EAFE Index	MSCI Emerging Mkts Index	Blmbrg U.S. Agg Index	Blmbrg HY Index	FTSE NAREIT All Equity Index	Blmbrg Cmdty Index	HFRI Fund Wtd Comp. Index	HFRI Fund of Fund Index
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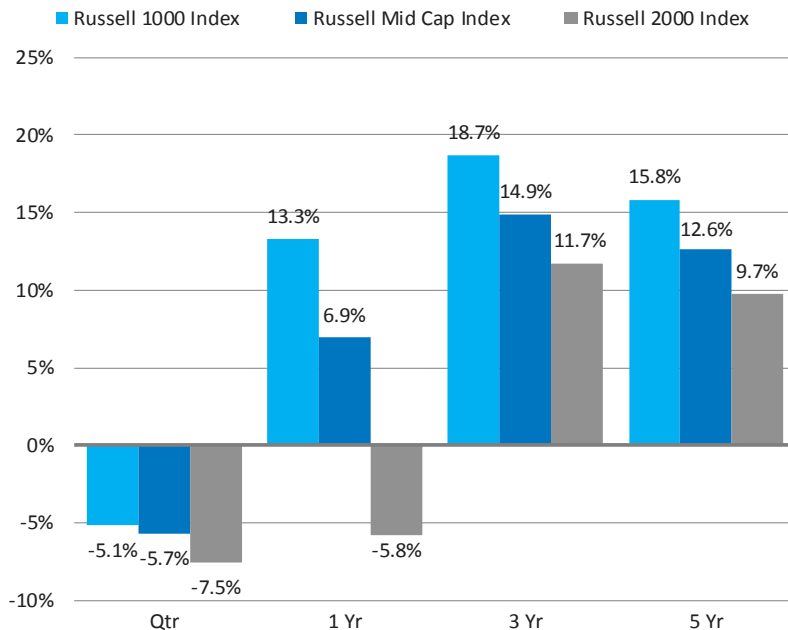
Quarter	-4.6%	-5.9%	-7.0%	-5.9%	-4.8%	-5.3%	25.5%	-0.3%	-2.7%
1 Yr	15.6%	1.2%	-11.4%	-4.2%	-0.7%	23.6%	49.3%	3.9%	1.3%
5 Yrs Annualized	16.0%	6.7%	6.0%	2.1%	4.7%	10.7%	9.0%	6.5%	4.6%

Data sources: Lipper and Hedge Fund Research, data as of 5<sup>th</sup> business day following quarter-end

# GLOBAL EQUITY, U.S.

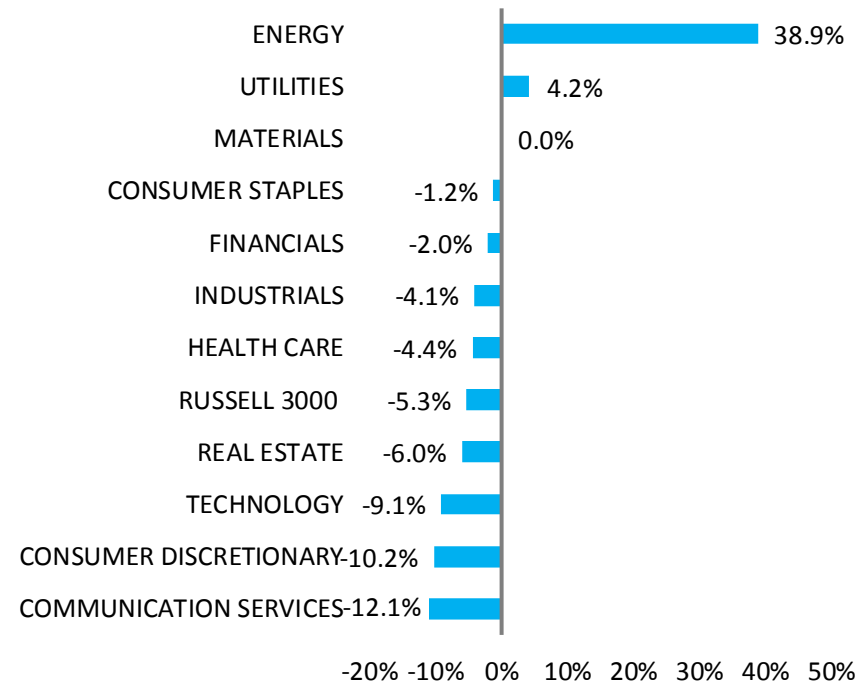
- The first quarter was defined by volatility among most major equity markets. Investors faced headwinds from nearly every facet of global market drivers during the first quarter of 2022 after a solid ending to 2021. Inflation, geopolitical risks due to the war in Ukraine, and central bank action were just a few significant events behind investors' concerns.
- U.S. value equities outperformed growth equities during the quarter as the rising rate environment has put pressure on long-duration assets with historically high valuations. Additionally, Russia's invasion of Ukraine has placed tremendous upward pressure on energy prices, which boosted stocks in the energy sector and aided value indices. Large cap domestic equities outperformed small cap equities during the quarter as investors assessed company fundamentals, potential capital access, and debt servicing risks facing small companies.

## LARGE CAP, MID CAP, AND SMALL CAP



Data source: Russell

## RUSSELL 3000 SECTOR PERFORMANCE

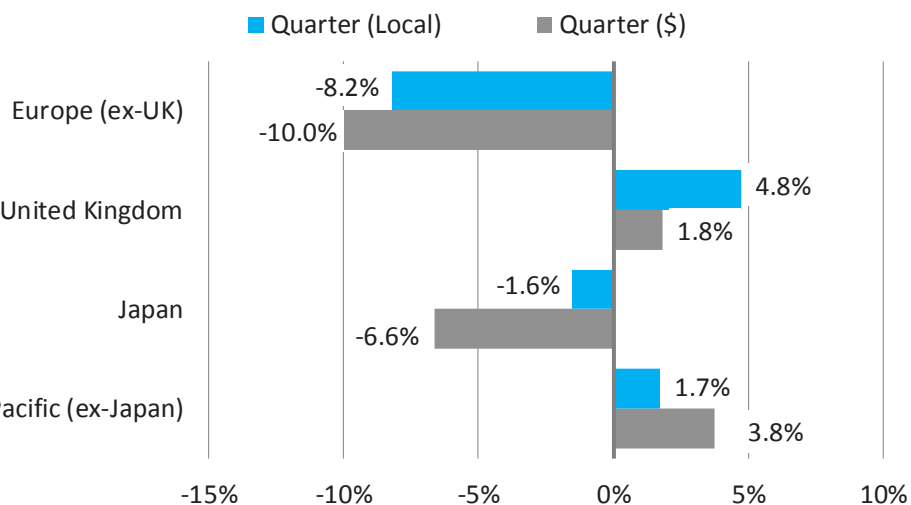


Data source: Russell

# GLOBAL EQUITY, NON-U.S.

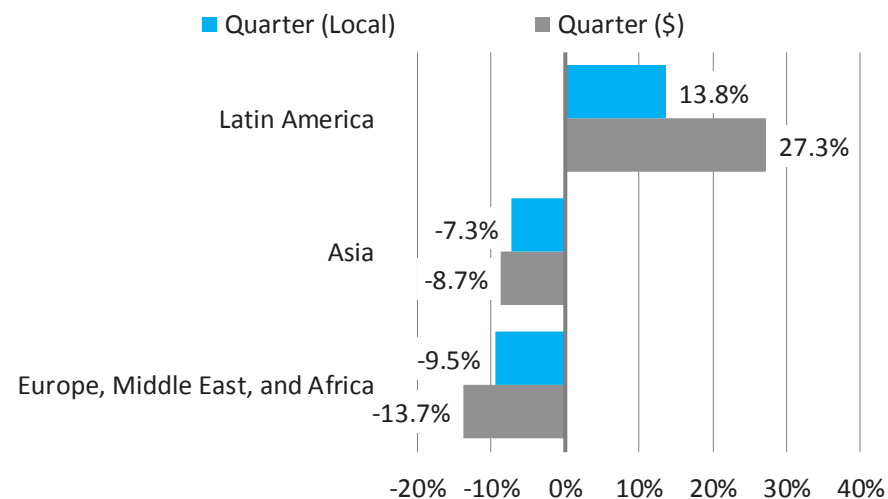
- Although returns were negative, developed market equities outperformed emerging market equities during the quarter. In addition to Russia’s attack on Ukraine weighing on the emerging market index, a resurgence of COVID-19 in China and the nation’s lockdown and quarantine response increased concerns of reduced economic activity in the country and further supply chain delays globally.
- Energy price spikes were felt heavily throughout Europe, serving as a headwind to economic growth. European economic data has been generally positive—e.g., a strong labor market, fiscal stimulus, and accumulated personal savings during COVID-19 lockdowns—which could help mitigate the impact of increased energy prices and possible rationing. The United Kingdom is less reliant on Russian energy than many of its continental neighbors but has higher gas and oil consumption. As such, the UK announced a rebate program to provide support to households facing increased energy prices.
- Latin America was among the best-performing regions within emerging markets, predominately driven by the performance of the Brazilian and Mexican markets, which have both seen tailwinds due to increased energy demand and the nearshoring of production (i.e., keeping the means of production in close geographic proximity).

## MSCI EAFE REGIONAL QUARTERLY RETURNS



Data source: MSCI Barra

## MSCI EM REGIONAL QUARTERLY RETURNS



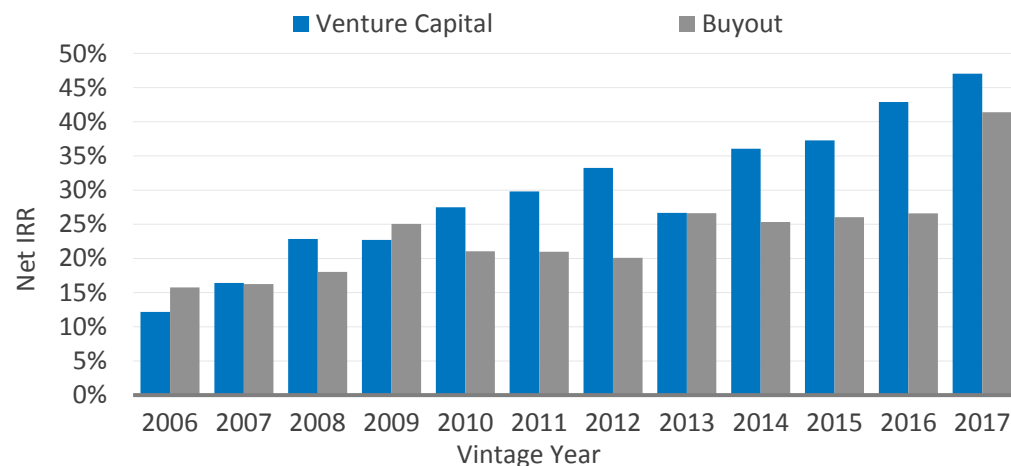
Data source: MSCI Barra

# GLOBAL EQUITY, PRIVATE

- Private equity reports performance on a lag, and the latest data available are through September 30, 2021.
- Median private equity returns for both venture capital and buyout funds have generally been 20% or better since the 2010 vintage year, with venture returns in recent years over 35%.
- Median buyout fund performance exceeded that of venture funds for most of the 2000s through the 2009 vintage year. This dynamic reversed in the subsequent decade's vintage years, with venture funds generally performing better than buyout funds. Recent vintage years for venture capital funds benefitted from a robust initial public offering (IPO) market and continued interest from investors.
- Fundraising activity for venture capital and buyout funds was robust in 2021 and at or near record levels. Fundraising can be volatile on a quarterly basis and was off to a slower start in the first quarter of 2022.

## MEDIAN VENTURE CAPITAL AND BUYOUT VINTAGE YEAR IRR

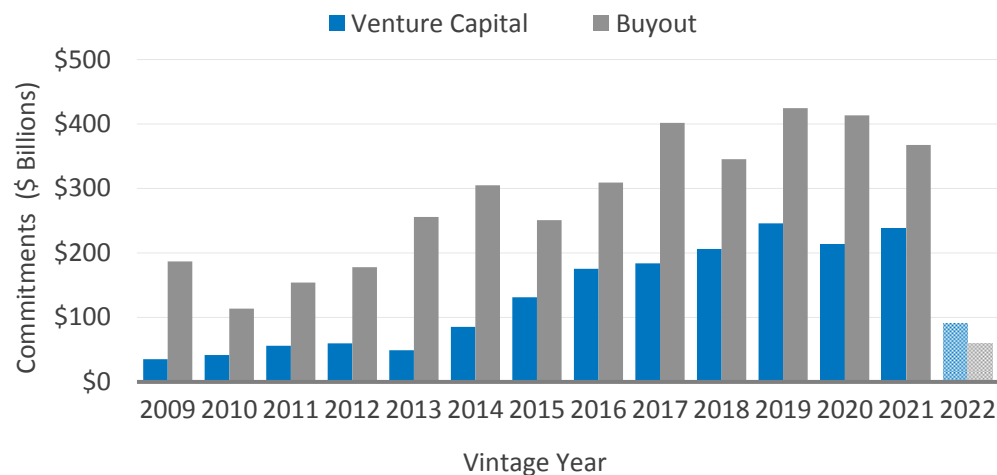
As of September 30, 2021



Data source: Thomson One; The most recent private equity return information available is through September 30, 2021

## VENTURE CAPITAL AND BUYOUT FUNDRAISING ACTIVITY

As of March 31, 2022

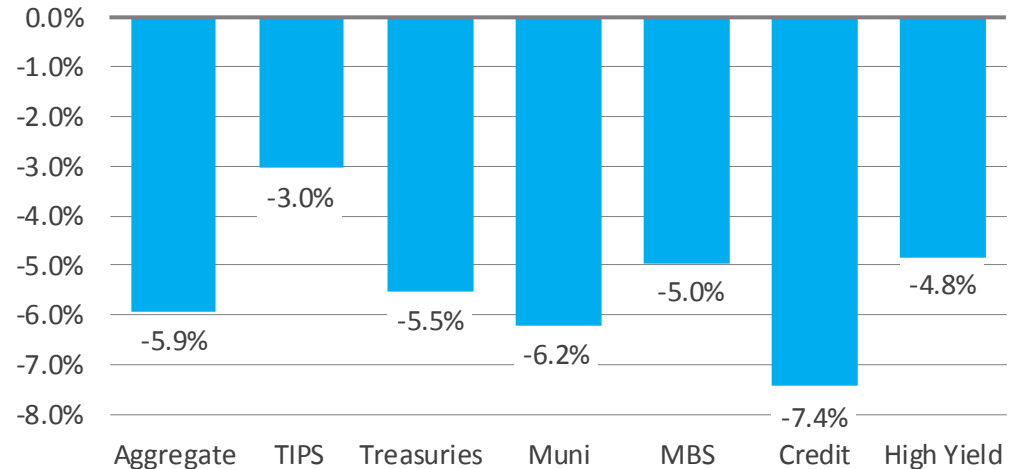


Data source: Pitchbook

# GLOBAL FIXED INCOME

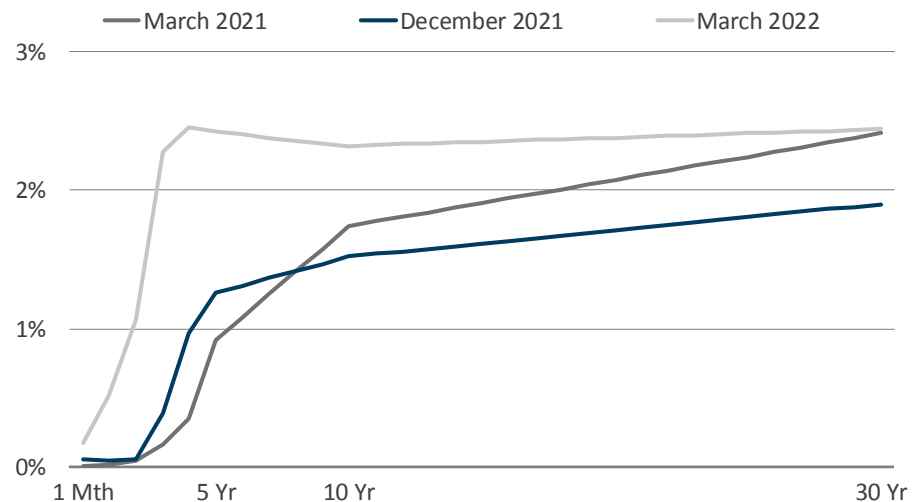
- Interest rates reset as the market priced in a more hawkish Fed.
- The 2-year U.S. Treasury yield rose a staggering 155 bps to 2.28% during the quarter, nearly overtaking the 10-year U.S. Treasury yield, which rose 80 bps to 2.32%. The yield curve inverted on an intraday basis, as measured by the 10-year/2-year Treasury spread, which fell 0.75% to end at 0.04%.
- Corporate credit came under pressure as spreads widened and rates rose. Spreads reached their widest levels in over a year before retreating as risk appetite reentered the bond market.
- March's Summary of Economic Projections saw the Fed revise their 2022 policy rate forecast upwards of a full percentage point to 1.9%. However, some market-based expectations are pointing upwards of 9 total rate hikes for 2022, including several 0.5% hikes. The report saw a simultaneous downward revision of GDP estimates from 4.0% to 2.8% as whispers of stagflation grew in prominence.

## BLOOMBERG BARCLAYS U.S. FIXED INCOME INDEX RETURNS



Data source: Barclays

## U.S. TREASURY YIELD CURVE

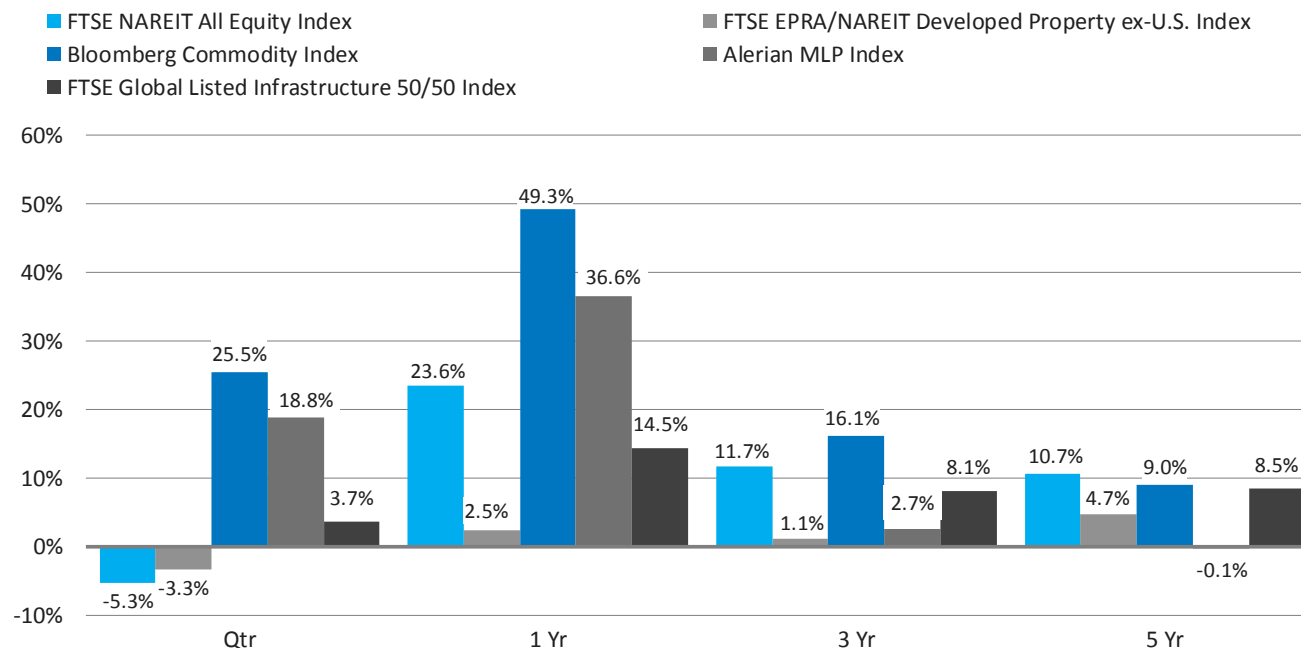


Data source: Bloomberg, L.P.

# REAL ASSETS

- Publicly traded real estate securities (REITs) declined in the first quarter on concerns related to the impact of higher interest rates on real estate values. Nearly all REIT sectors posted negative returns for the quarter, with data centers, infrastructure (cell towers), and regional malls underperforming the benchmark. Lodging, health care, and office REITs were the lone sectors to post positive performance. As of the end of the first quarter, the yield on REITs stood at 2.9%.
- Oil and natural gas prices rose to multi-year highs during the first quarter; energy was the top-performing sector in the S&P 500 with a gain of 39%. Oil ended the quarter at \$100/barrel, up 33% from year-end 2021, driven by tighter supplies, recovering demand, and U.S. sanctions against Russian oil following Russia's invasion of Ukraine.
- Midstream energy infrastructure, as measured by the Alerian MLP Index, significantly outperformed the broader market, benefiting from strength in energy-related commodity prices through the first quarter of 2022. Growing demand from Europe for U.S. liquified natural gas contributed to gains in midstream energy, as U.S. natural gas has quickly become recognized as a global commodity.

## PUBLIC REAL ASSETS – REAL ESTATE, COMMODITIES, MLPs, AND INFRASTRUCTURE

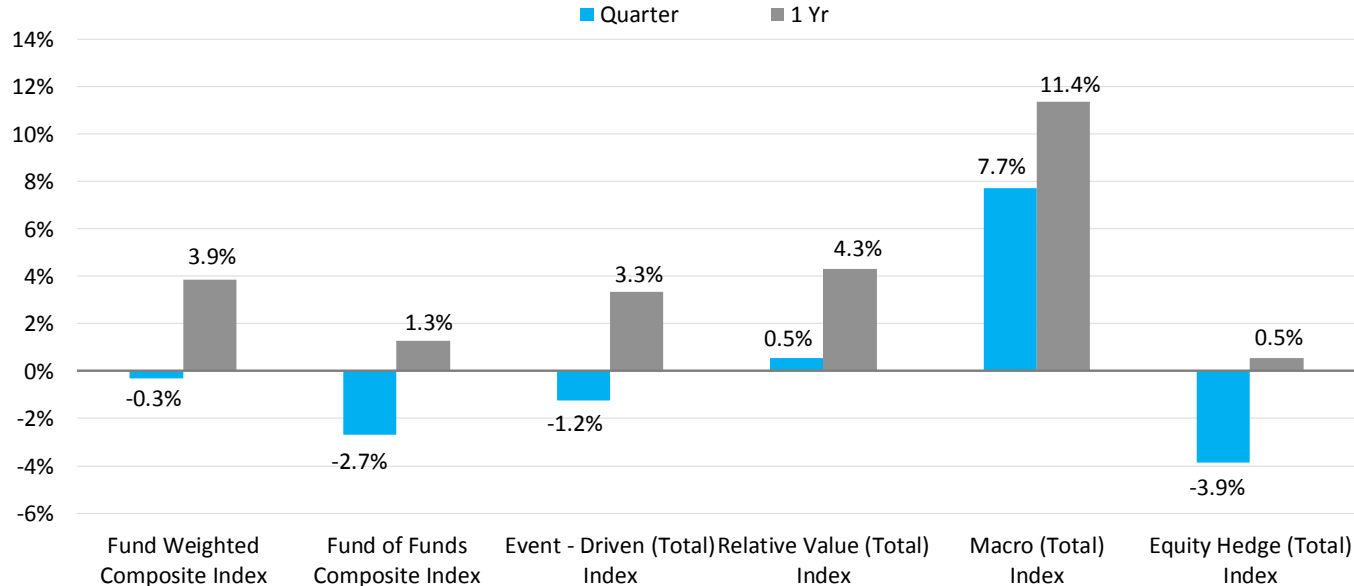


Data sources: NAREIT, Bloomberg, L.P., and Alerian

# DIVERSIFYING STRATEGIES, HEDGE FUNDS

- Hedge funds continued to perform relatively well in the first quarter amid market volatility. Outside of hedged equity, most underlying strategies' returns were positive, with a few exceptions.
- Global macro funds enjoyed strong performance throughout the first quarter. Commodities were the underlying story within global macro as several market trends held steady, notably surging energy prices. Short positions within fixed income markets were also positive contributors to performance.
- Hedged equity managers bounced back from a rocky start at the beginning of the quarter to end on a positive note. Technology and healthcare specialists endured significant losses in January. The health care sector broadly ended the quarter with a gain while the technology side declined.
- Event-driven and relative value managers tended to generate slight gains or relatively modest losses. Both strategies finished the quarter strong. The most significant declines occurred within the relative value sector in sovereign fixed income due to the Russia-Ukraine conflict.

## HFRI INDICES PERFORMANCE RETURNS IN U.S. DOLLARS



Data source: HFRI

# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending March 31, 2022

	Annualized								Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception		
<b>Total Composite</b>	<b>-5.7%</b>	<b>-2.1%</b>	<b>4.0%</b>	<b>10.8%</b>	<b>8.5%</b>	<b>6.8%</b>	<b>7.4%</b>	<b>6.4%</b>	1/05	\$46,420,418
Target Weighted Index <sup>1</sup>	-4.8	-2.1	3.8	9.9	8.3	6.8	7.1	6.7		
Broad Policy Index <sup>2</sup>	-5.5	-1.8	3.8	10.3	9.0	7.5	7.8	6.8		
Actuarial Rate <sup>3</sup>	1.8	5.6	7.5	7.6	7.7	7.7	7.7	7.7		
<b>Domestic Equity</b>										
<b>iShares S&amp;P 500 Index</b>	<b>-4.6</b>	<b>6.5</b>	<b>15.6</b>	<b>18.9</b>	<b>16.0</b>	<b>14.0</b>	-	<b>13.5</b>	8/14	14,876,041
S&P 500 Index	-4.6	6.5	15.6	18.9	16.0	14.0	-	13.5		
S&P 500 Equal Weighted Index	-3.2	4.5	11.2	14.7	11.7	9.9	-	9.7		
<b>iShares Russell Midcap Index</b>	<b>-5.7</b>	<b>-0.7</b>	<b>6.7</b>	<b>14.7</b>	<b>12.5</b>	<b>10.5</b>	-	<b>11.2</b>	9/14	2,701,199
Russell Midcap Index	-5.7	-0.5	6.9	14.9	12.6	10.7	-	11.4		
<b>Small Cap Equity</b>										
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>-5.7</b>	<b>-3.3</b>	<b>1.1</b>	-	-	-	-	<b>16.7</b>	8/19	3,659,000
S&P SmallCap 600 Index	-5.6	-3.1	1.2	-	-	-	-	16.7		
<b>International Equity</b>										
<b>EuroPacific Growth Fund</b>	<b>-12.3</b>	<b>-15.3</b>	<b>-9.4</b>	<b>8.2</b>	<b>7.9</b>	<b>6.1</b>	-	<b>6.3</b>	9/14	4,267,843
MSCI AC World Index ex-US	-5.4	-6.6	-1.5	7.5	6.8	5.2	-	4.8		
<b>Templeton Inst'l Foreign Smaller Co.</b>	<b>-12.7</b>	<b>-14.3</b>	<b>-8.8</b>	<b>4.7</b>	<b>5.1</b>	<b>4.5</b>	-	<b>4.6</b>	9/14	1,106,107
MSCI Small Cap EAFE Index	-8.5	-7.6	-3.6	8.5	7.4	7.3	-	7.2		
<b>Brown International Small Company</b>	<b>-19.5</b>	<b>-14.1</b>	-	-	-	-	-	<b>-13.6</b>	5/21	1,098,714
MSCI Small Cap EAFE Index	-8.5	-7.6	-	-	-	-	-	-9.1		
MSCI ACWI ex-U.S. Small Cap Index	-6.5	-5.9	-	-	-	-	-	-6.3		
<b>Redwheel Global Emerging Equity Fund</b>	<b>-11.1</b>	<b>-20.9</b>	<b>-17.4</b>	<b>6.2</b>	-	-	-	<b>-0.3</b>	2/18	1,378,651
<b>DFA Emerging Markets Fund</b>	<b>-3.8</b>	<b>-10.3</b>	<b>-5.7</b>	<b>6.4</b>	<b>6.4</b>	<b>5.2</b>	-	<b>4.4</b>	9/14	2,955,566
MSCI Emerging Markets Index	-7.0	-15.6	-11.4	4.9	6.0	4.7	-	4.0		



# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending March 31, 2022

	Qtr	FYTD	1Yr	Annualized					Since Inception	Date	Market Value
				3Yr	5Yr	7Yr	10Yr				
<b>Fixed Income</b>											
<b>Dodge &amp; Cox Income Fund</b>	<b>-5.2%</b>	<b>-5.5%</b>	<b>-3.6%</b>	<b>2.8%</b>	-	-	-	<b>3.3%</b>	2/19	\$2,552,728	
Bloomberg IG Credit Index	-7.3	-7.2	-4.3	2.6	-	-	-	3.3			
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	-	-	-	2.3			
<b>DoubleLine Total Return Bond Fund</b>	<b>-4.8</b>	<b>-4.6</b>	<b>-3.1</b>	<b>1.0</b>	-	-	-	<b>1.4</b>	2/19	2,331,590	
Bloomberg U.S. MBS Index	-5.0	-5.2	-4.9	0.6	-	-	-	1.0			
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	-	-	-	2.3			
<b>Vanguard Total Bond Fund</b>	<b>-6.0</b>	<b>-6.0</b>	<b>-4.1</b>	<b>1.7</b>	-	-	-	<b>2.3</b>	2/19	2,585,486	
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	-	-	-	2.3			
<b>Low Volatility</b>											
<b>Gateway Fund</b>	<b>-3.2</b>	<b>0.6</b>	<b>4.6</b>	<b>7.0</b>	-	-	-	<b>5.1</b>	8/18	1,783,316	
<b>PIMCO All Asset Fund</b>	<b>-2.2</b>	<b>0.4</b>	<b>6.5</b>	<b>9.3</b>	-	-	-	<b>9.7</b>	11/18	1,480,006	
HFRX Equity Hedge Index	-0.3	3.7	8.9	6.9	-	-	-	6.7			
<b>Real Estate</b>											
<b>Principal Real Estate Securities Fund</b>	<b>-5.2</b>	<b>10.4</b>	<b>23.7</b>	<b>12.7</b>	<b>11.5</b>	<b>9.1</b>	-	<b>11.3</b>	9/14	1,673,829	
FTSE NAREIT Equity REIT Index	-3.9	12.9	26.5	11.1	9.6	8.0	-	10.0			
FTSE NAREIT All Equity Index	-5.3	10.3	23.6	11.7	10.7	9.0	-	10.7			
<b>Natural Resources</b>											
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>22.2</b>	<b>23.3</b>	<b>44.6</b>	<b>5.8</b>	-	-	-	<b>5.2</b>	8/17	1,387,388	
Alerian MLP Index	18.8	12.6	36.6	2.7	-	-	-	2.2			
Tortoise North American Pipeline Index	20.6	22.3	38.5	9.7	-	-	-	8.7			
<b>Cash</b>											
<b>Schwab Government Money Fund</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.5</b>	<b>0.7</b>	<b>0.5</b>	-	<b>0.4</b>	7/14	582,954	
U.S. 91-Day Treasury Bills	0.1	0.1	0.1	0.7	1.0	0.8	-	0.7			

# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending March 31, 2022

	Qtr	FYTD	Annualized					Since Inception	Date	Market Value
			1Yr	3Yr	5Yr	7Yr	10Yr			
<b><u>Long Term Manager Performance</u></b>										
<b><u>Domestic Equity</u></b>										
<b>iShares S&amp;P 500 Index</b>	<b>-4.6%</b>	<b>6.5%</b>	<b>15.6%</b>	<b>18.9%</b>	<b>16.0%</b>	<b>14.0%</b>	<b>14.6%</b>	<b>10.3%</b>		<i>1/05</i>
S&P 500 Index	-4.6	6.5	15.6	18.9	16.0	14.0	14.6	10.3		
S&P 500 Equal Weighted Index	-3.2	4.5	11.2	14.7	11.7	9.9	11.8	8.8		
<b>iShares Russell Midcap Index</b>	<b>-5.7</b>	<b>-0.7</b>	<b>6.7</b>	<b>14.7</b>	<b>12.5</b>	<b>10.5</b>	<b>12.7</b>	<b>10.2</b>		<i>1/05</i>
Russell Midcap Index	-5.7	-0.5	6.9	14.9	12.6	10.7	12.9	10.3		
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>-5.7</b>	<b>-3.3</b>	<b>1.1</b>	<b>13.6</b>	<b>10.9</b>	<b>10.5</b>	<b>12.5</b>	<b>13.4</b>		<i>9/10</i>
S&P SmallCap 600 Index	-5.6	-3.1	1.2	13.6	10.9	10.6	12.6	13.5		
<b><u>International Equity</u></b>										
<b>EuroPacific Growth Fund</b>	<b>-12.3</b>	<b>-15.3</b>	<b>-9.4</b>	<b>8.2</b>	<b>7.9</b>	<b>6.1</b>	<b>7.2</b>	<b>5.8</b>		<i>8/08</i>
MSCI AC World Index ex-U.S.	-5.4	-6.6	-1.5	7.5	6.8	5.2	5.6	4.0		
<b>Templeton Inst'l Foreign Smaller Co.</b>	<b>-12.7</b>	<b>-14.3</b>	<b>-8.8</b>	<b>4.7</b>	<b>5.1</b>	<b>4.5</b>	<b>6.0</b>	<b>7.1</b>		<i>1/05</i>
MSCI Small Cap EAFE Index	-8.5	-7.6	-3.6	8.5	7.4	7.3	8.3	6.7		
<b>Brown International Small Company</b>	<b>-19.5</b>	<b>-14.1</b>	<b>-7.1</b>	<b>12.1</b>	<b>15.3</b>	<b>-</b>	<b>-</b>	<b>14.8</b>		<i>9/15</i>
MSCI Small Cap EAFE Index	-8.5	-7.6	-3.6	8.5	7.4	-	-	8.4		
MSCI ACWI ex-U.S. Small Cap Index	-6.5	-5.9	0.0	10.2	7.9	-	-	8.9		
<b>Redwheel Global Emerging Equity Fund</b>	<b>-10.9</b>	<b>-20.2</b>	<b>-16.6</b>	<b>7.4</b>	<b>6.7</b>	<b>7.1</b>	<b>-</b>	<b>8.5</b>		<i>7/12</i>
MSCI Emerging Markets Index	-7.0	-15.6	-11.4	4.9	6.0	4.7	-	4.3		
<b>DFA Emerging Markets Fund</b>	<b>-3.8</b>	<b>-10.3</b>	<b>-5.7</b>	<b>6.4</b>	<b>6.4</b>	<b>5.2</b>	<b>3.8</b>	<b>7.1</b>		<i>1/05</i>
MSCI Emerging Markets Index	-7.0	-15.6	-11.4	4.9	6.0	4.7	3.4	6.9		
<b><u>Fixed Income</u></b>										
<b>Dodge &amp; Cox Income Fund</b>	<b>-5.2</b>	<b>-5.5</b>	<b>-3.6</b>	<b>2.8</b>	<b>3.0</b>	<b>2.8</b>	<b>3.2</b>	<b>4.3</b>		<i>1/05</i>
Bloomberg IG Credit Index	-7.3	-7.2	-4.3	2.6	3.0	2.7	3.4	4.2		
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	3.6		
<b>DoubleLine Total Return Bond Fund</b>	<b>-4.8</b>	<b>-4.6</b>	<b>-3.1</b>	<b>1.0</b>	<b>1.9</b>	<b>1.9</b>	<b>2.8</b>	<b>4.4</b>		<i>4/10</i>
Bloomberg U.S. MBS Index	-5.0	-5.2	-4.9	0.6	1.4	1.3	1.7	2.3		
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	2.9		
<b>Vanguard Total Bond Fund</b>	<b>-6.0</b>	<b>-6.0</b>	<b>-4.1</b>	<b>1.7</b>	<b>2.1</b>	<b>1.8</b>	<b>2.2</b>	<b>3.5</b>		<i>1/05</i>
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	3.6		

# City of Grosse Pointe Woods Employees Retirement System

## Summary of Investment Performance

Report for Periods Ending March 31, 2022

	Qtr	FYTD	Annualized						Since Inception	Date	Market Value
			1Yr	3Yr	5Yr	7Yr	10Yr				
<b>Low Volatility</b>											
<b>Gateway Fund</b>	-3.2%	0.6%	4.6%	7.0%	5.7%	5.4%	5.3%	4.6%	1/05		
<b>PIMCO All Asset Fund</b>	-2.2	0.4	6.5	9.3	7.2	6.4	5.5	5.9	1/05		
HFRX Equity Hedge Index	-0.3	3.7	8.9	6.9	4.7	3.0	3.7	1.6			
<b>Real Estate</b>											
<b>Principal Real Estate Securities Fund</b>	-5.2	10.4	23.7	12.7	11.5	9.1	11.0	10.1	1/05		
FTSE NAREIT Equity REIT Index	-3.9	12.9	26.5	11.1	9.6	8.0	9.8	8.9			
FTSE NAREIT All Equity Index	-5.3	10.3	23.6	11.7	10.7	9.0	10.5	9.3			
<b>Natural Resources</b>											
<b>Tortoise MLP &amp; Pipeline Fund</b>	22.2	23.3	44.6	5.8	3.3	1.5	5.4	6.7	5/11		
Alerian MLP Index	18.8	12.6	36.6	2.7	-0.1	-1.9	1.3	2.2			
Tortoise North American Pipeline Index	20.6	22.3	38.5	9.7	7.5	5.5	8.0	-			
<b>Cash</b>											
<b>Schwab Government Money Fund</b>	0.0	0.0	0.0	0.5	0.7	0.5	0.3	1.0	1/05		
U.S. 91-Day Treasury Bills	0.1	0.1	0.1	0.7	1.0	0.8	0.6	1.1			

### Footnotes:

\* Performance returns are net of investment management fees.

\* Calculated returns may differ from the manager's due to differences in security pricing and/or cash flows.

\* Manager and index data represent the most current available at the time of report publication.

\* For managers and indices that report returns on a lag, 0.0% is utilized for the most recent time period until the actual return data are reported.

\* The fiscal year ends in June.

<sup>1</sup> Target Weighted Index is currently comprised of: 30.0% Russell 1000 Index, 5.0% Russell Midcap Index, 7.0% Russell 2000 Index, 10.0% MSCI EAFE Index, 5.0% MSCI Small Cap EAFE Index, 10.0% MSCI Emerging Markets Index, 20.0% Bloomberg U.S. Aggregate Index, 3.0% Alerian MLP Index, 3.0% FTSE NAREIT All Equity Index, and 7.0% HFRF FOF: Conservative Index. Please see Appendix for benchmark history.

<sup>2</sup> Broad Policy Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg U.S. Aggregate Index.

<sup>3</sup> Actuarial Rate is currently comprised of: 100.0% 7.5% Absolute Return. Please see Appendix for benchmark history.

<sup>4</sup> ARWC Global Emerging Equity Fund (LT) uses longer term composite returns for performance evaluation rather than the shorter-term mutual fund returns.

# City of Grosse Pointe Woods Employees Retirement System

## Schedule of Asset and Style Allocation

Asset Class	Current Weight	Target Weight	Target Range
Large Cap Equity	32.0%	30.0%	5.0% - 35.0%
Mid Cap Equity	5.8%	5.0%	0.0% - 15.0%
Small Cap Equity	7.9%	7.0%	5.0% - 30.0%
International Equity	9.2%	10.0%	5.0% - 25.0%
International Small Cap Equity	4.7%	5.0%	0.0% - 15.0%
Emerging Markets	9.3%	10.0%	5.0% - 20.0%
Fixed Income	16.1%	20.0%	5.0% - 30.0%
Public Real Estate	3.6%	3.0%	0.0% - 10.0%
Public Natural Resources	3.0%	3.0%	0.0% - 10.0%
Low Volatility	7.0%	7.0%	0.0% - 20.0%
Cash	1.3%	0.0%	0.0% - 5.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	

# City of Grosse Pointe Woods Employees Retirement System

## Schedule of Asset and Style Allocation

Asset Class - Style	Manager	Portfolio Invested	Portfolio Cash	Market Value	Current Weight
Large Cap Equity - Broad	iShares S&P 500 Index	100.0%	0.0%	\$14,876,041	32.0%
Mid Cap Equity - Broad	iShares Russell Midcap Index	100.0%	0.0%	\$2,701,199	5.8%
Small Cap Equity - Broad	Vanguard S&P Small Cap 600 Index	100.0%	0.0%	\$3,659,000	7.9%
International Equity - Core	EuroPacific Growth Fund	100.0%	0.0%	\$4,267,843	9.2%
International Small Cap Equity - Core	Brown International Small Company	100.0%	0.0%	\$1,098,714	2.4%
International Small Cap Equity - Core	Templeton Inst'l Foreign Smaller Co.	100.0%	0.0%	\$1,106,107	2.4%
Emerging Markets - Core	DFA Emerging Markets Fund	100.0%	0.0%	\$2,955,566	6.4%
Emerging Markets - Growth	Redwheel Global Emerging Equity Fund	100.0%	0.0%	\$1,378,651	3.0%
Fixed Income - Core	Dodge & Cox Income Fund	100.0%	0.0%	\$2,552,728	5.5%
Fixed Income - Core	Vanguard Total Bond Fund	100.0%	0.0%	\$2,585,486	5.6%
Fixed Income - Core Plus	DoubleLine Total Return Bond Fund	100.0%	0.0%	\$2,331,590	5.0%
Public Real Estate - Equity	Principal Real Estate Securities Fund	100.0%	0.0%	\$1,673,829	3.6%
Public Natural Resources - MLP	Tortoise MLP & Pipeline Fund	100.0%	0.0%	\$1,387,388	3.0%
Low Volatility - Liquid	Gateway Fund	100.0%	0.0%	\$1,783,316	3.8%
Low Volatility - Tactical	PIMCO All Asset Fund	100.0%	0.0%	\$1,480,006	3.2%
Cash - Cash	Schwab Government Money Fund	100.0%	0.0%	\$582,954	1.3%
<b>Total</b>				<b>\$46,420,418</b>	<b>100.0%</b>

# City of Grosse Pointe Woods Employees Retirement System

## Investment Metrics

Report for Periods Ending March 31, 2022

Statistical Measures	Sharpe Ratio	Standard Deviation	Tracking Error	Information Ratio
<b>Total Composite</b>	<b>0.6</b>	<b>13.3%</b>	<b>2.4%</b>	<b>-0.2</b>
Target Weighted Index	0.6	12.6	1.9	0.2
Broad Policy Index	0.7	11.7	0.0	--

Asset Growth Summary (in thousands)	Qtr	FYTD
Beginning Market Value	\$ 49,722	\$ 48,381
Net Contributions/(Distributions)	\$ (467)	\$ (948)
<b>Market Appreciation/(Depreciation)</b>	<b>\$ (2,835)</b>	<b>\$ (1,013)</b>
<b>Ending Market Value</b>	<b>\$ 46,420</b>	<b>\$ 46,420</b>

\* Risk Statistics are based on monthly data.

\* Target Weighted Index is currently comprised of: 30.0% Russell 1000 Index, 5.0% Russell Midcap Index, 7.0% Russell 2000 Index, 10.0% MSCI EAFE Index, 5.0% MSCI Small Cap EAFE Index, 10.0% MSCI Emerging Markets Index, 20.0% Bloomberg U.S. Aggregate Index, 3.0% Alerian MLP Index, 3.0% FTSE NAREIT All Equity Index, and 7.0% HFRI FOF: Conservative Index. Please see Appendix for benchmark history.

\* Broad Policy Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg U.S. Aggregate Index.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

Summary of Performance and Statistics  
Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>iShares S&amp;P 500 Index</b>	<b>-4.6%</b>	<b>6.5%</b>	<b>15.6%</b>	<b>18.9%</b>	<b>16.0%</b>	<b>14.0%</b>	<b>14.6%</b>	<b>10.3%</b>	<b>1/05</b>
S&P 500 Index	-4.6	6.5	15.6	18.9	16.0	14.0	14.6	10.3	
S&P 500 Equal Weighted Index	-3.2	4.5	11.2	14.7	11.7	9.9	11.8	8.8	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>iShares S&amp;P 500 Index</b>	<b>1.00</b>	<b>0.0%</b>	<b>1.00</b>	<b>18.4%</b>	<b>0.0%</b>	<b>-1.7</b>
S&P 500 Index	1.00	0.0	1.00	18.4	0.0	--
S&P 500 Equal Weighted Index	1.09	-5.6	0.93	20.1	5.2	0.8

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>iShares S&amp;P 500 Index</b>	<b>23.3</b>	<b>4.5</b>	<b>675,251.7 M</b>	<b>1.4%</b>	<b>--%</b>
S&P 500 Index	23.3	4.5	675,251.7	1.4	--
S&P 500 Equal Weighted Index	--	--	--	--	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = 0.0%	No
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes



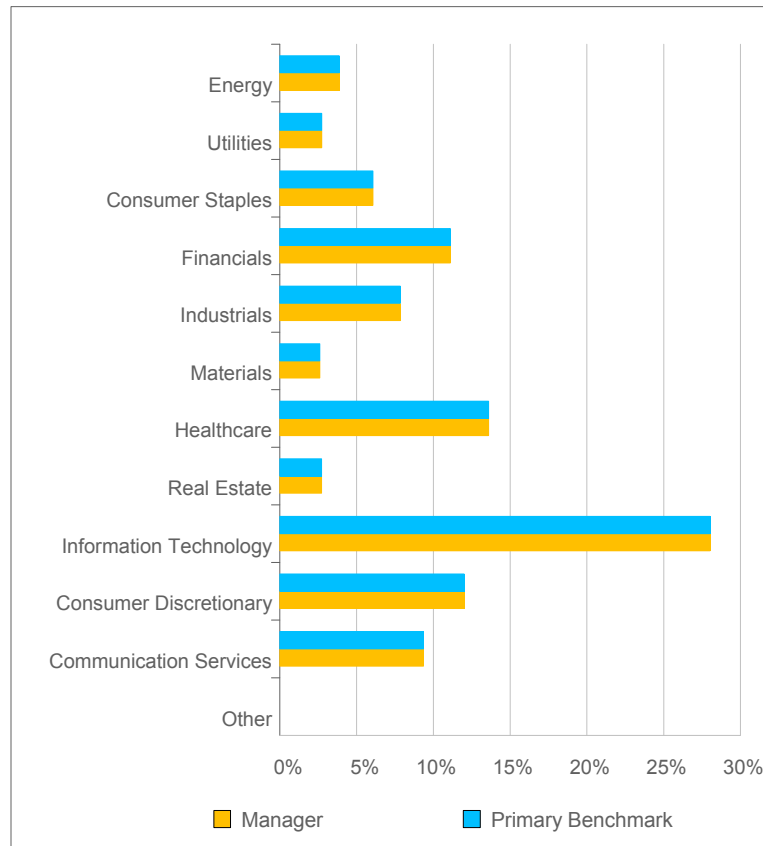
# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Equity Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	4%	4%	39.0%	64.3%
Utilities	3	3	4.8	19.9
Consumer Staples	6	6	-1.0	16.1
Financials	11	11	-1.5	14.7
Industrials	8	8	-2.4	6.1
Materials	3	3	-2.4	13.9
Healthcare	14	14	-2.6	19.1
Real Estate	3	3	-6.2	-6.2
Information Technology	28	28	-8.4	20.9
Consumer Discretionary	12	12	-9.0	9.8
Communication Services	9	9	-11.9	-0.9
Other	0	0	-	-

#### Top Five Holdings

	Weighting
APPLE INC	7.1%
MICROSOFT CORP	6.0
AMAZON COM INC	3.7
TESLA INC	2.3
ALPHABET INC CLASS A	2.2

Number of Holdings: 505

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

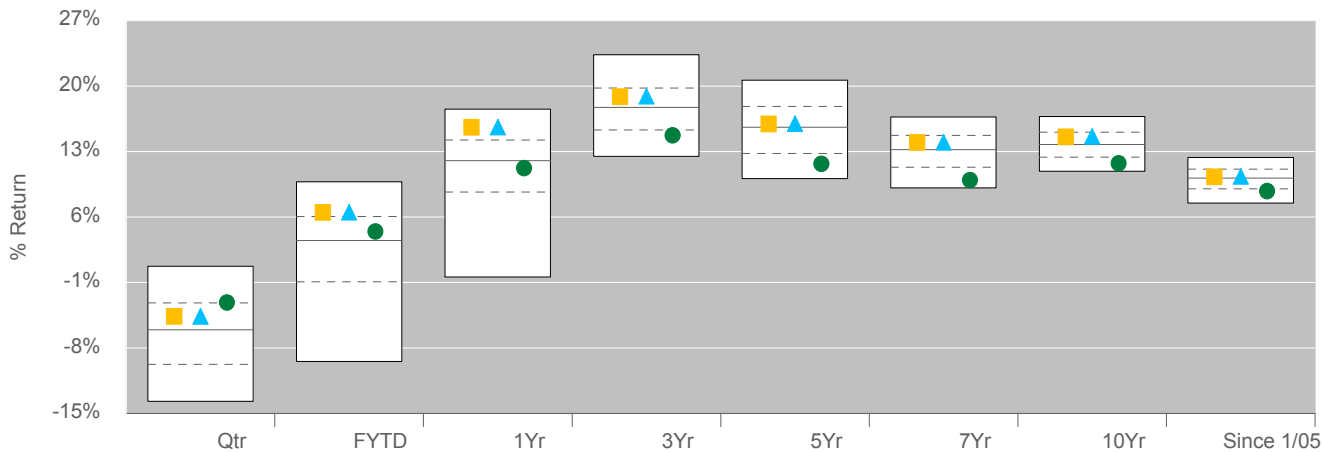
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

## iShares S&P 500 Index

### Broad Large Cap Universe

For Report Periods Ending March 31, 2022

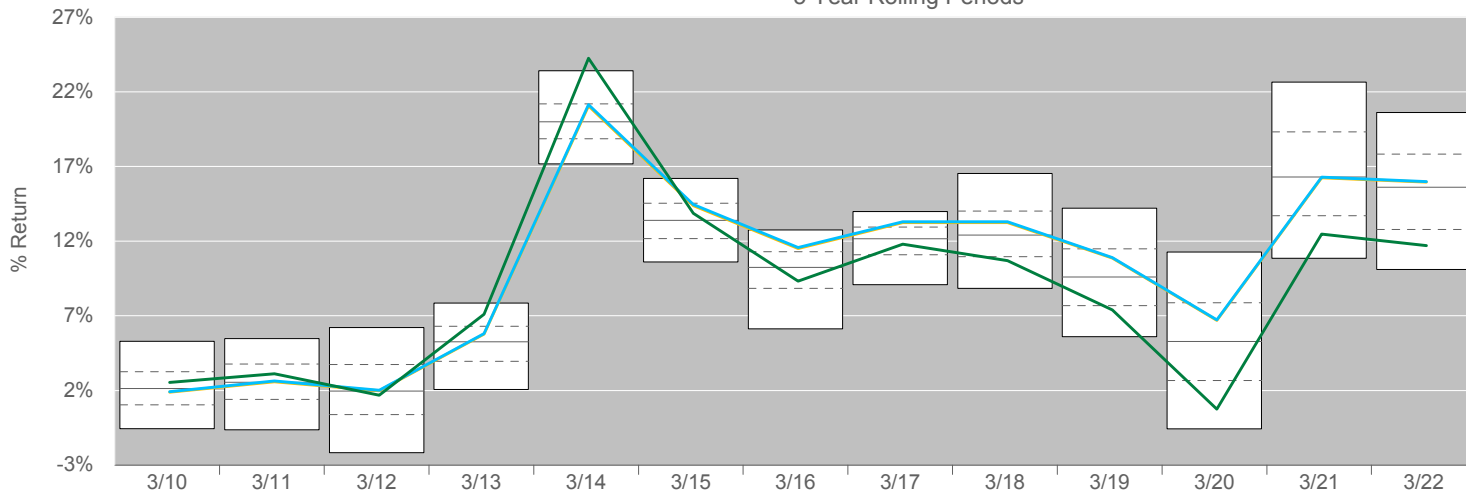


	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	0.7%	9.8%	17.5%	23.4%	20.6%	16.7%	16.8%	12.4%
25th	-3.2	6.1	14.2	19.8	17.8	14.7	15.1	11.1
50th	-6.1	3.5	12.0	17.7	15.6	13.2	13.8	10.2
75th	-9.8	-0.9	8.7	15.3	12.8	11.3	12.4	9.0
95th	-13.7	-9.5	-0.4	12.5	10.1	9.1	10.9	7.5

■	-4.6%	6.5%	15.6%	18.9%	16.0%	14.0%	14.6%	10.3%
▲	-4.6	6.5	15.6	18.9	16.0	14.0	14.6	10.3
●	-3.2	4.5	11.2	14.7	11.7	9.9	11.8	8.8

Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index Summary of Performance and Statistics Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
iShares Russell Midcap Index	-5.7%	-0.7%	6.7%	14.7%	12.5%	10.5%	12.7%	10.2%	1/05
Russell Midcap Index	-5.7	-0.5	6.9	14.9	12.6	10.7	12.9	10.3	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
iShares Russell Midcap Index	1.00	-0.2%	1.00	20.8%	0.1%	-2.7
Russell Midcap Index	1.00	0.0	1.00	20.8	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
iShares Russell Midcap Index	18.4	3.4	23,992.0M	1.4%	--%
Russell Midcap Index	18.4	3.4	23,992.0	1.4	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

### Summary of Performance Relative to Investment Policy Statement Objectives

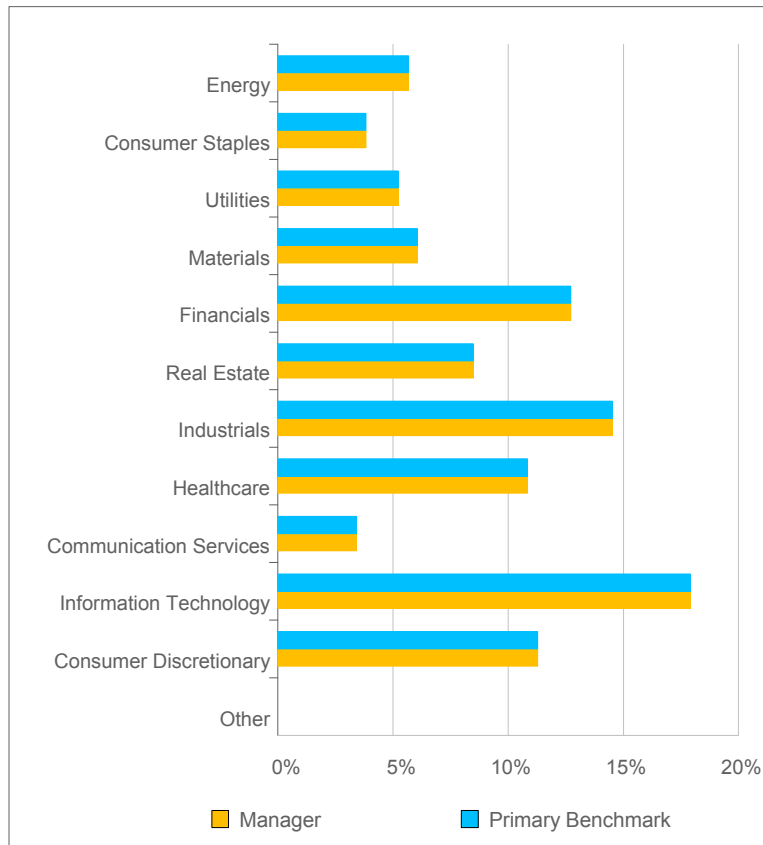
Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.2%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = -0.2%	No
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes

# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index Equity Sector Report For Periods Ending March 31, 2022

### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	6%	6%	40.5%	71.3%
Consumer Staples	4	4	5.5	10.6
Utilities	5	5	3.6	16.3
Materials	6	6	3.5	20.0
Financials	13	13	-3.5	13.2
Real Estate	8	8	-4.6	22.9
Industrials	15	15	-9.9	0.9
Healthcare	11	11	-9.9	2.6
Communication Services	3	3	-10.1	-24.5
Information Technology	18	18	-11.1	5.3
Consumer Discretionary	11	11	-14.5	-9.3
Other	0	0	-	-

### Top Five Holdings

	Weighting
Marvell Technology Group	0.6%
Palo Alto Networks	0.6
Pioneer Natural Resources	0.5
Marathon Petroleum Corporation	0.5
Synopsys Inc.	0.5

Number of Holdings: 824

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

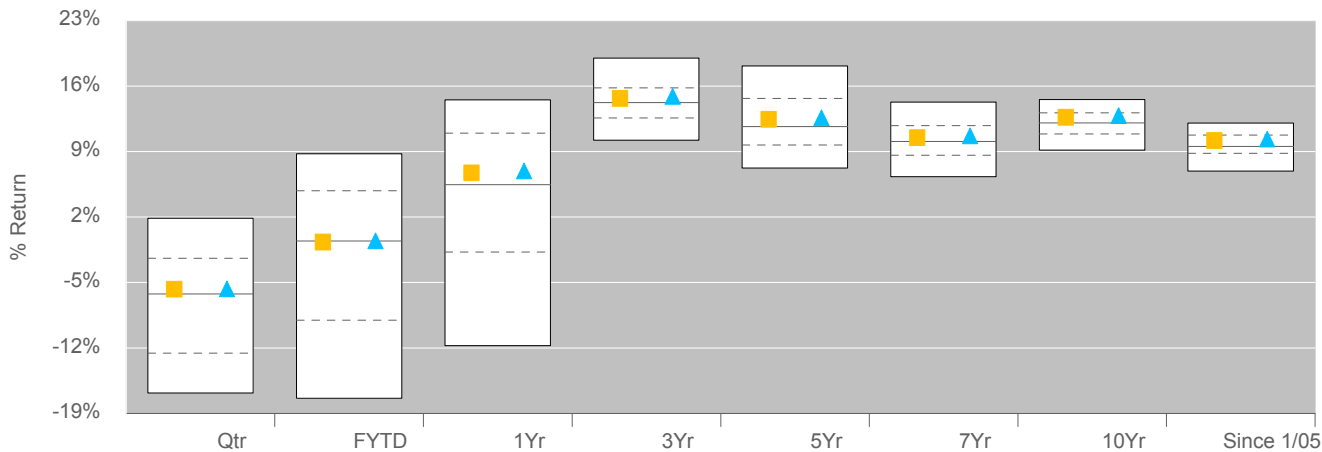
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

## iShares Russell Midcap Index

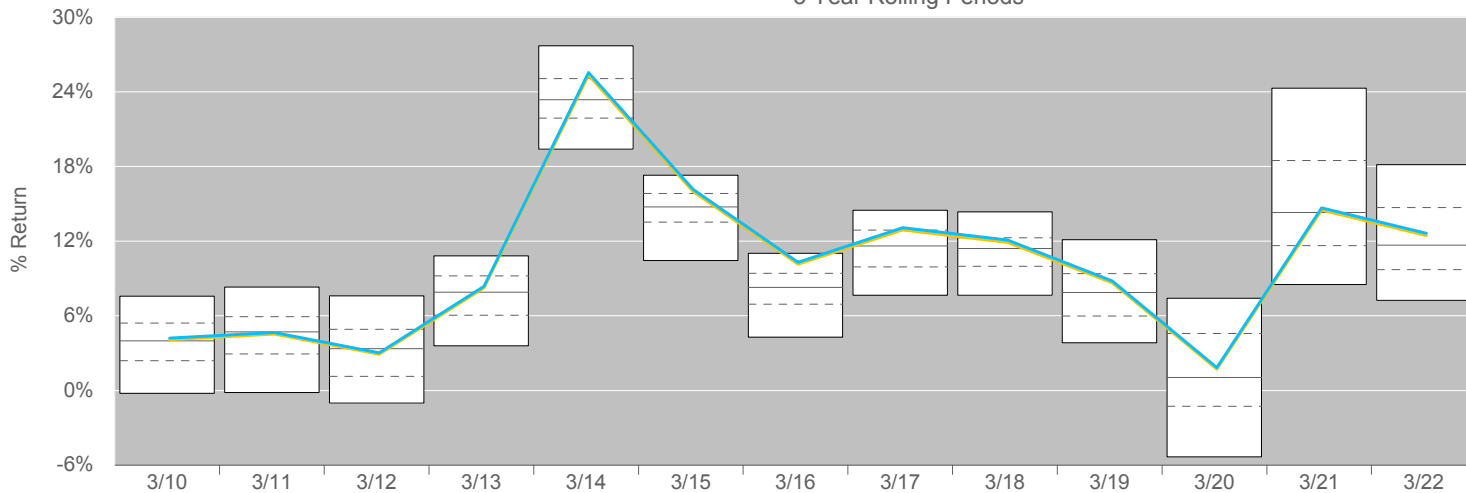
### Broad Mid Cap Universe

For Report Periods Ending March 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	1.9%	8.8%	14.5%	19.0%	18.2%	14.3%	14.6%	12.0%
25th	-2.4	4.8	11.0	15.8	14.7	11.8	13.2	10.7
50th	-6.2	-0.6	5.5	14.3	11.7	10.1	12.1	9.6
75th	-12.6	-9.0	-1.7	12.6	9.7	8.6	10.9	8.8
95th	-16.8	-17.4	-11.8	10.2	7.2	6.3	9.1	6.9
<b>■</b>	-5.7%	-0.7%	6.7%	14.7%	12.5%	10.5%	12.7%	10.2%
<b>▲</b>	-5.7	-0.5	6.9	14.9	12.6	10.7	12.9	10.3

Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>-5.7%</b>	<b>-3.3%</b>	<b>1.1%</b>	<b>13.6%</b>	<b>10.9%</b>	<b>10.5%</b>	<b>12.5%</b>	<b>13.4%</b>	<i>9/10</i>
S&P SmallCap 600 Index	-5.6	-3.1	1.2	13.6	10.9	10.6	12.6	13.5	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>1.00</b>	<b>0.0%</b>	<b>1.00</b>	<b>24.2%</b>	<b>0.1%</b>	<b>-0.6</b>
S&P SmallCap 600 Index	1.00	0.0	1.00	24.2	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>Vanguard S&amp;P Small Cap 600 Index</b>	<b>17.5</b>	<b>2.0</b>	<b>2,748.8M</b>	<b>1.5%</b>	<b>--%</b>
S&P SmallCap 600 Index	17.5	2.0	2,748.8	1.5	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = 0.0%	No
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes



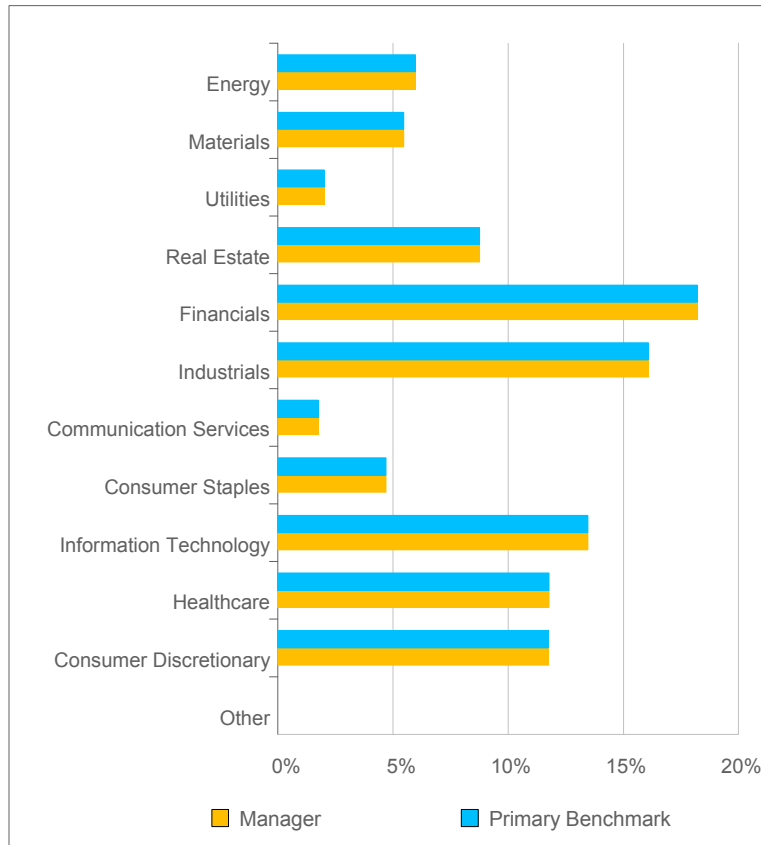
# City of Grosse Pointe Woods Employees Retirement System

## Vanguard S&P Small Cap 600 Index

### Equity Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	6%	6%	43.5%	60.6%
Materials	5	5	0.9	8.7
Utilities	2	2	-0.9	15.8
Real Estate	9	9	-3.5	-3.5
Financials	18	18	-5.2	1.6
Industrials	16	16	-6.8	0.0
Communication Services	2	2	-8.3	-0.6
Consumer Staples	5	5	-8.6	1.8
Information Technology	13	13	-9.9	2.5
Healthcare	12	12	-10.3	-12.4
Consumer Discretionary	12	12	-16.3	-16.4
Other	0	0	-	-

#### Top Five Holdings

	Weighting
SOUTHWESTERN ENERGY	0.8%
MATADOR RESOURCES	0.6
INDEPENDENCE REALTY INC TRUST	0.6
OMNICELL INC	0.6
EXPONENT INC	0.6

Number of Holdings: 601

\* Sector weightings may not add up to 100% due to rounding.

\* Manager data represents the most current available at the time of report publication.

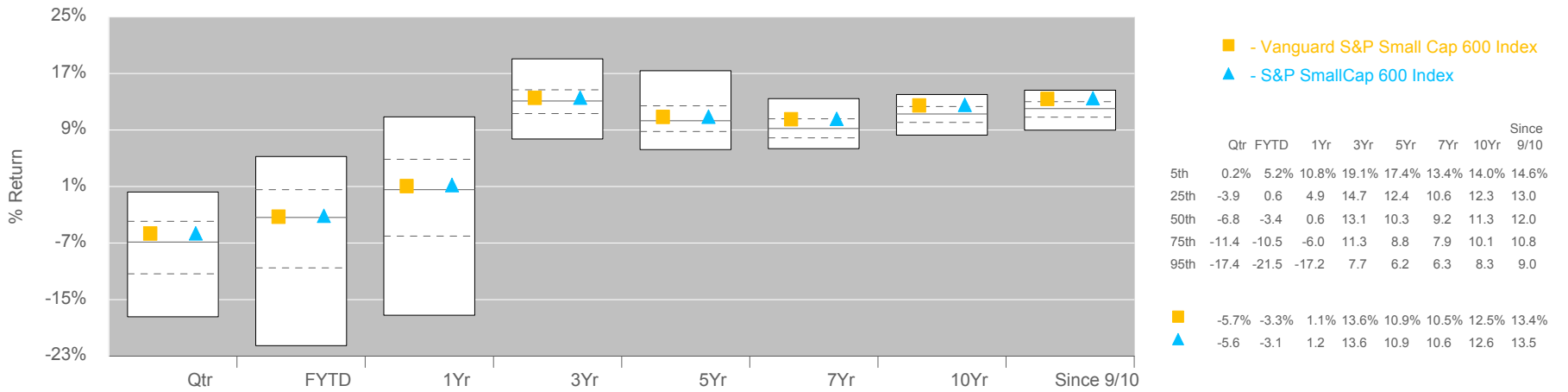
\* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

# City of Grosse Pointe Woods Employees Retirement System

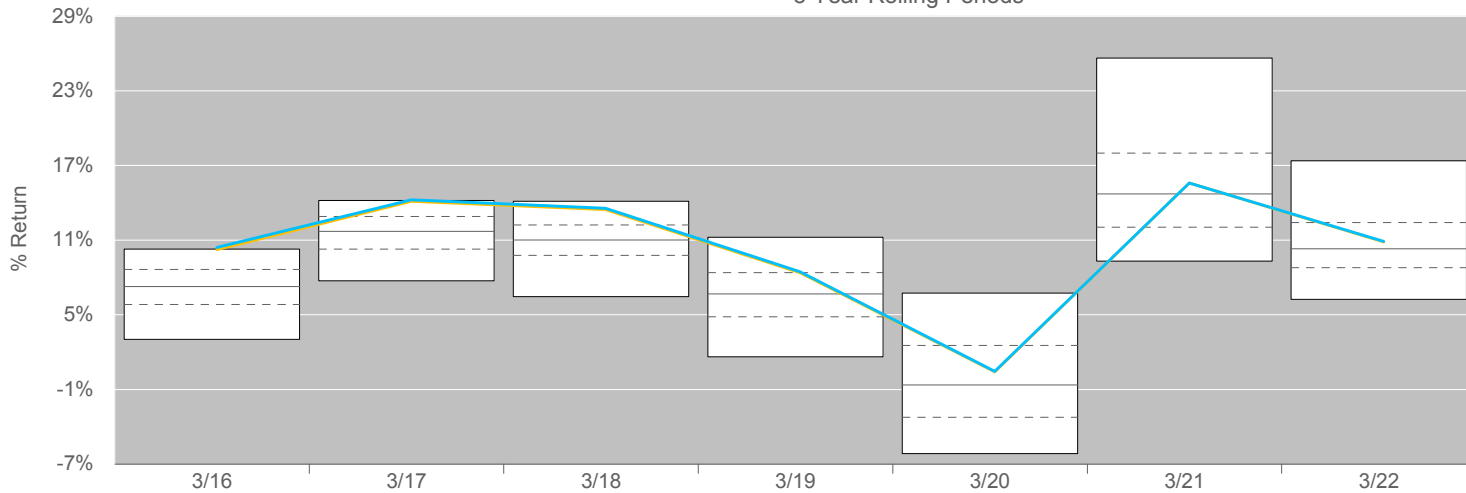
## Vanguard S&P Small Cap 600 Index

### Broad Small Cap Universe

For Report Periods Ending March 31, 2022



Report From March 31, 2011 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

Summary of Performance and Statistics  
Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>EuroPacific Growth Fund</b>	<b>-12.3%</b>	<b>-15.3%</b>	<b>-9.4%</b>	<b>8.2%</b>	<b>7.9%</b>	<b>6.1%</b>	<b>7.2%</b>	<b>5.8%</b>	<b>8/08</b>
MSCI AC World Index ex-U.S.	-5.4	-6.6	-1.5	7.5	6.8	5.2	5.6	4.0	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>EuroPacific Growth Fund</b>	<b>1.05</b>	<b>0.8%</b>	<b>0.94</b>	<b>17.7%</b>	<b>4.1%</b>	<b>0.3</b>
MSCI AC World Index ex-U.S.	1.00	0.0	1.00	16.1	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>EuroPacific Growth Fund</b>	<b>20.0</b>	<b>2.9</b>	<b>105,990.0M</b>	<b>1.6%</b>	<b>29.0%</b>
MSCI AC World Index ex-U.S.	15.1	1.8	72,983.4	2.8	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 1.1%	Yes
Beta < 1.20	Beta = 1.05	Yes
Alpha > 0.0%	Alpha = 0.8%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

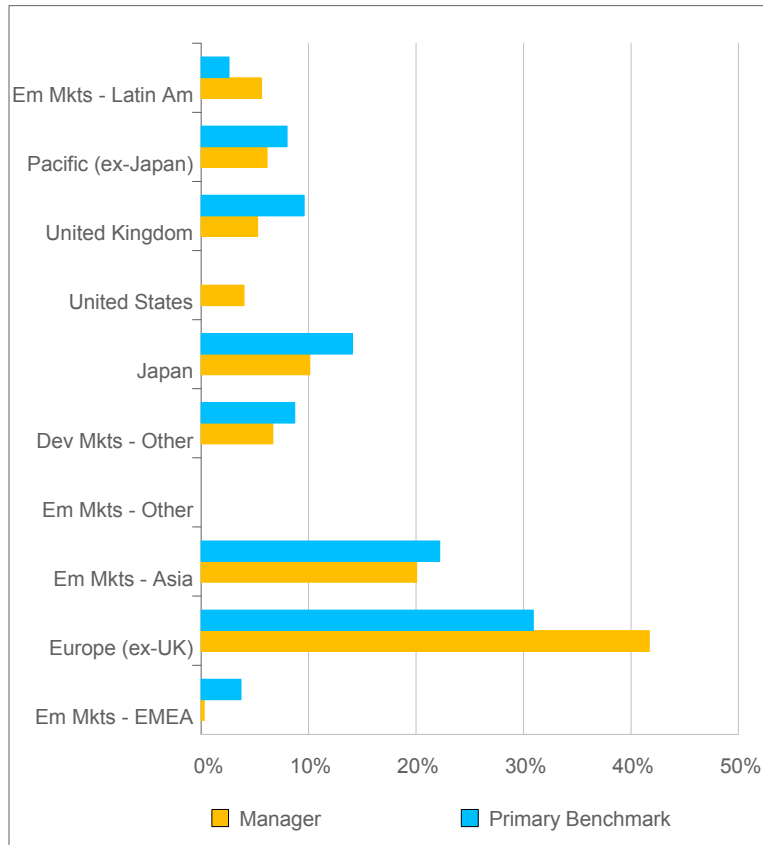
# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

### International Sector

Report For Periods Ending March 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	6%	3%	27.3%	23.5%
Pacific (ex-Japan)	6	8	3.8	3.8
United Kingdom	5	10	1.8	13.6
United States	4	0	-5.3	13.6
Japan	10	14	-6.6	-6.5
Dev Mkts - Other	7	9	-6.9	7.6
Em Mkts - Other	0	0	-7.9	9.4
Em Mkts - Asia	20	22	-8.9	-16.5
Europe (ex-UK)	42	31	-10.0	0.6
Em Mkts - EMEA	0	4	-13.7	-5.7

Top Five Countries	Weighting
France	10.3%
Japan	10.1
Netherlands	9.1
India	7.7
Canada	6.1

Number of Holdings: 371

\* Sector weightings may not add up to 100% due to rounding.

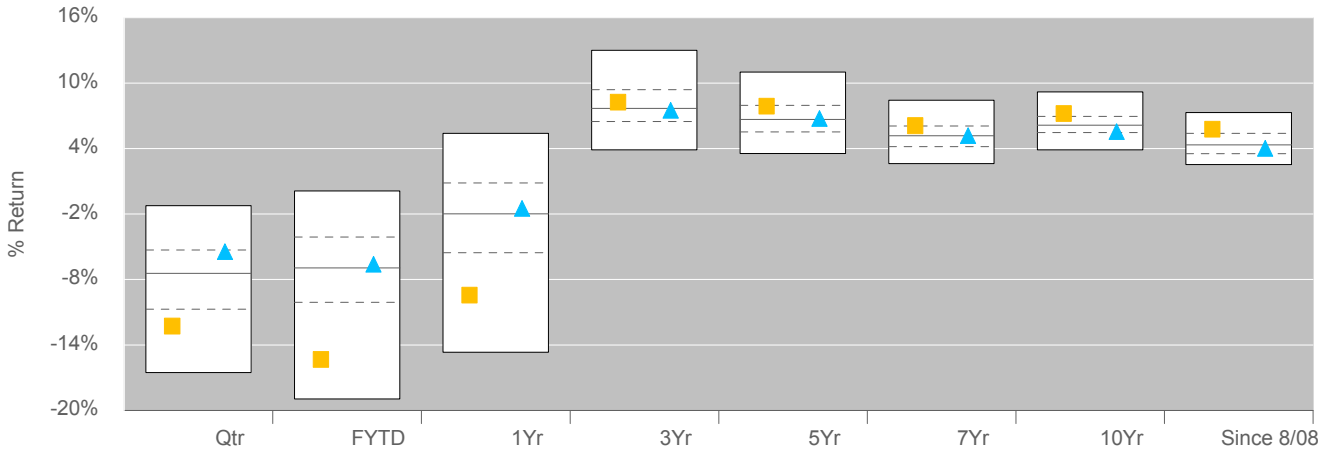
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## EuroPacific Growth Fund

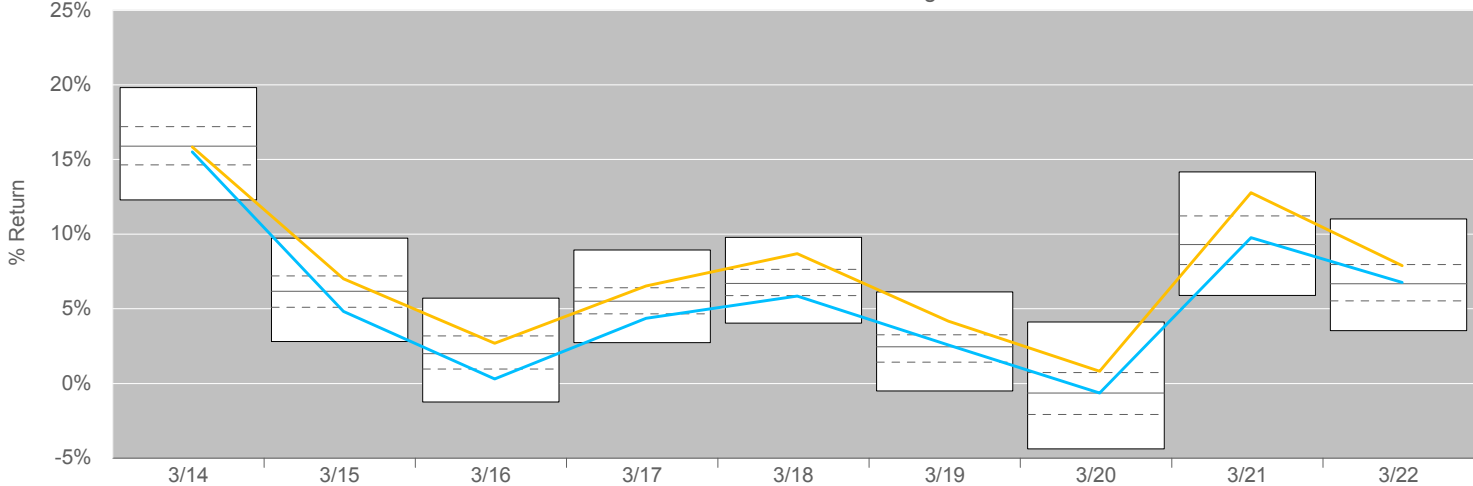
### International Equity Universe

For Report Periods Ending March 31, 2022



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 8/08
5th	-1.2%	0.1%	5.4%	13.0%	11.0%	8.4%	9.2%	7.3%
25th	-5.3	-4.1	0.9	9.4	8.0	6.1	7.0	5.4
50th	-7.4	-6.9	-2.0	7.7	6.7	5.2	6.1	4.3
75th	-10.7	-10.1	-5.6	6.5	5.5	4.2	5.5	3.5
95th	-16.5	-19.0	-14.7	3.9	3.5	2.6	3.9	2.5
■ - EuroPacific Growth Fund	-12.3%	-15.3%	-9.4%	8.2%	7.9%	6.1%	7.2%	5.8%
▲ - MSCI AC World Index ex-U.S.	-5.4	-6.6	-1.5	7.5	6.8	5.2	5.6	4.0

Report From March 31, 2009 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Templeton Inst'l Foreign Smaller Co.	-12.7%	-14.3%	-8.8%	4.7%	5.1%	4.5%	6.0%	7.1%	1/05
MSCI Small Cap EAFE Index	-8.5	-7.6	-3.6	8.5	7.4	7.3	8.3	6.7	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
Templeton Inst'l Foreign Smaller Co.	1.02	-2.4%	0.93	19.4%	4.7%	-0.5
MSCI Small Cap EAFE Index	1.00	0.0	1.00	18.7	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Templeton Inst'l Foreign Smaller Co.	14.7	1.8	2,114.5M	2.8%	31.1%
MSCI Small Cap EAFE Index	17.1	1.4	2,327.2	2.5	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = -2.3%	No
Beta < 1.20	Beta = 1.02	Yes
Alpha > 0.0%	Alpha = -2.4%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No



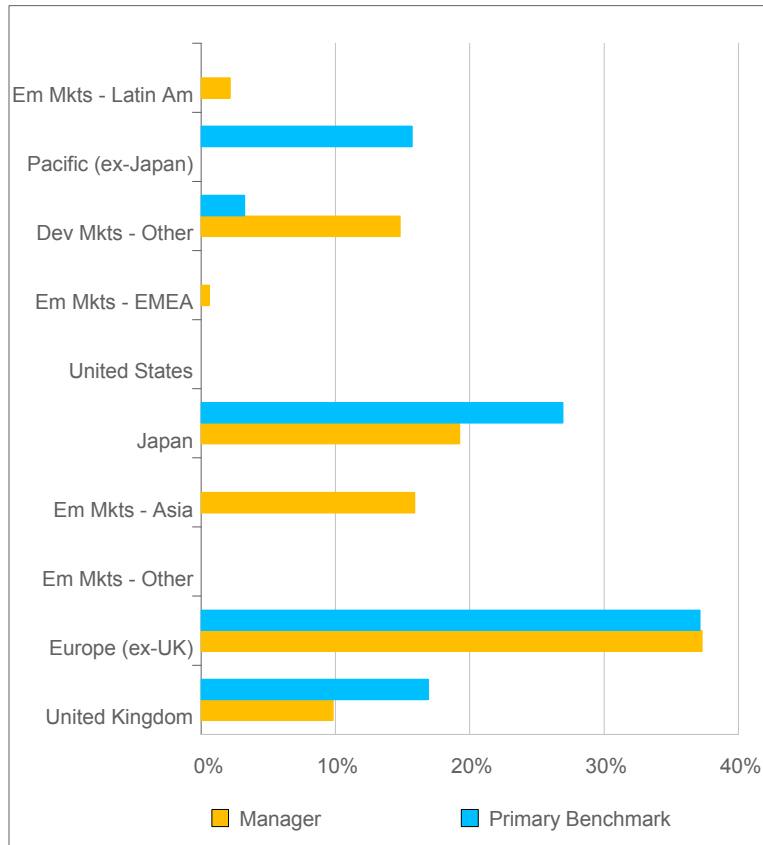
# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

### International Sector

Report For Periods Ending March 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	2%	0%	21.3%	13.7%
Pacific (ex-Japan)	0	16	-0.2	6.9
Dev Mkts - Other	15	3	-0.6	32.9
Em Mkts - EMEA	1	0	-5.6	-0.5
United States	0	0	-6.0	-0.7
Japan	19	27	-7.0	-11.9
Em Mkts - Asia	16	0	-7.5	4.8
Em Mkts - Other	0	0	-7.9	9.4
Europe (ex-UK)	37	37	-10.4	-0.4
United Kingdom	10	17	-14.3	-9.0

#### Top Five Countries

	Weighting
Japan	19.3%
United Kingdom	9.8
Taiwan	9.8
Italy	6.9
Germany	5.9

Number of Holdings: 110

\* Sector weightings may not add up to 100% due to rounding.

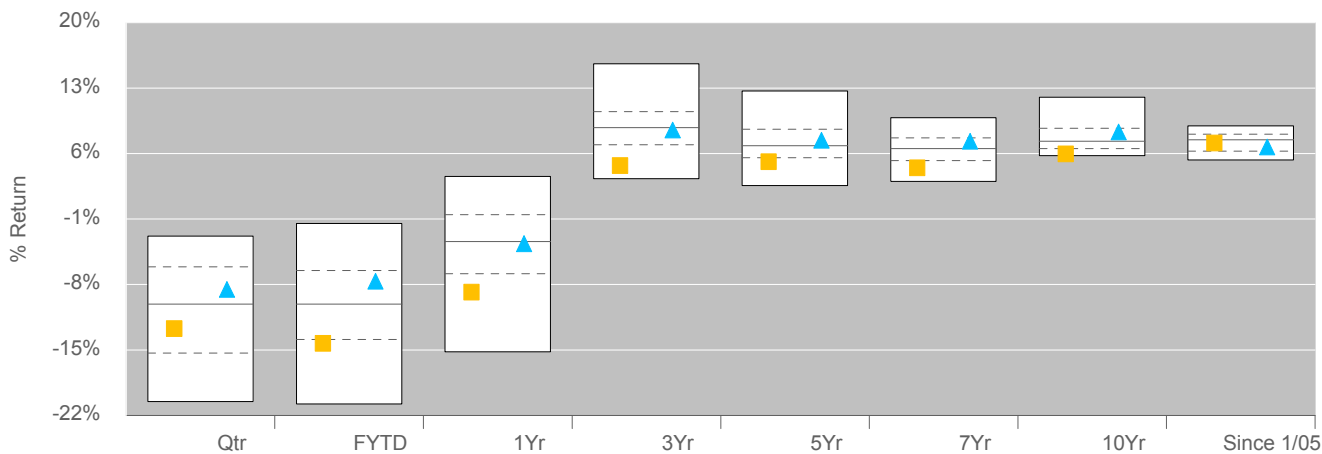
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Templeton Inst'l Foreign Smaller Co.

International Small Cap Universe

For Report Periods Ending March 31, 2022

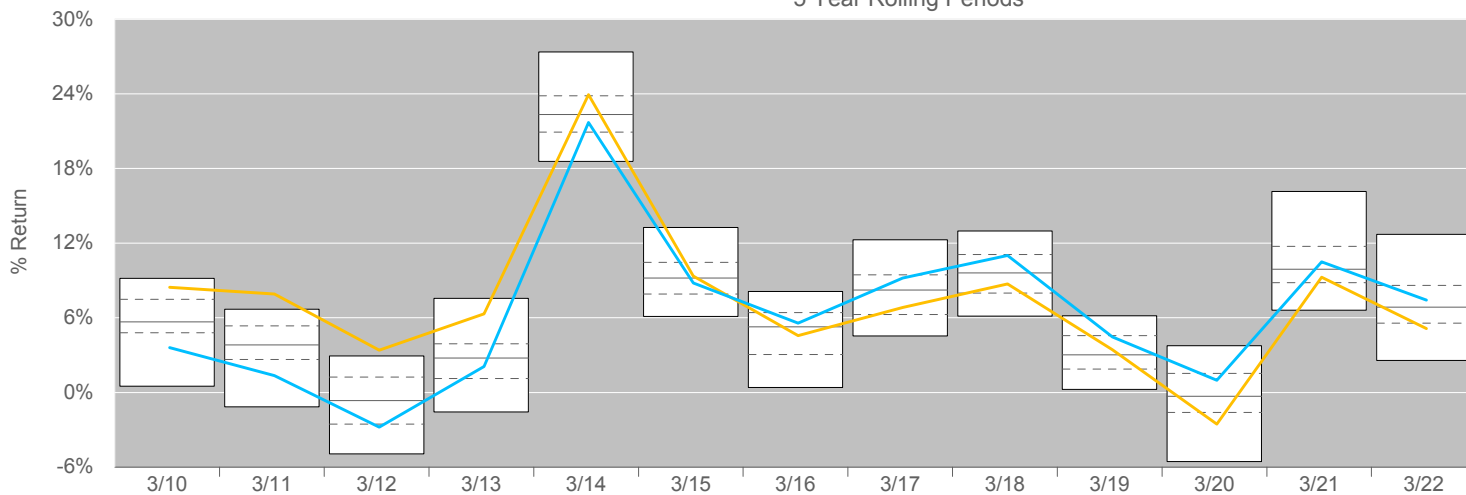


■ - Templeton Inst'l Foreign Smaller Co.  
▲ - MSCI Small Cap EAFE Index

	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	-2.8%	-1.5%	3.6%	15.6%	12.7%	9.8%	12.0%	9.0%
25th	-6.1	-6.5	-0.5	10.5	8.6	7.7	8.7	8.1
50th	-10.1	-10.1	-3.4	8.8	6.8	6.5	7.3	7.5
75th	-15.3	-13.9	-6.8	7.0	5.6	5.3	6.5	6.3
95th	-20.5	-20.8	-15.2	3.3	2.6	3.0	5.8	5.3

■	-12.7%	-14.3%	-8.8%	4.7%	5.1%	4.5%	6.0%	7.1%
▲	-8.5	-7.6	-3.6	8.5	7.4	7.3	8.3	6.7

Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	Since Inception	Inception Date
<b>Brown International Small Company</b>	<b>-19.5%</b>	<b>-14.1%</b>	<b>-7.1%</b>	<b>12.1%</b>	<b>15.3%</b>	<b>14.8%</b>	9/15
MSCI Small Cap EAFE Index	-8.5	-7.6	-3.6	8.5	7.4	8.4	
MSCI ACWI ex-U.S. Small Cap Index	-6.5	-5.9	0.0	10.2	7.9	8.9	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Brown International Small Company</b>	<b>0.95</b>	<b>8.3%</b>	<b>0.74</b>	<b>22.1%</b>	<b>10.0%</b>	<b>0.8</b>
MSCI Small Cap EAFE Index	1.00	0.0	1.00	18.7	0.0	--
MSCI ACWI ex-U.S. Small Cap Index	1.00	0.4	0.98	19.1	10.5	0.7

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>Brown International Small Company</b>	<b>54.4</b>	<b>15.9</b>	<b>5,073.3M</b>	<b>0.9%</b>	<b>8.8%</b>
MSCI Small Cap EAFE Index	17.1	1.4	2,327.2	2.5	--
MSCI ACWI ex-U.S. Small Cap Index	16.9	1.5	2,024.7	2.5	--

### Asset Growth Summary (in thousands)

Beginning Market Value	\$	0
Net Contributions/(Distributions)	\$	0
<b>Market Appreciation/(Depreciation)</b>	<b>\$</b>	<b>0</b>
<b>Ending Market Value</b>	<b>\$</b>	<b>0</b>

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 7.9%	Yes
Beta < 1.20	Beta = 0.95	Yes
Alpha > 0.0%	Alpha = 8.3%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 5th Percentile	Yes

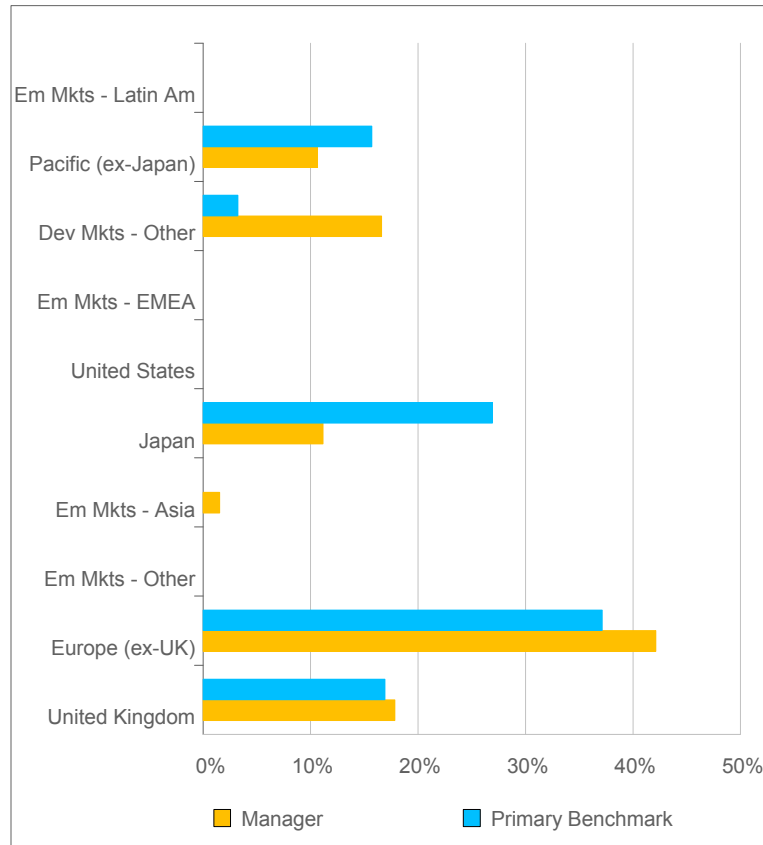
# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

### International Sector

Report For Periods Ending March 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	0%	0%	21.3%	13.7%
Pacific (ex-Japan)	11	16	-0.2	6.9
Dev Mkts - Other	17	3	-0.6	32.9
Em Mkts - EMEA	0	0	-5.6	-0.5
United States	0	0	-6.0	-0.7
Japan	11	27	-7.0	-11.9
Em Mkts - Asia	2	0	-7.5	4.8
Em Mkts - Other	0	0	-7.9	9.4
Europe (ex-UK)	42	37	-10.4	-0.4
United Kingdom	18	17	-14.3	-9.0

#### Top Five Countries

	Weighting
United Kingdom	17.9%
France	15.6
Germany	11.9
Japan	11.2
Canada	9.9

Number of Holdings: 42

\* Sector weightings may not add up to 100% due to rounding.

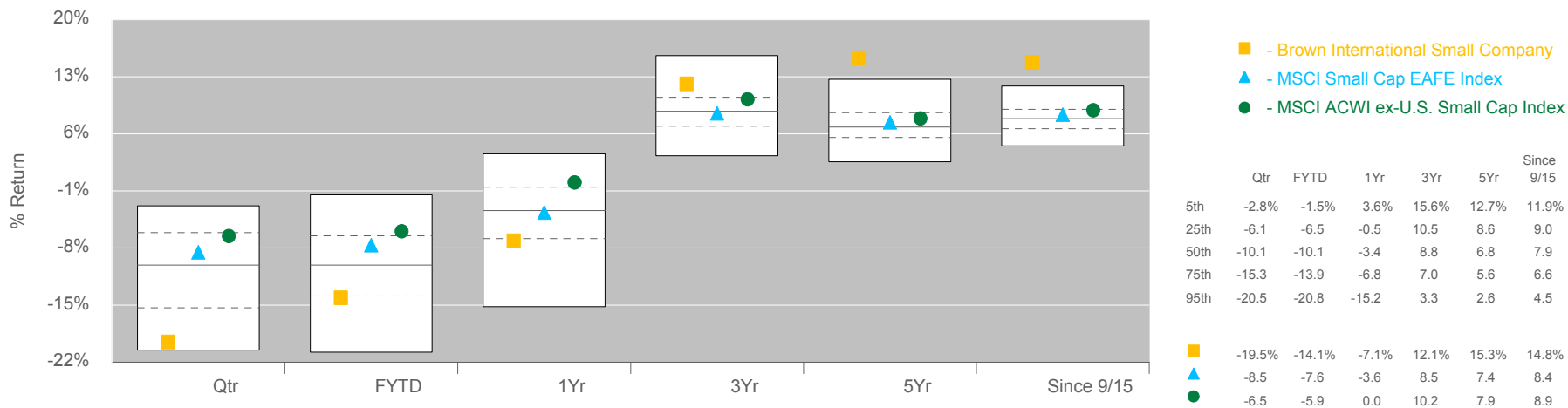
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Brown International Small Company

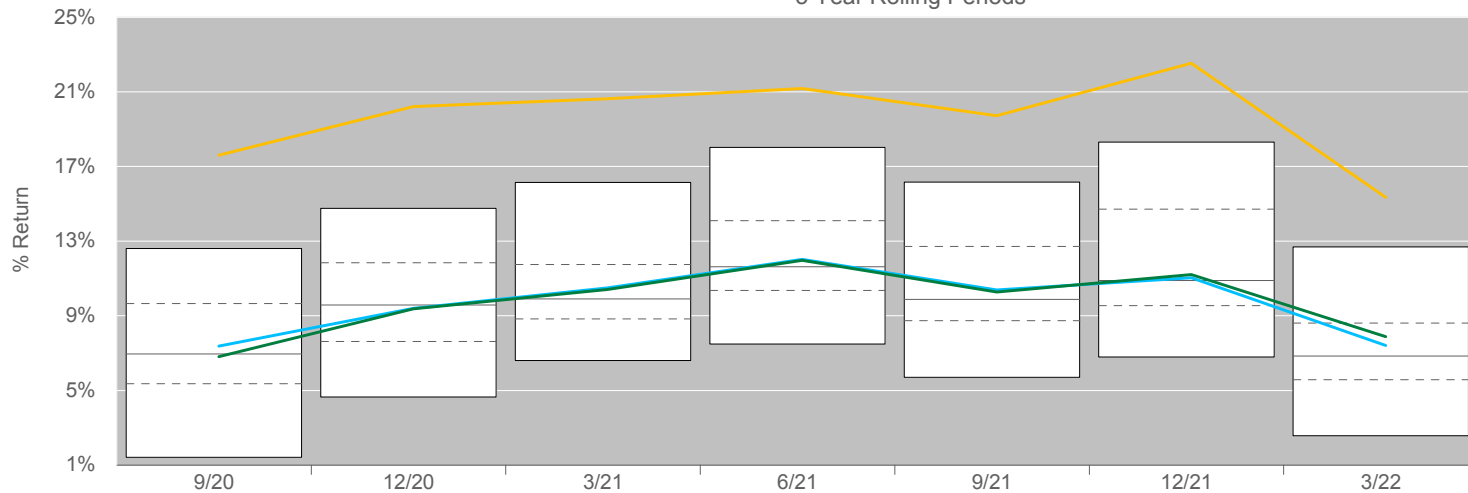
### International Small Cap Universe

For Report Periods Ending March 31, 2022



Report From September 30, 2015 to March 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

Summary of Performance and Statistics  
Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
Redwheel Global Emerging Equity Fund	-10.9%	-20.2%	-16.6%	7.4%	6.7%	7.1%	8.5%	7/12
MSCI Emerging Markets Index	-7.0	-15.6	-11.4	4.9	6.0	4.7	4.3	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
Redwheel Global Emerging Equity Fund	1.21	-0.3%	0.90	23.3%	7.8%	0.1
MSCI Emerging Markets Index	1.00	0.0	1.00	17.8	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Redwheel Global Emerging Equity Fund	13.7	1.7	101,744.0M	2.3%	102.1%
MSCI Emerging Markets Index	14.0	1.8	79,618.6	2.5	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

<b>Performance Objectives</b>	<b>Result</b>	<b>Objective Achieved</b>
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.7%	Yes
Beta < 1.20	Beta = 1.21	No
Alpha > 0.0%	Alpha = -0.3%	No
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes



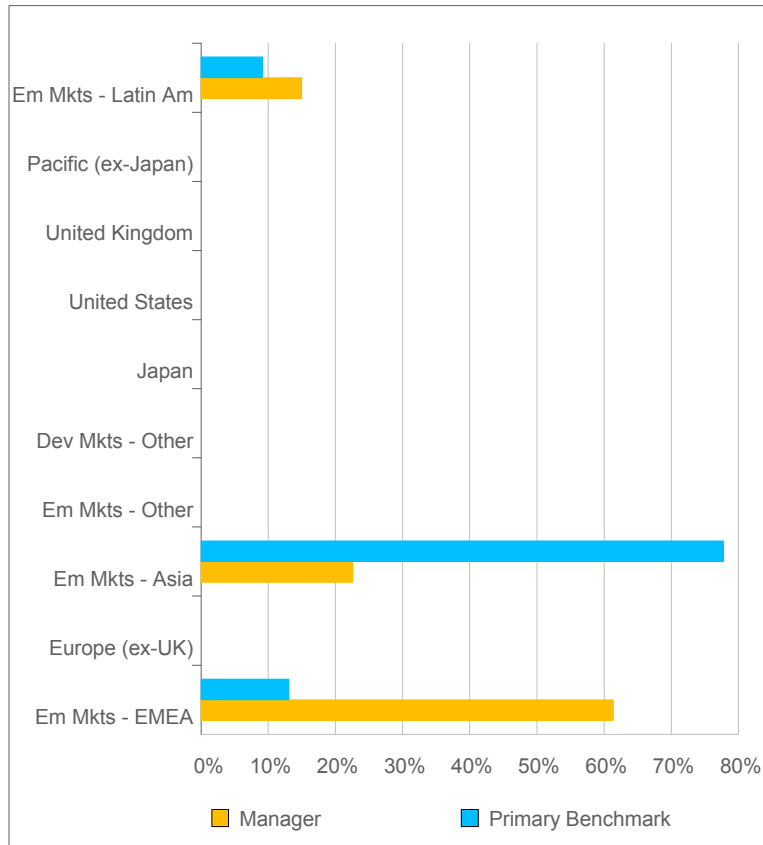
# City of Grosse Pointe Woods Employees Retirement System

## Redwheel Global Emerging Equity Fund

### Emerging Markets Sector

Report For Periods Ending March 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	15%	9%	27.3%	23.5%
Pacific (ex-Japan)	0	0	3.8	3.8
United Kingdom	0	0	1.8	13.6
United States	0	0	-5.3	13.6
Japan	0	0	-6.6	-6.5
Dev Mkts - Other	0	0	-6.9	7.6
Em Mkts - Other	0	0	-7.9	9.4
Em Mkts - Asia	23	78	-8.9	-16.5
Europe (ex-UK)	0	0	-10.0	0.6
Em Mkts - EMEA	61	13	-13.7	-5.7

#### Top Five Countries

	Weighting
China	27.7%
India	11.8
Korea, South	9.2
Taiwan	7.6
Saudi Arabia	6.3

Number of Holdings: 56

\* Sector weightings may not add up to 100% due to rounding.

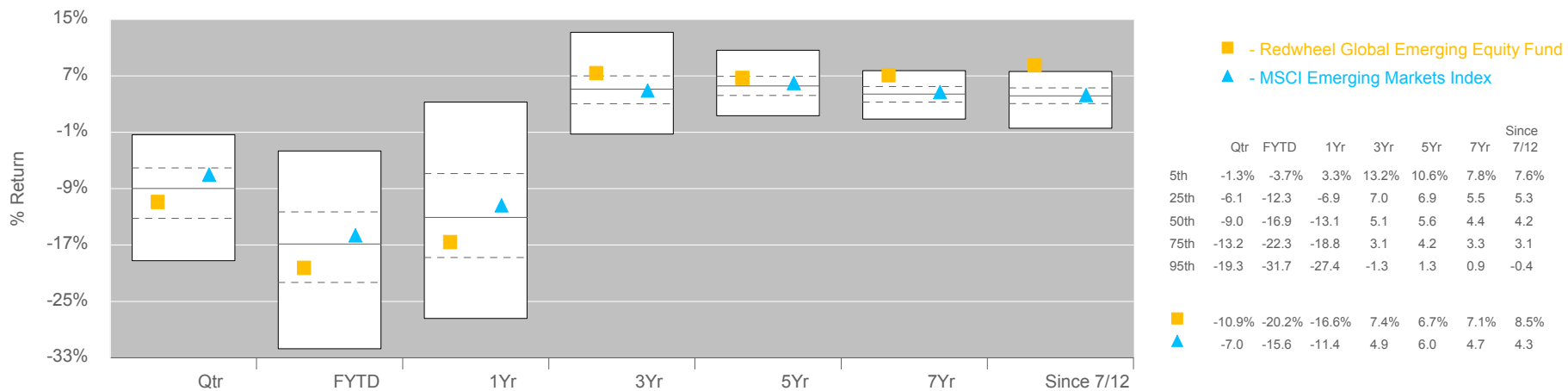
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

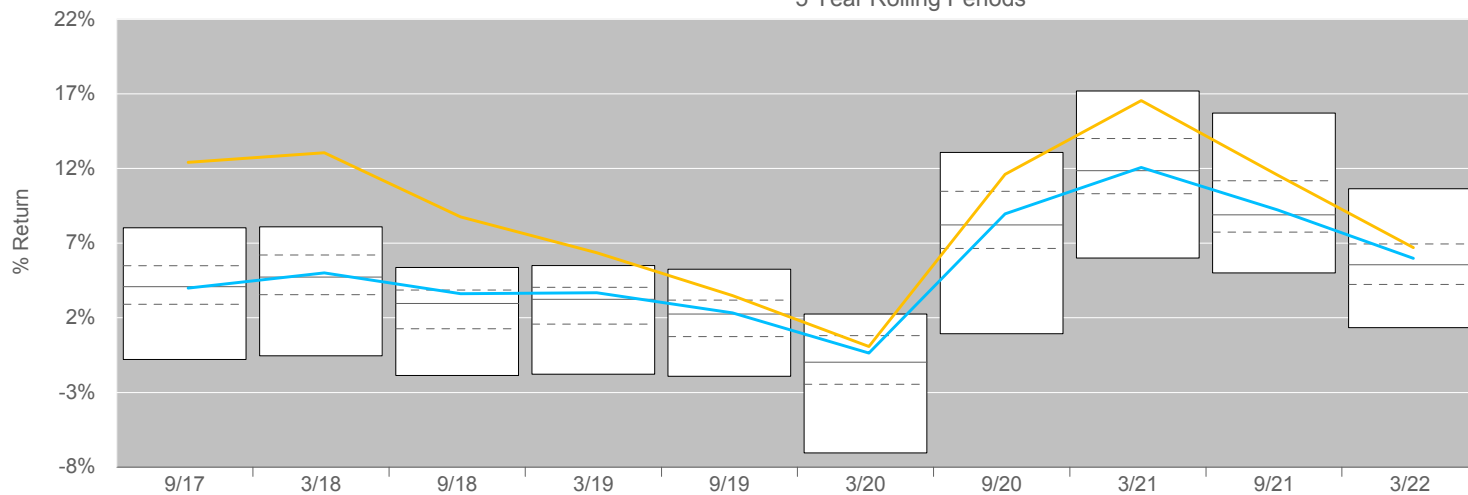
## Redwheel Global Emerging Equity Fund

### Emerging Markets Universe

For Report Periods Ending March 31, 2022



Report From September 30, 2012 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund Summary of Performance and Statistics Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
DFA Emerging Markets Fund	-3.8%	-10.3%	-5.7%	6.4%	6.4%	5.2%	3.8%	7.1%	1/05
MSCI Emerging Markets Index	-7.0	-15.6	-11.4	4.9	6.0	4.7	3.4	6.9	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
DFA Emerging Markets Fund	0.99	0.4%	0.96	18.2%	3.2%	0.1
MSCI Emerging Markets Index	1.00	0.0	1.00	17.8	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
DFA Emerging Markets Fund	11.5	1.7	90,944.1 M	2.7%	19.0%
MSCI Emerging Markets Index	14.0	1.8	79,618.6	2.5	--

\* Risk Statistics are based on monthly data. MSCI does not compute the Weighted Average Market Capitalization - the average market capitalization is used as the best available representation.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.4%	Yes
Beta < 1.20	Beta = 0.99	Yes
Alpha > 0.0%	Alpha = 0.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 50th Percentile	Yes

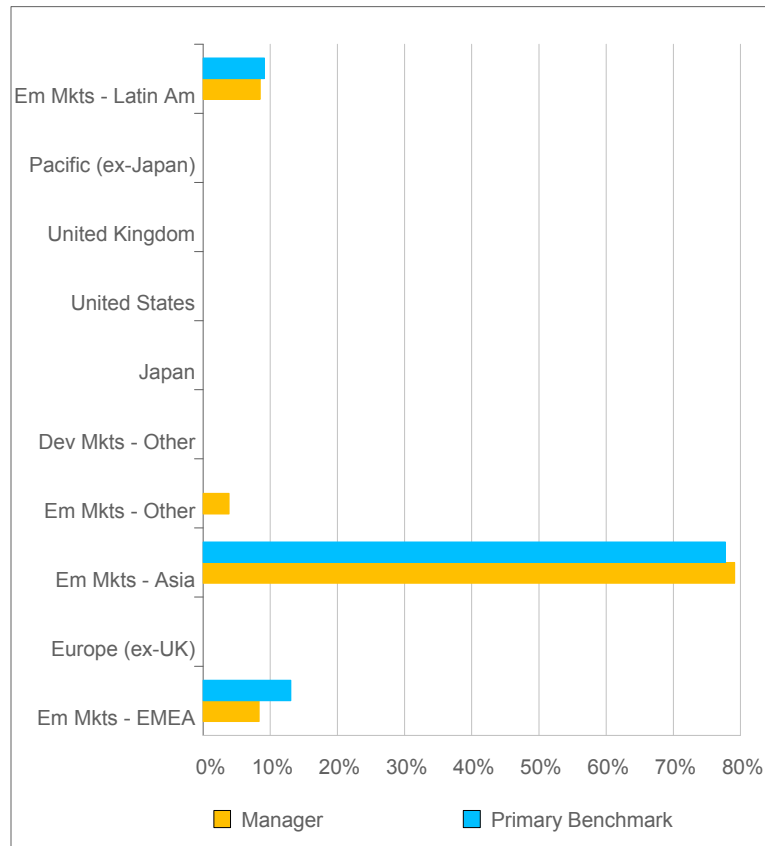
# City of Grosse Pointe Woods Employees Retirement System

## DFA Emerging Markets Fund

### Emerging Markets Sector

Report For Periods Ending March 31, 2022

#### Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	9%	9%	27.3%	23.5%
Pacific (ex-Japan)	0	0	3.8	3.8
United Kingdom	0	0	1.8	13.6
United States	0	0	-5.3	13.6
Japan	0	0	-6.6	-6.5
Dev Mkts - Other	0	0	-6.9	7.6
Em Mkts - Other	4	0	-7.9	9.4
Em Mkts - Asia	79	78	-8.9	-16.5
Europe (ex-UK)	0	0	-10.0	0.6
Em Mkts - EMEA	8	13	-13.7	-5.7

Top Five Countries	Weighting
China	27.6%
Taiwan	18.0
India	14.5
Korea, South	12.6
Brazil	5.3

Number of Holdings: 1702

\* Sector weightings may not add up to 100% due to rounding.

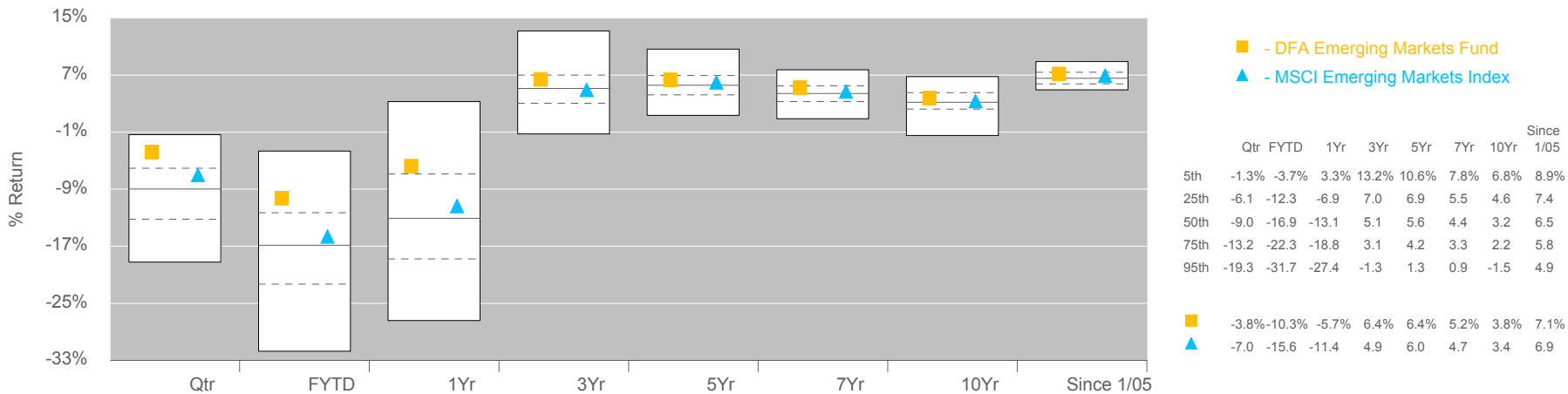
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

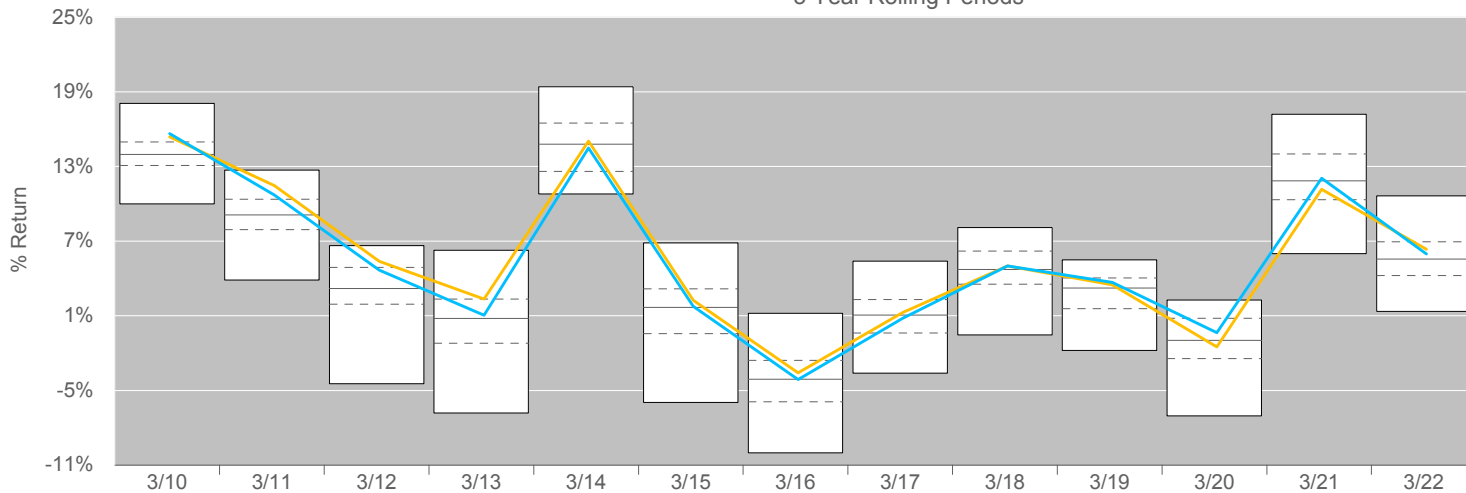
## DFA Emerging Markets Fund

### Emerging Markets Universe

For Report Periods Ending March 31, 2022



Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

Summary of Performance and Statistics  
Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Dodge &amp; Cox Income Fund</b>	<b>-5.2%</b>	<b>-5.5%</b>	<b>-3.6%</b>	<b>2.8%</b>	<b>3.0%</b>	<b>2.8%</b>	<b>3.2%</b>	<b>4.3%</b>	<b>1/05</b>
Bloomberg IG Credit Index	-7.3	-7.2	-4.3	2.6	3.0	2.7	3.4	4.2	
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	3.6	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Dodge &amp; Cox Income Fund</b>	<b>0.63</b>	<b>0.7%</b>	<b>0.93</b>	<b>3.7%</b>	<b>2.2%</b>	<b>0.0</b>
Bloomberg IG Credit Index	1.00	0.0	1.00	5.6	0.0	--
Bloomberg U.S. Aggregate Index	0.59	-0.1	0.81	3.6	2.1	0.4

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
<b>Dodge &amp; Cox Income Fund</b>	<b>5.0yrs</b>	<b>8.9yrs</b>	<b>A</b>	<b>3.5%</b>	<b>91.0%</b>
Bloomberg IG Credit Index	8.0	11.3	A-	3.4	--
Bloomberg U.S. Aggregate Index	6.8	8.8	AA	2.9	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	Yes
Beta < 1.20	Beta = 0.63	Yes
Alpha > 0.0%	Alpha = 0.7%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes



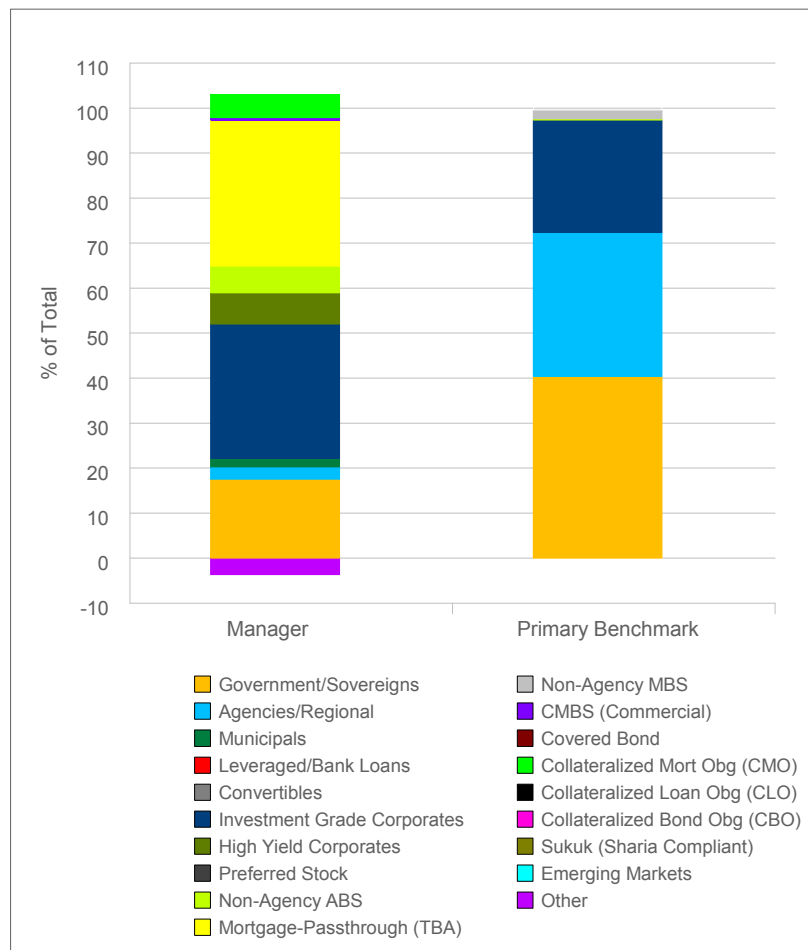
# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

### Fixed Income Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-5.9%	-4.2%
Government/Sovereigns	18	41	-5.5	-3.7
Agencies/Regional	3	32	-4.2	-3.9
Municipals	2	0	-6.2	-4.5
Leveraged/Bank Loans	0	0	-0.1	3.2
Convertibles	0	0	-5.4	-2.2
Investment Grade Corporates	30	25	-7.7	-4.2
High Yield Corporates	7	0	-4.8	-0.7
Preferred Stock	0	0	-8.1	-2.7
Non-Agency ABS	6	0	-2.9	-3.1
Mortgage-Passthrough (TBA)	33	0	-7.4	-6.1
Non-Agency MBS	0	2	-5.0	-4.9
CMBS (Commercial)	1	0	-5.6	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	5	0	-5.0	-4.9
Collateralized Loan Obg (CLO)	0	0	-0.1	3.2
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-10.0	-7.4
Other	-4	0	0.0	0.0

\*Sector weightings may not add up to 100% due to rounding.

\*Benchmark weightings are for the Bloomberg U.S. Aggregate Index.

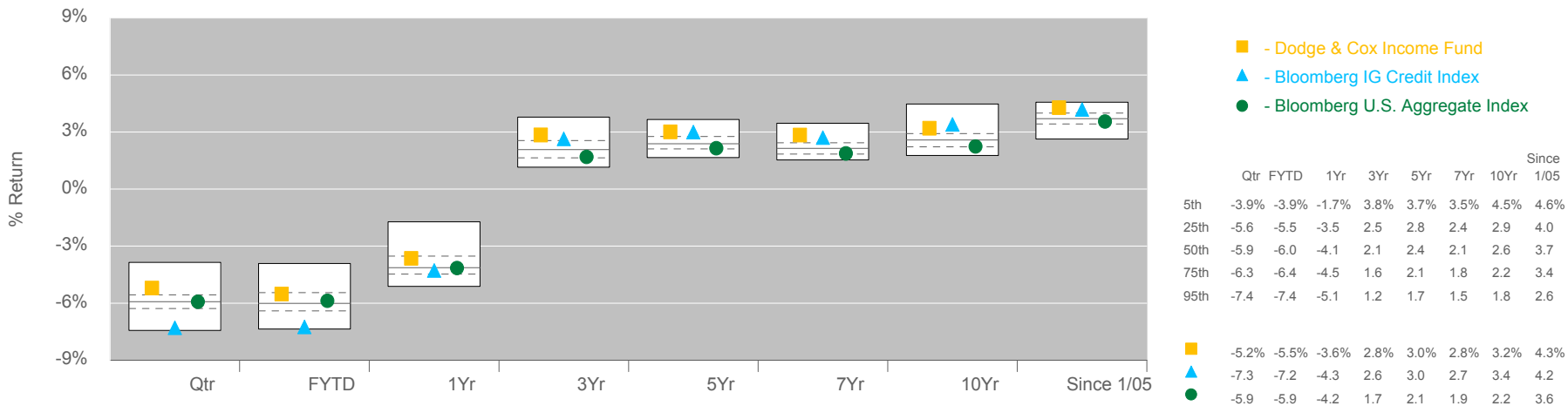
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Dodge & Cox Income Fund

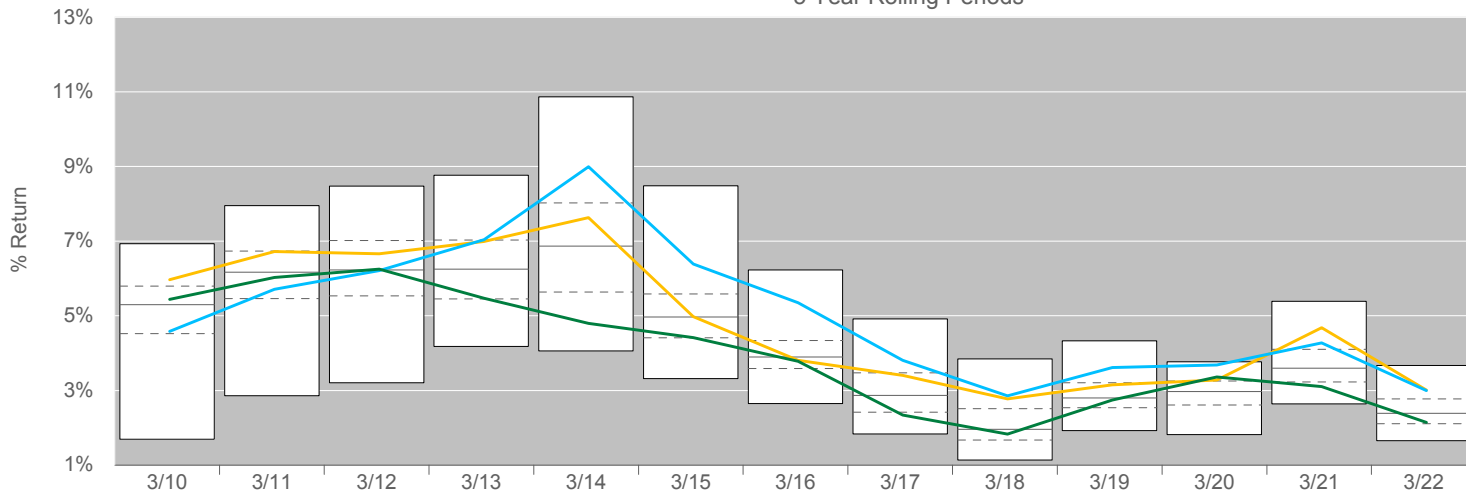
### Core Fixed Income Universe

For Report Periods Ending March 31, 2022



Report From March 31, 2005 to March 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>DoubleLine Total Return Bond Fund</b>	<b>-4.8%</b>	<b>-4.6%</b>	<b>-3.1%</b>	<b>1.0%</b>	<b>1.9%</b>	<b>1.9%</b>	<b>2.8%</b>	<b>4.4%</b>	<i>4/10</i>
Bloomberg U.S. MBS Index	-5.0	-5.2	-4.9	0.6	1.4	1.3	1.7	2.3	
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	2.9	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>DoubleLine Total Return Bond Fund</b>	<b>0.84</b>	<b>0.6%</b>	<b>0.40</b>	<b>3.4%</b>	<b>2.6%</b>	<b>0.2</b>
Bloomberg U.S. MBS Index	1.00	0.0	1.00	2.5	0.0	--
Bloomberg U.S. Aggregate Index	1.23	0.7	0.73	3.6	2.0	-0.1

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
<b>DoubleLine Total Return Bond Fund</b>	<b>4.9yrs</b>	<b>7.1yrs</b>	<b>A-</b>	<b>3.6%</b>	<b>91.0%</b>
Bloomberg U.S. MBS Index	--	--	--	--	--
Bloomberg U.S. Aggregate Index	6.8	8.8	AA	2.9	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.5%	Yes
Beta < 1.20	Beta = 0.84	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No

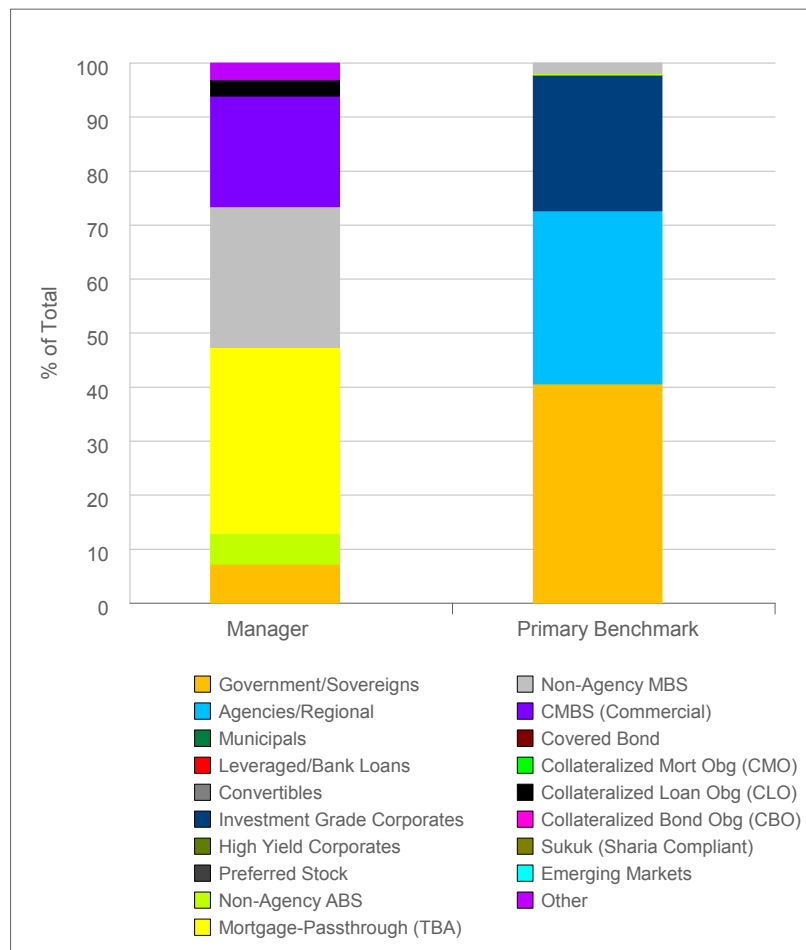
# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

### Fixed Income Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-5.9%	-4.2%
Government/Sovereigns	7	41	-5.5	-3.7
Agencies/Regional	0	32	-4.2	-3.9
Municipals	0	0	-6.2	-4.5
Leveraged/Bank Loans	0	0	-0.1	3.2
Convertibles	0	0	-5.4	-2.2
Investment Grade Corporates	0	25	-7.7	-4.2
High Yield Corporates	0	0	-4.8	-0.7
Preferred Stock	0	0	-8.1	-2.7
Non-Agency ABS	6	0	-2.9	-3.1
Mortgage-Passthrough (TBA)	35	0	-7.4	-6.1
Non-Agency MBS	26	2	-5.0	-4.9
CMBS (Commercial)	20	0	-5.6	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	0	0	-5.0	-4.9
Collateralized Loan Obg (CLO)	3	0	-0.1	3.2
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-10.0	-7.4
Other	3	0	0.0	0.0

\*Sector weightings may not add up to 100% due to rounding.

\*Benchmark weightings are for the Bloomberg U.S. Aggregate Index.

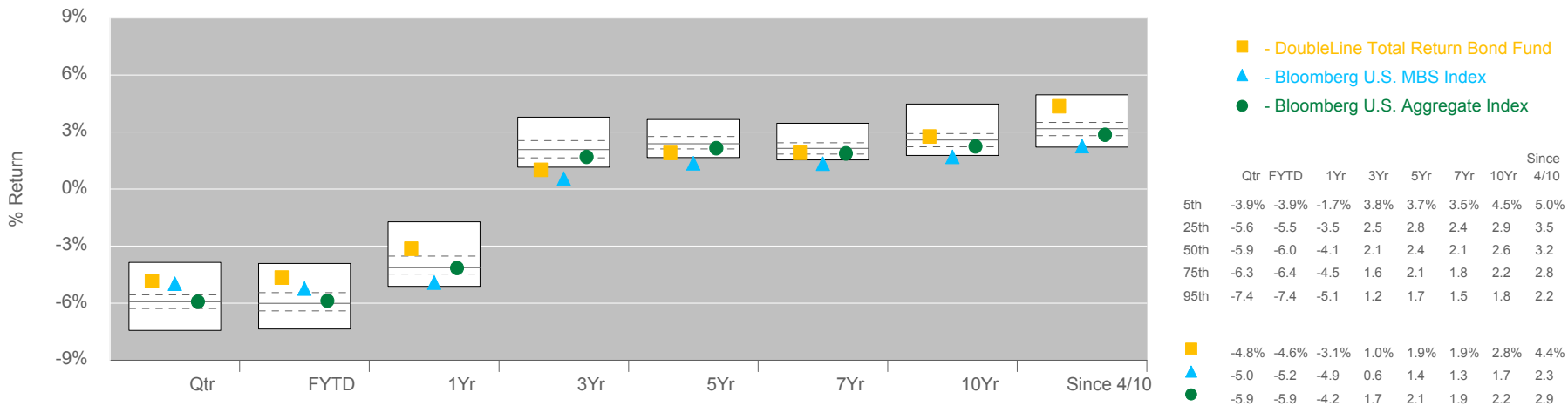
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## DoubleLine Total Return Bond Fund

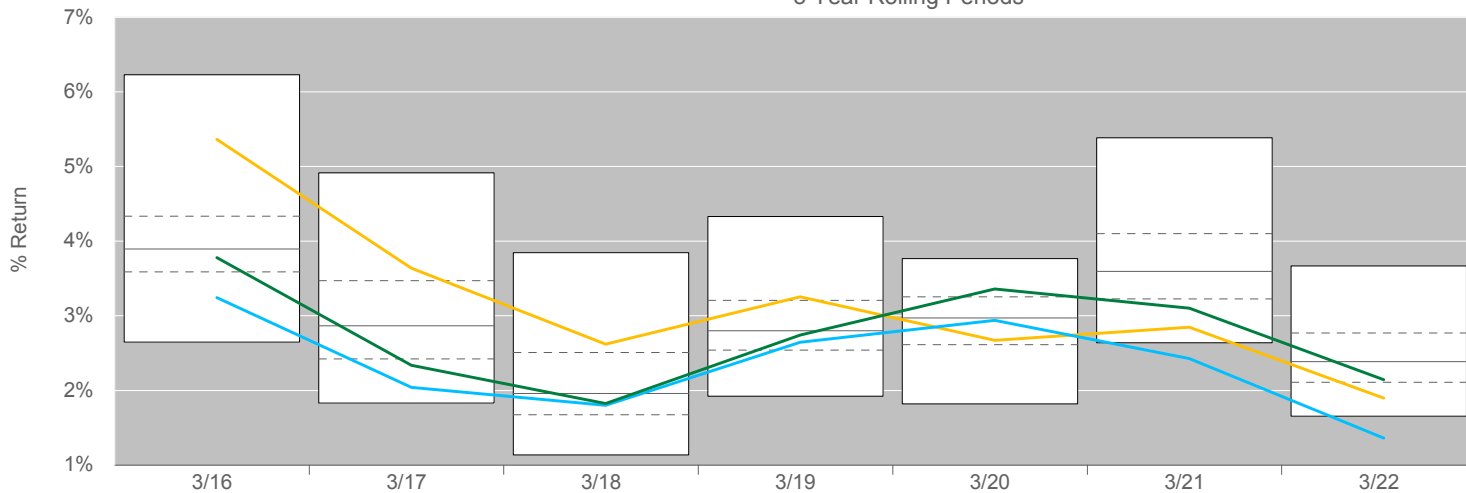
Core Fixed Income Universe

For Report Periods Ending March 31, 2022



Report From March 31, 2011 to March 31, 2022

5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Vanguard Total Bond Fund</b>	<b>-6.0%</b>	<b>-6.0%</b>	<b>-4.1%</b>	<b>1.7%</b>	<b>2.1%</b>	<b>1.8%</b>	<b>2.2%</b>	<b>3.5%</b>	<b>1/05</b>
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	1.9	2.2	3.6	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Vanguard Total Bond Fund</b>	<b>1.02</b>	<b>0.0%</b>	<b>0.99</b>	<b>3.7%</b>	<b>0.3%</b>	<b>-0.1</b>
Bloomberg U.S. Aggregate Index	1.00	0.0	1.00	3.6	0.0	--

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	Fl Annl Turnover
<b>Vanguard Total Bond Fund</b>	<b>6.8yrs</b>	<b>8.8yrs</b>	<b>AA</b>	<b>2.9%</b>	<b>--%</b>
Bloomberg U.S. Aggregate Index	6.8	8.8	AA	2.9	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.02	Yes
Alpha > 0.0%	Alpha = 0.0%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No



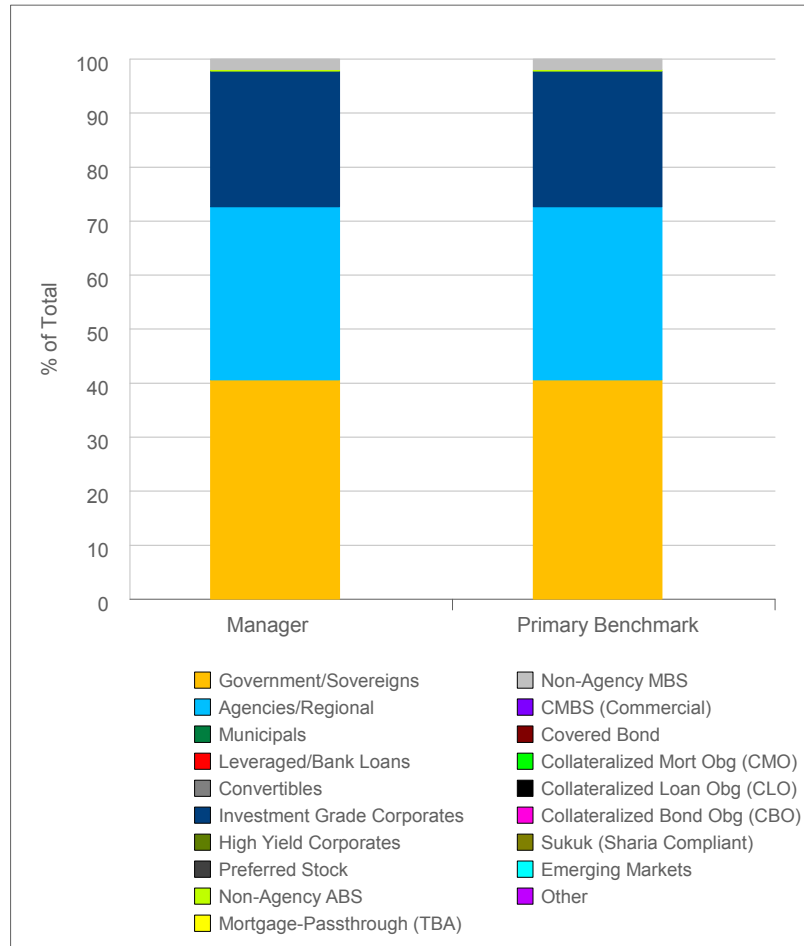
# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund

### Fixed Income Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



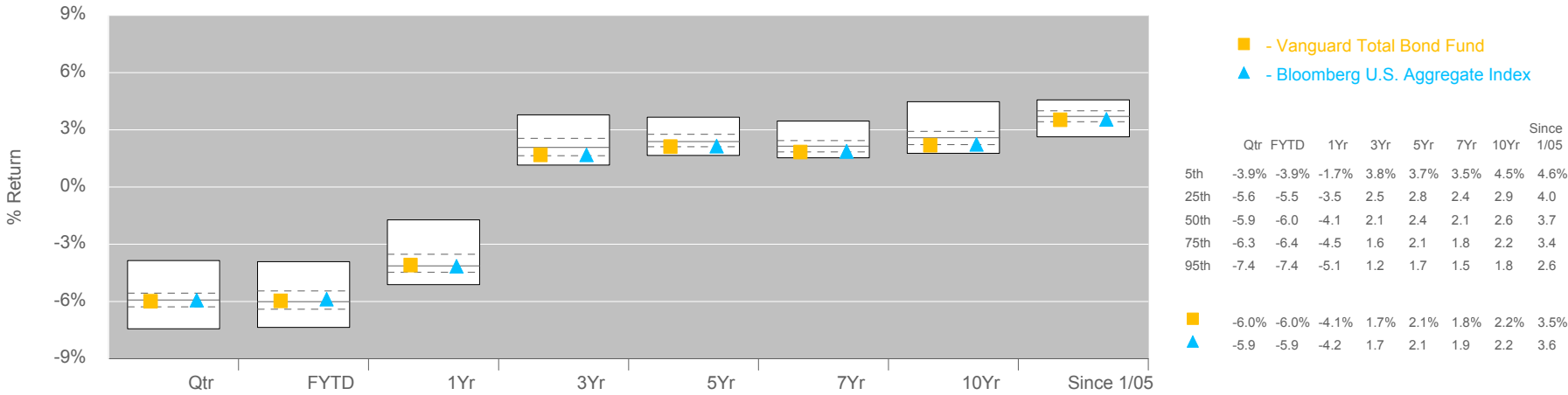
Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-5.9%	-4.2%
Government/Sovereigns	41	41	-5.5	-3.7
Agencies/Regional	32	32	-4.2	-3.9
Municipals	0	0	-6.2	-4.5
Leveraged/Bank Loans	0	0	-0.1	3.2
Convertibles	0	0	-5.4	-2.2
Investment Grade Corporates	25	25	-7.7	-4.2
High Yield Corporates	0	0	-4.8	-0.7
Preferred Stock	0	0	-8.1	-2.7
Non-Agency ABS	0	0	-2.9	-3.1
Mortgage-Passthrough (TBA)	0	0	-7.4	-6.1
Non-Agency MBS	2	2	-5.0	-4.9
CMBS (Commercial)	0	0	-5.6	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	0	0	-5.0	-4.9
Collateralized Loan Obg (CLO)	0	0	-0.1	3.2
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-10.0	-7.4
Other	0	0	0.0	0.0

\*Sector weightings may not add up to 100% due to rounding.

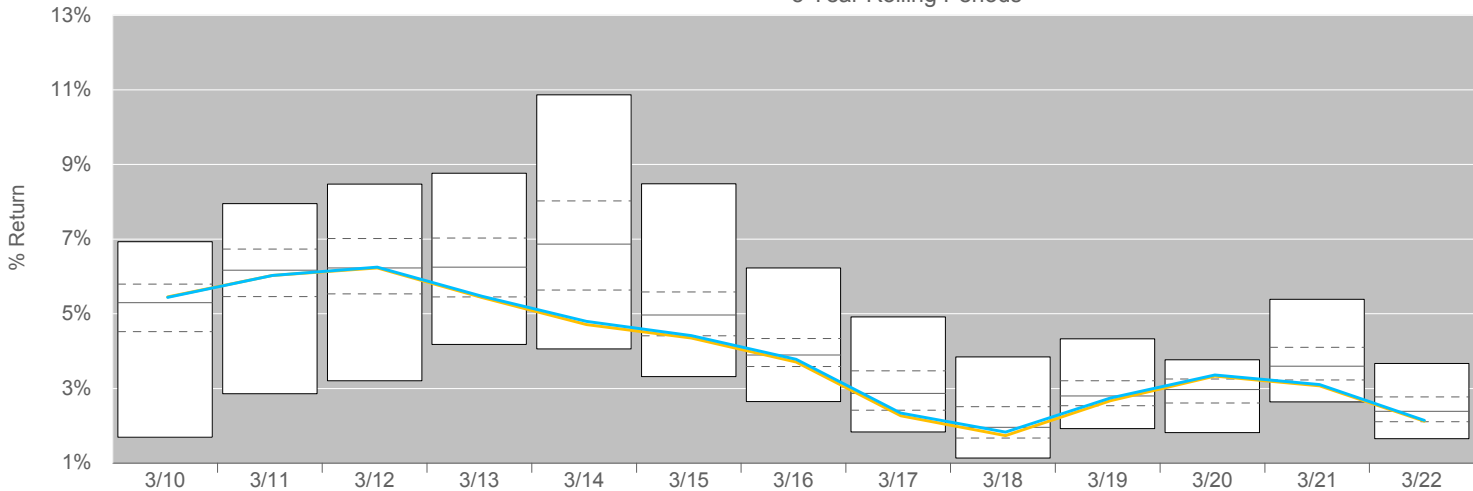
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Vanguard Total Bond Fund Core Fixed Income Universe For Report Periods Ending March 31, 2022



Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Principal Real Estate Securities Fund</b>	<b>-5.2%</b>	<b>10.4%</b>	<b>23.7%</b>	<b>12.7%</b>	<b>11.5%</b>	<b>9.1%</b>	<b>11.0%</b>	<b>10.1%</b>	<b>1/05</b>
FTSE NAREIT Equity REIT Index	-3.9	12.9	26.5	11.1	9.6	8.0	9.8	8.9	
FTSE NAREIT All Equity Index	-5.3	10.3	23.6	11.7	10.7	9.0	10.5	9.3	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Principal Real Estate Securities Fund</b>	<b>0.90</b>	<b>2.8%</b>	<b>0.97</b>	<b>18.3%</b>	<b>3.4%</b>	<b>0.6</b>
FTSE NAREIT Equity REIT Index	1.00	0.0	1.00	19.9	0.0	--
FTSE NAREIT All Equity Index	0.93	1.6	0.98	18.9	2.3	0.4

Portfolio Statistics	Current P/FFO	Growth in FFO	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
<b>Principal Real Estate Securities Fund</b>	<b>24.0</b>	<b>11.4%</b>	<b>32,293.9M</b>	<b>2.6%</b>	<b>19.9%</b>
FTSE NAREIT Equity REIT Index	19.2	-2.9	23,153.7	2.9	--
FTSE NAREIT All Equity Index	19.2	-2.9	23,153.7	2.9	--

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

<b>Performance Objectives</b>	<b>Result</b>	<b>Objective Achieved</b>
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 1.9%	Yes
Beta < 1.20	Beta = 0.90	Yes
Alpha > 0.0%	Alpha = 2.8%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

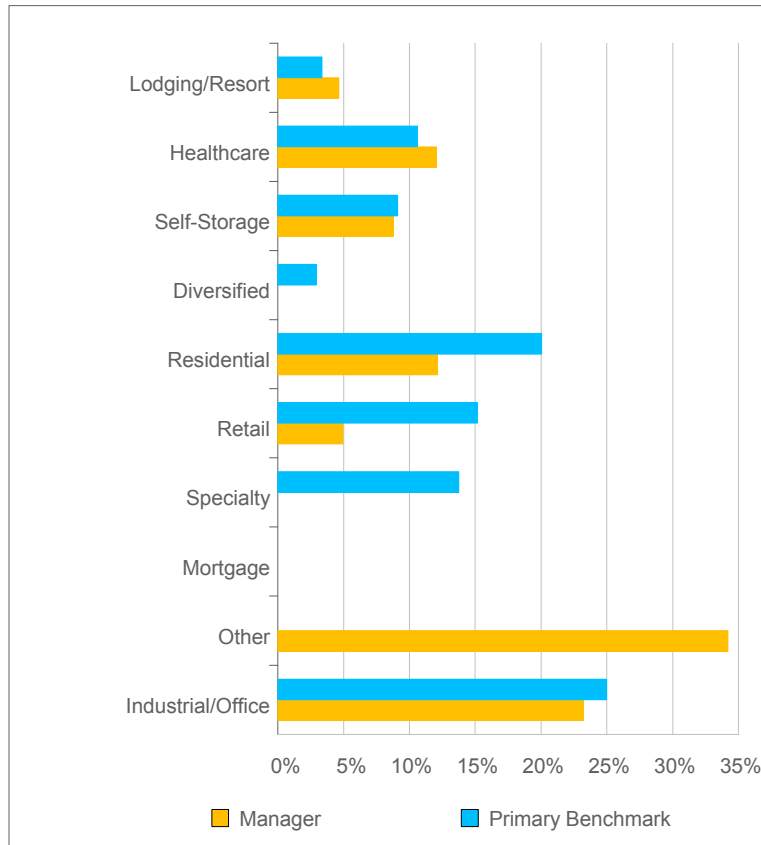
# City of Grosse Pointe Woods Employees Retirement System

## Principal Real Estate Securities Fund

### Real Estate Sector

Report For Periods Ending March 31, 2022

#### Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Lodging/Resort	5%	3%	6.9%	7.1%
Healthcare	12	11	5.4	15.0
Self-Storage	9	9	-1.9	59.5
Diversified	0	3	-3.3	15.2
Residential	12	20	-5.4	33.8
Retail	5	15	-6.7	20.0
Specialty	0	14	-	-
Mortgage	0	0	-	-
Other	34	0	-	-
Industrial/Office	23	25	-	-

\* Sector weightings may not add up to 100% due to rounding.

\* Accrued income in total market value may not be available for all managers.

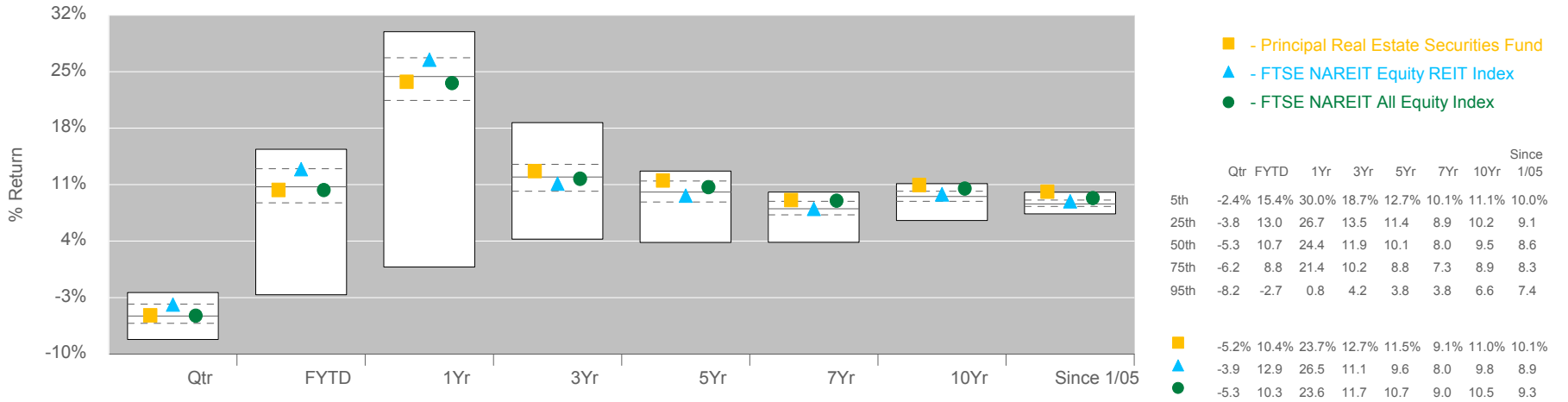
\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

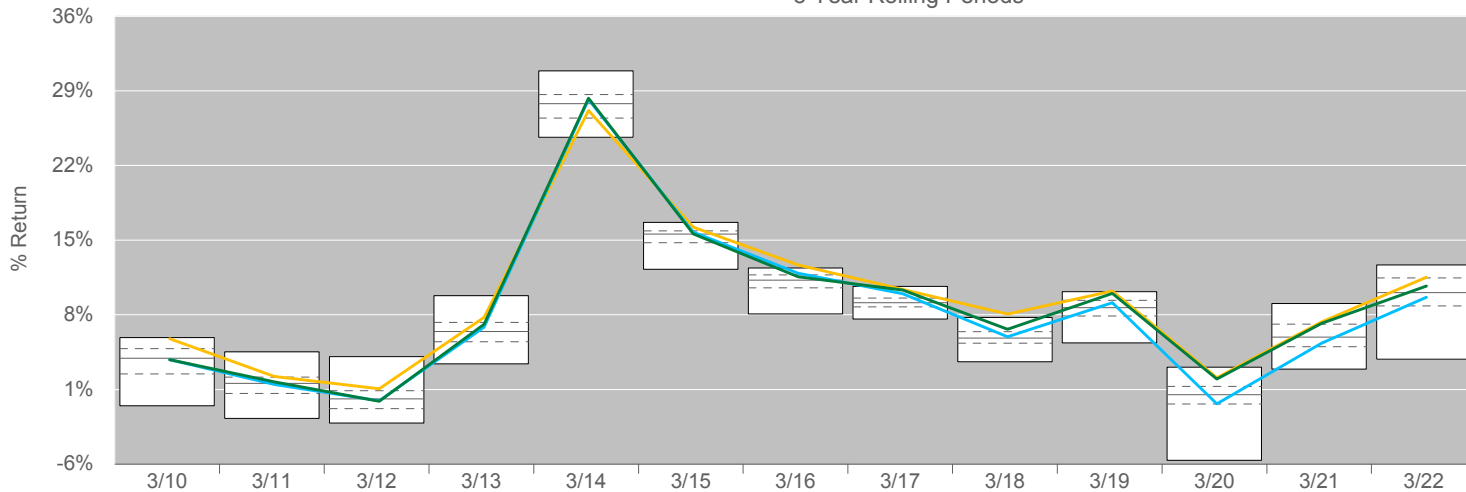
## Principal Real Estate Securities Fund

REIT Manager Universe

For Report Periods Ending March 31, 2022



Report From March 31, 2005 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Tortoise MLP & Pipeline Fund

### Summary of Performance and Statistics

Report For Periods Ending March 31, 2022

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>22.2%</b>	<b>23.3%</b>	<b>44.6%</b>	<b>5.8%</b>	<b>3.3%</b>	<b>1.5%</b>	<b>5.4%</b>	<b>6.7%</b>	<i>5/11</i>
Alerian MLP Index	18.8	12.6	36.6	2.7	-0.1	-1.9	1.3	2.2	
Tortoise North American Pipeline Index	20.6	22.3	38.5	9.7	7.5	5.5	8.0	--	

Risk Statistics (5 years)	Beta	Alpha	R <sup>2</sup>	Standard Deviation	Tracking Error	Information Ratio
<b>Tortoise MLP &amp; Pipeline Fund</b>	<b>0.75</b>	<b>3.1%</b>	<b>0.93</b>	<b>32.9%</b>	<b>12.6%</b>	<b>0.3</b>
Alerian MLP Index	1.00	0.0	1.00	42.8	0.0	--
Tortoise North American Pipeline Index	0.61	7.1	0.89	27.9	6.3	-0.7

\* Risk Statistics are based on monthly data.

\* Manager data represents the most current available at the time of report publication.

# City of Grosse Pointe Woods Employees Retirement System

## Tortoise MLP & Pipeline Fund

### Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2022

Performance Objectives	Result	Objective Achieved
<b>Measurement Period:</b> Moving 5 Year		
Return > Benchmark	Return over benchmark = 3.4%	Yes
Beta < 1.20	Beta = 0.75	Yes
Alpha > 0.0%	Alpha = 3.1%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No

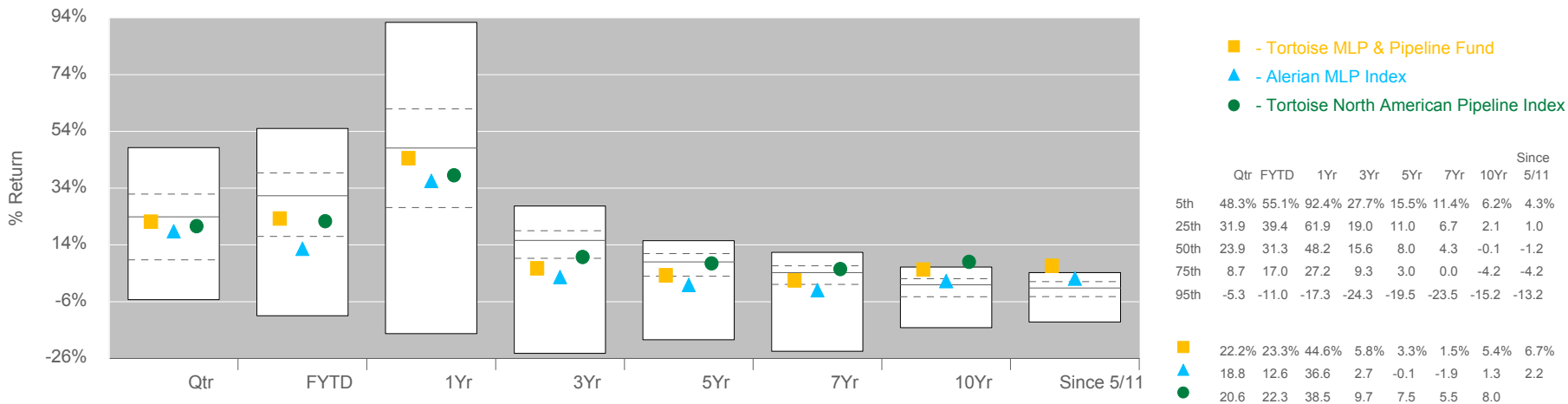


# City of Grosse Pointe Woods Employees Retirement System

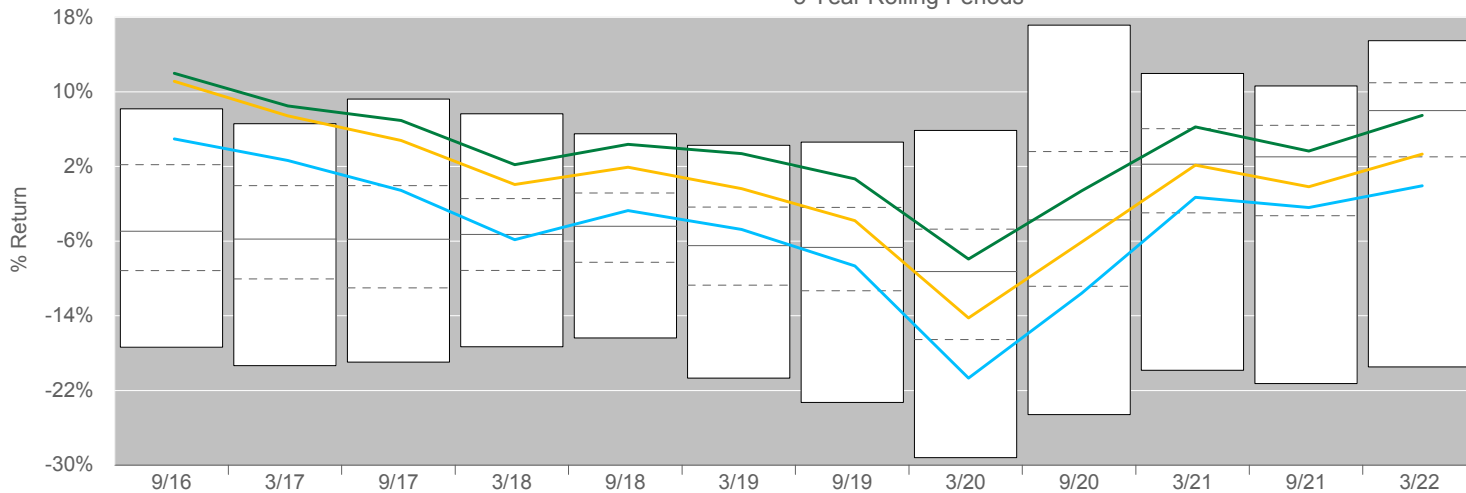
## Tortoise MLP & Pipeline Fund

### Natural Resources Universe

For Report Periods Ending March 31, 2022



Report From September 30, 2011 to March 31, 2022  
5 Year Rolling Periods



# City of Grosse Pointe Woods Employees Retirement System

## Breakdown of Fees

Report For Periods Ending March 31, 2022

	Annual Fee/ Expense Ratio	Market Value	Percent Allocation	Weighted Average Fee	Annualized Fee
iShares S&P 500 Index	0.04%	\$14,876,041	32.0%	0.01%	\$5,950
iShares Russell Midcap Index	0.20%	\$2,701,199	5.8%	0.01%	\$5,402
Vanguard S&P Small Cap 600 Index	0.15%	\$3,659,000	7.9%	0.01%	\$5,488
EuroPacific Growth Fund	0.60%	\$4,267,843	9.2%	0.06%	\$25,607
Templeton Inst'l Foreign Smaller Co.	0.99%	\$1,106,107	2.4%	0.02%	\$10,950
Brown International Small Company	1.16%	\$1,098,714	2.4%	0.03%	\$12,745
Redwheel Global Emerging Equity Fund	1.34%	\$1,378,651	3.0%	0.04%	\$18,474
DFA Emerging Markets Fund	0.48%	\$2,955,566	6.4%	0.03%	\$14,187
Dodge & Cox Income Fund	0.43%	\$2,552,728	5.5%	0.02%	\$10,977
DoubleLine Total Return Bond Fund	0.49%	\$2,331,590	5.0%	0.02%	\$11,425
Vanguard Total Bond Fund	0.05%	\$2,585,486	5.6%	0.00%	\$1,293
Gateway Fund	0.70%	\$1,783,316	3.8%	0.03%	\$12,483
PIMCO All Asset Fund	0.87%	\$1,480,006	3.2%	0.03%	\$12,876
Principal Real Estate Securities Fund	0.91%	\$1,673,829	3.6%	0.03%	\$15,232
Tortoise MLP & Pipeline Fund	0.97%	\$1,387,388	3.0%	0.03%	\$13,458
Schwab Government Money Fund	0.23%	\$582,954	1.3%	0.00%	\$1,341
<b>Total Investment Management Fees</b>		<b>\$46,420,418</b>	<b>100.0%</b>	<b>0.38%</b>	<b>\$177,888</b>

\* Mutual Fund expense ratios are deducted from the NAV of the fund.

\* Annualized fee is an estimate based on market values as of March 31, 2022.

## Index Summary Sheet for Periods Ending March 31, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
<b>Global Equity</b>						
MSCI AC World Index	-5.4%	-5.4%	7.3%	13.8%	11.6%	10.0%
MSCI World Index	-5.2	-5.2	10.1	15.0	12.4	10.9
S&P 500 Index	-4.6	-4.6	15.6	18.9	16.0	14.6
Russell 3000 Index	-5.3	-5.3	11.9	18.2	15.4	14.3
Russell 1000 Index	-5.1	-5.1	13.3	18.7	15.8	14.5
Russell 1000 Growth Index	-9.0	-9.0	15.0	23.6	20.9	17.0
Russell 1000 Value Index	-0.7	-0.7	11.7	13.0	10.3	11.7
Russell Midcap Index	-5.7	-5.7	6.9	14.9	12.6	12.9
Russell Midcap Growth Index	-12.6	-12.6	-0.9	14.8	15.1	13.5
Russell Midcap Value Index	-1.8	-1.8	11.5	13.7	10.0	12.0
Russell 2000 Index	-7.5	-7.5	-5.8	11.7	9.7	11.0
Russell 2000 Growth Index	-12.6	-12.6	-14.3	9.9	10.3	11.2
Russell 2000 Value Index	-2.4	-2.4	3.3	12.7	8.6	10.5
Russell Microcap Index	-7.6	-7.6	-11.0	13.0	9.9	11.1
MSCI AC World Index ex-U.S.	-5.4	-5.4	-1.5	7.5	6.8	5.6
MSCI EAFE Index	-5.9	-5.9	1.2	7.8	6.7	6.3
MSCI EAFE Growth Index	-11.9	-11.9	-1.5	9.8	8.9	7.5
MSCI EAFE Value Index	0.3	0.3	3.6	5.2	4.2	4.9
MSCI Small Cap EAFE Index	-8.5	-8.5	-3.6	8.5	7.4	8.3
MSCI Emerging Markets Index	-7.0	-7.0	-11.4	4.9	6.0	3.4
MSCI Emerging Markets Small Cap Index	-4.3	-4.3	5.5	11.9	7.8	5.3
MSCI Frontier Markets Index	-7.9	-7.9	9.4	7.3	6.0	5.9
HFRI Equity Hedge Index	-4.1	-4.1	0.3	10.1	7.8	6.3
HFRI Emerging Markets	-6.1	-6.1	-2.8	5.6	4.8	3.9
HFRI FOF: Strategic Index	-5.5	-5.5	-1.2	6.2	4.9	4.2
Thomson One All Private Capital Index	0.0	0.0	17.0	19.9	17.3	14.3
Thomson One Buyout Index	0.0	0.0	25.1	23.6	20.4	16.6
Thomson One Fund of Funds Index	0.0	0.0	17.4	25.9	20.8	15.5
Thomson One Venture Capital Index	0.0	0.0	23.7	37.7	29.5	22.5
<b>Global Fixed Income</b>						
Bloomberg U.S. Aggregate Index	-5.9	-5.9	-4.2	1.7	2.1	2.2
Bloomberg U.S. TIPS Index	-3.0	-3.0	4.3	6.2	4.4	2.7
Bloomberg Government Bond Index	-5.5	-5.5	-3.7	1.4	1.8	1.7
Bloomberg Municipals Index	-6.2	-6.2	-4.5	1.5	2.5	2.9
Bloomberg Asset Backed Index	-2.9	-2.9	-3.1	1.4	1.7	1.7

## Index Summary Sheet for Periods Ending March 31, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
<b>Global Fixed Income (continued)</b>						
Bloomberg US MBS Index	-5.0%	-5.0%	-4.9%	0.6%	1.4%	1.7%
Bloomberg IG CMBS Index	-5.6	-5.6	-4.4	1.8	2.5	2.8
Bloomberg U.S. Credit Index	-7.4	-7.4	-4.2	2.8	3.2	3.4
Bloomberg U.S. Corporate HY Index	-4.8	-4.8	-0.7	4.6	4.7	5.7
Bloomberg Intermediate U.S. G/C Index	-4.5	-4.5	-4.1	1.5	1.8	1.8
ICE BofA 1-3 Yr. Govt. Bond Index	-2.3	-2.3	-2.8	0.9	1.1	0.9
U.S. 91-Day Treasury Bills	0.1	0.1	0.1	0.7	1.0	0.6
CS Leveraged Loan Index	-0.1	-0.1	3.2	4.1	4.0	4.5
JPMorgan Non-U.S. GBI Hedged Index	-4.1	-4.1	-3.8	0.7	1.9	3.1
JPMorgan Non-U.S. GBI Index	-7.1	-7.1	-10.2	-1.3	0.7	-0.4
JPMorgan EMBI Plus Index	-16.2	-16.2	-13.8	-3.1	-1.0	2.0
JPMorgan EMBI Global Index	-9.3	-9.3	-6.2	0.5	1.7	3.4
HFRI RV: Fixed Income - Corporate Index	-1.2	-1.2	0.9	5.6	5.0	5.0
HFRI ED: Distressed/Restructuring Index	0.9	0.9	7.2	9.2	6.5	5.8
Thomson One Distressed Index	0.0	0.0	24.4	15.8	12.5	11.4
<b>Real Assets</b>						
FTSE NAREIT All Equity Index	-5.3	-5.3	23.6	11.7	10.7	10.5
S&P Developed BMI Property Index	-4.0	-4.0	14.5	6.1	6.7	7.3
S&P Developed ex-U.S. Property Index	-3.8	-3.8	3.1	2.6	5.5	6.7
NCREIF Property Index	0.0	0.0	15.7	7.7	7.4	9.0
Bloomberg Commodity Index	25.5	25.5	49.3	16.1	9.0	-0.7
Alerian MLP Index	18.8	18.8	36.6	2.7	-0.1	1.3
NCREIF Timberland Index	0.0	0.0	8.3	3.7	3.4	5.3
Thomson One Private Real Estate Index	0.0	0.0	26.3	12.7	12.0	12.1
S&P Real Assets Equity Total Return Index	3.2	3.2	20.3	8.8	7.9	7.3
<b>Diversifying Strategies</b>						
HFRI Fund of Funds Index	-2.6	-2.6	1.3	5.9	4.6	3.9
HFRI Fund Weighted Composite Index	-0.8	-0.8	3.4	8.6	6.4	5.2
HFRI FOF: Conservative Index	0.4	0.4	4.3	5.8	4.5	3.8
HFRI Event Driven	-1.4	-1.4	3.1	7.7	6.0	5.6
HFRI Relative Value Total Index	0.7	0.7	4.5	5.0	4.3	4.8
HFRI Macro Index	6.8	6.8	10.4	8.1	4.8	2.8
<b>Other</b>						
Consumer Price Index - U.S.	2.6	2.6	8.6	4.3	3.5	2.4
U.S. Dollar Index	2.4	2.4	5.4	0.4	-0.5	2.2

\* For indices that report returns on a lag, 0.0% is utilized for the most recent time period until the actual return data are reported.

# City of Grosse Pointe Woods Employees Retirement System

## Benchmark Composition Summary

### Target Weighted Index

<u>Since Inception</u>	<u>Weight</u>	<u>August 31, 2020</u>	<u>Weight</u>
Russell 1000 Index	15.00%	Russell 1000 Index	30.00%
Russell Midcap Index	4.00%	Russell Midcap Index	5.00%
Russell 2000 Index	6.00%	Russell 2000 Index	7.00%
MSCI EAFE Index	10.00%	MSCI EAFE Index	10.00%
MSCI Small Cap EAFE Index	5.00%	MSCI Small Cap EAFE Index	5.00%
MSCI Emerging Markets Index	12.00%	MSCI Emerging Markets Index	10.00%
Bloomberg U.S. Aggregate Index	20.00%	Bloomberg U.S. Aggregate Index	20.00%
HFRI Equity Hedge Index	5.00%	Alerian MLP Index	3.00%
U.S. 91-Day Treasury Bills	1.00%	FTSE NAREIT All Equity Index	3.00%
Bloomberg Commodity Index	3.00%	HFRI FOF: Conservative Index	7.00%
FTSE NAREIT All Equity Index	3.00%		
HFRI FOF: Conservative Index	10.00%		
MSCI Frontier Markets Index	3.00%		
S&P 500 Energy Sector Index	3.00%		

### Actuarial Rate

<u>Since Inception</u>	<u>Weight</u>
7.75% Absolute Return	100.00%

<u>November 30, 2018</u>	<u>Weight</u>	<u>August 31, 2020</u>	<u>Weight</u>
Russell 1000 Index	23.00%	7.5% Absolute Return	100.00%
Russell Midcap Index	5.00%		
Russell 2000 Index	7.00%		
MSCI EAFE Index	10.00%		
MSCI Small Cap EAFE Index	5.00%		
MSCI Emerging Markets Index	10.00%		
Bloomberg U.S. Aggregate Index	20.00%		
U.S. 91-Day Treasury Bills	1.00%		
Bloomberg Commodity Index	3.00%		
FTSE NAREIT All Equity Index	3.00%		
HFRI FOF: Conservative Index	10.00%		
S&P 500 Energy Sector Index	3.00%		

## Definitions

**Alpha** – Measures how well a portfolio performed versus its benchmark after factoring in the amount of risk (as measured by beta) taken. Technically, alpha is the difference between the excess return of a portfolio and the excess return of the benchmark multiplied by beta. Excess return is simply the actual return minus the return of the risk-free asset, U.S. Treasury Bill. A positive alpha indicates the portfolio has performed better than the benchmark on a risk-adjusted basis.

**Annual Standard Deviation** – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return.

**Beta** – A coefficient measuring a portfolio's relative volatility with respect to its market. Technically, beta is the covariance of a portfolio's return with the benchmark portfolio's return divided by the variance of the benchmark portfolio's return. Thus, a portfolio with a beta greater than 1.00, indicates the portfolio experienced greater volatility than the benchmark, whereas a portfolio with a beta less than 1.00, indicates the portfolio experienced less volatility than the benchmark.

**Consumer Price Index** – Measures the change in consumer prices, as determined by a monthly survey of the U.S. Bureau of Labor Statistics. CPI components include housing costs, food, transportation and electricity.

**Duration** – A measure of the price sensitivity of a bond or bond portfolio to a change in interest rates.

**Information Ratio** – Describes the risk / reward trade-off of alpha and tracking error. Because the formula for calculating information ratio is Alpha divided by Tracking Error, the larger the information ratio, the more attractive the portfolio is from an overall risk return profile.

**Max Drawdown** – The maximum loss incurred by a portfolio during a specified time period.

**R<sup>2</sup>** – Also called the coefficient of determination. On the detail page, R<sup>2</sup> measures how much of the variation in the investment manager's returns can be explained by movements in the market (benchmark).

**Sharpe Ratio** – A risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. The higher the Sharpe ratio, the better the manager's historical risk-adjusted performance.

**Tracking Error** – A measure that describes the volatility of the expected excess return (alpha) achieved through active management. Since excess return can only be achieved through a portfolio that actively differs from the benchmark, the level of tracking error is indicative of how different the portfolio will perform relative to any given benchmark.

## Disclosures

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Market Values and return statistics for time periods pre-dating FEG's relationship with clients may include data provided by the clients and/or a previous consultant is assumed to be accurate. However, this information is not independently verified by FEG.

Performance results are calculated using information provided by the custodian and/ or independent pricing sources. It is the responsibility of the trustee, custodian and /or manager to ensure the accuracy of market value and transactional data. Performance analysis is calculated using monthly and/or quarterly market values. Performance analysis and asset valuations may or may not include accrued interest and dividend income and are net of management fees. FEG/Consulting fees may or may not be deducted, based on client preference.

FEG's universes are updated monthly and the traditional asset classes are constructed from Lipper data feeds encompassing over 19,000 mutual funds. Lipper classifies approximately 50 asset classes according to the funds' investment objectives and portfolio attributes. FEG screens the Lipper universes to include only institutional and no-load funds. However, because the Lipper data may treat multiple share classes of the same fund as separate funds for the purposes of constructing their universes, FEG further screens the universes to eliminate multiple share classes within the institutional and no-load funds (examples include retirement-share classes and 529-share classes) in an effort to present pure-institutional universes.

Monitoring of managers includes fundamental research for all investment managers, as well as enhanced coverage for managers that have been approved for FEG's recommended list. A Quarterly Content Questionnaire is the basis of fundamental coverage and requests qualitative (e.g., personnel, organizational changes) and quantitative information (performance, cash flows) on all investment strategies for ongoing monitoring and adherence to investment policy. Clients may have exposure to both fundamental and recommended managers in their portfolio depending on their unique needs. FEG conducts conference calls directly with the active managers that receive enhanced coverage.

Mutual funds are bound by their prospectus, limiting potential deviation from the stated investment strategy. Clients are encouraged to contact their Investment Advisers immediately if there are changes to their financial situation or investment objectives, or if they wish to impose or modify restrictions on the management of their account(s). Please notify your adviser immediately if you believe that any information on file is incorrect, or have had changes that have not been previously discussed.

Index performance results do not represent any managed portfolio returns. An investor cannot invest directly in a presented index, as an investment vehicle replicating an index would be required. An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the performance shown.

This report is prepared for informational purposes only. Past performance is not indicative of future results.

**TO:** City of Grosse Pointe Woods Pension Board  
**FROM:** FEG  
**SUBJECT:** Adding Global Listed Infrastructure to Portfolio Line-Up  
**DATE:** May 5, 2022

### Global Listed Infrastructure Recommendation -

Allocate \$1.160M to the Cohen and Steers Global Infrastructure Fund (Ticker: CSUIX) to further diversify real assets exposure and provide the City of Grosse Pointe Woods Retirement System with increased inflation protection capabilities. Funding sources will come from fixed income and existing real assets positions within the portfolio. The sales to generate the cash for the purchase of the Cohen and Steers Infrastructure Fund are provided below:

1. Sell \$200,000 Vanguard Total Bond Fund (Ticker: VBTXX)
2. Sell \$130,000 Dodge & Cox Income Fund (Ticker: DODIX)
3. Sell \$130,000 DoubleLine Total Return Fund (Ticker: DBLTX)
4. Sell \$510,000 Principal Real Estate Fund (Ticker: PIREX)
5. Sell \$190,000 Tortoise MLP & Pipeline Fund (Ticker: TORIX)

### Manager Summary:

Headquartered in New York, with offices in London, Hong Kong, Tokyo and Seattle, Cohen & Steers (C&S or the firm) is a global investment manager specializing in liquid real assets, including real estate securities, listed infrastructure, commodities and natural resource equities. In 1986, Martin Cohen and Robert Steers established Cohen & Steers as the first investment company to specialize in listed real estate. As the global real estate securities market evolved, C&S expanded operations to Europe and Asia Pacific, forming the industry's largest global investment team dedicated to real estate securities. Cohen & Steers was listed on the New York Stock Exchange in 2004 under the ticker: CNS. As of May 31, 2017, the company had \$59.9 billion in assets under management.



**Strategy Summary:**

The Cohen & Steers Global Listed Infrastructure Strategy (the “Strategy”) is C&S’ flagship vehicle for those seeking global exposure to listed infrastructure. Launched in 2004, C&S was among the first managers to consider listed infrastructure as a means of providing investors an active approach to global infrastructure, an asset class historically characterized by attractive and predictable income, strong total returns, low volatility and low correlations to broader equity and fixed income markets. The Strategy believes the benefits of the asset class, combining the attributes of private infrastructure investments with liquidity, transparency and daily market pricing - will continue to drive strong institutional interest in the space. The Strategy invests principally in the core owners and operators of infrastructure assets and the related sub-sectors including towers, data centers, satellites, marine ports, airports, railways, toll roads, utilities and pipelines. Typically, the Strategy averages around ~50 security holdings with a maximum weight of of 6%. From offices in North America, Europe, and Asia, the team of eleven investment professionals, led by strategy co-founders Ben Morton and Robert Becker, is dedicated entirely to listed infrastructure investing. Dispersed geographically, the Strategy’s analysts and associates are well positioned to provide insights into local companies through on-the-ground research. The Firm’s investment philosophy is underpinned by the principle that markets are inherently inefficient thus providing the opportunity for active investment managers to add value. The Firm follows a total return, relative value approach to investing in global listed infrastructure and believes a disciplined investment process that combines top-down industry sector research with bottom-up company specific analysis can deliver a sustainable advantage. The C&S investment process seeks to generate alpha from diverse sources including security selection (60-70%) and subsector allocation (30-40%).

**Fee Implications:**

Cohen and Steers Global Infrastructure Portfolio management fees are 94 bps which would increase underlying management fees for the Retirement System modestly by 1 bp. The increase in underlying portfolio management fees is .0067% or approximately \$3,124 based on March 31, 2022 market values.

**Enclosures:**

Please find the enclose Summary Research Report for Cohen and Steers Global Infrastructure along with FEG’s Real Assets Portfolio Construction Education Piece.

# COHEN & STEERS GLOBAL INFRASTRUCTURE

COHEN &amp; STEERS CAPITAL MANAGEMENT

GLOBAL INFRASTRUCTURE CORE - RECOMMENDED

## MANAGER SUMMARY

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## FEG'S SIX-TENET PERSPECTIVE

**CONVICTION** / Cohen & Steers is focused exclusively on public real asset investments. The Firm's conviction in the strategy is apparent through its concentrated portfolio of 40-60 names. The Firm's high level of conviction in the investment strategy is also evident in its focus on total return, relative-value value approach to identifying and investing in listed infrastructure

**CONSISTENCY** / Since inception, the Firm has employed a consistent investment approach and philosophy. Key to C&S' success is a valuation process that uses a fundamental, quantitative research approach with inputs derived using uniform sector driver assumptions including earnings/cash flow, long-term growth rates, and net asset value. C&S' consistent and disciplined investment approach is distinguished by extensive proprietary research, valuation methodology, proprietary valuation models, and the Firm's financial strength.

**PRAGMATISM** / C&S maintains a global presence, focusing entirely on liquid real asset classes. With experienced personnel, C&S dedicates significant resources to research investments and local legislation and develop tools that strengthen the investment process. In addition, the team's depth is conducive to an extensive analysis of companies and management teams.

**INVESTMENT CULTURE** / C&S puts a strong focus on actively managing its talent at all levels, expecting a high level of performance from its portfolio managers and analysts. However, the Global Listed Infrastructure strategy has had relatively low turnover with minimal employee turnover since inception. Further, C&S' reputation, location, and structure enables the Firm to consistently attract qualified investment professionals.

**RISK CONTROLS** / C&S utilizes a multi-asset proprietary risk system in evaluating security and portfolio level risk. The Firm's Investment Risk Committee helps manage investment risk and firm-wide counterparty, liquidity, and operational risk(s). The Strategy maintains relatively broad constraints on individual position weights and allocations to emerging markets.

**ACTIVE RETURN** / The Fund has a history of creating value and generating consistently generating excess returns, with positive annualized alpha since 2004. The Strategy has outperformed the benchmark on a 1,3, 5, and 7-year basis.

### PRODUCT DETAILS

Vehicle	Minimum	Fee	Ticker	Liquidity	Status
Mutual Fund	\$100,000	0.94%	CSUIX	Daily	<span style="color: green;">●</span> Open

### ASSETS UNDER MANAGEMENT

	AUM (\$M)
Firm	\$102,122.0M
Strategy	\$8,989.0M

### KEY PEOPLE

**Benjamin Morton** - EVP - Head of Glob Infra  
**Robert Becker**  
**Tyler Rosenlicht** - SVP PM

### LOCATION

Cohen & Steers Capital Management

**TRAILING PERFORMANCE (As Of March 2022)**

	QTR	YTD	1 Year	3 Year	5 Year	7 Year	10 Year
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	2.9	2.9	15.8	9.4	9.3	7.5	9.2
<i>FTSE Global Core Infrastructure 50/50</i>	3.7	3.7	14.5	8.1	8.5	7.7	8.8
<i>DJ Brookfield Global Infrastructure Index</i>	4.4	4.4	18.2	7.4	6.7	5.3	7.8

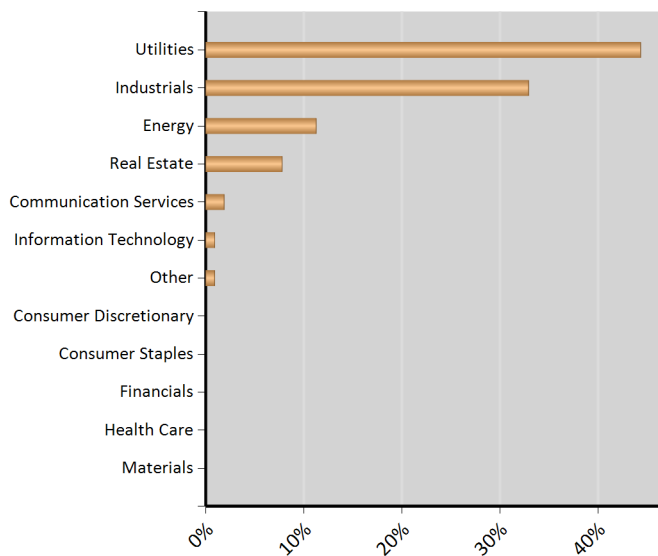
**CALENDAR YEAR PERFORMANCE**

	2021	2020	2019	2018	2017	2016	2015
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	16.7	-1.3	24.7	-4.1	19.3	8.3	-7.8
<i>FTSE Global Core Infrastructure 50/50</i>	14.9	-4.1	25.1	-4.0	18.4	10.9	-8.8
<i>DJ Brookfield Global Infrastructure Index</i>	20.2	-9.5	26.5	-8.5	12.7	11.7	-14.5

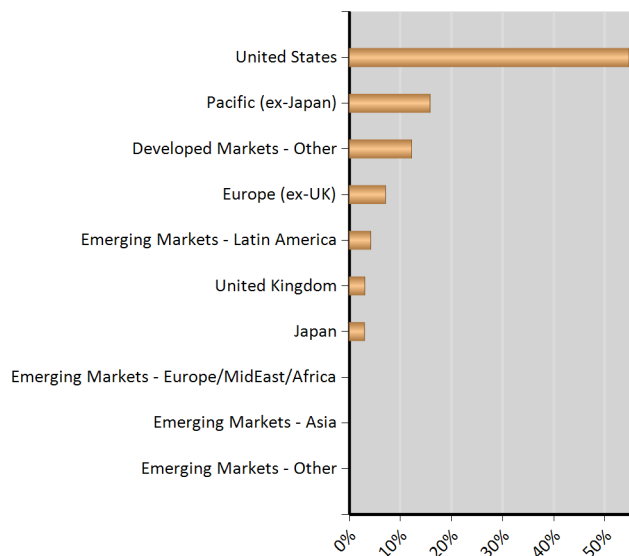
**STATISTICAL MEASURES (Since December 2009)**

	Beta	Alpha	Standard Deviation	Sharpe Ratio	Dividend Yield
<b>Cohen &amp; Steers Global Listed Infrastructure</b>	-	-	12.8	0.6	2.6
<i>FTSE Global Core Infrastructure 50/50</i>	0.9	0.0	13.0	0.7	-
<i>DJ Brookfield Global Infrastructure Index</i>	0.8	1.0	14.4	0.6	-

**SECTOR EXPOSURE**



**GEOGRAPHIC EXPOSURE**



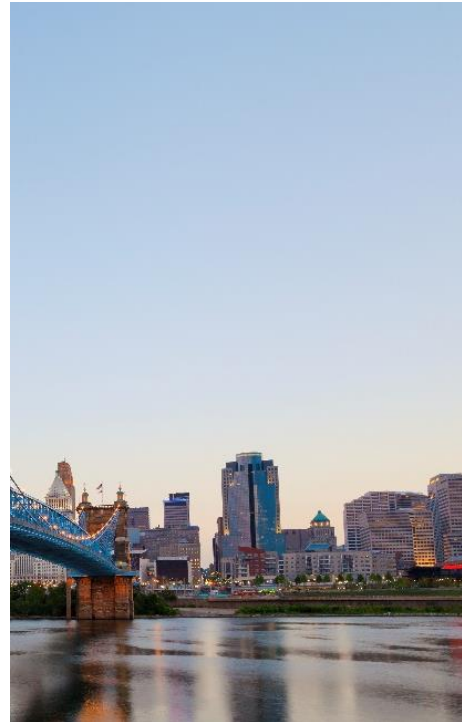
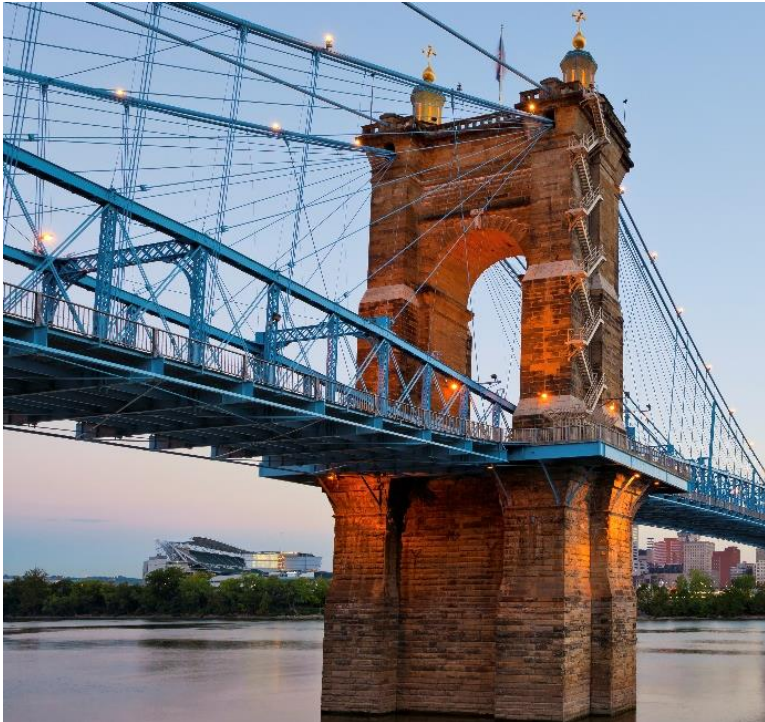
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BETA – A measure of a portfolio’s relative volatility with respect to its market. Technically, beta is the covariance of a portfolio’s return with the benchmark portfolio’s return divided by the variance of the benchmark portfolio’s return. | ALPHA – A measure of a portfolio’s volatility comparing its risk-adjusted performance to a benchmark index. | STANDARD DEVIATION – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return. | SHARPE – A return/risk measure where the numerator is the incremental return of the investment over the risk free rate (U.S. 3 Month T-Bill) and the denominator is the standard deviation of the investment; higher is preferred. | DIVIDEND YIELD – A ratio that shows how much a company pays out in dividends each year relative to its share price.



**Christian Busken**  
Director and SVP – Real Assets

**Dan Tirpack**  
VP, Real Assets

**Andrew Zach**  
VP, Consulting  
Real Assets Consulting Liaison

# REAL ASSET PORTFOLIO CONSTRUCTION

SPRING 2021

# EXECUTIVE SUMMARY

## KEY POINTS

- Real assets – those that are or are closely tied to tangible physical assets – are a key part of many institutional portfolios providing enhanced total returns, diversification, inflation protection and other benefits.
- Real assets typically fall into four categories – real estate, infrastructure, natural resources, and real financial instruments such as TIPs. Each part of the real asset universe provides different benefits to an overall portfolio, with a diversified real asset allocation offering a balance through a full market cycle.
- As noted in this presentation, real asset portfolios can take various forms, resulting in varying degrees of volatility and returns. Investors assessing a real asset allocation should be cognizant that no one portfolio can offer enhanced total returns and inflation protection across a market cycle.
- Investors can access real assets through public and private investments, though positioning across the major sub-asset classes can differ with each offering varying degrees of illiquidity premia.

## Building a Real Asset Portfolio

Since inception of the “endowment model”, real assets have become a key building block in institutional portfolios. Real assets – physical assets or the businesses that manage them – provide a number of benefits to a portfolio, chief among them being inflation protection and enhanced total returns. However, building a real asset is still a complex activity. For example, this last decade has illustrated that all real assets are not created equal, with higher equity beta sub-asset classes significantly outperforming the rest.

There is no “one size fits all” approach to real asset portfolio construction due to the various objectives of individual institutions. Ultimately, institutions must make a choice around the portfolio’s volatility and degree of inflation protection required. Following that decision and a position around the current environment, institutions can develop a real asset allocation that has the potential to provide the broad benefits of the asset class through a full market cycle.

This presentation sets out the investable universe of real assets and offers FEG’s view on constructing a real asset portfolio. Further, we present key positioning considerations within each major sub-asset class. Finally, we discuss how a broad array of institutional investors approach the space, and our proprietary asset allocation model for this complex part of the portfolio.

## Contents

	<b>Page</b>
• Why Real Assets – the Benefits of Constructing Balanced Portfolios	3
• Real Estate	10
• Infrastructure	23
• Natural Resources	32
• Fitting the Pieces Together – Finding the Right Asset Mix	41





# WHY REAL ASSETS

The Benefits of Constructing Balanced Portfolios

# WHAT ARE REAL ASSETS

Real Assets include a broad range of sectors, all of which present unique risk and return profiles. Additionally, each sector has different value drivers that affect the ultimate purpose of portfolio inclusion

	REAL ESTATE	NATURAL RESOURCES	INFRASTRUCTURE	FINANCIAL INSTRUMENTS
<b>Description</b>	This may include a variety of commercial and residential property types and land.	Includes the most basic inputs into the global economy, including oil and gas, crops, timber, and basic materials (minerals/metals).	The hard assets that support a functioning global economy, including power plants, roads, ports, and communications infrastructure.	While all financial instruments are not real assets, some exhibit qualities that protect against inflation, like TIPS and foreign currency.
<b>Value Drivers</b>	Operational improvements at the property level, and low-rate environments.	Supply and demand of underlying commodity.	Benefits from overall economic improvement.	Benefits from increases in inflation expectations.
<b>Total Return</b>	Typically in line with broad equity returns.	Returns can be in excess of broad equities, but highly volatile.	Typically generates moderate, stable returns.	Carries bond like returns.
<b>Inflation Protection</b>	Low	High	Moderate	Moderate
<b>Diversification</b>	Real estate, particularly REITs, tend to maintain higher equity factor risk.	Low correlations to other asset classes.	Carries some global equity factor risk.	TIPs are highly correlated to U.S. bonds, but hold low correlations to other asset classes.
<b>Downside Protection</b>	Low	Low	Moderate	High





# INFLATION PROTECTION

Inflation hedging is a complex issue, but a key trait of Real Assets. The inclusion of real assets into a portfolio may protect against high levels of unexpected inflation, a risk that drives an institution's ability to meet future obligations in real terms. The below table depicts the inflation hedging qualities of real assets compared to traditional asset classes.

ASSET CLASS	EXPECTED INFLATION CORRELATION	UNEXPECTED INFLATION CORRELATION	BETA TO UNEXPECTED INFLATION
Commodities	0.14	0.49	7.38
Natural Resource Equities	0.13	0.43	7.39
Global Listed Infrastructure	0.02	0.37	4.24
Midstream Infrastructure	0.09	0.32	5.27
U.S. TIPS	0.10	0.22	0.94
Gold Bullion	0.13	0.21	3.39
U.S. High Yield	-0.05	0.20	1.89
Equities	-0.05	0.16	2.37
Public Real Estate	0.05	0.07	1.18
U.S. Treasuries	0.30	-0.26	-0.53

We discuss the complexities of inflation hedging in depth within our September 2020 publication *The Inflation Enigma: Balancing Protection & Total Return*, including the hedging qualities of private real assets investments.

**Notes:** The following benchmarks were used to represent the respective asset class – Commodities, Bloomberg Commodities Total Return Index; Natural Resource Equities, S&P Natural Resource Total Return Index; Global Listed Infrastructure, D.J. Brookfield Composite Global Infrastructure Total Return Index; Midstream Infrastructure, Alerian MLP Total Return Index; U.S. TIPS, Barclays U.S. TIPS Index; U.S. High Yield, Barclays High Yield Corporates Index; Equities, S&P 500 Total Return Index; Public Real Estate, FTSE NAREIT All Equity REIT Index; U.S. Treasuries, Barclays U.S. Treasury 1-3 Year Index.

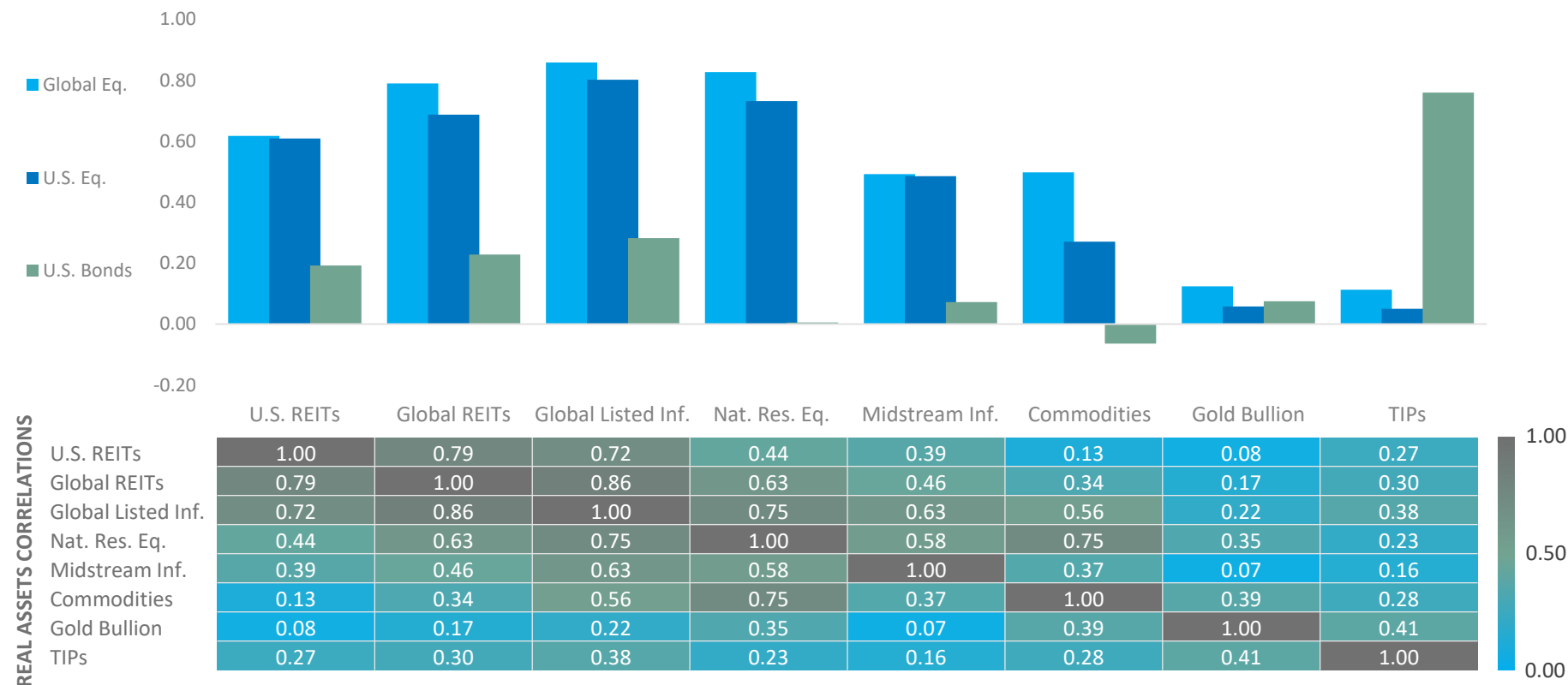
Data Source: Bloomberg L.P.; FEG

# DIVERSIFICATION

Real assets have limited correlations to domestic and global equity markets, offering diversification benefits to institutional portfolios. Further, real assets have relatively low correlations to other real assets sub sectors, adding further benefits when a basket of real assets is introduced to a portfolio.

## REAL ASSET CORRELATIONS TO EQUITIES & FIXED INCOME /

As of September 30, 2020



**Notes:** The asset classes are represented by the following total return indices - Midstream Infrastructure, Alerian MLP Index; Commodities, Bloomberg Commodity Index; U.S. REITs, FTSE NAREIT All Equity REIT Index; Global REITs, FTSE EPRA/NAREIT Developed REIT Index; TIPs, Barclays TIPs Index; Natural Resource Equities, S&P Natural Resource Equities Index; and, Global Listed Infrastructure, DJ Brookfield Global Listed Infrastructure Composite Index (2004-2005) and FTSE Global Core Infrastructure 50/50 Index (2006-2019).

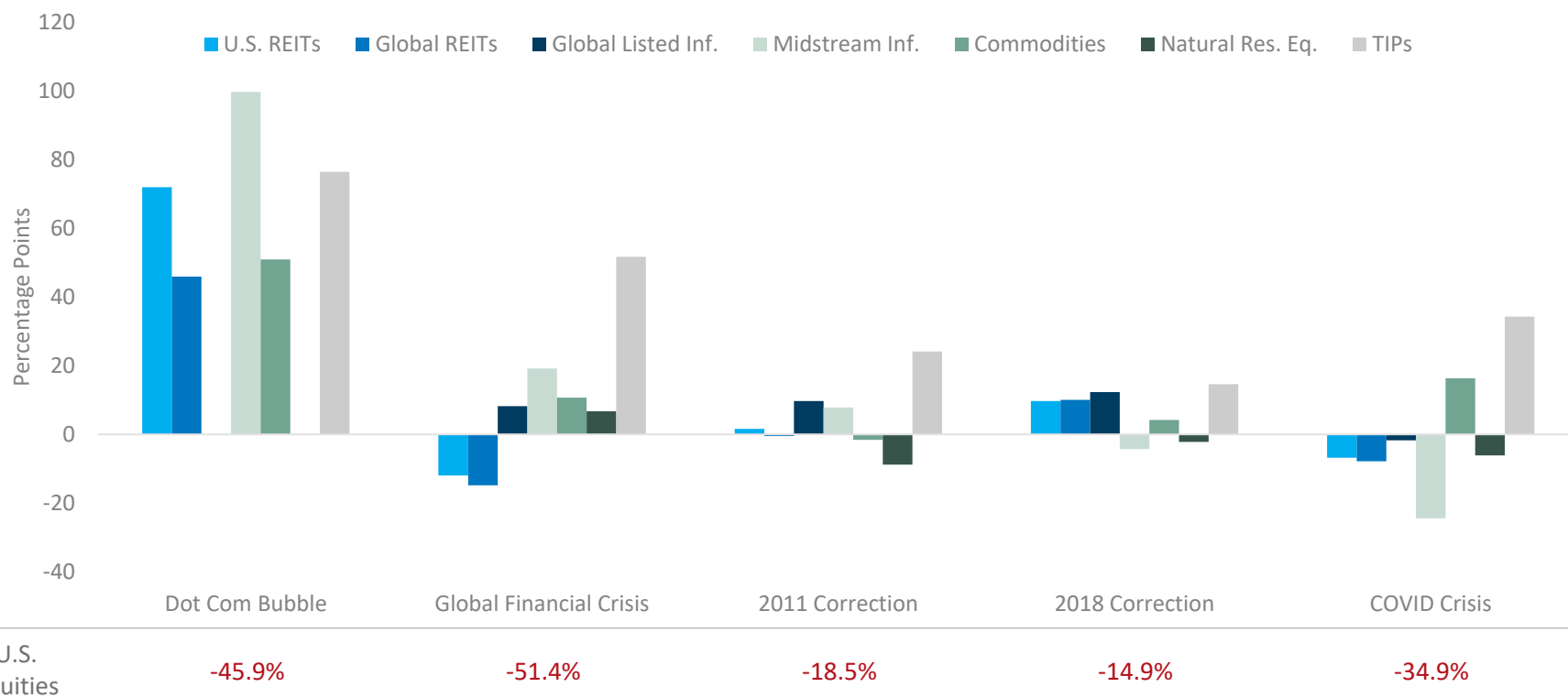
**Data Source:** Bloomberg L.P.

# DOWNSIDE PROTECTION

Real assets have proven to be resilient through previous bear markets compared to broader equities. While not entirely insulated from business cycles, real assets are often supported by a mix of underlying asset values, stable, bond-like cash flows, or both. It should be noted that not all real assets sectors point to strong downside protection at the same time, with each bear market having underlying causes that affect fundamentals differently.

## SPREAD OF REAL ASSETS PERFORMANCE OVER U.S. EQUITIES BY BEAR MARKET /

As of September 30, 2020



**Notes:** The asset classes are represented by the following total return indices - Midstream Infrastructure, Alerian MLP Index; Commodities, Bloomberg Commodity Index; U.S. REITs, FTSE NAREIT All Equity REIT Index; Global REITs, FTSE EPRA/NAREIT Developed REIT Index; TIPS, Barclays TIPS Index; Natural Resource Equities, S&P Natural Resource Equities Index; and, Global Listed Infrastructure, DJ Brookfield Global Listed Infrastructure Composite Index (2004-2005) and FTSE Global Core Infrastructure 50/50 Index (2006-2019).

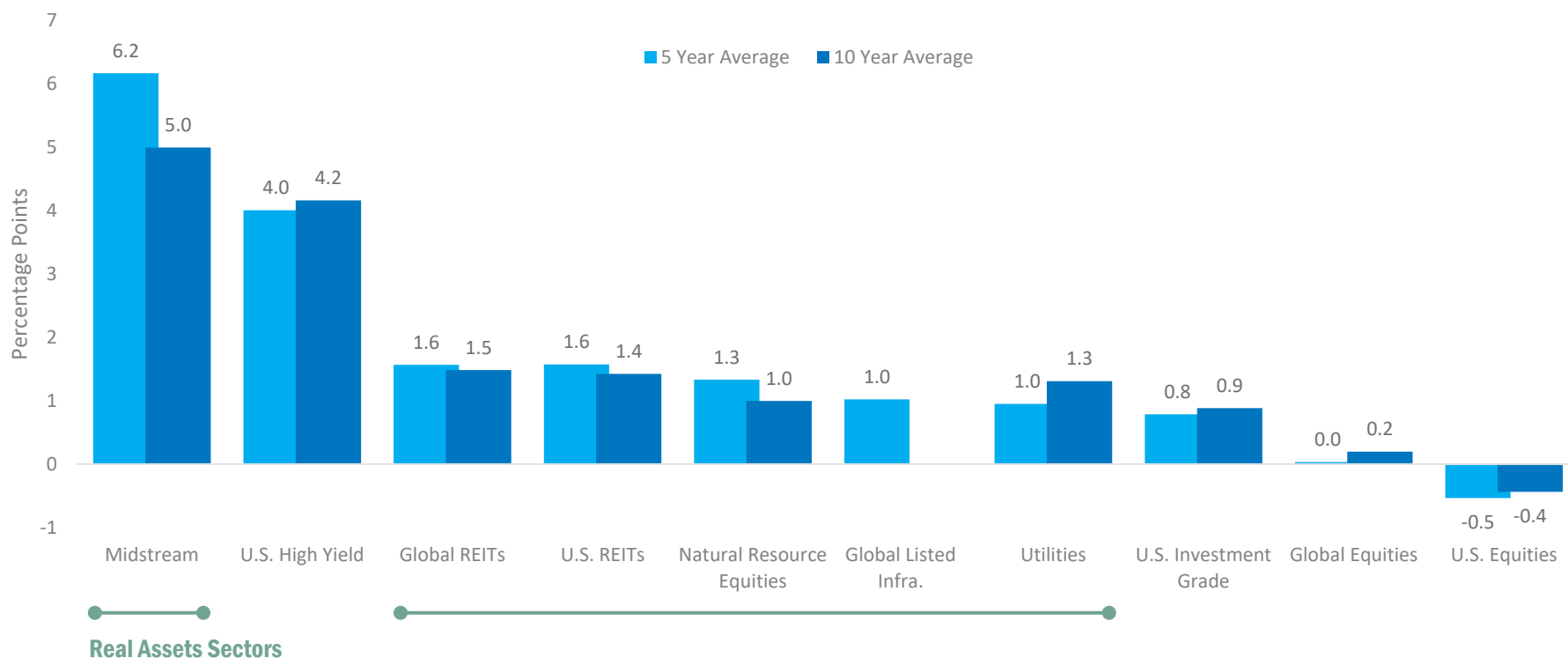
**Data Source:** Bloomberg L.P.

# INCOME GENERATION

Real assets sectors tend to provide yields in excess of fixed income securities and equities. Most real asset sectors collect steady cash flow streams for use of the underlying asset, such as commercial real estate rents, infrastructure concession payments, or utility revenues. Since 2010, midstream infrastructure has offered the highest yield across real assets and broader equities.

## YIELD SPREAD OVER U.S. BONDS /

As of September 30, 2020



**Notes:** The asset classes are represented by the following total return indices - Midstream Infrastructure, Alerian MLP Index; Commodities, Bloomberg Commodity Index; U.S. REITs, FTSE NAREIT All Equity REIT Index; Global REITs, FTSE EPRA/NAREIT Developed REIT Index; TIPS, Barclays TIPS Index; Natural Resource Equities, S&P Natural Resource Equities Index; and, Global Listed Infrastructure, DJ Brookfield Global Listed Infrastructure Composite Index (2004-2005) and FTSE Global Core Infrastructure 50/50 Index (2006-2019).

**Data Source:** Bloomberg L.P.

An aerial view of a dense city skyline, likely New York City, with a blue overlay. The image shows a variety of skyscrapers and buildings, with a prominent tall building in the center. The text "REAL ESTATE" is overlaid in large white letters, and "Sector Deep Dive" is overlaid in smaller white letters below it.

# REAL ESTATE

Sector Deep Dive

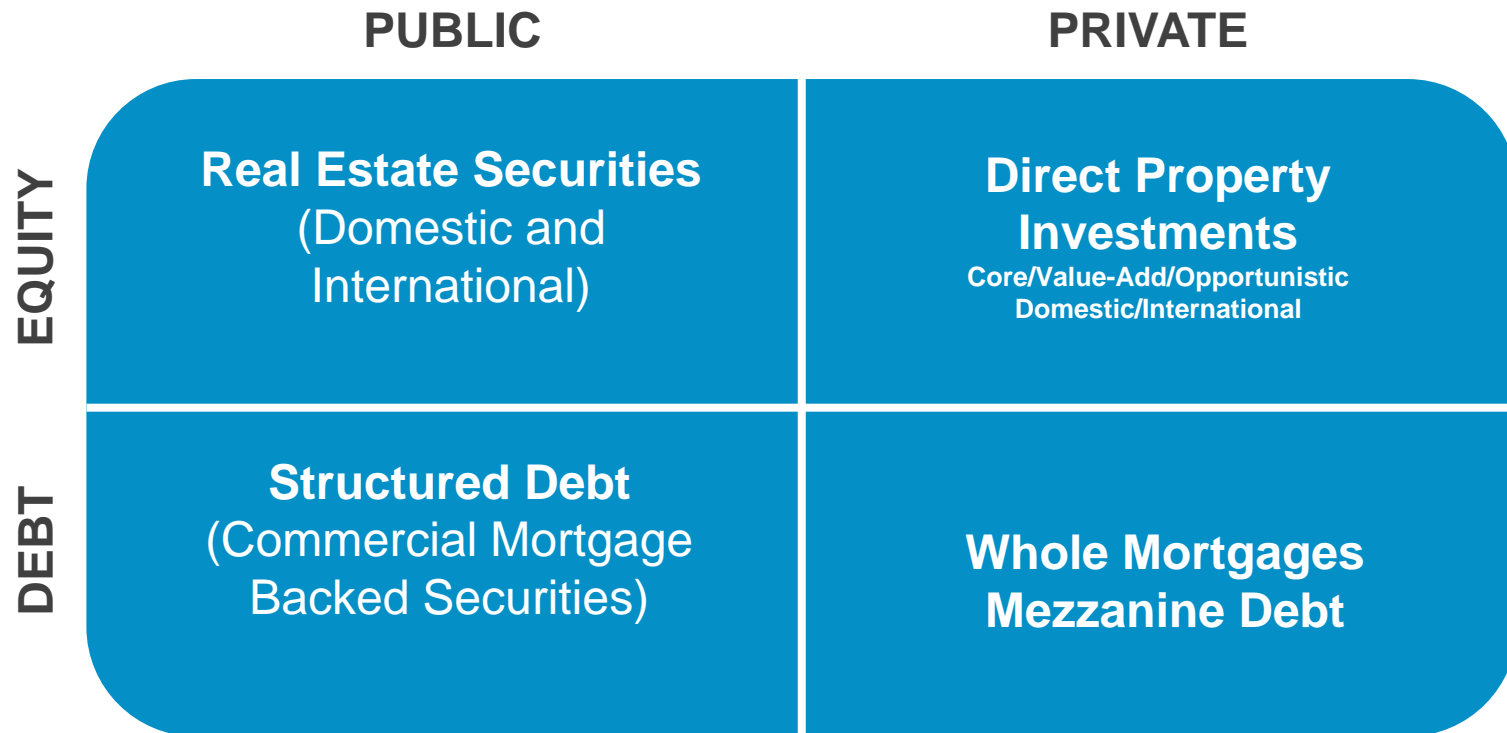
# REAL ESTATE INVESTMENT OPTIONS

While all available real estate investment vehicles tend to maintain exposure to similar property types, each strategy type targets properties in different stages of development or operation, resulting in markedly different risk and return profiles. These strategies range from debt focused opportunities, publicly listed real estate investment trusts (REITs), and private funds.

	DEBT	EQUITY (Public)	EQUITY (Private)		
	REAL ESTATE DEBT	REAL ESTATE INVESTMENT TRUSTS	PRIVATE CORE REAL ESTATE	PRIVATE VALUE-ADD	PRIVATE OPPORTUNISTIC
Description	Semi-liquid or drawdown vehicles that either invest in CMBS or directly originate real estate collateralized loans	Publicly traded securities that invest solely in income producing real estate	Semi-liquid or drawdown vehicle to invest directly in income producing properties	Drawdown vehicle that seeks returns through property and operational improvements	Drawdown vehicle that seeks returns through property and operational improvements or development
Property Types	All commercial property types	All commercial property types	Office, Apartments, Hotels, Industrial, Retail	All commercial property types and land	All commercial property types and land
Liquidity	Varies	Daily	Typically available after an initial lock-up	Upon distributions – typically available upon sale of the asset	Upon distributions – typically available upon sale of the asset
Manager Selection Risk		Low	Low	High	High
Embedded Leverage	Moderate	Moderate	Low	Moderate	High

# REAL ESTATE INVESTMENT OPTIONS

- The real estate investment landscape encompasses a broad range of property types and strategies, including both debt and equity. Investors can choose among core, value-add, and opportunistic funds and can select funds focused on commercial or residential properties, equity, debt, (both traded and non-traded). Opportunistic private real estate may offer more attractive returns compared to “core” or “value-add” strategies.



Source: Prudential Real Estate Investors



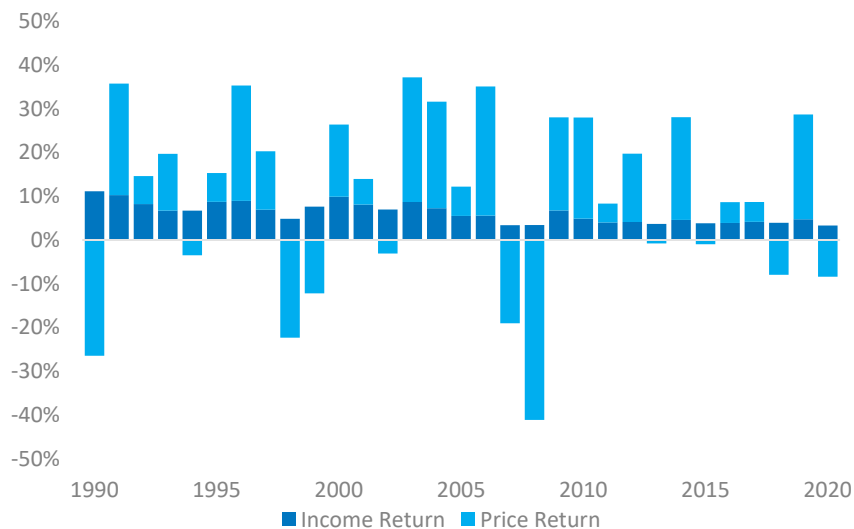
# COMPOSITION OF REIT RETURNS

- Real estate companies tend to leverage the unique real estate investment trust (REIT) governance structure for the purposes of avoiding corporate level taxes. In doing so, these businesses must also pay 90% of their taxable income to shareholders in the form of dividends. This requirement provides REIT holders with a relatively high degree of income compared to other equity investments and makes these dividends a substantial portfolio of the overall return for the asset class.
- Decomposing REIT returns further, one can see they tend to maintain meaningful sensitivity to U.S. equities, credit, and value factors. Importantly, REITs also maintain a negative sensitivity to increases in real rates. This is unsurprising for two reasons. First, with the high dividend rate required for REIT status, growth comes at the expense of taking of new debt, which becomes more expensive at higher rates. Second, as rates fall, yield oriented investors will look to alternatives such as REITs to provide higher income. These dynamics make REIT investors mindful of expected rate movements.

Since 1990, the income component of REITs, returning an annualized 6.1% average return, has represented nearly two-thirds of the asset class's total return.

## COMPOSITION OF REIT RETURNS /

As of December 31, 2020

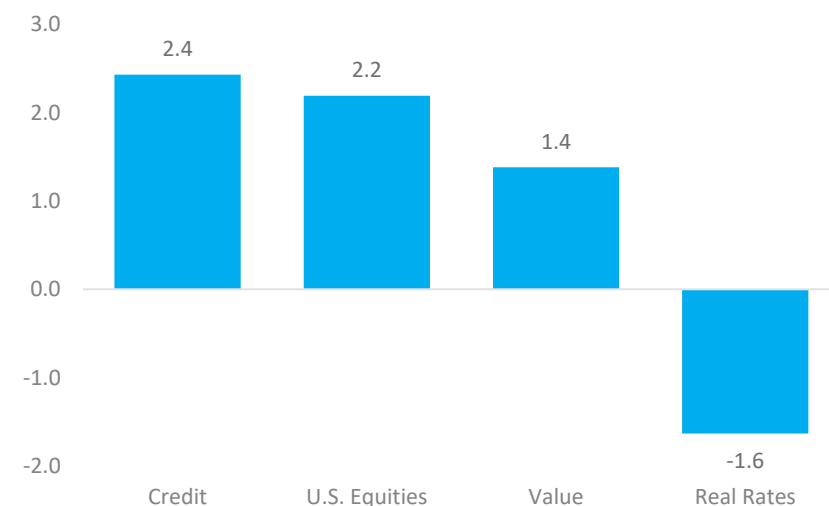


Data Source: Bloomberg L.P.

While sensitive to changes in equity markets, REIT, and real estate broadly, is often characterized by its inverse relationship to real rates.

## U.S. REIT FACTOR EXPOSURES /

As of March 31, 2020



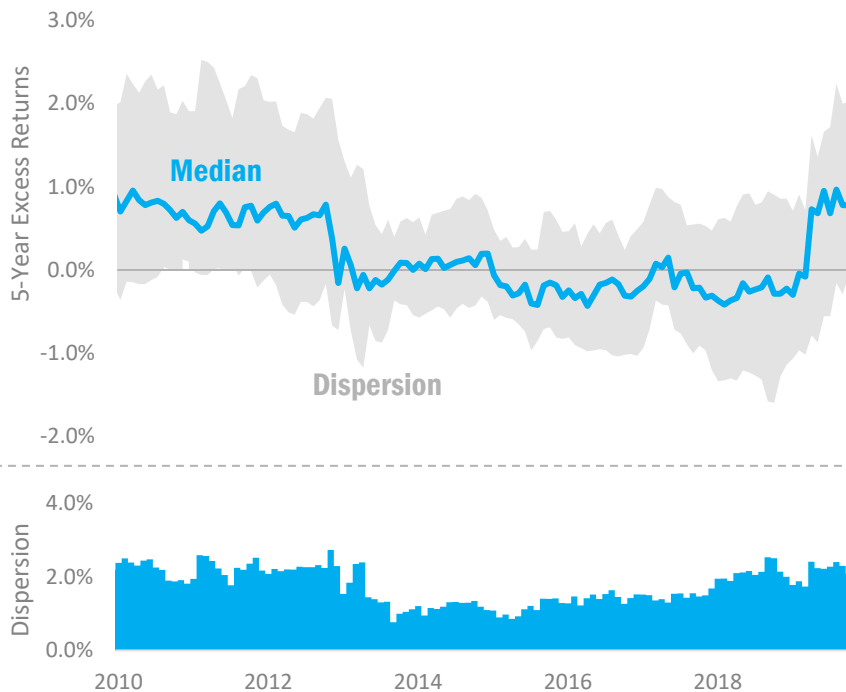


# ACTIVE VERSUS PASSIVE MANAGEMENT IN REITS

- Compared to the broader equity universe, REITs offer a substantially smaller domestic and global opportunity set by names and market capitalization. With that, many debate the benefit of active management in REITs. As noted in the below charts, active REIT managers – both global and U.S. – tend to perform in line with the benchmark. However, best in class active managers may provide an annual excess return of over 100 basis points.
- Dispersion between top and bottom quartile performers has been about 200bps for U.S. and global REIT strategies since 2010. This offers investors some ability to gain marginal returns without significant negative tracking error risk. We recommend that investors gain exposure to REITs through active or structured beta products for these reasons and the expertise required to capitalize on dislocations between geographies and property types.

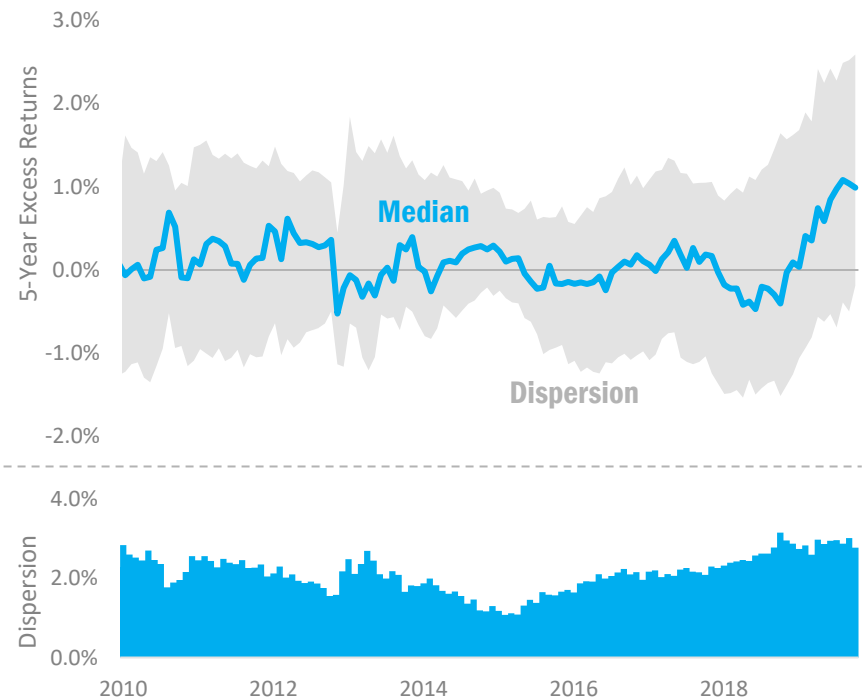
## US ACTIVE REIT MANAGER RETURNS /

As of September 30, 2020



## GLOBAL ACTIVE REIT MANAGER RETURNS /

As of September 30, 2020



**Notes:** In this case, dispersion reflects the difference between the 25<sup>th</sup> and 75<sup>th</sup> percentile performer for each year.

**Data Source:** eVestment Alliance.

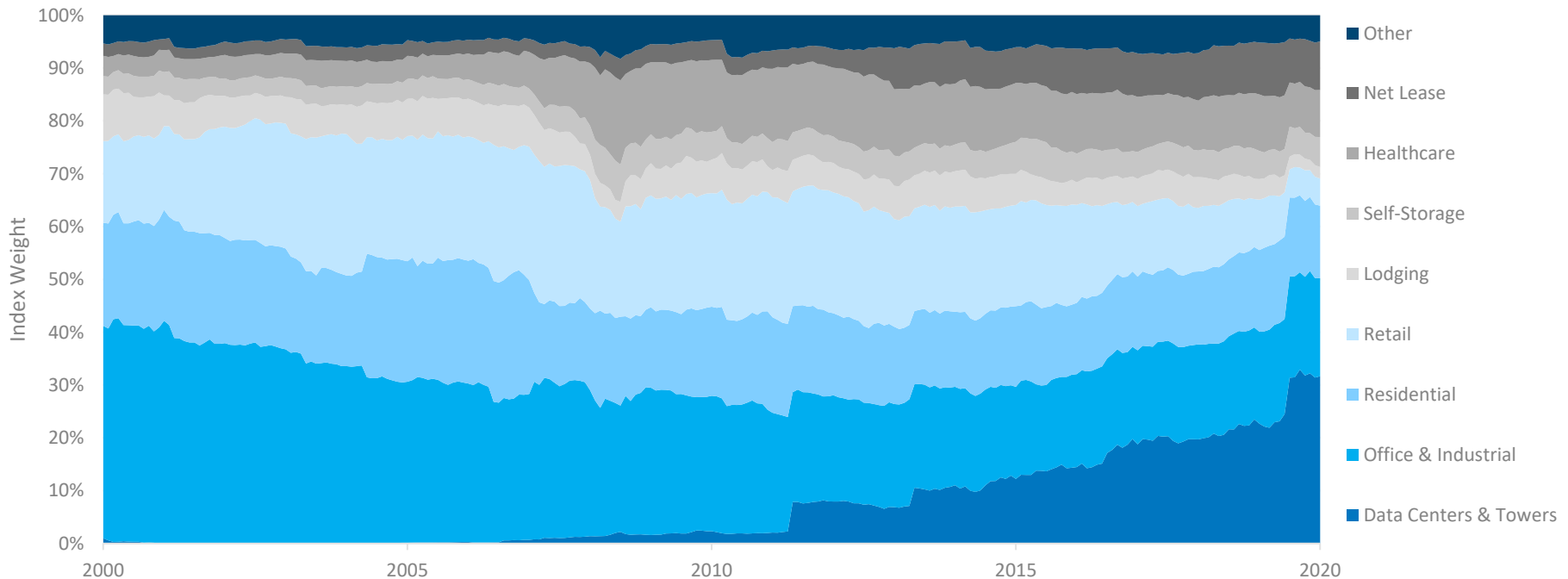
# EVOLUTION OF THE REIT SPACE

- The broad mix of property types that now comprise the REIT market offers exposure to diversified parts of the economy. The spectrum of property types tends to provide exposure to a diversified set of underlying value drivers due to tenant compositions, lease durations, and business models.
- In 2000, the U.S. REIT market was primarily comprised of what we know think of as “core” sectors – Retail, Office, Residential, and Industrial. Since that time, more property types have come to leverage the REIT structure. Today, the pervasive growth in technology has driven data centers and towers to collectively represent 31% of the index, making technology real estate the largest REIT sectors.

**The composition of the public REIT market has dramatically changed over the past decade from core centric property types to largest represented property types now being data centers and cell towers.**

## FTSE NAREIT ALL EQUITY REITS INDEX COMPOSITION /

As of September 30, 2020



Data Source: Bloomberg L.P.

# US VERSUS GLOBAL REITS - DIVERSIFICATION

- Deciding between a global and U.S. REIT allocation has become more of an active decision over the past decade due to the construction of the primary benchmarks underlying each allocation.
- When it comes to U.S. REITs, many managers tend to follow the FTSE NAREIT All Equity REIT Index, which as the name suggests, is comprised of all U.S. REITs, regardless of property type. As discussed earlier, U.S. REITs have become skewed towards technology focused property types, such as towers and data centers as opposed to core property types. Global REIT managers tend to benchmark against the FTSE EPRA/NAREIT Developed REIT Index. This index carries very low exposure to data centers and towers, creating two distinct investment opportunities that differ in more ways than geography. While global managers may hold out of benchmark positions, it is unusual for managers to maintain a high active share.
- Over the past two decades, the diversification benefits of global REIT exposure has also diminished, with U.S. and global REIT correlations approaching 1.0, and exhibiting convergence on a mutual correlation to global equities.

**Over the past decade, U.S. and Developed REITs have seen a convergence of return correlations, demonstrating a decline in the impact of global diversification. This may be due to underlying portfolios of global properties within U.S. REIT names.**

**Further challenging the diversification benefits of global REITs versus a U.S. only allocation is the convergence of both correlations on global equities.**

**U.S. & DEVELOPED MARKET REITS CORRELATIONS /**

As of September 30, 2020



**U.S. & DEVELOPED MARKET REIT CORRELATION TO MSCI ACWI /**

As of September 30, 2020



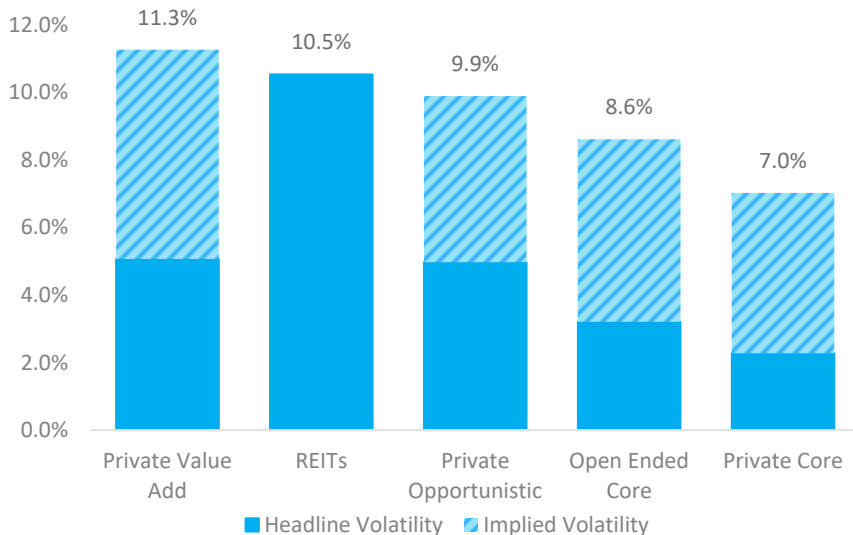
Data Source: Bloomberg L.P.

# ILLIQUIDITY BUDGETING IN REAL ESTATE

- Public and private real estate options all offer exposure to a variety of property types, though the various strategy types will typically invest in properties at different risk levels.
- Private (Core, Value Add, and Opportunistic drawdown funds) and semi-liquid (Open Ended Core) options may look attractive on their face from their relatively low volatility, these headline figures are a bit disingenuous. These strategies exhibit artificial returns smoothing due to their appraisal valuations. FEG has “de-smoothed” these returns using an autoregressive model to better compare private and public options.
- Public REITs tend to outperform most private real estate options in the market without taking on the illiquidity required for open ended core or private core strategies. While value add and opportunistic real estate strategies may not offer the returns of REITs, high return dispersion across these strategies may result in higher returns.

**Private Real Estate is marked on an appraisal basis, resulting in artificially smoothed returns. Presented below are the smooth, or “headline” volatility, and the premium volatility that de-smoothing implies.**

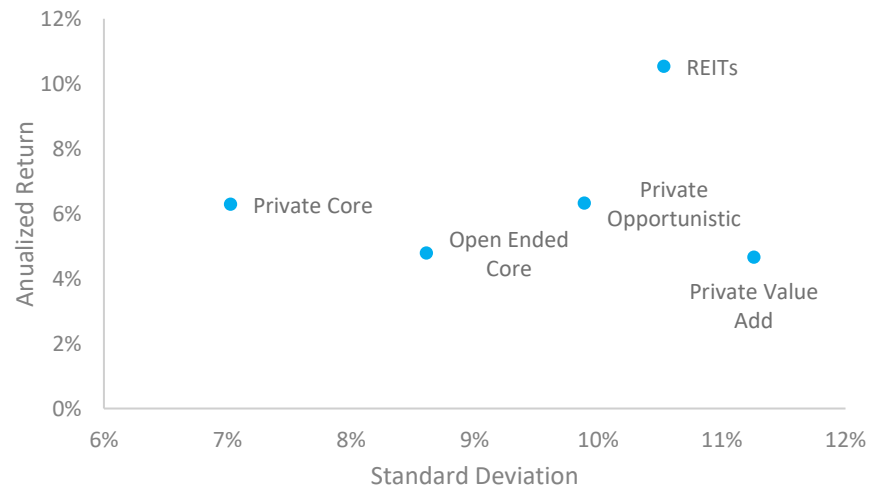
REAL ESTATE VOLATILITY /  
As of September 30, 2020



Data Source: Bloomberg L.P.; ThomsonOne; FEG.

**Following the de-smoothing process, REITs present more attractive risk-adjusted returns relative to some private real estate options, though skilled manager selection in opportunistic and value-add funds may benefit real estate portfolios.**

REAL ESTATE RETURN & VOLATILITY /  
March 31, 2000 - September 30, 2020

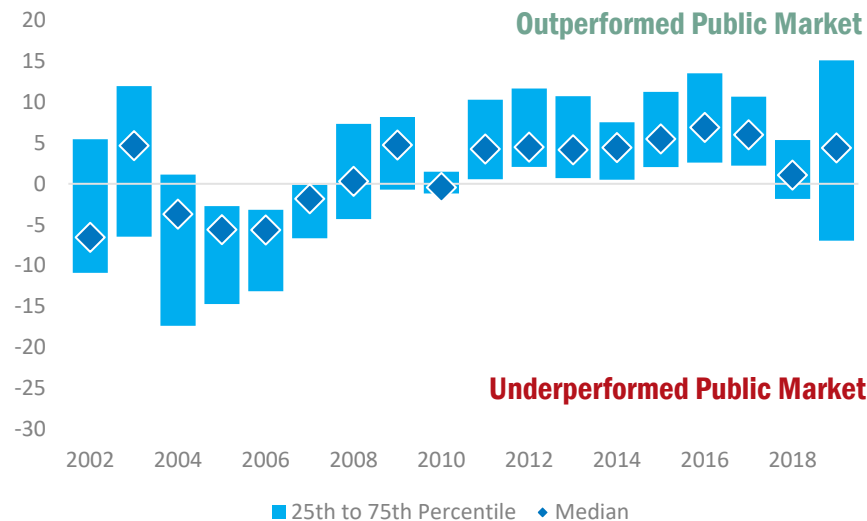


# PRIVATE VALUE ADD & OPPORTUNISTIC ILLIQUIDITY PREMIUMS

- For institutional investors to sacrifice liquidity by committing to private funds, they are expected to provide a premium relative to public markets. The most appropriate measure of comparison is a public market equivalent, which compares an illiquid investment against the performance of a hypothetical investment in a public index with inflows and outflows being equal to those of the private fund.
- In the case of private value add and opportunistic real estate, these opportunities have consistently outperformed public markets outside of years impacted by real estate specific crises, such as the Global Financial Crisis and COVID-19. These crises have made exit conditions particularly challenging for private real estate managers. A portfolio of private real estate funds diversified across vintage years should provide a premium to public markets.
- Importantly, since 2010, bottom quartile performing funds for both private value add and opportunistic real estate have outperformed public markets across a majority of vintage years.

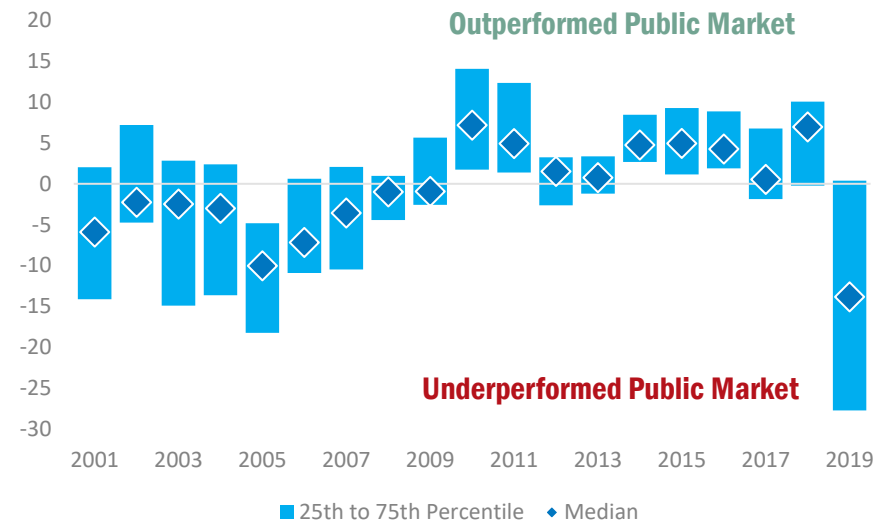
**Almost all vintage years of value-add funds since the Global Financial Crisis have generated premiums REITs. Further, this extends to the top 75% performing funds in most vintages.**

VALUE ADD REAL ESTATE ILLIQUIDITY PREMIUM /  
As of June 30, 2020



**Similarly, opportunistic funds have generated premiums over public REITs for most vintages following the Global Financial Crisis.**

OPPORTUNISTIC REAL ESTATE ILLIQUIDITY PREMIUM /  
As of June 30, 2020



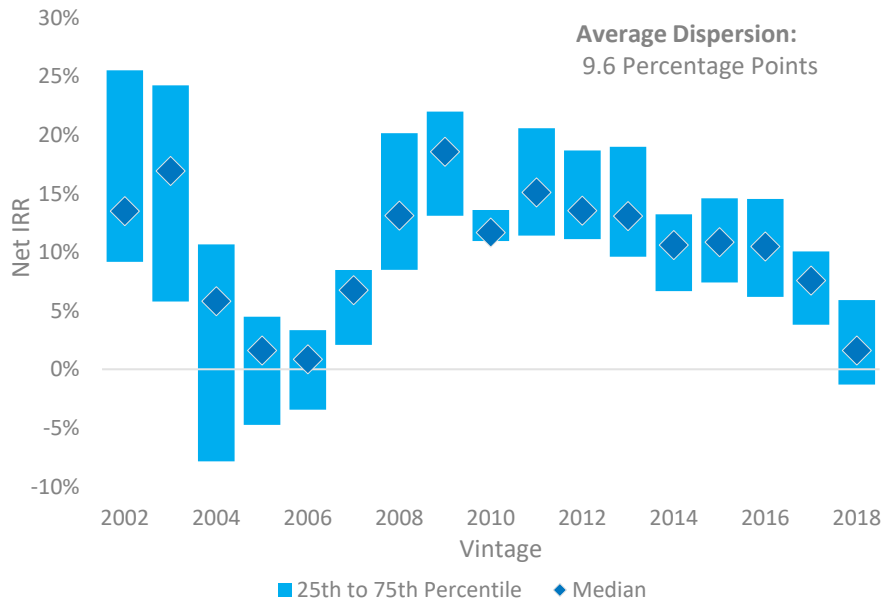
Data Source: ThomsonOne.

# MANAGER SELECTION IN PRIVATE REAL ESTATE

- Private real estate managers tend to maintain a high dispersion of performance within a vintage year. Both value add and opportunistic managers tend to vary by over 900 basis points between the top and bottom quartiles net internal rates of return. This makes manager selection among private real estate manager crucial to the success of an institutional investor evaluating the space.
- Part of this dispersion may be explained by the diversity of property types that private real estate managers may focus on. Private value add and opportunistic managers may tend to focus on specific or niche property types as opposed to a fully diversified set of properties. With that, it is also important to diversify across private real estate managers that may invest in separate areas of the market.

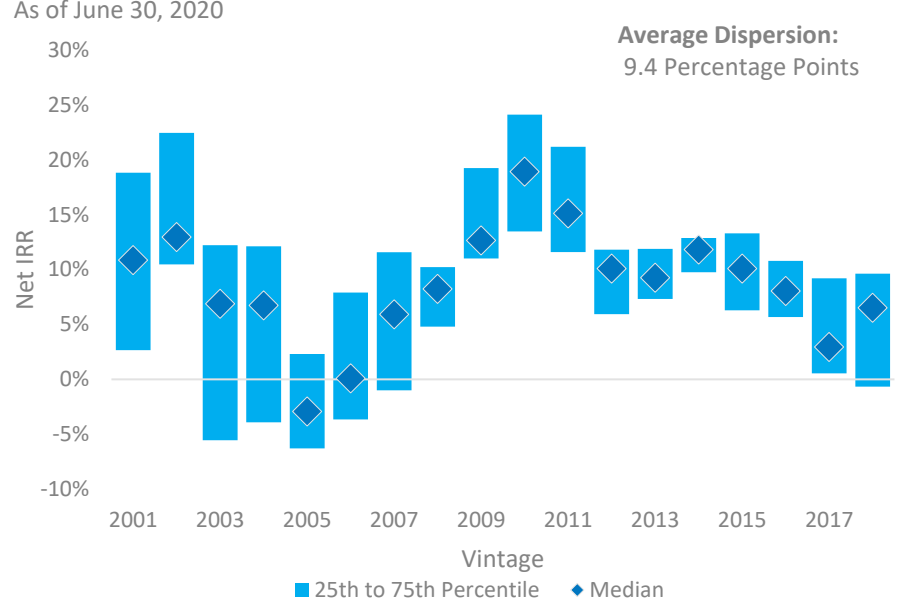
**Average private value-add real estate managers have fairly diverse return dispersions between top and bottom quartile – 9.6 percentage points on average since 2002...**

**PRIVATE VALUE ADD MANAGER PERFORMANCE DISPERSION /**  
As of June 30, 2020



**...a trait that is shared with opportunistic managers. These dispersions are significant compared to public REIT managers, demonstrating the importance of due diligence and manager selection.**

**PRIVATE OPPORTUNISTIC MANAGER PERFORMANCE DISPERSION /**  
As of June 30, 2020



Data Source: ThomsonOne.

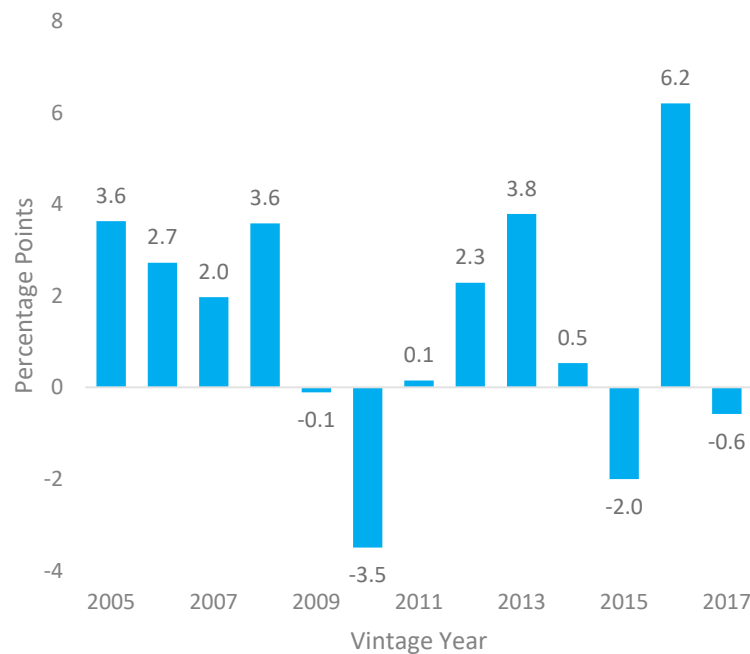
# SIZE IMPACT ON PRIVATE REAL ESTATE RETURNS

- Private real estate managers tend to maintain high dispersion within a vintage year, however, one trend is clear – smaller funds have historically outperformed larger funds. The common reasoning behind this is that smaller funds can put capital to work in less efficient markets, and they tend to maintain more concentrated portfolios where a single deal can dramatically improve performance at the fund level.
- Since 2005, median performing value-add and opportunistic funds under \$500 million have outperformed larger funds by over 140 basis points on average. The bottom right chart shows that after the differences in vintage years are normalized, the bottom 40% of funds by size have generated above average returns, while the larger funds have the largest potential to underperform in a given vintage year.

**While small funds (\$500 million in commitments and less) do not always outperform in a given vintage year, they tend to generate sizable premiums in most years.**

**PREMIUM OF SMALL V. LARGE REAL ESTATE FUNDS /**

As of September 30, 2020

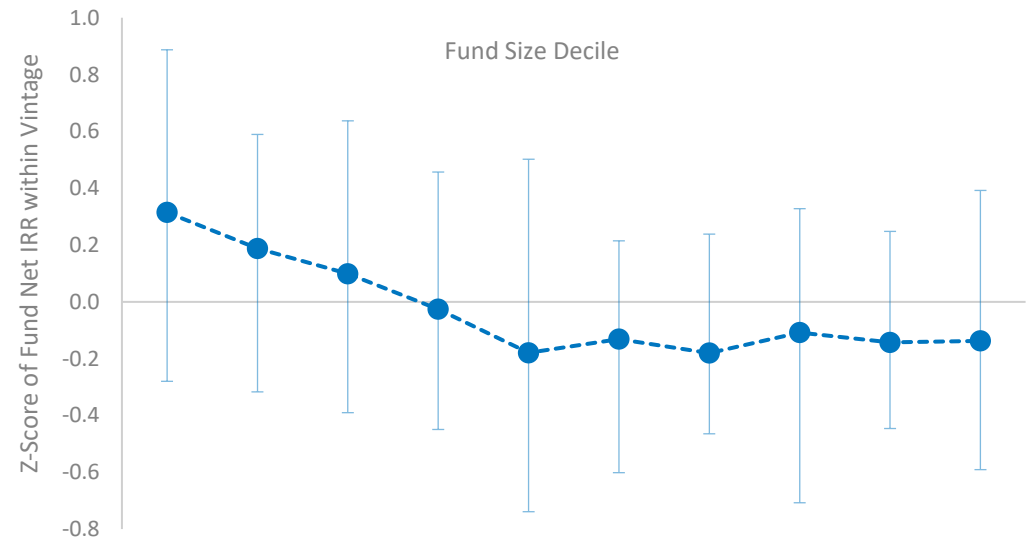


Data Source: Preqin

**After controlling for the difference in vintage years, there is a clear relationship that develops, showing the smallest 40-60% of private real estate funds tend to outperform larger funds.**

**NORMALIZED PRIVATE REAL ASSET PERFORMANCE VS FUND SIZE /**

As of September 30, 2020



**Decile Fund Size Range**

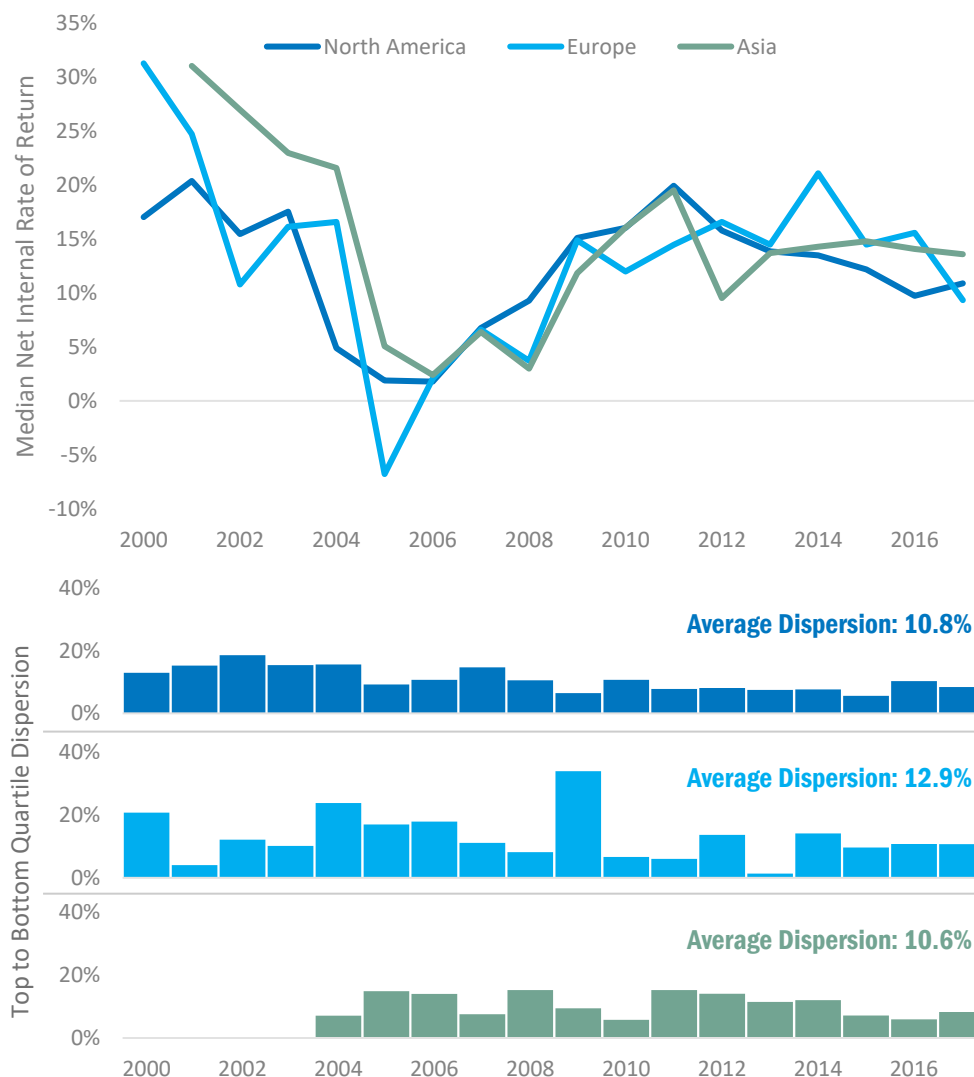
Min	0	31	68	121	180	265	361	501	718	1,101
Max	30	67	120	179	264	360	500	717	1,100	15,800

Data Source: Preqin

# PRIVATE GLOBAL V. US EXPOSURE

- Historically, funds focused on North America, Europe, and Asia have performed broadly in-line with each other. Outperformance by any single geography has been vintage year dependent.
- Differences in median net IRRs across geographies were fairly wide in the early 2000's, however the spread between best and worst performing geography has averaged 400 basis points since 2005. While this is a meaningful difference in returns, no geography consistently outperforms, resulting in investors targeting all three geographies for the best overall return across vintages.
- This approach may be impractical for U.S. based investors that need to source and due diligence international funds for each vintage.
- Adding global private real estate exposure may benefit clients that can afford additional private manager relationships by diversifying sources of returns. However, investors that may not be able to diversify across multiple geographies in a single vintage may be better served building a diversified portfolio of U.S. private real estate funds.

PRIVATE REAL ESTATE PERFORMANCE BY GEOGRAPHY AND VINTAGE /  
As of September 30, 2020





# REAL ESTATE KEY QUESTIONS & RECOMMENDATIONS

## KEY QUESTIONS

### Should REITs be a long-term strategic allocation?

REITs have provided attractive premiums to traditional equities. Although, they are now a part of major equity indices, REITs present attractive opportunities for active managers to add alpha, diversification benefits, and enhanced income. Further, as noted later in this presentation, REITs are a common part of institutional portfolios of all sizes. Finally, REITs allow even highly illiquid portfolios some degree of deference to over- or under-weight the space tactically.

### What key challenges should investors consider when allocating to real estate?

Public or private, the biggest challenge that investors should be cognizant of is real estate's inverse relationship with real rates. Further, out of all real asset sub-sectors, real estate has relatively poor near-term inflation protection qualities as lease terms are often longer than a year.

### Where should private real estate allocations focus?

Private value-add and opportunistic real estate managers have generated premium returns over the public market, but manager selection is key. First, we believe investors should focus on smaller funds (preferably less than \$500 million) where markets are less efficient. Further, preference should be given to managers that can invest across property types and capital structure.

### When should sector focused or non-US funds be considered?

Sector focused and non-US funds may enhance returns to a private real estate portfolio, but diversification across vintages and opportunities is key to successfully reap those benefits. Investors that have a developed private real estate portfolio that can afford the additional illiquidity may consider these opportunities as part of a long-term strategic allocation.

## RECOMMENDATIONS

**REITs should be part of a long-term strategic allocation.** Although they are not a relatively effective inflation hedge, they have provided attractive total returns and income to investors.

Investors should **tactically manage real estate exposure** based on current rate and inflation environments. This is helped by leveraging active managers who can navigate these challenges.

Focus private real estate allocations into domestic **value-add and opportunistic funds**, specifically with **smaller funds** that focus on risk management.

An established, diversified portfolio of private real estate managers should consider adding niche or non-US funds **if their illiquidity budgets permit** and can make a perennial commitment.



# INFRASTRUCTURE

Sector Deep Dive

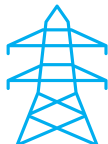



# WHAT MAKES AN INFRASTRUCTURE INVESTMENT?

Infrastructure investments typically exhibit three characteristics – stable cash flows, high barriers to entry, and long-lived underlying assets. These qualities result in a unique opportunity separate from traditional equities, in that each shapes a different risk/return profile for infrastructure businesses, often lower in volatility and growth, but insulated from risks arising from the economy or inflation.

	<b>Explanation</b>	<b>Impact</b>
<b>Stable Cash Flows</b>	Infrastructure assets tend to serve an essential part of the economy, with either steady demand or contractual revenues.	<ul style="list-style-type: none"> <li>• Infrastructure can generate stable yields, but counterparty risk is more important.</li> <li>• The stability of cash flows permits higher leverage, but also lowers expected returns on equity.</li> <li>• Infrastructure tends to be less correlated to the global economy and other asset classes than other sectors.</li> </ul>
<b>High Barriers to Entry</b>	Due to the size of investment required, regulations, and other restrictions, infrastructure assets have a high barrier to entry, limiting the development of competing assets.	<ul style="list-style-type: none"> <li>• Infrastructure returns may be materially impacted by changes in regulations.</li> </ul>
<b>Long-Lived Assets</b>	Infrastructure projects are often built for a long life of use in order to meet an adequate return over the life of the project.	<ul style="list-style-type: none"> <li>• Infrastructure investments can take longer to materialize returns.</li> <li>• Contracts often limit risks of long duration cash flow streams by including inflation escalators, making inflation an effective inflation hedge.</li> </ul>

# WHAT ARE THE TYPES OF INFRASTRUCTURE ASSETS & BUSINESSES?

From the above definition of what makes an infrastructure asset, the universe is considered to include the below asset types. Each type will tend to maintain exposure to different areas of the economy, but each provide critical assets for the operations of people and businesses. With that, they tend to differ in how value is created at an asset level, what drives overall returns, and underlying risks.

	<b>Return Drivers</b>	<b>Risks</b>
 <p><b>Utilities</b> Highly regulated enterprises that supply electricity, gas, and water to its “rate payers”.</p>	<p>These businesses are permitted an allowable rate of return under which they operate and charge their underlying rate payers.</p>	<p>The allowable rates of return of these businesses make them highly susceptible to regulatory risks.</p>
 <p><b>Transportation</b> Assets that facilitate the movement of people and/or goods. This includes airports, railroads, toll roads, and marine ports.</p>	<p>Revenues are driven and paid by the users of the assets, often based on the volume and frequency of use. In the case of airports and passenger rail, some revenues are driven by concessions offered outside the conveyance of passengers.</p>	<p>These businesses tend to be exposed to GDP cycles.</p>
 <p><b>Communication</b> These businesses develop and operate cell towers, satellites, and other assets communication assets.</p>	<p>These businesses are provided rents from providers for the ability to install their equipment on a tower. Additional revenues are often provided whenever equipment is upgraded.</p>	<p>These companies have a limited amount of customers, with an increasing supply of capital compressing expected returns.</p>
 <p><b>Midstream</b> Energy infrastructure begins at the wellhead and continues to the pipeline transmission and storage of natural gas and crude oil.</p>	<p>While the industry began with “take or pay” contract structures that resulted in revenues regardless of volumes, increased competitiveness has brought on more speculative developments with volume driven revenues.</p>	<p>These businesses tend to trade in line with the commodities they move, with revenues tied to both volumes and the health of the underlying customer base. This also results in some sensitivity to GDP.</p>

# INFRASTRUCTURE INVESTMENT OPTIONS

- Unlike real estate, infrastructure investment options often also dictate the sector exposures gained. Listed Infrastructure presents the only option for exposure to utilities, while value-add and opportunistic funds often exclude transportation assets. As noted later in the presentation, we believe investors should consider listed infrastructure as a core position, while value-add and opportunistic funds focus on opportunities to small or complex for public companies to take on.

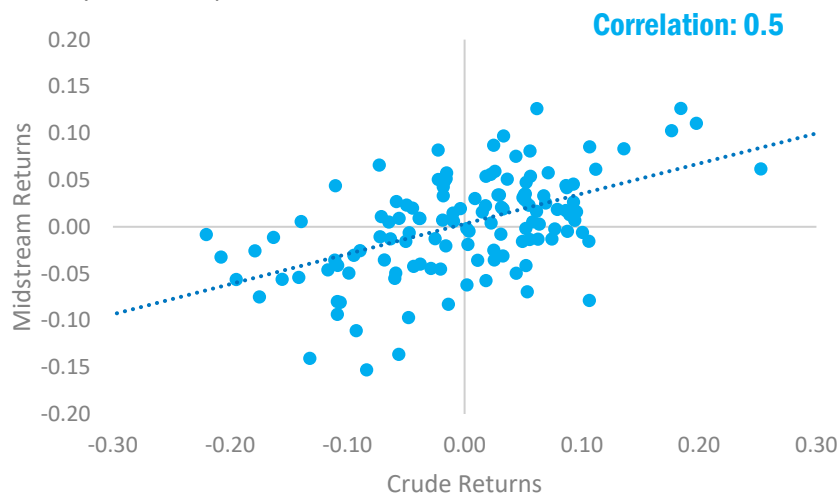
## RISK / RETURN

	DEBT	EQUITY (Public)	EQUITY (Private)		
	INFRASTRUCTURE DEBT	LISTED INFRASTRUCTURE	CORE INFRASTRUCTURE	VALUE-ADD INFRASTRUCTURE	OPPORTUNISTIC INFRASTRUCTURE
Description	Drawdown vehicles that either invest in CMBS or directly originate real estate collateralized loans	Publicly traded securities that develop, or, and operate essential infrastructure assets	Drawdown vehicle to invest directly in income producing properties	Drawdown vehicle that seeks returns through property and operational improvements	Drawdown vehicle that seeks returns through property and operational improvements or development
Sector Focus	Diversified across all sectors	Diversified across all sectors, though investors may allocate to midstream dedicated products	Typically includes most infrastructure sectors	Most options focus on merchant power production, midstream, or technology infrastructure	
Liquidity	Upon distributions, though ongoing yields are expected	Daily	Upon distributions, though ongoing yields are expected	Upon distributions – typically available upon sale of the asset	
Manager Selection Risk	Low	Low	Low	High	High
Embedded Leverage	Low	Low	Moderate	High	High

# MIDSTREAM AND THE INFRASTRUCTURE LANDSCAPE

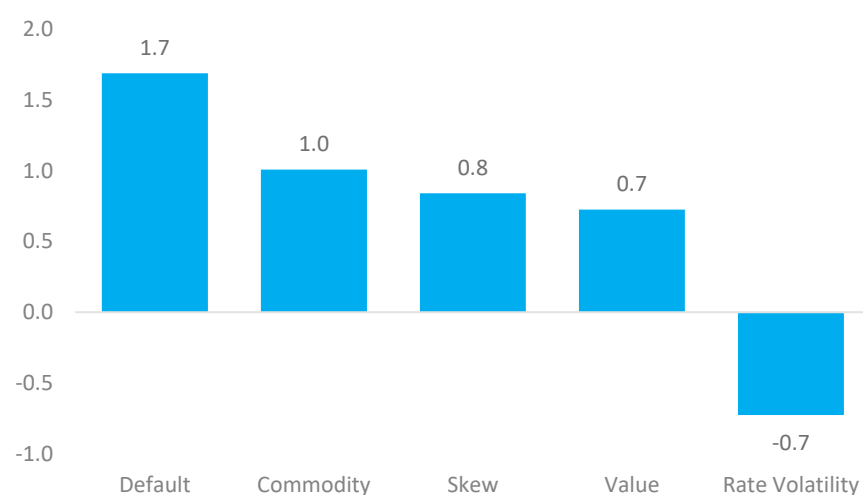
- Midstream has historically earned an allocation separate and distinct from broad infrastructure, both listed and private for institutional investors. What started as an asset class primarily held by retail investors gained acceptance from the institutional community with its strong growth profile and attractive yield.
- The U.S. “shale revolution” brought about a surge for demand in midstream infrastructure in the United States to satisfy new production.
- Originally structured as master limited partnerships (MLPs), these businesses have had to face significant restructurings to remain competitive – cutting incentive distribution rights, adopting more investor friendly governance structures, and in some cases converting to traditional “C” corporations.
- Provided all of the above, midstream infrastructure is unlikely to look like they have historically in terms of available growth.
- While an integral part of the overall infrastructure investment landscape, offering essential services within the energy value chain, its relationship with underlying commodities prices and dwindling number of constituents suggest that this may be better suited to reside within a broader listed infrastructure allocation where an experienced manager can make tactical allocation decisions regarding the asset class.

**CORRELATION OF MIDSTREAM & CRUDE OIL RETURNS /**  
January 2010 to September 2020



Data Source: Bloomberg L.P.

**MIDSTREAM FACTOR EXPOSURES /**  
As of March 31, 2020

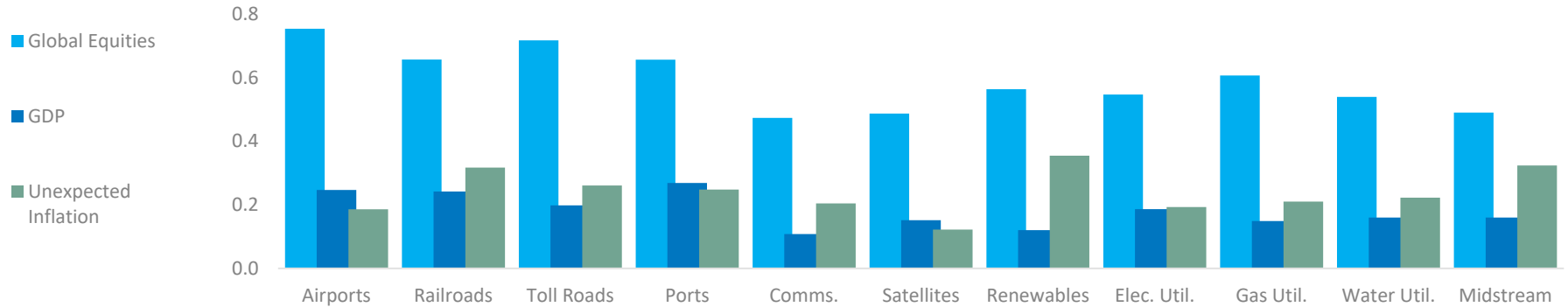




# INFRASTRUCTURE SECTORS MAINTAIN LOW CROSS CORRELATIONS

- Infrastructure sub-sectors, represented through listed securities, are broad and tend to maintain low correlations to each other. Further, many sectors individually maintain low correlations to global equities but relatively high correlations to unexpected inflation compared to traditional equity indices.
- Finally, some subsectors – particularly transportation – may tend to exhibit higher correlations to world GDP. While this tends to detract from diversification benefits when needed most, we believe a broad basket of infrastructure securities benefits overall portfolio construction.

**INFRASTRUCTURE CORRELATIONS /**  
As of September 30, 2020



Airports	1.00	0.53	0.70	0.65	0.29	0.47	0.44	0.49	0.50	0.45	0.43
Railroads	0.53	1.00	0.43	0.42	0.17	0.24	0.36	0.34	0.37	0.36	0.43
Toll Roads	0.70	0.43	1.00	0.55	0.35	0.53	0.55	0.55	0.55	0.59	0.45
Marine Ports	0.65	0.42	0.55	1.00	0.24	0.36	0.52	0.41	0.49	0.40	0.35
Cell Towers & Communications	0.29	0.17	0.35	0.24	1.00	0.25	0.48	0.28	0.31	0.26	0.23
Satellites	0.47	0.24	0.53	0.36	0.25	1.00	0.37	0.30	0.37	0.32	0.44
Renewable Power Generation	0.44	0.36	0.55	0.52	0.48	0.37	1.00	0.47	0.51	0.43	0.30
Electric Utilities	0.49	0.34	0.55	0.41	0.28	0.30	0.47	1.00	0.78	0.71	0.34
Gas Utilities	0.50	0.37	0.55	0.49	0.31	0.37	0.51	0.78	1.00	0.60	0.41
Water Utilities	0.45	0.36	0.59	0.40	0.26	0.32	0.43	0.71	0.60	1.00	0.33
Midstream Energy	0.43	0.43	0.45	0.35	0.23	0.44	0.30	0.34	0.41	0.33	1.00

Data Source: Bloomberg L.P.

# LISTED INFRASTRUCTURE WARRANTS A DEDICATED ALLOCATION

- A common view of listed infrastructure is that, being comprised of traditional equity securities, it is solely a thematic equity position that may not warrant a long-term strategic allocation. This argument is perhaps misguided, as a dedicated listed infrastructure allocation can offer positions outside of global equity benchmarks, diversified from broad equities, or underrepresented across active public equity managers.
- Global listed infrastructure tends to carry a relatively low correlation to broad global equities, though some of the levered GDP exposure gained through listed infrastructure can increase this correlation in times of volatility, such as the COVID-19 crisis. Importantly, listed infrastructure tends to provide greater up-market capture than down-market capture, providing an attractive option when compared against global equities.
- Finally, for investors assessing a listed infrastructure option, they should be aware that headline index overlap may not be representative of what they would experience in their portfolio. Outside of deep value strategies, generalist active equity managers are not typically investing in infrastructure securities, as regulatory risk and asset level underwriting may make it hard for generalists to generate alpha.

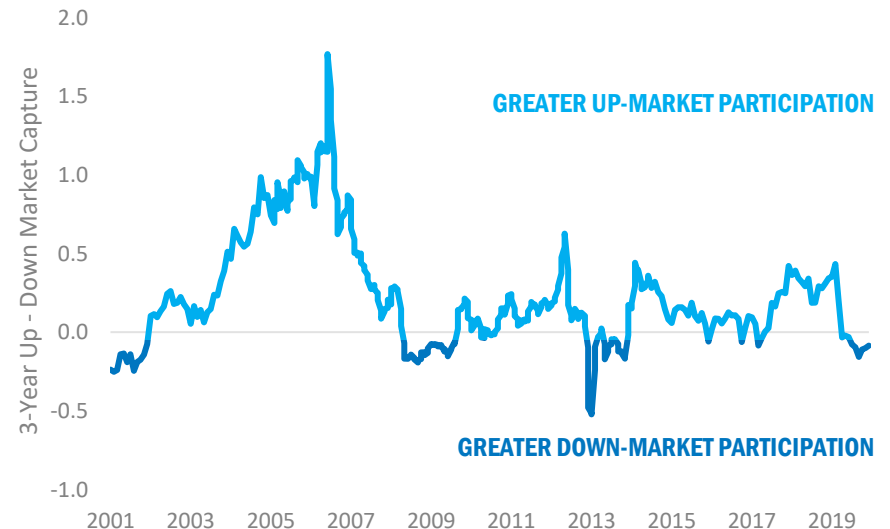
## GLOBAL INFRASTRUCTURE CORRELATION TO EQUITIES /

As of September 30, 2020



## GLOBAL LISTED INFRASTRUCTURE UP / DOWN MARKET CAPTURE SPREAD /

As of September 30, 2020





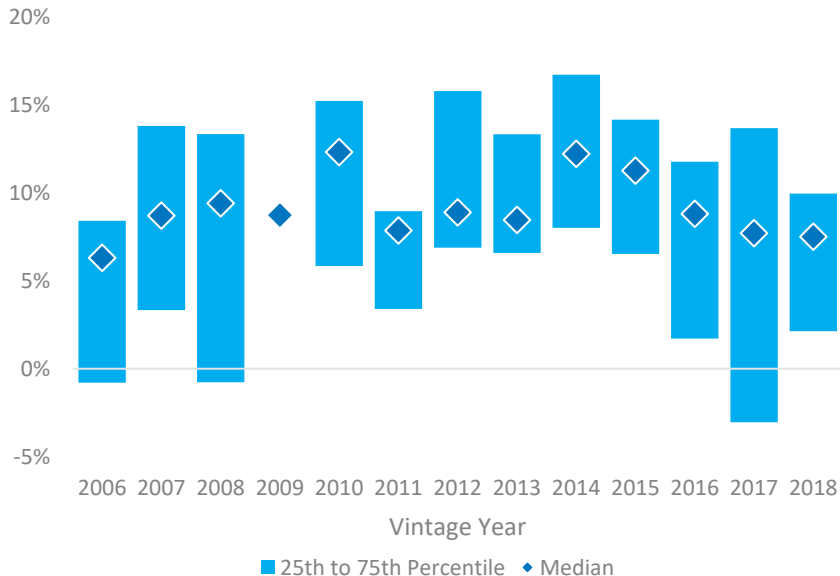
# INFRASTRUCTURE ILLIQUIDITY BUDGETING

- Investors look to private capital options for the benefit of an illiquidity premium over public markets. Private infrastructure has attracted significant capital over the years from pension funds looking for relatively secure, long tailed yields. While this is still true, these returns have been compressed over the years due to this influx of capital and relatively low interest rate environment. As such, traditional core infrastructure tends to perform roughly in line with public markets. This is perhaps not that surprising for large infrastructure investors, when public companies and private investors chase the same opportunities that come to market.
- Because of this return compression, investors should gain most of their infrastructure exposure through listed infrastructure. However, for those investors with a relatively high liquidity tolerance, a diversified portfolio of opportunistic funds may provide returns in excess of public markets. Opportunistic funds tend to have narrow sector or geographic focuses, such as merchant power production or cell towers development.

**Private infrastructure has historically generated relatively stable positive returns for investors compared to other private opportunities, though returns are generally under 15%.**

## PRIVATE INFRASTRUCTURE RETURNS /

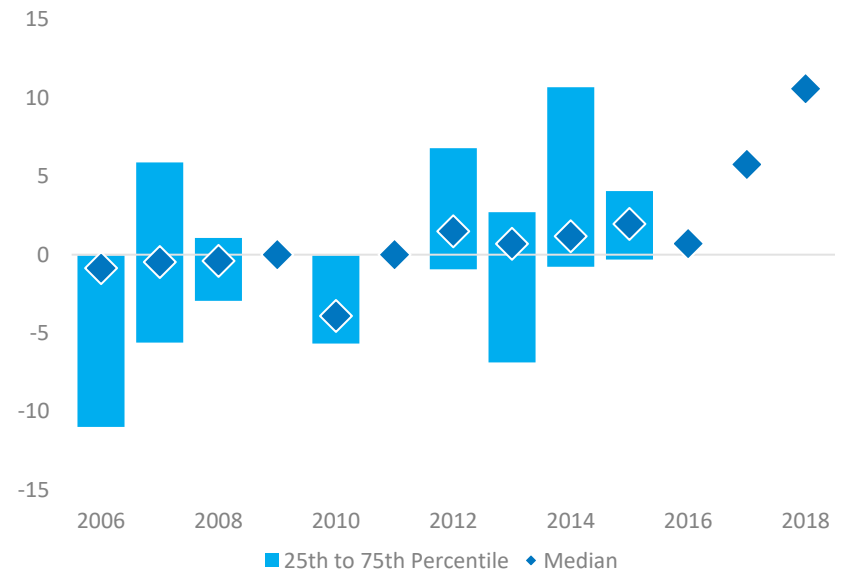
As of September 30, 2020



**Further, this performance is typically in line with public markets, though outperformance has been possible for private infrastructure managers.**

## PRIVATE INFRASTRUCTURE ILLIQUIDITY PREMIUM /

As of June 30, 2020



Data Source: ThomsonOne; Preqin.

# INFRASTRUCTURE KEY QUESTIONS AND RECOMMENDATIONS

KEY QUESTIONS	RECOMMENDATIONS
<p><b>Should infrastructure be part of a long-term strategic allocation within real assets?</b></p> <p>Infrastructure securities already fall within the traditional equity indices, but it should be noted that these are not traditionally areas that are well travelled by active equity managers. Underwriting these businesses requires familiarity with the specific regulatory regimes and underlying assets. Further, infrastructure adds singular benefits in the form of downside risk mitigation and enhanced inflation protections.</p>	<p><b>Infrastructure should be part of a strategic real assets allocation</b> due to its diversification and inflation hedging benefits.</p>
<p><b>What are the key challenges in infrastructure investing?</b></p> <p>Infrastructure has a number of headline benefits, but regulation and competition for assets and concessions typically limits potential returns.</p>	<p><b>Investors should know that returns are limited</b> compared to traditional equities, but the benefits to a portfolio outweigh this.</p>
<p><b>Is a dedicated midstream allocation all you need?</b></p> <p>In short, probably not. Despite its tumultuous history, midstream is a crucial part of the infrastructure universe and energy value chain. It has much of the qualities of an infrastructure business, but its returns are also inherently tied to commodity prices in a way that other infrastructure segments are not. Investors looking for quality yielding assets are better served through a diversified listed infrastructure opportunity.</p>	<p>Midstream allocations <b>should be expressed through a broad infrastructure allocation</b> unless the intent is exposure to energy commodities.</p>
<p><b>Is it worth going private in infrastructure?</b></p> <p>Private infrastructure is generally comprised of “mega-funds” with billions of dollars in commitments. This scale is required for large scale projects where yields are stable, but typically low. Further, these funds tend to compete with public companies for the same or similar opportunities, making listed infrastructure’s liquidity profile the preferred access point. There are less efficient areas of the market where sector focused managers can stabilize assets for acquisition by larger funds. These opportunities should be added selectively, and after investors have achieved illiquidity targets in real estate and natural resources.</p>	<p><b>Infrastructure should not be the first place within real assets where investors choose illiquidity</b> but can enhance returns over the public market through smaller, sector-focused managers.</p>

An aerial view of a large, complex offshore oil and gas platform in the middle of the ocean. The platform is a dense network of yellow and white steel structures, including multiple levels of decks, ladders, and pipes. A long, narrow walkway or ramp extends from the foreground towards the platform. The sky is filled with soft, grey clouds, and the water is a calm, dark blue-grey. The overall scene is industrial and remote.

# NATURAL RESOURCES

Sector Deep Dive

# NATURAL RESOURCES INVESTMENT LANDSCAPE

- Natural resources are comprised of the basic materials that go into everything from manufactured goods to other consumer staples. These are generally grouped into the four categories outlined below – upstream energy, metals & mining, agricultural, and timber resources.
- Natural resource are highly cyclical, keenly impacted by the supply and demand of the underlying commodities.

	Upstream Energy	Metals & Mining	Agriculture	Timber
<b>Description</b>	Direct investment in producing oil & natural gas properties or private energy companies	Direct investment in mining projects both early and later stage	Ownership of farmland assets; both “row crop” and “permanent crops”	Direct ownership of timberland properties
<b>Return Drivers</b>	Acquisition prices, asset-level improvements, and commodity prices	Expertise in managing or developing assets . Commodity prices	Value-add at the asset level	Timber prices and “higher-better use”
<b>Geography</b>	U.S. & Canada	Global	Primarily U.S.	Primarily U.S.
<b>Volatility</b>	High	High	Low	Low
<b>Expected Return</b>	Cycle-dependent; 12-15% net	Cycle-dependent; 20%+ net	9-12% Net	7-9% net

# NATURAL RESOURCE INVESTMENT VEHICLES

- While the ultimate goal of natural resource investing is to gain exposure to the underlying commodities, there are a number of vehicles to access this exposure. None of these options perfectly replicate the value of the underlying commodities due to either the investment structure or it being a position in the equity of the production operations.

	<b>COMMODITY FUTURES</b>	<b>NATURAL RESOURCE EQUITIES</b>	<b>SPECIALIZED REITS</b>	<b>PRIVATE NATURAL RESOURCES</b>
<b>Description</b>	Investors look to futures to replicate underlying commodity exposure due to the impracticality of holding the physical commodities themselves	Investors may invest in the equity of companies whose primary activities include the production of commodities and materials, though returns also depend on business operations	The REIT structure is often leveraged for timber. These businesses own and operate timberland but may also produce timber products for end markets	Drawdown vehicles will purchase assets for the prospect of producing commodities, including oil and gas rights, producing mines, timberland, etc.
<b>Liquidity</b>	Daily	Daily	Daily	Upon Distributions
<b>Alpha Generation</b>	Strategic curve positioning and commodity allocations	Stock selection and sector allocations	Generalist REIT investors may generate alpha through stock selection	Managers drive returns through selection of the underlying assets and operations of production
<b>Manager Selection Risk</b>	Low	Moderate	Due to the limited universe, dedicated Timber REIT managers do not exist	High
<b>Commodities Included</b>	All traded commodities	All commodities	Timber	Funds typically focus on one commodity vertical

# COMMODITY FUTURES – KEY ISSUES

- Investors seek to gain exposure to natural resources through commodities. Commodities is a unique asset class, in that many of the items included in the asset class have a limited life or incur charges for the ongoing storage of the commodity. Further, investors do not want to actually hold the physical commodity for these reasons and the avoidance of the required logistics. As such, the spot market, where one could hypothetically exchange currency for commodity is not actually investable.
- Investors look to the futures market to gain commodity exposure, but this is not without added complexities. Due to the carry cost associated with holding commodities, it is normal for futures to trade at a higher price than the current spot price, otherwise known as “contango”. The impact of this and the defined term of futures contracts (typically less than 12 months) results in investors consistently investing in new contracts that are higher than the spot. This “roll yield” is often negative due to contango, creating a drag on returns.
- The final component of commodity returns is the yield on collateral posted by the investor. This is often a short-term treasury instrument. In low interest rate environments, this component is a nominal contributor to overall total returns for commodity investors.
- Due to these challenges, commodities futures are often an inefficient way to exposure to natural resources. This is particularly true when compared to natural resource equities which share in some of the headline volatility of commodity markets, but also serves as an effective hedge against inflation without investing in the futures market.

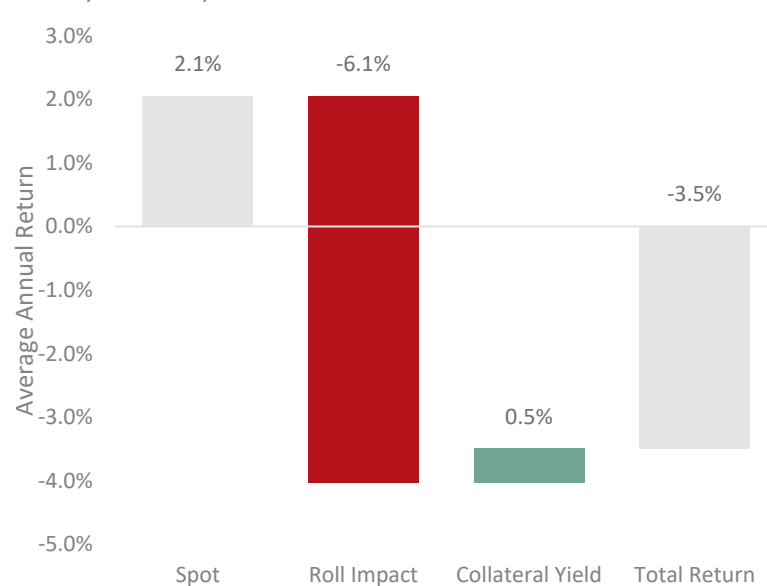
## COMMODITY INDEXED RETURNS /

As of September 30, 2020



## AVERAGE CONTRIBUTION TO COMMODITY RETURNS /

January 2010 - September 2020



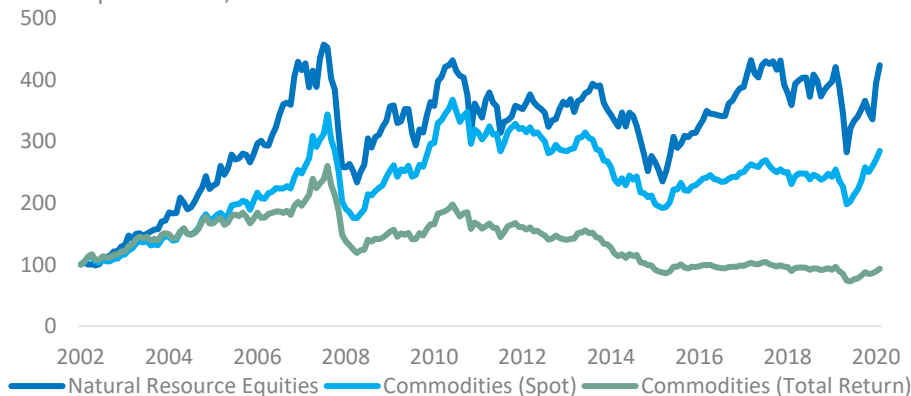
Data Source: Bloomberg L.P.

# NATURAL RESOURCE EQUITIES

- As noted above, the spot commodity market is not investable due to spoilage and the logistics of carrying commodities. While commodity futures face structural challenges that prevent an efficient replication of spot commodity exposure, natural resource equities offer commodity exposure without the cost of a roll yield.
- Natural resource equities are comprised of equity positions in listed businesses that focus on mining, oil and gas exploration & production, or agricultural operations. These businesses are materially affected by fluctuations in their underlying commodity prices. This exposure can, and often is, muted through robust hedging programs. Further, these securities are also impacted by the unique operations of the businesses.
- These traits are apparent when observing the factor exposures for the asset class. While natural resource equities add efficient commodity exposure, we believe investors should be mindful of the equity factor contributed.

## NATURAL RESOURCE EQUITIES VS COMMODITIES EXPOSURE /

As of September 30, 2020

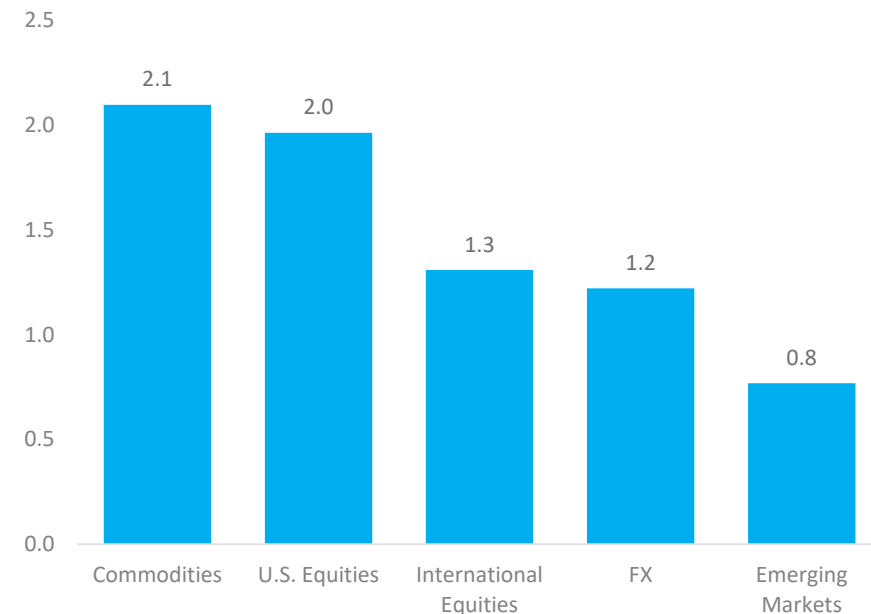


	Comm. (Spot)	Nat. Res. Eq.	Comm. (TR)
Ann. Return	4.4%	5.9%	-1.8%
Ann. Std. Dev.	16.8%	20.9%	16.6%
Correlation		0.75	0.98
Down Capture		0.97	0.92
Up Capture		0.91	1.09
Up/Down Capture		1.07	0.84

Data Source: Bloomberg L.P.

## NATURAL RESOURCE EQUITIES FACTOR EXPOSURES /

As of March 31, 2020





# DIVERSIFYING STRATEGIES IN NATURAL RESOURCES

- Commodities are a diverse investment set, with each individual commodity being impacted by unique market fundamentals. As such, commodity returns are volatile and diverse. Managers can benefit from this dispersion and dislocation in a long/short structure.
- While this strategy may ultimately generate enhanced total returns over the long-term, their effectiveness as an inflation hedge may be diminished. As FEG has noted in our inflation education piece, forecasts of inflation are often inaccurate, and timing unexpected inflation may not be possible for even the most skilled managers.
- FEG recommends that clients consider these strategies to enhance total returns across natural resources, but due to the qualities noted above, clients may choose to place these investments in a diversifying strategy allocation where downside mitigation is closer to the strategy's objective.

Commodities have garnered a reputation for their volatility, with individual commodity types experiencing significant swings over time. The below periodic table of returns depicts this volatility, with no major commodity class generating consistent returns. Strategies with a broader remit, permitting short positions may benefit from the dislocations created.

## PERIODIC TABLE OF COMMODITY & ROLL RETURNS /

As of December 31, 2020

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
108%	-2%	53%	42%	25%	38%	64%	36%	-5%	80%	60%	5%	18%	5%	12%	-10%	20%	28%	-4%	15%	25%
2%	-4%	19%	30%	24%	29%	21%	20%	-27%	44%	42%	-2%	6%	-4%	-7%	-12%	16%	10%	-6%	9%	19%
-7%	-21%	17%	20%	17%	17%	18%	15%	-29%	29%	30%	-14%	1%	-14%	-7%	-19%	13%	5%	-7%	5%	16%
-8%	-22%	15%	19%	6%	7%	-11%	-8%	-30%	-2%	16%	-14%	-4%	-17%	-9%	-19%	9%	-5%	-14%	2%	3%
-8%	-22%	1%	-4%	1%	-3%	-16%	-14%	-48%	-5%	9%	-16%	-9%	-17%	-10%	-27%	-6%	-12%	-21%	-3%	-24%
-13%	-39%	-13%	-5%	-25%	-6%	-44%	-15%	-49%	-15%	-11%	-24%	-22%	-31%	-39%	-39%	-6%	-16%	-24%	-8%	-43%

<b>Energy</b>	<b>Livestock</b>	<b>Grains</b>	<b>Softs</b>	<b>Industrial Metals</b>	<b>Precious Metals</b>
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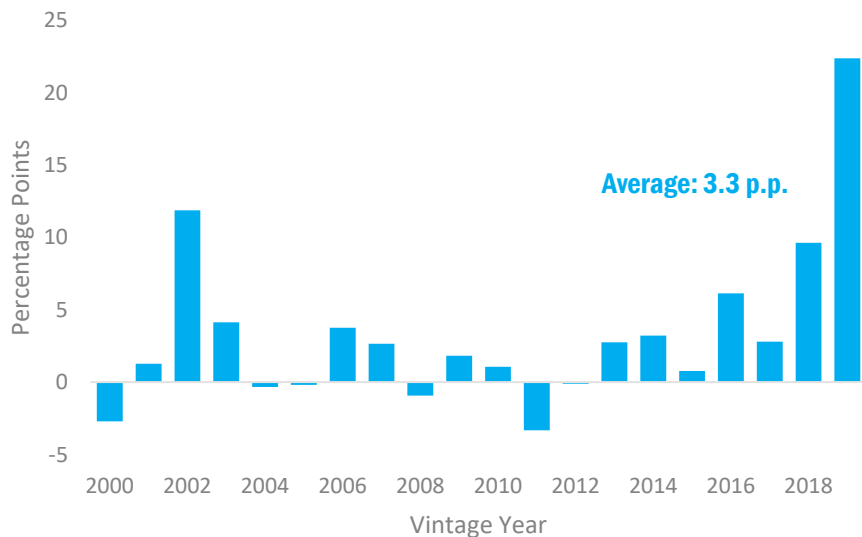


# PRIVATE NATURAL RESOURCES

- Private natural resources have historically generated sizable premiums to public markets. This premium to the public market equivalent has averaged over 300 basis points for vintage years since 2000.
- While the universe of private natural resource funds includes energy, agriculture, timber, and the production of other commodity types, energy funds dominate the fundraising landscape. Private energy has historically been a material part of institutional portfolios due to the excess returns over traditional asset classes it used to generate. While energy has been challenged in recent years due to the changing nature of the energy value chain and the advent of shale drilling, these funds still generate returns in excess of broad public natural resource equities.

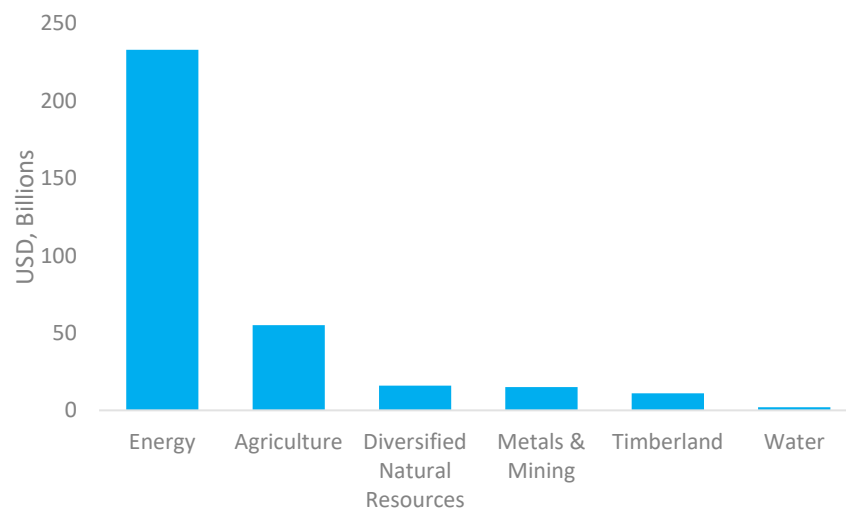
**Private strategies have historically captured sizable premiums to public natural resource equities.**

**PREMIUM OF PRIVATE NATURAL RESOURCES OVER PUBLIC MARKETS /**  
As of June 30, 2020



**While public natural resources is a broad opportunity set that includes the production of a broad collection of commodities and materials, private opportunities typically focus on energy commodities.**

**PRIVATE NATURAL RESOURCES CAPITAL BEING RAISED /**  
As of October 31, 2020



Data Source: Bloomberg L.P.

# NATURAL RESOURCE INVESTING IN TODAY'S ENERGY LANDSCAPE

- Private energy investing encapsulates a broad swath of strategies that typically differ by the amount of control the manager has over the production of the commodity. Royalty firms for example, have no control over the resource production but also do not incur costs for production activities. Direct Operators on the other hand will employ the staff necessary to develop and operate working oil and gas wells.

## CONTROL OVER PRODUCTION

	ROYALTIES	NON-OPERATING INTERESTS	ALLOCATOR FUNDS	DIRECT OPERATORS
<b>Description</b>	Purchase future cash flow interests generated from resource production royalties	Acquire minority positions in production interests	Identify and invest in management teams that control production operations	Acquire proven or producing assets, taking full control of the production operations
<b>Value Creation</b>	Targeting areas with existing and prospective production based on geological underwriting / assessments	Underwriting existing or prospective production as well as the lead operator of production	Underwriting management teams and prospective production assets.	Operational improvements at the well level.
<b>Income</b>	High	Low	Low	Low
<b>Commodity Price Sensitivity</b>	Moderate	Moderate	High	High
<b>Embedded Leverage</b> (Reserve Based Lending)	0-10%	0-10%	30-50%	20-40%

Data Source: FEG.

# NATURAL RESOURCES KEY QUESTIONS & RECOMMENDATIONS

## KEY QUESTIONS

### How should investors position themselves in liquid natural resources?

Natural resources are inherently challenging for investors given their production profile and spoilage. These traits make capturing spot returns impossible and leave commodity futures investors with the challenge of overcoming the roll yield. As such, investing in the production companies themselves has yielded superior performance without giving up much of the inflation hedging benefits of futures.

### What are the key challenges for investors in the space?

Some investors may ask if the volatility in the space is worth the trouble. Investors that can tolerate the volatility over a full cycle have benefitted from the diversification and inflation hedging benefits of natural resource exposure.

### Where should investors position in private natural resources?

The private natural resources opportunity set is dominated by energy commodity production. These opportunities are preferred to public exploration and production companies but focusing on private natural resource funds entirely in one commodity type may be counterproductive to a diversified portfolio. Investors can benefit from the inclusion of private agriculture and mining funds, but the limited universe may lead investors to choose public exposure.

### Where in the energy landscape should investors focus?

Not all private energy opportunities are alike, with most falling into a certain business model. Out of the four models we have highlighted in this section, we believe investors should focus on exposure to royalty and direct operating funds where there is only one layer of fees and governance of the assets and investments are relatively transparent.

### What should ESG/divestment investors focus on?

With a number of investors choosing to divest from traditional energy investments and potentially environmentally harmful businesses, broad exposure to natural resources may be difficult. However, these investors may look to invest in strategies that may benefit from increased energy prices, such as renewable energy strategies and mining operations where production focuses on battery metals. In short, there are natural resource exposures that fit neatly into growing demand for clean energy production.

## RECOMMENDATIONS

Investors should consider carrying **natural resource equity exposure** for its efficient access to commodity exposures.

**Investors should be cognizant of the volatility** of natural resources up front, along with their inherent benefits to an institutional portfolio.

Investors should look to **add private energy opportunities** for their illiquidity premiums and broad opportunity set, but also look to add agriculture and mining funds selectively.

**Direct operating and royalty funds** offer more attractive fee structures and governance than other private energy models.

**ESG or divestment initiatives should not preclude investments in natural resources** but may shift focus to materials and commodities that support renewable energy production.



The background is a mosaic of square tiles in various shades of blue, yellow, and tan. The tiles are arranged in a grid pattern, with some tiles missing or broken, creating a textured and irregular appearance. The colors transition from a darker blue on the left to a lighter yellow and tan on the right.

# FITTING THE PIECES TOGETHER

Finding the Right Asset Mix



# SETTING THE STAGE FOR PORTFOLIO CONSTRUCTION

As investors start to construct their real asset portfolios from these components, there are four primary considerations that they may want to address. These include limiting tracking error versus other institutional investors, enhancing portfolio returns and inflation protection, and finally, the level of diversification they may want from a traditional 60/40 portfolio.

## Limit Peer Risk

Many investors may anchor their investment performance relative to peers regardless of the unique constraints or considerations of individual portfolios. Further, there is some degree of wisdom in the crowd such that collective institutional asset allocations may direct capital efficiently.

## Enhance Portfolio Returns

As a diverse group of cyclical sub-asset classes, Real Assets can enhance portfolio returns over the long term. However, near term returns and volatility may prevent investors from reaping the total benefits of real assets. Investors should understand not only where they are in the unique market cycles, but also how best to position to add total return.

## Enhance Inflation Protection

One of the primary reasons to include Real Assets in a portfolio is for the potential to hedge the impacts of inflation. This often comes at the cost of total returns in non-inflationary environments, so investors will want the most efficient inflation hedge to justify the carrying costs.

## Provide Diversification Benefits

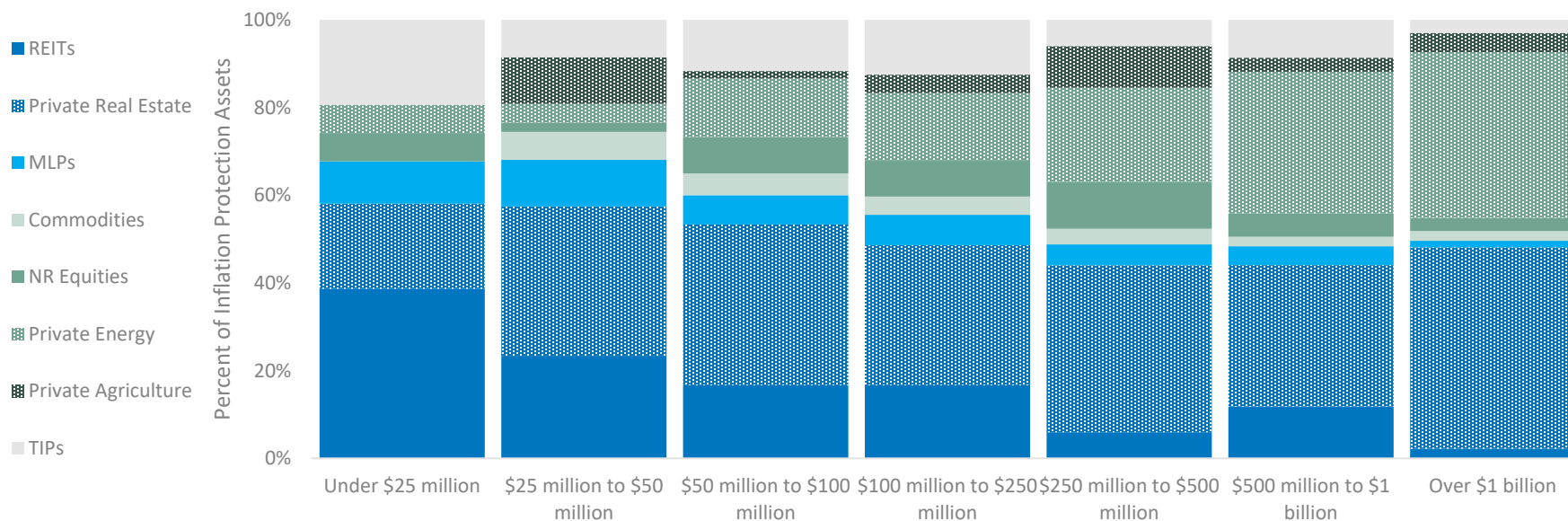
Some real assets sectors are in fact a sub-set of the global equities universe, namely REITs, listed infrastructure, and natural resource equities. Adding these to a portfolio may not have the same diversification benefits of adding TIPS or commodities, but they also have lower carrying costs through an equity bull market.

# HOW DO YOUR PEERS INVEST IN REAL ASSETS

- NACUBO tracks the asset allocations of higher education investment offices across the country. These benchmarks provide invaluable insights in the wisdom of the crowd – highlighting useful insights into what peers believe to be “right mix” of portfolio assets.
- Although it varies by overall portfolio size, these institutions tend to carry about half their real assets portfolio in real estate. Smaller portfolios will then split the rest across TIPs and natural resources. As assets increase, private natural resources comprise a much larger part of the portfolio, perhaps following a similar reasoning to FEG’s research – private natural resources tend to be a more efficient way to access the sector.
- It should be noted that midstream energy is the only infrastructure asset class broken out from traditional equity and private equity exposure as part of their benchmarking exercise.

## NACUBO REAL ASSET ALLOCATIONS /

As of June 30, 2019



	Under \$25 million	\$25 million to \$50 million	\$50 million to \$100 million	\$100 million to \$250 million	\$250 million to \$500 million	\$500 million to \$1 billion	Over \$1 billion
<b>Real Estate</b>	58%	57%	53%	49%	44%	44%	48%
<b>Natural Resources</b>	23%	34%	35%	39%	50%	47%	49%
<b>TIPs</b>	19%	9%	12%	13%	6%	9%	3%
<b>Percent Illiquid</b>	26%	49%	52%	51%	69%	68%	88%

\*National Association of College and University Business Officers

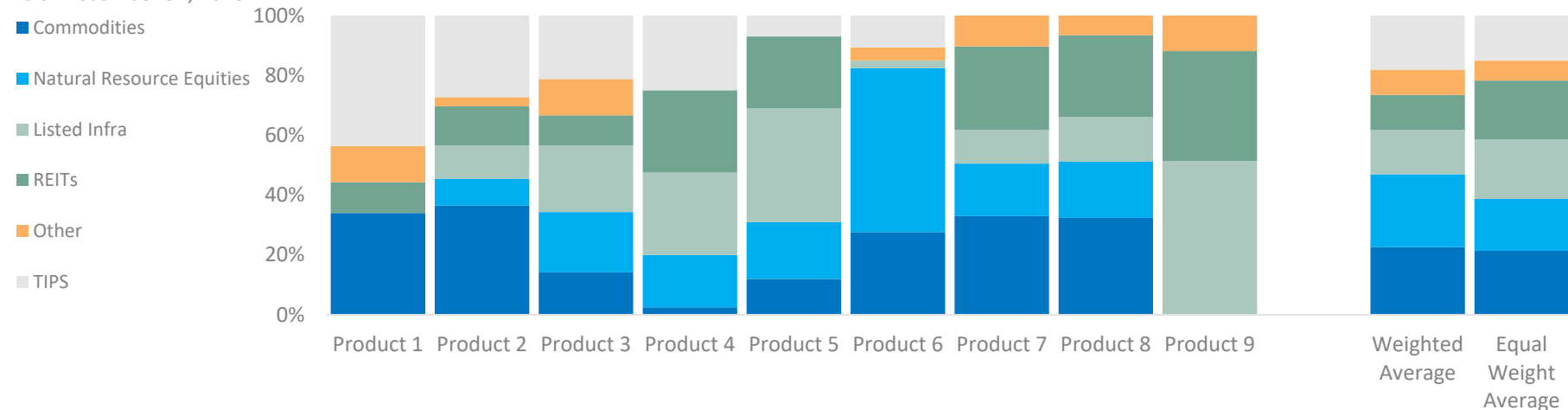
Data Source: NACUBO 2019 Survey.

# WHAT ARE ASSET MANAGERS BUILDING AS REAL ASSET SOLUTIONS

- Some asset managers have developed diversified real asset or multi-asset inflation hedging strategies. These “all-in-one” solutions may offer a blend of real returning asset classes.
- Their portfolio positioning helps institutional investors understand various approaches to the portfolio construction process, and various approaches to protecting against inflation.
- It should be noted that client real assets portfolios are likely to look different than these individual funds. First, these are often positioned as core positions for inflation protection but may not look to provide total return across the inflation cycle. Second, these products are designed for best fit across portfolios, and may have secondary constraints such as volatility, which some institutions may be able to tolerate. Finally, these strategies often have higher allocations to asset classes where the manager has historically added value in a dedicated product or series of products.

## ASSET MANAGER DIVERSIFIED REAL ASSET STRATEGY ALLOCATIONS /

As of December 31, 2020



	Product 1	Product 2	Product 3	Product 4	Product 5	Product 6	Product 7	Product 8	Product 9	Weighted Average	Equal Weight Average
<b>Natural Resources &amp; Commodities</b>	34%	45%	34%	20%	31%	82%	51%	51%	0%	47%	39%
<b>Global Listed Infrastructure</b>	0%	11%	22%	28%	38%	3%	11%	15%	51%	15%	20%
<b>REITs</b>	10%	13%	10%	28%	24%	0%	28%	27%	37%	12%	20%
<b>TIPs &amp; Other</b>	56%	30%	33%	25%	7%	15%	10%	7%	12%	27%	22%

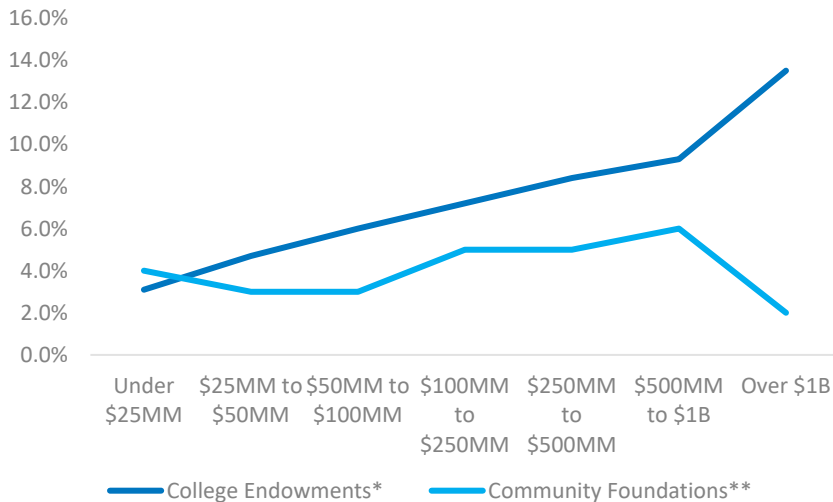
**Notes:** In no particular order, the products used in the analysis include the following – AllianceBernstein Real Return Fund, Brookfield Real Assets Securities Fund, Cohen & Steers Real Assets Fund, DWS Real Assets Fund, Morgan Stanley Real Assets Portfolio (target weights shown), PGIM Real Assets Fund, PIMCO Inflation Response Multi-Asset Fund, Principal Diversified Real Assets Fund, Wellington Diversified Inflation Hedges Fund. Asset breakdowns provided by each manager.

# TOTAL REAL ASSETS ALLOCATIONS

- Real assets are not meant to represent an entire portfolio. These allocations serve as compliments to a traditional equity and fixed income portfolio, offering diversification benefits.
- U.S. institutions tend to maintain some exposure to the asset class, with the typical allocation of 6.0% or more. Notably, these benchmarks will exclude infrastructure, considering it part of the equity universe for both public and private opportunities. A full real asset allocation may be higher than represented below, but it is unknown by how much.
- Later, we discuss the effect of adding a real assets allocation to a portfolio, and how institutions might consider the appropriate allocation sizing to achieve the specific goal for the investment.

**U.S. endowments & foundations tend to increase real asset allocations along with the size of the overall portfolio, possibly due to a larger risk budget.**

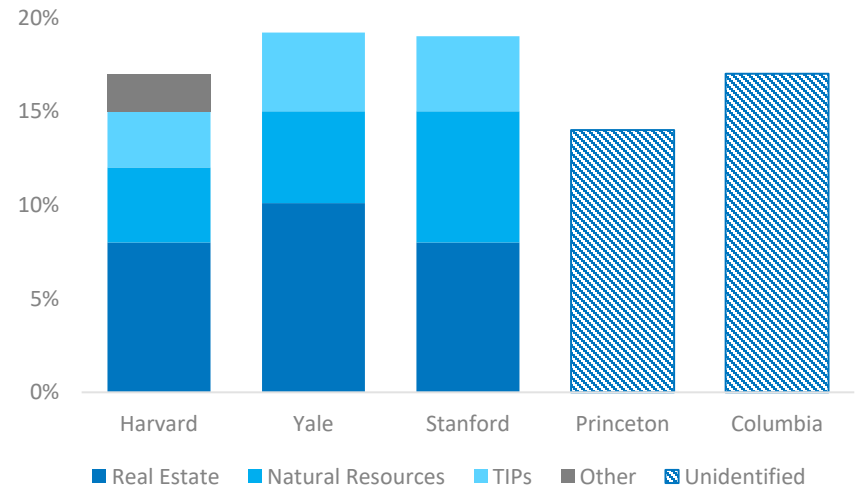
**TOTAL REAL ASSET ALLOCATION /**  
2019 Studies



\*NACUBO 2019 Study  
\*\* FEG Community Foundation Survey 2019  
Data Source: NACUBO; FEG.

**The largest endowments typically maintain portfolios with over 15% allocated to real assets (excluding infrastructure), and half of that in real estate.**

**LARGEST US ENDOWMENT REAL ASSET ALLOCATIONS /**  
As of December 31, 2019



Data Source: Endowment Annual Reports.



# PEER COMPARISONS – FILLS IN GAPS, BUT NOT THE FULL PICTURE

- The peer comparison exercise, while useful in answering the below questions and framing the conversation around how to approach the space and crowd-sourcing what potential solutions may look like, is not a complete answer. It will not provide insights into how these portfolios are changing in reaction to a market regime change, their unique constraints, or underlying views being expressed. For that, we continue our portfolio construction analysis through a proprietary asset allocation model.
- However, there are some valuable lessons learned through this exercise:

	RECOMMENDATIONS
<p><b>Real Estate v. Natural Resources?</b></p> <p>Institutional investors tend to maintain higher allocations to real estate than natural resources. This becomes more balanced as assets increase, perhaps due to the volatility of natural resources and the larger risk tolerances that larger institutions are afforded. That being said, the value of a natural resources seems apparent across institutions.</p>	<p><b>Choose return or inflation-protection.</b> As pointed out later in this presentation, investors will ultimately need to choose between the two.</p>
<p><b>Where does Infrastructure fit?</b></p> <p>Infrastructure is conspicuously missing from most reports as a separate asset class, and almost surely included in traditional equity buckets. It does maintain a relatively high beta to equities, but as noted elsewhere in this piece, acts like a real asset.</p>	<p>The addition of infrastructure may warrant a <b>higher overall real asset allocation.</b></p>
<p><b>What lessons are there from Asset Managers?</b></p> <p>Managers with vested interests in marketing products across a broad array of clients may not provide the best answers for asset allocations for all investors. This is particularly true when the products must fit neatly into a “real return” or “inflation protection” strategy, leaving little room for repositioning through a regime. However, they do offer valuable lessons around volatility management and risk tolerance, noting that the benefits of real assets are often gained over cycles, not quarters.</p>	<p><b>Know your objectives.</b> A diversified real asset portfolio can provide benefits, but only for those who can see past the near-term volatility.</p>

# METHODOLOGY FOR MODELING A REAL ASSET PORTFOLIO

- In the following analysis we have created an asset allocation model that aims to address the inherent challenges of real assets – how does one maintain the best inflation protection for the lowest carrying cost? Investors often hope for the best of both worlds – an effective inflation hedge that also provides a competitive total return. Unfortunately, this would be too good to be true – like all insurance or hedges, there is an inherent opportunity cost. The following analysis leverages a multi-objective optimization model that looks to find the most effective portfolio to achieve the best risk-adjusted returns and correlation to unexpected inflation.
- As an additional constraint on the portfolio, we also considered what these real assets allocations would look like at varying equity betas. The purpose of which was two-fold – first, we wanted to understand how much of the allocation should replace an equity allocation versus fixed income; the second being to prevent a significantly different experience than that of other benchmark risk assets. Investors may find excess tracking error of real assets versus traditional equities to be too high to tolerate, resulting in a sub-optimal result of exiting the asset class before the benefits of being in it are realized.

## Optimization Model Depiction

1

### Asset Class Universe

**Our universe:** Liquid versions of Commodities, Natural Resource Equities, U.S. REITs, Global Listed Infrastructure, and TIPS

**Reasoning:** To avoid the complications of modeling private returns, we focused on the liquid versions of each sub asset class, electing to leave the impact of private assets as an illiquidity premium following the asset allocation modeling exercise.

2

### Objective #1: Risk/Return

**Our target:** Maximize the Sharpe Ratio of the real asset portfolio.

**Reasoning:** At all stages, we want the most efficient portfolio.

### Objective #2: Correlation to Inflation

**Our target:** Maximize the correlation of the real asset portfolio to unexpected inflation.

**Reasoning:** We want to achieve the most effective inflation hedge.

### Objective #3: Equity Beta

**Our target:** Achieve a specific equity beta target.

**Reasoning:** This provides an understanding of how much of the overall allocation should come from equities and prevents lagging behind equity markets.

3

### Objective Reweighting

**Process:** Starting at an equal weight, we reweighted Objectives #1 & #2 such that the inflation target became less important.

**Reasoning:** As seen in our results, there no “free lunch”, and inflation hedging comes with carrying cost. That being said, there are total return oriented real asset portfolios that can enhance a traditional 60/40 portfolio.

# REAL ASSETS RISK / RETURN TRADE OFF

- Real assets can enhance risk adjusted returns for traditional 60/40 portfolios. Many of these asset classes have improved Sharpe ratios relative to equities and offer attractive diversification benefits to an overall portfolio.
- However, not all real assets are created equal. Most notably, natural resource asset classes (commodities and natural resource equities) present less optimal investments from a risk/return perspective. As noted later, these are attractive diversifiers and methods for inflation hedging, but tend to be cyclical. A traditional Markowitz portfolio optimization exercise may exclude or minimize these investments for this reason, undercutting the purpose of a real asset portfolio. This is why an inflation dimension was added to the analysis.

**Over the past two decades, Real Assets have generally produced risk adjusted returns in excess of traditional equities, proving a beneficial addition to traditional 60/40 portfolios.**

RISK & RETURN OF REAL ASSETS & OTHER ASSETS CLASS /  
January 2000 - September 2020



Data Source: Bloomberg.

# RISK & INFLATION HEDGING ARE A TRADE OFF

- Despite the return benefits of real assets, they are not without their risks. Further, the as inflation hedging qualities increase, the Sharpe ratio of the asset class generally tends to decrease. This is the inherent cost of carrying parts of the real asset universe at all times to protect against the spectre of inflation when it arises.
- Clearly inflation hedges are beneficial to the portfolio when inflation arises, but the last decade has shown that when inflation does not occur these asset classes tend to underperform other asset classes. As such, we look to our optimization procedure to balance the need for an effective inflation hedge with enhancing returns through an entire market cycle.

**Real assets provide superior inflation protection at every level of volatility relative to traditional investments – leveraging a mix of these assets may provide both improved returns and inflation protections.**

RISK & INFLATION CORRELATION OF REAL ASSETS & OTHER ASSETS CLASS /  
January 2000 - September 2020



Data Source: Bloomberg; U.S. Federal Reserve of St. Louis.

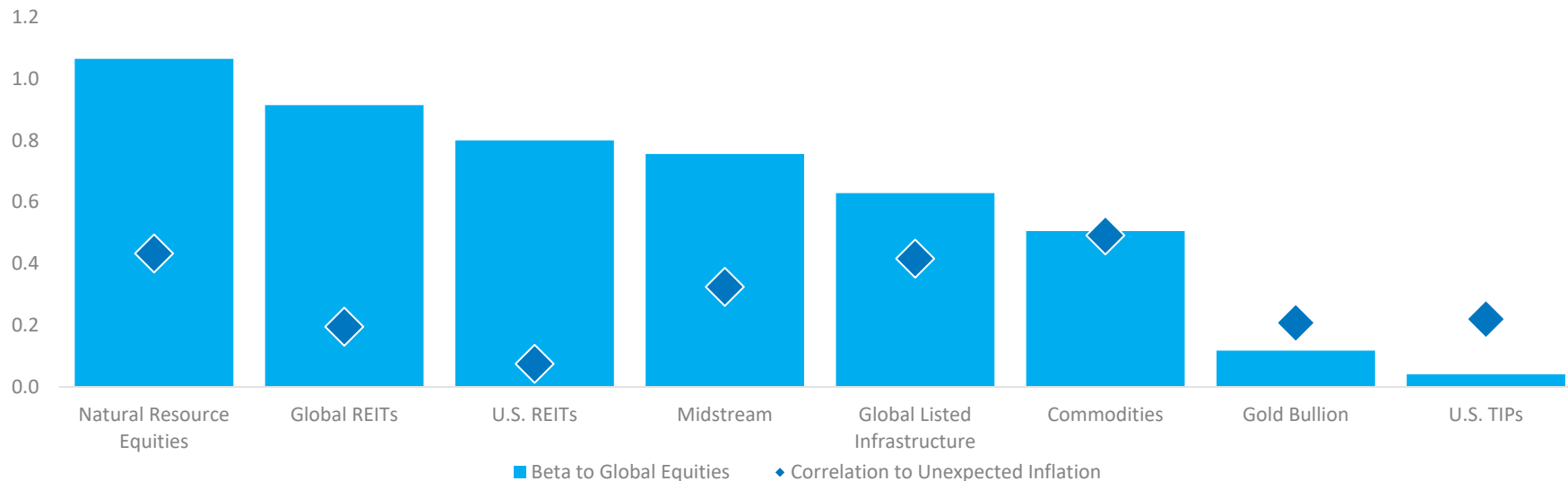
# EQUITY BETAS OF REAL ASSETS

- Many investors have fallen into the significant pitfall of real assets that arises from diversification for the sake of diversification – sub-par returns over parts of the cycle when equities outperform. Perhaps the decade following the Global Financial Crisis was a unique regime within financial markets, but the point remains – investors should be cognizant of the source of returns, and conversely, underperformance.
- Real asset sub-asset classes maintain a wide array of equity exposure, with investments taking a common equity position in businesses having meaningful exposure to global equity markets. In fact, natural resource equities have a beta to global equities over 1.0. At the other end of the spectrum, commodities hold a 0.5 beta to global equities, resulting in a good diversifier, albeit with their inherent challenge of investing in futures.
- TIPs provide an effective inflation hedge, but act as a risk mitigator away from equity exposure. As investors consider their real asset allocation, TIPs should be viewed as a tool to enhance inflation hedging from a fixed income allocation, as opposed to part of real asset allocation that comes entirely from equities.

**Real assets are a good diversifier from equities, but investors who anchor return expectations to equities may not want significant diversification away from equities – the cost, of course, is the effectiveness of the portfolio as an inflation hedge.**

## REAL ASSETS BETA TO GLOBAL EQUITIES /

As of December 31, 2020



Data Source: Bloomberg.

# CROSS & INFLATION CORRELATIONS

- While real assets add diversification benefits to a portfolio, some tend to maintain relatively high correlations to broad equity markets. This is not surprising given these are equity investments into real asset-oriented businesses, but it does ultimately diminish the diversification benefits. However, cross correlations between real asset sectors are generally low, with each providing unique exposure to different parts of the real asset universe.
- Some investors may choose to exclude any real asset sector, although as we note above, this may ultimately be at the detriment of enhanced returns or inflation protections.

**Risk assets that represent equity positions in businesses tend to maintain relatively high correlations with each other, while those with more commodity factor exposure are good diversifiers.**

	U.S. REITs	Global REITs	Gbl. Listed. Inf.	Nat. Res. Eq.	Midstream Inf.	Commodities	TIPs
Inflation Correlation (Unexp.)	0.07	0.20	0.41	0.43	0.32	0.49	0.22
Avg. Ann. Return	10.8%	8.4%	7.4%	7.4%	8.2%	1.8%	5.6%
Avg. Ann. Risk	20.2%	18.0%	12.9%	20.9%	23.4%	15.9%	5.5%

## Cross Correlations

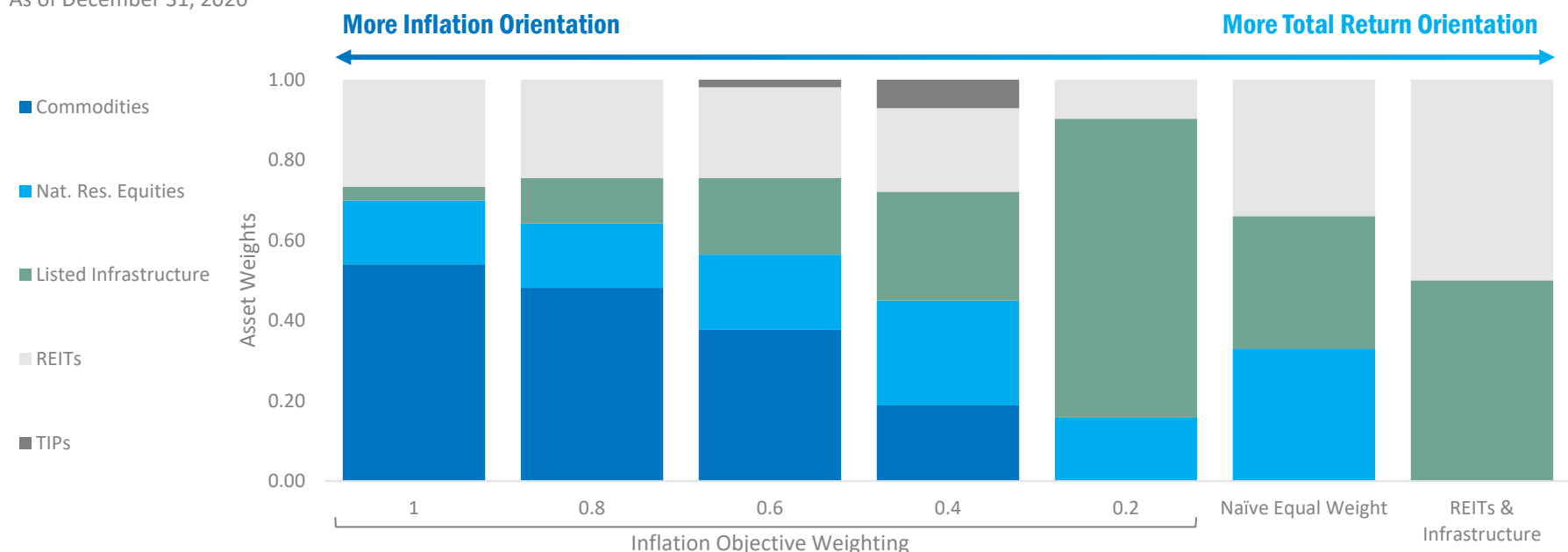
U.S. REITs	1.00	0.90	0.65	0.43	0.39	0.27	0.27
Global REITs	0.90	1.00	0.79	0.64	0.48	0.44	0.31
Global Listed Inf.	0.65	0.79	1.00	0.70	0.58	0.46	0.29
Nat. Res. Eq.	0.43	0.64	0.70	1.00	0.54	0.67	0.17
Midstream Inf.	0.39	0.48	0.58	0.54	1.00	0.37	0.16
Commodities	0.27	0.44	0.46	0.67	0.37	1.00	0.27
TIPs	0.27	0.31	0.29	0.17	0.16	0.27	1.00

# ASSET ALLOCATION STUDY RESULTS

- Devising the right mix of assets for a real asset portfolio can be a challenge, as they differ from the role of traditional risk assets. Real assets present a unique choice of offering some increased risk-adjusted return enhancements but are also included in portfolios to hedge against inflation. This dual role requires a modified approach from the traditional Markowitz optimization.
- FEG has developed a multi-objective model that targets both risk-adjusted returns as well as the most effective inflation hedge. As a third constraint, we targeted an equity beta to ensure adequate risk was built into the portfolio and that real asset investor experiences were not vastly different than in traditional equities.
- Also included below are two relatively common real asset portfolios – an equal weight portfolio of natural resources, infrastructure, and REITs (Naïve Equal Weight); and an equal weight infrastructure and REIT portfolio (REITs & Infrastructure).

## OPTIMAL REAL ASSET PORTFOLIOS & COMMON INVESTOR PORTFOLIOS /

As of December 31, 2020



	1	0.8	0.6	0.4	0.2	Naïve Equal Weight	REITs & Infrastructure
Portfolio Volatility	17.0%	16.6%	16.1%	15.4%	15.3%	17.3%	17.2%
Inflation Correlation	0.58	0.56	0.53	0.47	0.34	0.39	0.31
Portfolio Return	5.3%	5.7%	6.3%	7.3%	8.9%	9.1%	8.9%

Data Source: FEG.

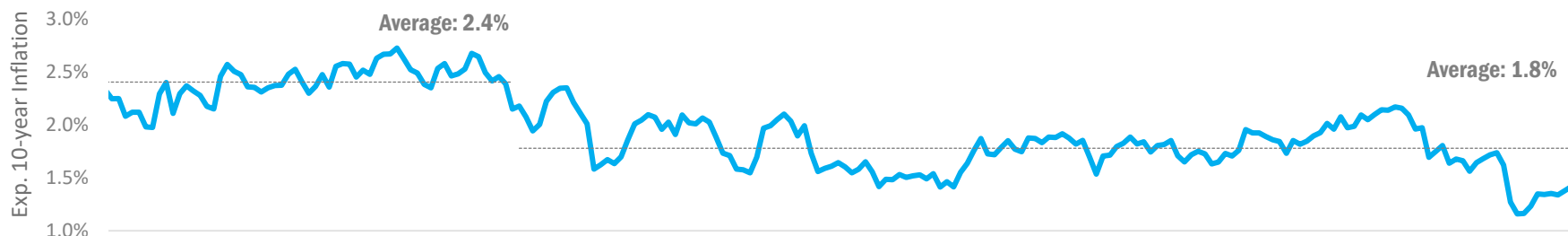
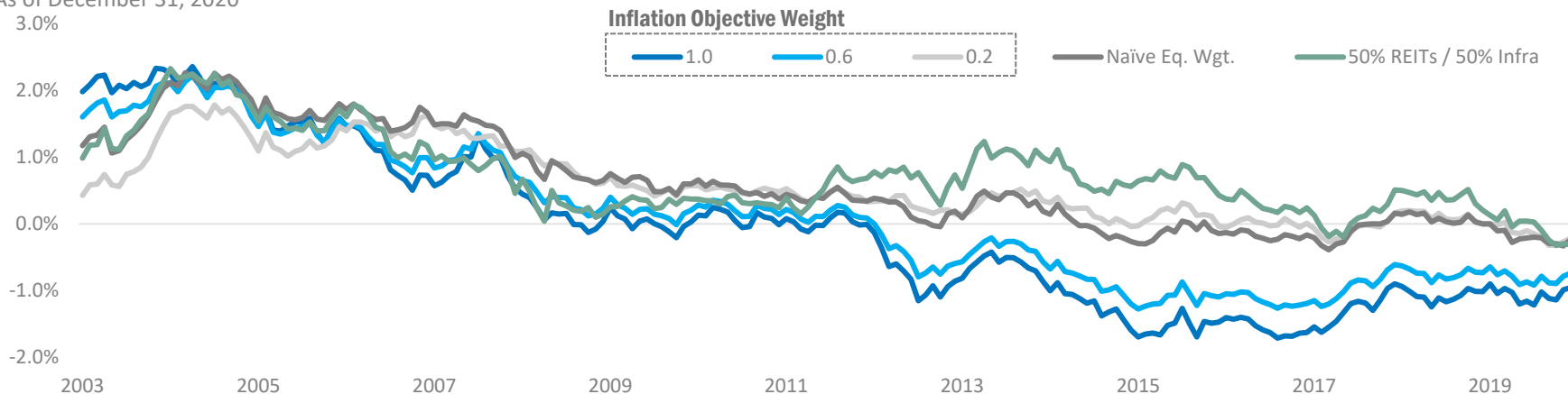
# PORTFOLIO ROLLING RETURNS

- As noted in the presentation of the various portfolios, inflation hedging runs counter to total returns when inflation is relatively low. Below, the addition of a 15% real assets allocation (12% from equities, and 3% from fixed income) has proven more beneficial over periods when expected inflation is over 2.0%. Lower inflation expectations (and realized inflation) are not supportive of natural resource exposure, which are beneficial hedges.
- Importantly, the addition of illiquidity to these real asset allocations should enhance returns from this part of the portfolio.

**Although real assets have proven a beneficial addition to portfolios, post-global financial crisis shows the cost of carrying inflation insurance when inflation does not materialize. Even optimized access to this hedge results in a carrying cost of 100-200bps per annum for a fully liquid portfolio.**

## ROLLING 5 YEAR RETURNS SPREAD OVER 60/40 PORTFOLIO /

As of December 31, 2020



Data Source: Bloomberg.



# HOW MUCH REAL ASSETS IS ENOUGH?

- Investors are likely to ask – how much should we invest in real assets to create an effective inflation hedge for the whole of the portfolio? On their own, real assets are an effective inflation hedge, but the question remains if a small allocation to the space is sufficient to protect an entire portfolio. The answer depends on the composition of the real asset allocation, but below we can see that correlations to unexpected inflation increase marginally.
- Allocations to real assets in institutional portfolios differ, generally falling in a range of 10-20% based on multiple factors, including liquidity constraints and other portfolio guidelines. The key trade offs relate to total return potential versus inflation protection. A focus on total return of and a view on market cycles should be key considerations dictating the total size and composition of a real asset portfolio.
- Based on the the modeling of historic returns of various segments of real assets, we can conclude that there is no single strategy that provides perfect protection against unexpected inflation. Nevertheless, a key consideration for investors is that there has not been a period of high, sustained inflation in more that 40 years. Therefore, inflation and the associated returns of real assets could vary significantly on a go-forward basis compared to the long-term, low inflationary environment of the past 40 years.

**The below depicts the correlation of a total portfolio to unexpected inflation when real assets are introduced. Material improvements in inflation protection is apparent at a 15-20% allocation, though we believe investors should consider tactical positioning into higher inflation-objective weight portfolios depending on the current inflation regime.**

		Total Real Asset Allocation										
		2%	4%	6%	8%	10%	12%	15%	20%	30%	40%	50%
Inflation Objective Weight	Trad.	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
	0.2	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28	0.28	0.29
	0.4	0.27	0.28	0.28	0.29	0.29	0.30	0.31	0.32	0.34	0.36	0.38
	0.6	0.27	0.28	0.29	0.30	0.31	0.31	0.33	0.34	0.38	0.41	0.44
	0.8	0.28	0.28	0.29	0.30	0.31	0.32	0.34	0.36	0.40	0.44	0.47
	1.0	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.37	0.42	0.46	0.49
	Naïve	0.27	0.27	0.27	0.28	0.28	0.28	0.29	0.29	0.30	0.31	0.31
	50/50	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28	0.28	0.28

Data Source: FEG.

# ILLIQUIDITY BUDGETING

- Until this point, we have worked with fully liquid portfolios for two reasons – investors’ illiquidity budgets can vary widely; and illiquid investments create modeling complexities due to their appraisal based, artificially smoothed values and infrequent reporting. As an alternative, FEG presents a priority for layering illiquidity into a real asset portfolio, what should be targeted, and the anticipated premium over liquid options.



## Natural Resources

HIGH

Adding private energy and agriculture helps limit overall natural resource volatility while adding premiums; mining should be added opportunistically when illiquidity allows.

Private Energy

Private Agriculture

Private Metals & Mining

## Real Estate

MODERATE

Value-add/opportunistic managers offer premiums to the public market without making large sector bets. Sector focused and non-US funds should be added selectively.

Private Value Add & Opportunistic Real Estate

Private Sector Focused Real Estate

Private Non-US Real Estate

## Infrastructure

LOW

Listed options have generated attractive returns relative to private core funds. Sector focused, niche opportunities should be added, but only after private Natural Resources and Real Estate portfolios

Private Sector-Focused Infrastructure

# POSITIONING CONCLUSIONS

- As with most questions in investing, there is no single answer to what constitutes the “optimal” real assets portfolio because every investor has differing risk and liquidity requirements. This piece serves to guide institutions to a potential real asset allocation that fits their objectives and expresses their view on inflation.
- In building a real assets portfolio investors can leverage the quantitative and qualitative factors laid out in this presentation to better enhance manager selection and target the real assets options with the best historic risk/return profiles.
- The following lays out a framework for implementing an effective real assets portfolio strategy based the analysis set forth in the presentation. Importantly, this provides broad flexibility in order to allow clients to customize allocations consistent with their specific risk and liquidity constraints.

## Natural Resources

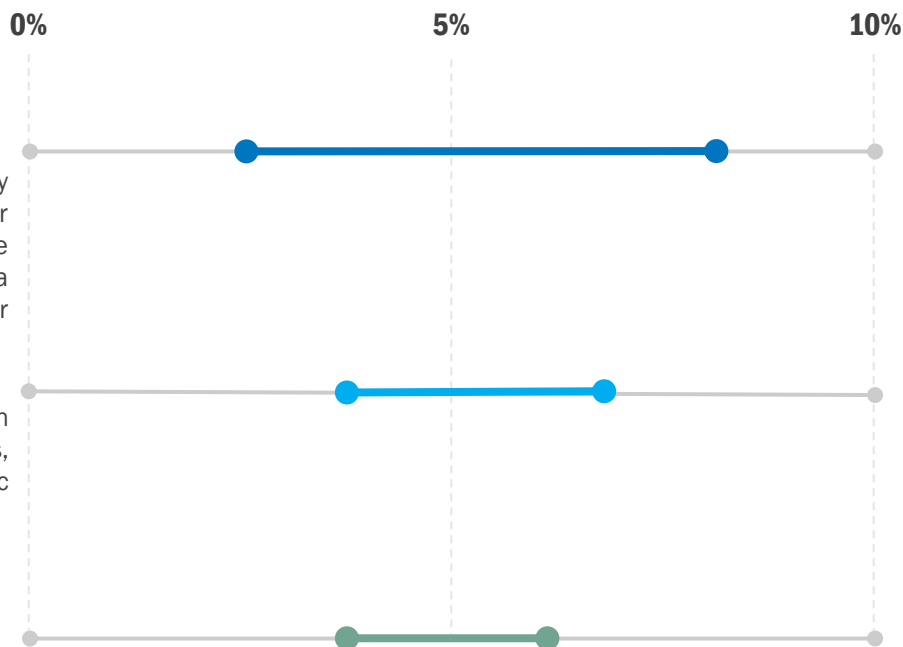
A key part of a real assets portfolio but taken on with caution. Taking illiquidity here is advised where available, while liquid allocations can provide a buffer to up-/down-weight the sector at various points in a cycle. We believe investors should consider a 3-8% strategic allocation. The wide range is a result of individual volatility tolerances and the ability to position tactically for inflation.

## Real Estate

Although real estate has become a story of property types, they benefit in most regimes outside of rising real interest rates. More than other real assets, it has enhanced returns over most periods. We believe a 4-7% strategic position within the sector is advised.

## Infrastructure

Potentially the all-weather addition to a real assets portfolio. Although it does not provide the high-octane inflation protections of natural resources, it offers more than other real assets sub-sectors without trading for return. We believe 4-6% in infrastructure should serve investors well over a full market cycle.



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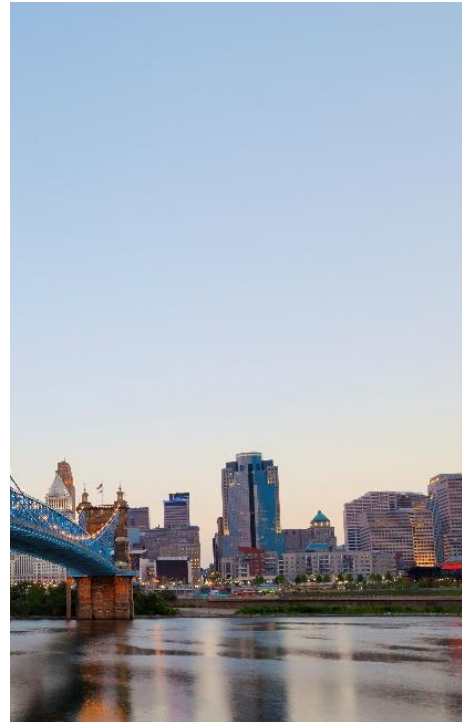
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Presented:

May 5, 2022

# FEG ASSET ALLOCATION STUDY - CITY OF GROSSE POINTE WOODS RETIREMENT SYSTEM



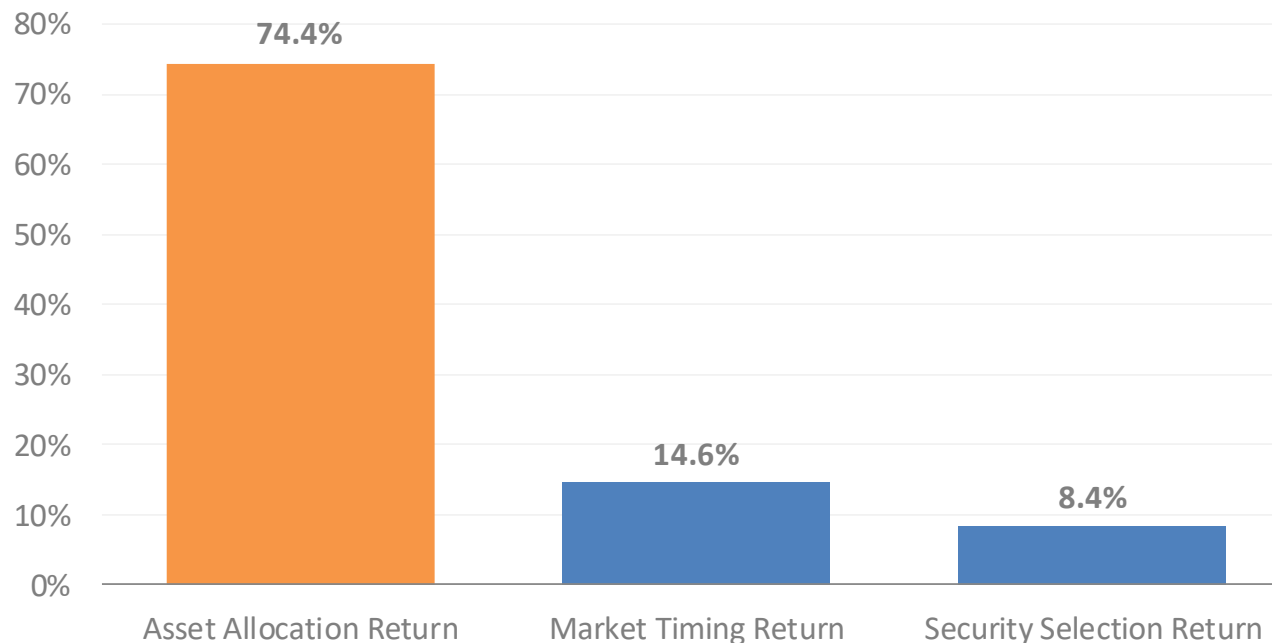
# INTRODUCTION: IMPORTANCE OF ASSET ALLOCATION

## THE PRIMARY CONTRIBUTOR TO INVESTMENT SUCCESS

- Asset allocation is the most important decision for each investor's ability to reach their goals
- These decisions are for the long-term and impact long-term success
- Allocations are reviewed annually and changes are made when goals change or markets change considerably

### The Importance of Asset Allocation

Contributions to Return Variation



Data source: Brown, Garlappi, and Tiu, 2009, "Asset Allocation and Portfolio Performance: Evidence from University Endowment Funds"

# CLIENT OBJECTIVES: RETURN GOAL

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## FEG INSIGHT

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*Actuarial rate* = **Primary Objective**



7.5%

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- **Inflation:** We expect that moderate inflation will remain in place for the foreseeable future. Unprecedented monetary policies provide the potential for inflation to reach the Federal Reserve's target.



# ASSET CLASSES

	Expected Return	Expected Standard Deviation		Expected Return	Expected Standard Deviation
<b>GLOBAL EQUITY</b>			<b>REAL ASSETS</b>		
<b>Long-Only Strategies</b>	<b>5.3%</b>	<b>19.9%</b>	<b>Real Estate</b>		
<b>U.S. Equity</b>	<b>4.7%</b>	<b>16.7%</b>	Public Real Estate	4.5%	20.0%
Large Cap	4.5%	15.0%	Private Real Estate	7.0%	18.0%
Mid Cap	5.0%	18.0%	<b>Natural Resources</b>		
Small Cap	5.5%	24.0%	Commodities	3.0%	19.0%
			Private Energy	7.5%	18.0%
<b>International Equity</b>	<b>6.0%</b>	<b>23.7%</b>	<b>Infrastructure</b>		
Large Cap Developed	5.5%	20.0%	Energy Infrastructure	6.0%	23.0%
Small Cap Developed	5.5%	24.0%	Global Listed Infrastructure	5.0%	15.0%
Emerging Markets	7.5%	33.0%			
Frontier Markets	8.5%	35.0%			
Global Hedged Equity	4.5%	13.0%			
Private Equity	8.0%	17.0%			
<b>GLOBAL FIXED INCOME &amp; CREDIT</b>			<b>DIVERSIFYING STRATEGIES</b>		
<b>Interest Rate Sensitive Strategies</b>	<b>1.8%</b>	<b>6.3%</b>	<b>Semi-Liquid Hedged Strategies</b>	<b>4.3%</b>	<b>8.4%</b>
Core (Investment Grade)	1.6%	6.0%	Event Driven	4.5%	9.5%
Inflation Protected (TIPS)	1.3%	7.0%	Macro	4.5%	7.0%
Long Duration Corporate Debt	3.0%	8.5%	Relative Value	4.0%	8.0%
Emerging Market Debt	5.0%	13.0%	Illiquid Diversifying Strategies	7.0%	10.0%
			Liquid Diversifying Strategies	4.0%	10.0%
<b>Credit Sensitive Strategies</b>	<b>4.2%</b>	<b>14.0%</b>			
High Yield	3.2%	16.0%	<b>Money Markets</b>		
Bank Loans	3.0%	11.0%	U.S. Inflation	2.3%	
Private Debt	6.5%	15.0%	U.S. Cash	1.0%	

# SHIFT IN CAPITAL MARKET ASSUMPTIONS OVER LAST 2 YEARS



	2020 Expected Return <sup>1</sup>	2021 Expected Return	2022 Expected Return
<b>Global Equity</b>			
<b>Long-Only Strategies</b>	<b>7.0%</b>	<b>5.8%</b>	<b>5.3%</b>
U.S. Equity	6.2%	5.2%	4.7%
Large Cap	6.0%	5.0%	4.5%
Mid Cap	6.5%	5.5%	5.0%
Small Cap	7.5%	6.0%	5.5%
<b>International Equity</b>	<b>8.0%</b>	<b>6.6%</b>	<b>6.0%</b>
Large Cap Developed	7.5%	6.0%	5.5%
Small Cap Developed	7.5%	6.0%	5.5%
Emerging Markets	9.5%	8.5%	7.5%
Frontier Markets	10.0%	9.0%	8.5%
Private Equity	9.5%	8.5%	8.0%
<b>Global Fixed Income/Credit</b>			
<b>Rate Sensitive Strategies</b>	<b>1.7%</b>	<b>1.4%</b>	<b>1.8%</b>
Core (Investment Grade)	1.4%	1.2%	1.6%
Inflation Protected (TIPS)	1.5%	1.0%	1.3%
Long Duration Corporate Debt	3.0%	3.0%	3.0%
Emerging Market Debt	4.5%	4.0%	5.0%
<b>Credit Sensitive Strategies</b>	<b>6.3%</b>	<b>4.7%</b>	<b>4.2%</b>
High Yield	6.0%	4.0%	3.2%
Bank Loans	4.5%	3.0%	3.0%
Private Debt	8.5%	7.0%	6.5%

## Real Assets

### Real Estate

Public Real Estate

Private Real Estate

### Natural Resources

Commodities

Private Energy

### Infrastructure

Energy Infrastructure/MLPs

## Diversifying Strategies

### Semi-liquid Hedged Strategies

Event Driven

Macro

Relative Value

Illiquid Diversifying Strategies


Liquid Diversifying Strategies

Global Hedged Equity

## Money Markets

U.S. Inflation

U.S. Cash

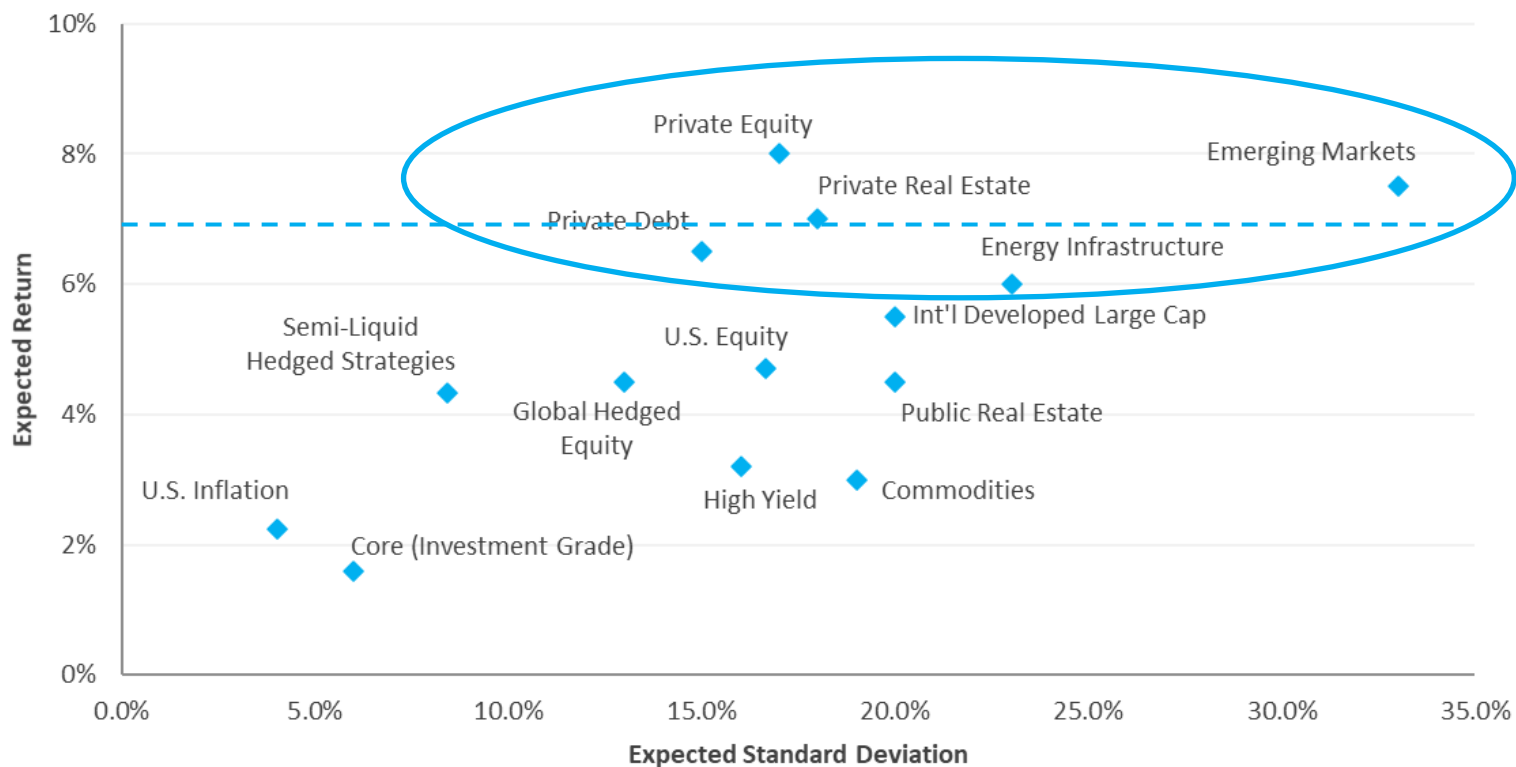


	2020 Expected Return	2021 Expected Return	2022 Expected Return
Public Real Estate	6.0%	5.5%	4.5%
Private Real Estate	8.0%	7.0%	7.0%
Commodities	3.5%	3.0%	3.0%
Private Energy	9.0%	7.5%	7.5%
Energy Infrastructure/MLPs	8.0%	7.0%	6.0%
<b>Semi-liquid Hedged Strategies</b>	<b>5.3%</b>	<b>4.8%</b>	<b>4.3%</b>
Event Driven	5.5%	5.0%	4.5%
Macro	5.5%	5.0%	4.5%
Relative Value	5.0%	4.5%	4.0%
Illiquid Diversifying Strategies	8.0%	7.5%	7.0%
Liquid Diversifying Strategies	4.0%	3.8%	4.0%
Global Hedged Equity	5.5%	5.0%	4.5%
U.S. Inflation	2.0%	2.0%	2.3%
U.S. Cash	0.5%	0.3%	1.0%

1. FEG's assumption updated mid-April 2020 given COVID and market sell-off.

# FEG INPUTS: RISK AND RETURNS

## FEG 7-10 Year Capital Market Assumptions



Data Source: FEG Data. As of November 2021.

FEG Capital Market Assumptions are hypothetical based on asset category. Please refer to Appendix for full disclosures.

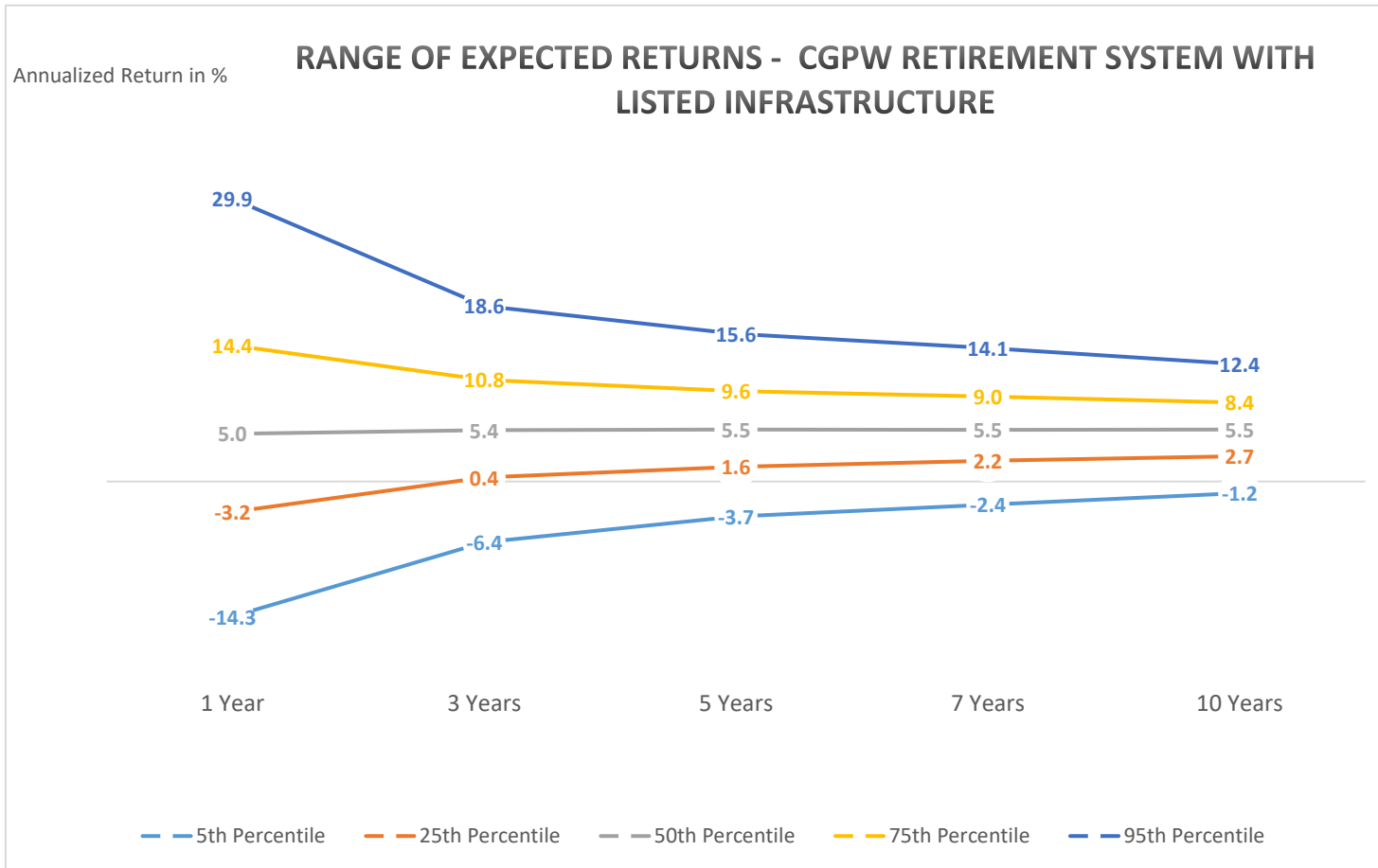
# FEG INPUTS: ASSET ALLOCATION

	Current Allocation (Less Cash)	Current IPS	Add Listed Infrastructure
<b>Broad Allocation</b>			
Global Equity	69.9%	67.0%	69.9%
Global Fixed Income	16.3	20.0	15.3
Real Assets	6.7	6.0	7.7
Diversifying Strategies	7.1	7.0	7.1
<b>Risk</b>			
Standard Deviation	13.2%	12.7%	13.3%
100-Year Flood	-25.2	-24.1	-25.5
<b>1-Year Monte Carlo Simulation</b>			
Expected Return (50th Percentile)	<b>6.2%</b>	<b>6.1%</b>	<b>6.3%</b>
<b>10-Year Monte Carlo Simulation</b>			
95th Percentile	12.3%	12.0%	12.4%
Expected Return (50th Percentile)	<b>5.5</b>	<b>5.4</b>	<b>5.5</b>
5th Percentile	-1.2	-1.0	-1.2
<b>Probability of Achieving Returns of:</b>			
Target 6%	45.3%	44.3%	45.5%
Target 7%	35.7	34.5	36.1
Target 8%	27.2	25.8	27.6

# FEG INPUTS: ASSET ALLOCATION DETAILED

	Current Allocation (Less Cash)	Current IPS	Add Listed Infrastructure
Cash	0.0	0.0	0.0
US Large Cap	32.5	30.0	32.5
US Mid Cap	5.9	5.0	5.9
US Small Cap	8.0	7.0	8.0
International Developed Equity	9.3	10.0	9.3
International Small Cap	4.8	5.0	4.8
Emerging Markets Equity	9.4	10.0	9.4
Core Bonds	16.3	20.0	15.3
Public Real Estate	3.7	3.0	2.5
Energy Infrastructure	3.0	3.0	2.6
Global Listed Infrastructure	0.0	0.0	2.5
Liquid Diversifying Strategies	7.1	7.0	7.1

# 2022 RANGE OF EXPECTED FUTURE RETURNS



# FEG INPUTS: WHY DIVERSIFICATION?

- FEG recommends diversifying by asset categories to help manage market risks
- FEG views diversification in a simple, yet comprehensive framework of four categories – each with specific roles and risk objectives

ASSET CATEGORIES	ROLE	RISK
<b>GLOBAL EQUITY</b> Stocks, Private Equity, Long/Short Hedge Funds	Total Return	Stock Market Declines
<b>GLOBAL FIXED INCOME AND CREDIT</b> Bonds, Bank Loans, Credit Hedge Funds	Equity Risk Mitigation and Total Return	Rising Rates and/or Credit Downgrades
<b>REAL ASSETS</b> Real Estate, Natural Resources, Infrastructure	Inflation Protection and Total Return	Deflation
<b>DIVERSIFYING STRATEGIES</b> Event Driven, Relative Value, Macro	Diversification and Total Return	Active Management

# FEG INPUTS: WHY DIVERSIFICATION?

ASSET CATEGORY	RISK PREMIUM	ROLE
<b>GLOBAL EQUITY</b>		
U.S. and International Market Cap and Style Private and Public Equity Hedge Funds	Equity Market	Total Return
<b>GLOBAL FIXED INCOME/CREDIT</b>		
Investment Grade TIPS High Yield Bank Loans Private Debt (Distressed and Mezzanine) Credit Hedge Funds	Interest Rates  Credit	Equity Risk Mitigation  Total Return
<b>REAL ASSETS</b>		
Real Estate (Public and Private) Natural Resources (Energy & Infrastructure) Commodities	Inflation	Inflation Protection (along with TIPS)
<b>DIVERSIFYING STRATEGIES</b>		
Macro Event Driven Relative Value	Unconstrained Active Management	Diversification



# FEG INPUTS: BENEFITS OF DIVERSIFICATION



## TABLE OF INVESTMENT RETURNS

2004-2021 Annual Returns of Key Indices

Strong asset class performance is not persistent

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Public RE	31.6%	Emerging Markets 34.0%	Public RE 35.1%	Emerging Markets 39.4%	Int'l Bonds 11.4%	Emerging Markets 78.5%	MLPs 35.9%	Private RE 14.3%	Public RE 19.7%	Small Cap 38.8%	Public RE 28.0%	Private RE 13.3%	Small Cap 21.3%	Emerging Markets 37.3%	Private Equity 9.5%	Large Cap 31.5%	Private Equity 25.2%	Public RE 41.3%
Emerging Markets	25.6%	Private Equity 23.3%	Emerging Markets 32.2%	Private Equity 19.6%	Bonds 5.2%	MLPs 76.4%	Public RE 27.9%	MLPs 13.9%	Emerging Markets 18.2%	Mid Cap 34.8%	Large Cap 13.7%	Private Equity 7.0%	MLPs 18.3%	Int'l 25.0%	Private RE 6.7%	Mid Cap 30.5%	Small Cap 20.0%	MLPs 40.2%
Private Equity	20.4%	Commod 21.4%	Private Equity 27.0%	Commod 16.2%	Private RE -6.5%	High Yield 58.2%	Small Cap 26.9%	Private Equity 8.8%	Int'l 17.3%	Large Cap 32.4%	Mid Cap 13.2%	Public RE 2.8%	High Yield 17.1%	Large Cap 21.8%	Bonds 0.0%	Public RE 28.7%	Large Cap 18.4%	Large Cap 28.7%
Int'l	20.2%	Private RE 20.1%	Int'l 26.3%	Private RE 15.8%	Div Strats -19.0%	Mid Cap 40.5%	Mid Cap 25.5%	Public RE 8.3%	Mid Cap 17.3%	MLPs 27.6%	Private RE 11.8%	Large Cap 1.4%	Mid Cap 13.8%	Mid Cap 18.5%	Int'l Bonds -1.7%	Small Cap 25.5%	Emerging Markets 18.3%	Private Equity 28.0%
Mid Cap	20.2%	Int'l 13.5%	MLPs 26.1%	MLPs 12.7%	Private Equity -24.0%	Int'l 31.8%	Emerging Markets 18.9%	Bonds 7.8%	Small Cap 16.3%	Int'l 22.8%	Private Equity 11.1%	Bonds 0.5%	Large Cap 11.9%	Private Equity 17.6%	High Yield -2.1%	Int'l 22.0%	Hedged Equity 17.9%	Commod 27.1%
Small Cap	18.3%	Diversified Portfolio 17.9%	Diversified Portfolio 18.7%	Diversified Portfolio 11.6%	High Yield -26.2%	Diversified Portfolio 30.2%	Private Equity 18.0%	Int'l Bonds 5.9%	Large Cap 16.0%	Private Equity 18.1%	Bonds 6.0%	Int'l 0.8%	Commod 11.8%	Diversified Portfolio 14.7%	Public RE -4.0%	Emerging Markets 18.4%	Mid Cap 17.1%	Mid Cap 22.6%
MLPs	16.7%	Mid Cap 12.7%	Small Cap 18.4%	Int'l Bonds 11.3%	Hedged Equity -26.7%	Public RE 28.0%	Commod 16.8%	High Yield 5.0%	High Yield 15.8%	Hedged Equity 14.3%	Small Cap 4.9%	Hedged Equity -1.0%	Emerging Markets 11.2%	Small Cap 14.6%	Large Cap -4.4%	Diversified Portfolio 16.2%	Div Strats 11.8%	Small Cap 14.8%
Diversified Portfolio	16.1%	Public RE 12.2%	Private RE 16.6%	Int'l 11.2%	Diversified Portfolio -28.4%	Small Cap 27.2%	High Yield 15.1%	Large Cap 2.1%	Private Equity 12.1%	Diversified Portfolio 13.6%	MLPs 4.8%	Div Strats -1.1%	Private Equity 9.5%	Hedged Equity 13.3%	Div Strats -4.7%	High Yield 14.3%	Int'l Bonds 10.5%	Diversified Portfolio 14.2%
Private RE	14.5%	Hedged Equity 10.6%	Large Cap 15.8%	Hedged Equity 10.5%	Small Cap -33.8%	Large Cap 26.5%	Large Cap 15.1%	Mid Cap -1.5%	Diversified Portfolio 11.7%	Private RE 11.0%	Diversified Portfolio 3.7%	Mid Cap -2.4%	Public PE 8.6%	Int'l Bonds 9.9%	Diversified Portfolio -6.0%	Hedged Equity 13.7%	Diversified Portfolio 9.4%	Hedged Equity 11.8%
Int'l Bonds	12.0%	Div Strats 9.3%	Mid Cap 15.3%	Div Strats 10.0%	Commod -35.6%	Hedged Equity 24.6%	Diversified Portfolio 14.5%	Diversified Portfolio -1.9%	Private RE 10.5%	Div Strats 9.1%	Div Strats 3.0%	Diversified Portfolio -3.7%	Diversified Portfolio 8.4%	Public RE 8.7%	Hedged Equity -7.1%	Private Equity 13.4%	Int'l 7.8%	Int'l 11.3%
High Yield	11.1%	MLPs 6.3%	Div Strats 12.9%	Bonds 7.0%	MLPs 36.9%	Div Strats 20.0%	Private RE 13.1%	Small Cap -4.2%	Hedged Equity 7.4%	High Yield 7.4%	High Yield 2.5%	Small Cap -4.4%	Private RE 8.0%	Div Strats 8.6%	Mid Cap -9.1%	Div Strats 10.4%	Bonds 7.5%	Private RE 10.9%
Large Cap	10.9%	Large Cap 4.9%	High Yield 11.8%	Mid Cap 5.6%	Large Cap -37.0%	Commod 18.9%	Hedged Equity 10.5%	Div Strats -5.3%	Div Strats 6.4%	Public RE 2.9%	Hedged Equity 1.8%	High Yield -4.5%	Hedged Equity 5.5%	High Yield 7.5%	Small Cap -11.0%	Bonds 8.7%	High Yield 7.1%	Div Strats 10.3%
Commod	9.1%	Small Cap 4.6%	Hedged Equity 11.7%	Large Cap 5.5%	Public RE -37.7%	Private Equity 15.6%	Div Strats 10.2%	Hedged Equity -8.4%	MLPs 4.8%	Bonds -2.0%	Emerging Markets -2.2%	Int'l Bonds -4.8%	Div Strats 5.4%	Private RE 7.0%	Commod -11.2%	Commod 7.7%	Private RE 1.6%	High Yield 5.3%
Div Strats	9.0%	High Yield 2.7%	Int'l Bonds 6.8%	High Yield 1.9%	Mid Cap -41.5%	Bonds 5.9%	Int'l 7.7%	Int'l 12.1%	Bonds 4.2%	Emerging Markets -2.6%	Int'l Bonds -2.5%	Emerging Markets -14.9%	Bonds 2.6%	Bonds 3.5%	MLPs 12.4%	MLPs 6.6%	Commod -3.0%	Bonds -1.5%
Hedged Equity	7.7%	Bonds 2.4%	Bonds 4.3%	Small Cap -1.6%	Int'l 43.4%	Int'l Bonds 3.9%	Int'l Bonds 6.8%	Commod -13.3%	Int'l Bonds 0.8%	Int'l Bonds -5.1%	Int'l 4.9%	Commod -24.7%	Int'l Bonds 1.9%	Commod 1.7%	Int'l 13.8%	Private RE 6.4%	Public RE -5.1%	Emerging Markets -2.5%
Bonds	4.3%	Int'l Bonds -9.2%	Commod 2.1%	Public RE -15.7%	Emerging Markets -53.3%	Private RE -16.9%	Bonds 6.5%	Emerging Markets -18.4%	Commod -1.1%	Commod -9.5%	Commod -17.0%	MLPs 32.6%	Int'l 1.0%	MLPs 6.5%	Emerging Markets -14.6%	Int'l Bonds 5.2%	MLPs 28.7%	Int'l Bonds -9.5%

See disclosures for sources and additional information.

# CAPITAL MARKET ASSUMPTIONS

# FEG INPUTS: CAPITAL MARKET ASSUMPTIONS

Proprietary capital markets assumptions and our deep economic understanding suggest the following FEG 7- to 10-year Capital Market Assumptions:<sup>1</sup>

	Expected Return	Expected Standard Deviation		Expected Return	Expected Standard Deviation
<b>GLOBAL EQUITY</b>			<b>REAL ASSETS</b>		
<b>Long-Only Strategies</b>	<b>5.3%</b>	<b>19.9%</b>	<b>Real Estate</b>		
<b>U.S. Equity</b>	<b>4.7%</b>	<b>16.7%</b>	Public Real Estate	4.5%	20.0%
Large Cap	4.5%	15.0%	Private Real Estate	7.0%	18.0%
Mid Cap	5.0%	18.0%	<b>Natural Resources</b>		
Small Cap	5.5%	24.0%	Commodities	3.0%	19.0%
			Private Energy	7.5%	18.0%
<b>International Equity</b>	<b>6.0%</b>	<b>23.7%</b>	<b>Infrastructure</b>		
Large Cap Developed	5.5%	20.0%	Energy Infrastructure	6.0%	23.0%
Small Cap Developed	5.5%	24.0%	Global Listed Infrastructure	5.0%	15.0%
Emerging Markets	7.5%	33.0%			
Frontier Markets	8.5%	35.0%			
Global Hedged Equity	4.5%	13.0%			
Private Equity	8.0%	17.0%			
<b>GLOBAL FIXED INCOME &amp; CREDIT</b>			<b>DIVERSIFYING STRATEGIES</b>		
<b>Interest Rate Sensitive Strategies</b>	<b>1.8%</b>	<b>6.3%</b>	<b>Semi-Liquid Hedged Strategies</b>	<b>4.3%</b>	<b>8.4%</b>
Core (Investment Grade)	1.6%	6.0%	Event Driven	4.5%	9.5%
Inflation Protected (TIPS)	1.3%	7.0%	Macro	4.5%	7.0%
Long Duration Corporate Debt	3.0%	8.5%	Relative Value	4.0%	8.0%
Emerging Market Debt	5.0%	13.0%	Illiquid Diversifying Strategies	7.0%	10.0%
			Liquid Diversifying Strategies	4.0%	10.0%
<b>Credit Sensitive Strategies</b>	<b>4.2%</b>	<b>14.0%</b>	<b>Money Markets</b>		
High Yield	3.2%	16.0%	U.S. Inflation	2.3%	
Bank Loans	3.0%	11.0%	U.S. Cash	1.0%	
Private Debt	6.5%	15.0%			

<sup>1</sup>Data Source: FEG Data as of 11/30/2021. FEG Capital Market Assumptions are hypothetical based on asset category.



# CAPITAL MARKET ASSUMPTIONS PROCESS

# DEVELOPING SOUND CAPITAL MARKET ASSUMPTIONS

Recognizing the importance of sound capital market assumptions, FEG has a team and process in place to research and publish capital market assumptions. While FEG's expected returns have historically been within the return range of the actual results 7-10 years later, the process does not "stop" once we issue these assumptions. We continually refine our models and evaluate our success.

## Develop 10-Year Forecasts

## Checks and Balances

## Results

### STEP 1: DEVELOP FORECASTS

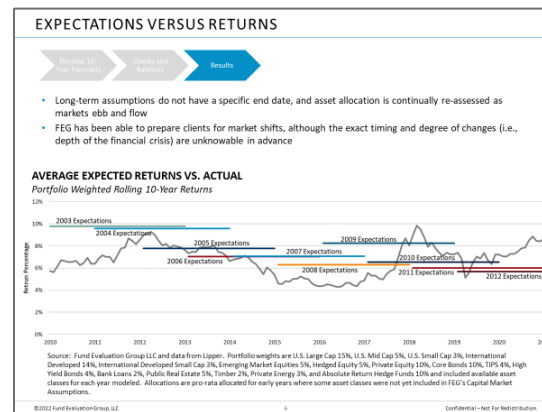
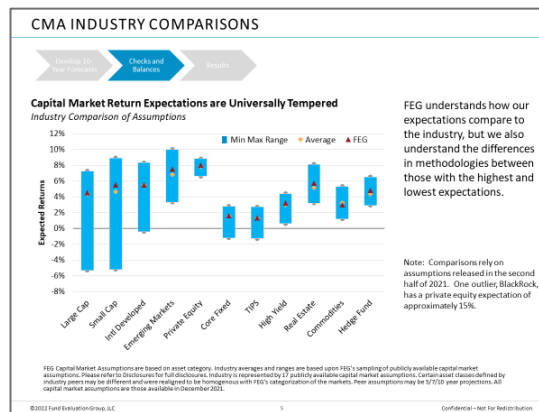
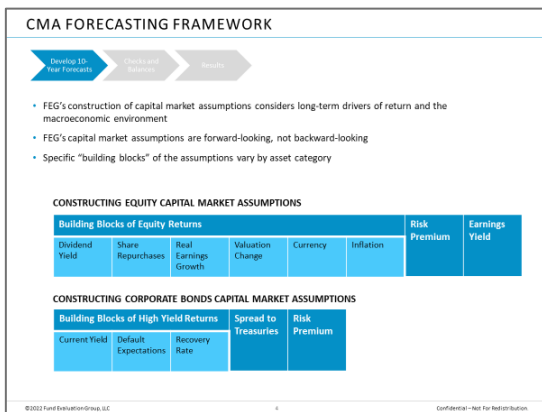
Evaluate long-term drivers of return by asset category and frame within the broader macroeconomic environment.

### STEP 2: CHECKS AND BALANCES

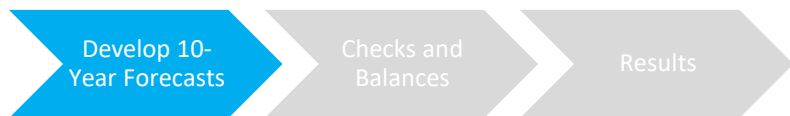
Review internally and externally – checking assumptions and methodologies against others in the investments industry.

### STEP 3: RESULTS

Evaluate past results, determine if any deviations were a function of unique markets or embedded within FEG's forecasting framework. Keep what is working but isolate and correct any issues.



# CMA FORECASTING FRAMEWORK



- FEG’s construction of capital market assumptions considers long-term drivers of return and the macroeconomic environment
- FEG’s capital market assumptions are forward-looking, not backward-looking
- Specific “building blocks” of the assumptions vary by asset category

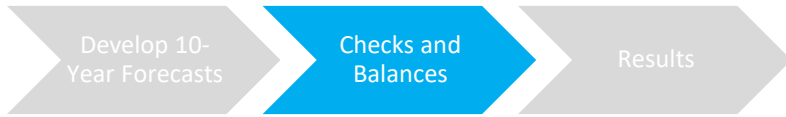
## CONSTRUCTING EQUITY CAPITAL MARKET ASSUMPTIONS

Building Blocks of Equity Returns						Risk Premium	Earnings Yield
Dividend Yield	Share Repurchases	Real Earnings Growth	Valuation Change	Currency	Inflation		

## CONSTRUCTING CORPORATE BONDS CAPITAL MARKET ASSUMPTIONS

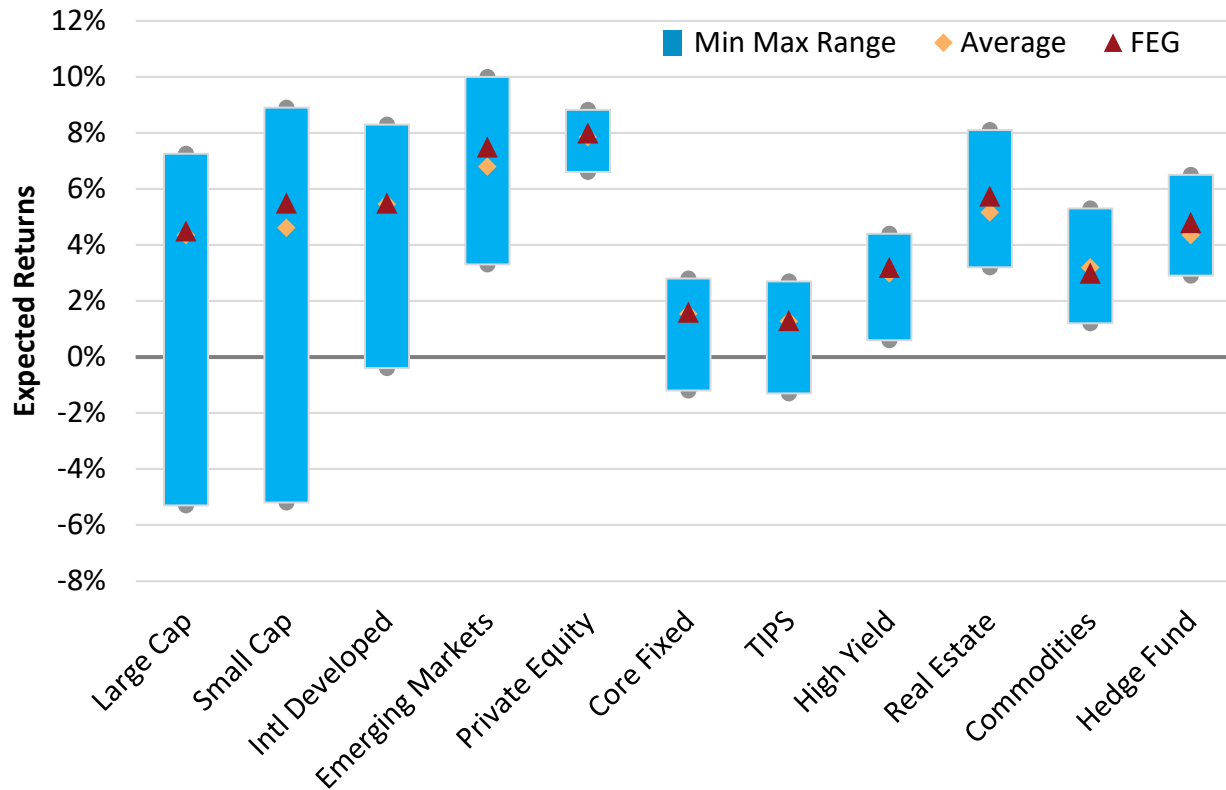
Building Blocks of High Yield Returns			Spread to Treasuries	Risk Premium
Current Yield	Default Expectations	Recovery Rate		

# CMA INDUSTRY COMPARISONS



## Capital Market Return Expectations are Universally Tempered

### Industry Comparison of Assumptions

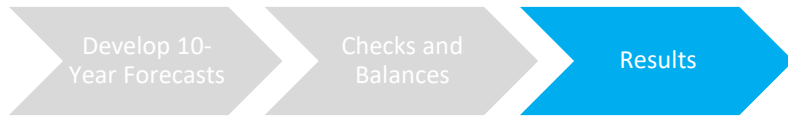


FEG understands how our expectations compare to the industry, but we also understand the differences in methodologies between those with the highest and lowest expectations.

Note: Comparisons rely on assumptions released in the second half of 2021. One outlier, BlackRock, has a private equity expectation of approximately 15%.

FEG Capital Market Assumptions are based on asset category. Industry averages and ranges are based upon FEG's sampling of publicly available capital market assumptions. Please refer to Disclosures for full disclosures. Industry is represented by 17 publicly available capital market assumptions. Certain asset classes defined by industry peers may be different and were realigned to be homogenous with FEG's categorization of the markets. Peer assumptions may be 5/7/10 year projections. All capital market assumptions are those available in December 2021.

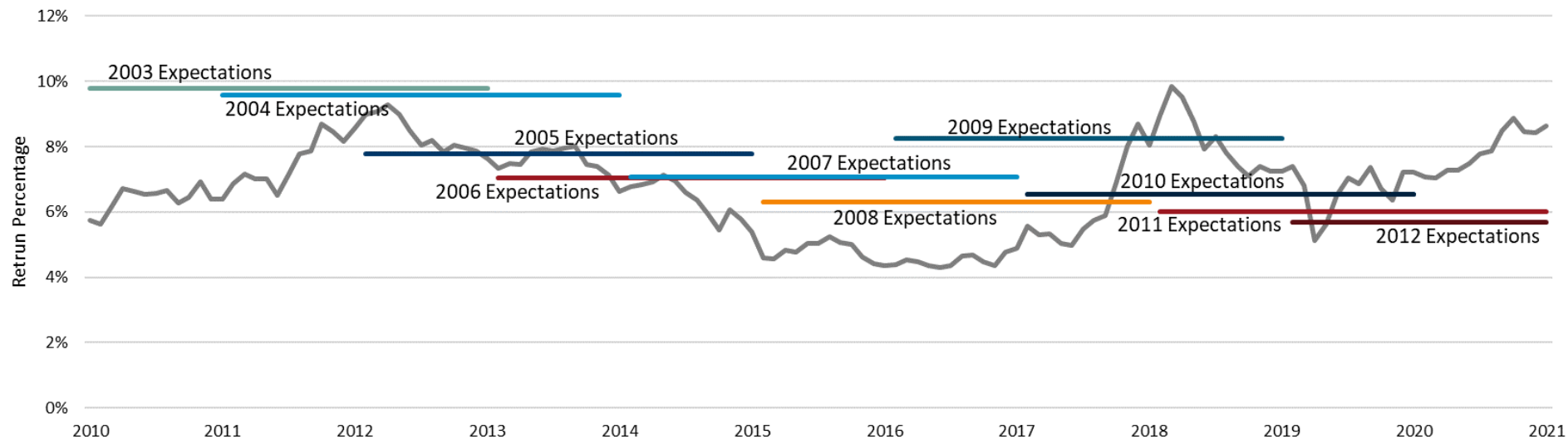
# EXPECTATIONS VERSUS RETURNS



- Long-term assumptions do not have a specific end date, and asset allocation is continually re-assessed as markets ebb and flow
- FEG has been able to prepare clients for market shifts, although the exact timing and degree of changes (i.e., depth of the financial crisis) are unknowable in advance

## AVERAGE EXPECTED RETURNS VS. ACTUAL

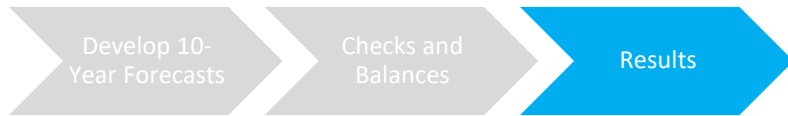
### Portfolio Weighted Rolling 10-Year Returns



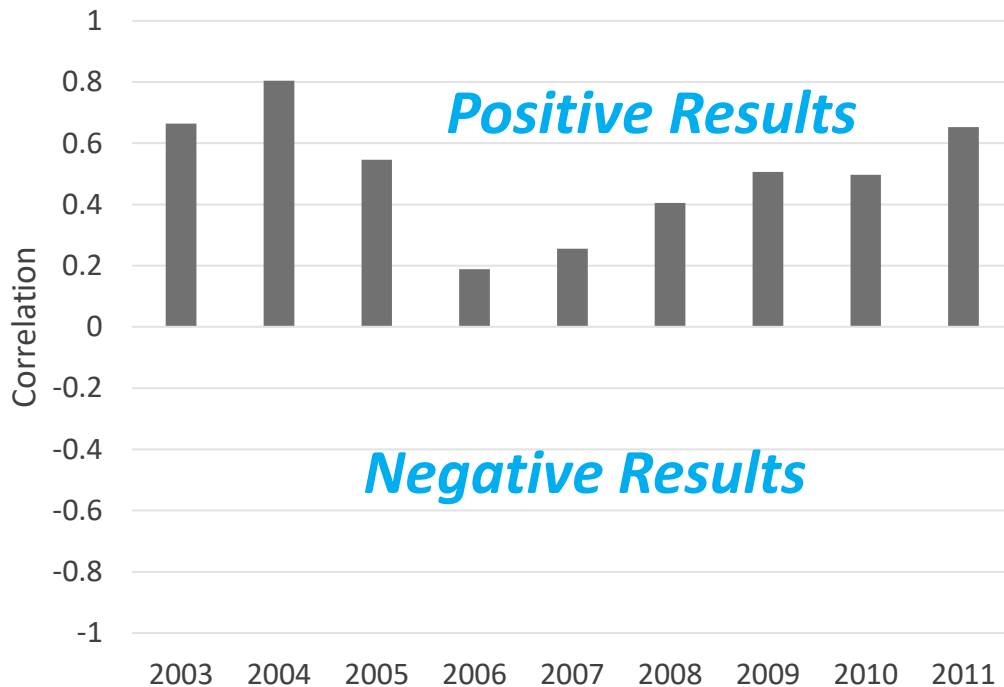
Source: Fund Evaluation Group LLC and data from Lipper. Portfolio weights are U.S. Large Cap 15%, U.S. Mid Cap 5%, U.S. Small Cap 3%, International Developed 14%, International Developed Small Cap 3%, Emerging Market Equities 5%, Hedged Equity 5%, Private Equity 10%, Core Bonds 10%, TIPS 4%, High Yield Bonds 4%, Bank Loans 2%, Public Real Estate 5%, Timber 2%, Private Energy 3%, and Absolute Return Hedge Funds 10% and included available asset classes for each year modeled. Allocations are pro-rata allocated for early years where some asset classes were not yet included in FEG's Capital Market Assumptions.



# THE IMPORTANCE OF RANK ORDER



## CAPITAL MARKET ASSUMPTIONS: RANK CORRELATION OF EXPECTED VS. ACTUAL



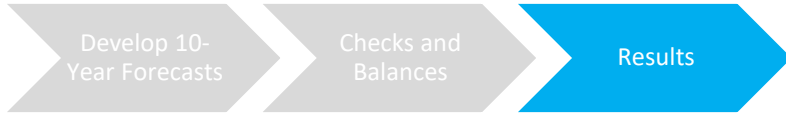
*Because every asset allocation decision is relative, one method we use to evaluate our results is rank order (the order in which asset classes fall when ranked by return versus the order of actual returns, e.g., 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>).*

*Suppose a market shock, the Great Financial Crisis, for example, dramatically shifts markets and returns, but our relative ranking is accurate. In that case, our assumptions should nevertheless position our clients well (i.e., favor those with the best risk/reward trade-offs) regardless of unique market events.*

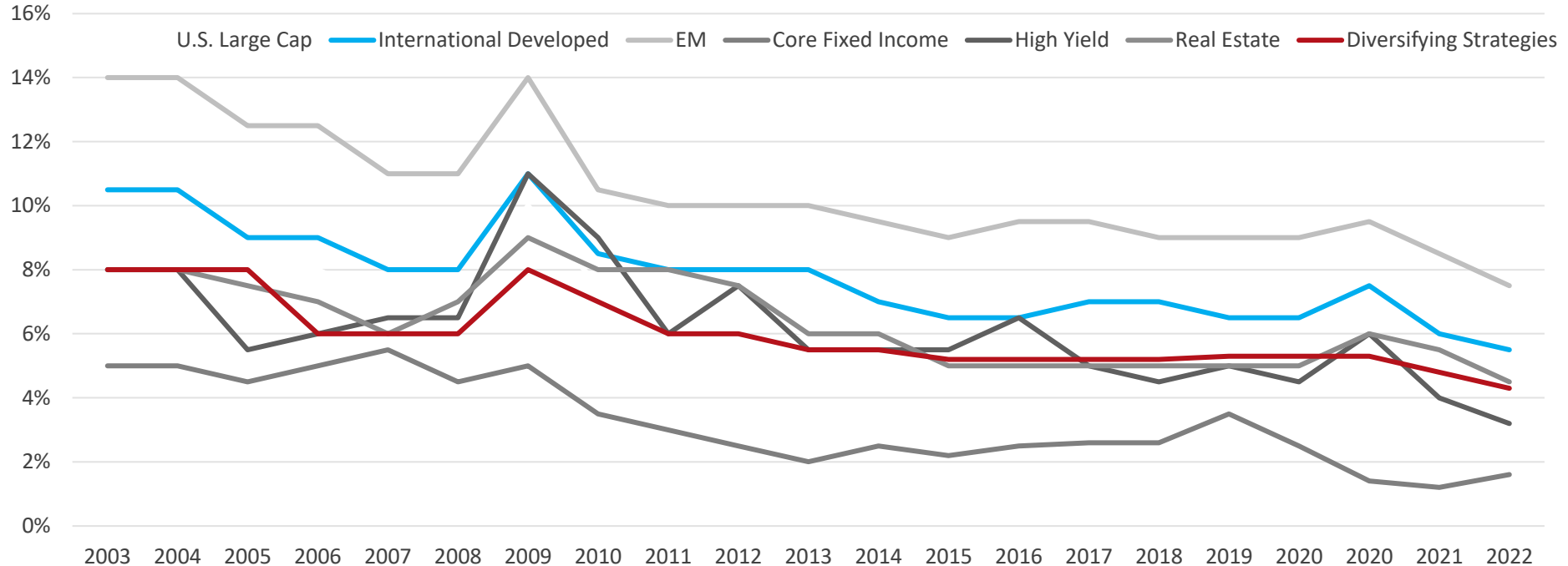
*As such, we review the correlation between the rank order of our expectations to the rank order of actual results.*

Source: Fund Evaluation Group LLC and data from Lipper as of December 2021

# CAPITAL MARKET ASSUMPTIONS OVER TIME



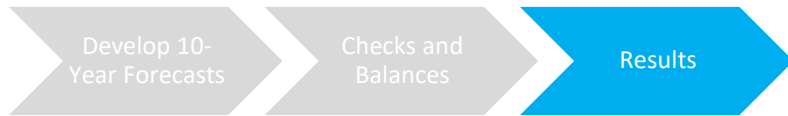
## 7- to 10-Year Capital Market Assumptions by Year



Source: Fund Evaluation Group LLC

FEG’s capital market assumptions have reflected the impact of significant market events as well as improvements in our methodology over time

# ADJUSTMENTS TO THE MODEL



- Upon examining the results from our 2002-2006 assumptions, we identified several unprecedented macroeconomic variables that we could not control, but similarly isolated one weighting, risk premium, within our framework that we could control
- FEG’s construction of capital market assumptions in the early part of the previous decade relied too heavily on an assumed risk premium above large cap U.S. equities, and we have refined this approach in the years following the financial crisis

## CONSTRUCTING EQUITY CAPITAL MARKET ASSUMPTIONS

Building Blocks of Equity Returns						Risk Premium	Earnings Yield
Dividend Yield	Share Repurchases	Real Earnings Growth	Valuation Change	Currency	Inflation		

# DISCLOSURES

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FEG Capital Market Assumptions are the result of hypothetical allocations constructed under various assumptions of various constraints and liquidity needs, and allocations may not be appropriate for all investment objectives. Assumptions of various constraints and liquidity needs, and allocations may not be appropriate for all investment objectives. All projections provided are estimates and are in U.S. dollar terms, unless otherwise specified, and are based on data as of the dates indicated. Given the complex risk-reward trade-offs involved, one should always rely on judgment as well as quantitative optimization approaches in setting strategic allocations to any or all of the asset classes specified. Please note that all information shown is based on qualitative analysis developed by FEG. Exclusive reliance on the above to make an investment decision is not advised. This information is not intended as a recommendation to invest in any particular asset class, product, security, derivative, commodity, currency or strategy or as a promise of future performance. Please note that these asset class and strategy assumptions are passive only—they do not consider the impact of active management. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only. They should not be relied upon as recommendations to buy or sell any securities, commodities, derivatives or financial instruments of any kind. Forecasts of financial market trends that are based on current market conditions or historical data constitute a judgment and are subject to change without notice. We do not warrant its accuracy or completeness. This material has been prepared for informational purposes only and is not intended to provide, and should not be relied on for, accounting, legal, tax, investment or tax advice. There is no assurance that any of the target prices mentioned will be attained. Any market prices are only indications of market values and are subject to change.

This presentation contains hypothetical allocations and/or performance. The results do not necessarily represent the actual asset allocation of any client or investor portfolio and may not reflect the impact that material economic and market factors might have had on investment decisions. Investment results achieved by actual client accounts may differ from the results portrayed. Investments cannot be made directly in an index. No representation is being made that any fund or account will or is likely to achieve profits or losses similar to those shown herein. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently realized by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. Hypothetical performance results are presented for illustrative purposes only. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the hypothetical returns presented. Past performance is not indicative of future results.

Given the complex risk-reward trade-offs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. Exclusive reliance on the capital market assumptions is not advised. This information is not intended as a recommendation to invest in any particular asset class or strategy or as a promise of future performance. Note that these asset class and strategy assumptions are passive only—they do not consider the impact of active management. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only. They should not be relied upon as recommendations to buy or sell securities. A manager's ability to achieve similar outcomes is subject to risk factors over which the manager may have no or limited control. Forecasts of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. Both past performance and yield may not be a reliable guide to future performance.

Any return expectations provided are not intended as, and must not be regarded as, a representation, warranty or predication that the investment will achieve any particular rate of return over any particular time period or that investors will not incur losses.

Index performance results do not represent any portfolio returns. An investor cannot invest directly in a presented index, as an investment vehicle replicating an index would be required. An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the performance shown.

This presentation is prepared for informational purposes only. It does not address specific investment objectives, or the financial situation and the particular needs of any person who may receive this presentation.

Diversification or Asset Allocation does not assure or guarantee better performance and cannot eliminate the risk of investment loss.

Standard Deviation – A measure of variability in returns. The annual standard deviation measures the dispersion of annual returns around the average annualized return.

# DISCLOSURES

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Large Cap is represented by the S&P 500 Index which measures the performance of large capitalization U.S. stocks. The S&P 500 is a market-weighted index of 500 stocks that are traded on the NYSE, AMEX, and NASDAQ. [www.standardandpoors.com](http://www.standardandpoors.com)

Mid Cap is represented by the Russell Mid Cap Index which measures performance of U.S. mid capitalization stocks. The Russell Mid Cap Index is a capitalization-weighted index of the 800 smallest companies in the Russell 1000 Index. The stocks are traded on the NYSE, AMEX, and NASDAQ. [www.russell.com](http://www.russell.com)

Small Cap is represented by the Russell 2000 Index which measures the performance of U.S. small capitalization stocks. The Russell 2000 is a capitalization-weighted index of the 2,000 smallest stocks in the broad U.S. equity market, as defined by the Russell 3000 Index. These stocks are traded on the NYSE, AMEX, and NASDAQ. [www.russell.com](http://www.russell.com)

International is represented by the MSCI EAFE Index which is a Morgan Stanley Capital International index that is designed to measure the performance of the developed stock markets of Europe, Australasia, and the Far East. [www.msicbarra.com](http://www.msicbarra.com)

Emerging Markets are represented by the MSCI Emerging Markets Index which is a Morgan Stanley Capital International index that is designed to measure the performance of emerging market stock markets. [www.msicbarra.com](http://www.msicbarra.com)

Hedged Equity is represented by the Hedge Fund Research, Inc. Fund Weighted Composite Index, an equal weighted index that includes over 2,000 constituent funds, both domestic and offshore with no Fund of Funds included in the index. [www.hfri.com](http://www.hfri.com)

Bonds are represented by the Barclays U.S. Aggregate Bond Index which includes U.S. government, corporate, and mortgage-backed securities with maturities up to 30 years. [www.barclays.com](http://www.barclays.com)

High Yield is represented by the Barclays U.S. Corporate High Yield Index. [www.barclays.com](http://www.barclays.com)

Global REIT is represented by the FTSE EPRA/NAREIT Developed Index which is designed to track the performance of listed real estate companies and REITS worldwide. [www.ftse.com](http://www.ftse.com)

MLPs are represented by the Alerian MLP Index. [www.alerian.com](http://www.alerian.com)

Hedge Funds are represented by the Hedge Fund Research, Inc. Fund of Funds Composite Index. [www.hfri.com](http://www.hfri.com)

Diversified Portfolio is composed of 9% S&P 500 Index; 5% Russell Mid Cap Index; 2% Russell 2000 Index; 16% MSCI EAFE Index; 8% MSCI Emerging Markets Index; 5% HFRI Equity Hedge Index; 5% Thomson One All Private Equity Index; 10% Barclays U.S. Aggregate Bond Index; 6% Barclays U.S. Corporate High Yield Index; 2% J.P. Morgan Non-U.S. Global Bond Index; 2% Thomson One Distressed Index; 3.4% FTSE NAREIT US Real Estate Index; 2% NCREIF Property Index; 3.3% Bloomberg Commodity Index; 3.8% Alerian MLP Index; 2.5% Thomson One Private Natural Resources Index; 15% HFRI Fund Weighted Composite Index.



Fund Evaluation Group, LLC | 201 East Fifth Street, Suite 1600 Cincinnati, OH 45202 | 513.977.4400 | [information@feg.com](mailto:information@feg.com) | [www.feg.com](http://www.feg.com)  
Dallas | Indianapolis



**ACTUARIAL SERVICES AGREEMENT**

**By and Between**

**BOARD OF TRUSTEES OF THE CITY OF GROSSE POINTE WOODS  
EMPLOYEES' RETIREMENT SYSTEM**

**and**

**FOSTER & FOSTER CONSULTING ACTUARIES, INC.**

## **ACTUARIAL SERVICES AGREEMENT**

**THIS AGREEMENT** is made this \_\_\_ day of \_\_\_\_\_, 2022 (the “Effective Date”), by and between the Board of Trustees of the City of Grosse Pointe Woods Employees’ Retirement System (hereinafter, the “Board”) and Foster & Foster Consulting Actuaries, Inc., a Florida corporation (hereinafter referred to as the “Actuary”). The Actuary and the Board acknowledge the following facts and circumstances:

**WHEREAS**, the Board desires to engage Actuary to provide certain actuarial and record keeping services as described in this Agreement, for the City of Grosse Pointe Woods Employees’ Retirement System (hereinafter referred to as the “Plan” or the “Retirement System”), with respect to the 2022 Plan Year, and subsequent Plan years until the Agreement is terminated; and

**WHEREAS**, the Actuary, as a member of the American Academy of Actuaries, is qualified and desires to perform certain actuarial, administrative and record keeping services for the Retirement System; and

**WHEREAS**, both parties wish to delineate the duties and responsibilities of each party and the fees to be paid to the Actuary for services as described herein.

**NOW, THEREFORE**, in consideration of the mutual promises set forth herein, the parties agree as follows:

### **I. ACTUARIAL SERVICES**

#### **A. Annual Actuarial Valuation**

With respect to the Retirement System, the Actuary will prepare, submit, and present to the Board an Annual Actuarial Valuation Report. The Actuary shall also collect and reconcile assets and member data, review actuarial assumptions and methods, calculate actuarial liabilities, calculate funding requirements, and prepare information required by the Governmental Accounting Standards Board (GASB) and by Public Act 202. The parties acknowledge and agree that the Actuary will create and maintain appropriate records to perform said services based on records and information which the Board will supply to the Actuary in a format to be agreed upon by the parties as soon as administratively feasible.

The Actuary shall provide consultation services related to the annual actuarial valuation, including valuation consulting, meetings, consulting regarding alternate methods and assumptions, administrative services required, costing of benefit changes, and simulation software. The Actuary will also attend one meeting of the Board in each year to present the Annual Actuarial Valuation.



**B. Other Actuarial Services**

Upon direction of the Board, the Actuary agrees to perform the following additional services:

**(1) Individual Retirement Calculations**

The Actuary will prepare and certify calculations regarding final benefit options offered to each participant or beneficiary when such participant or beneficiary becomes eligible to receive benefit(s).

**(2) Annual Limitation Testing**

The Actuary will perform annual limitation tests as required under Internal Revenue Code Section 415 and report the results to the Board. The Actuary will advise the Board in writing of the possible remedial actions for the Board to employ to ensure compliance with applicable regulations as required by the Internal Revenue Code.

**(3) Eligible Domestic Relations Orders**

The Actuary will provide actuarial services related to certification and individual benefit calculations relating to Eligible Domestic Relations Orders.

**(4) Special Reports**

The Actuary will provide special reports or calculations involving such matters as pricing benefit increases, experience studies, projections, early retirement window valuations, and other matters of an actuarial nature.

**II. REPRESENTATIONS BY THE ACTUARY**

- A.** The Actuary agrees to comply with all federal, state and GASB accounting and reporting requirements.
- B.** The Actuary agrees to be available to meet with the Board on an as needed basis, and at Retirement System meetings on a once per quarter basis, to review the progress of the Plan and answer any questions from members of the Board.
- C.** The Actuary agrees to maintain appropriate professional liability errors and omissions insurance covering the Board in an amount not less than \$2,000,000 per claim and \$3,000,000 in the aggregate, and to advise the Board in writing within three (3) days with respect to any changes in coverage.
- D.** The Actuary agrees to notify the Board in writing within three (3) days of any changes in personnel assigned to the Retirement System.

### **III. RESPONSIBILITIES**

- A.** The Actuary will provide services in accordance with: (a) sound and generally accepted third party actuarial administrator principles; and (b) future direction of the Board. The Actuary will complete all actuarial services for which a specific time period is not stated within 60 days after the Board has supplied all necessary data as requested by the Actuary. The Actuary will notify the Board of the status of the work and its expected completion date at any time upon the Board's request. Should any of the services of the Actuary prove to be non-conforming through human error or omission, as determined by the general accepted standards of practice as reasonably determined by the Board, the Actuary agrees to perform any and all remedial services within the original scope of services undertaken in this Agreement within 30 days of its receipt of a notification of non-conforming services. Should there be optional courses of remedial action, the Actuary will advise the Board of all known remedial courses action, including the ramifications of each. The Board may then select a remedial course of action which the Board deems appropriate within the time prescribed by law. All expenses and fees incurred by the Actuary in the performance of such remedial services may be reimbursable only to the extent that the error or omission is/was the fault of the Board, its representatives or other agents.
- B.** The Actuary will defend, indemnify and hold the Board harmless from and against all claims, actions, suits, proceedings, costs, expenses, including, but not limited to, excise or additional income taxes, reasonable attorney fees, damage or loss actually resulting from or arising out of any act, omission, or negligence of the Actuary or its employees in connection with the services being provided to and on behalf of the Board; provided, however, the Actuary shall have no obligation to defend, indemnify and hold the Board harmless from any such claims or damages arising from the acts or omissions of the Board, its representatives or other agents.

### **IV. FEES FOR SERVICES**

**A. Actuarial Services**

For the services of the Actuary associated with the Retirement System and as described at Article I, Section A, above, the Board agrees to pay to the Actuary a 2022 annual base fee of eight thousand five hundred dollars (\$8,500). GASB 67/68 reporting information will be an additional six thousand three hundred dollars (\$6,300), Public Act 202 disclosure information will be an additional one thousand four hundred fifty dollars (\$1,450). This fee shall include all basic retainer services as outlined in Article I, Section A above, as well as answering any routine questions and providing routine advice concerning any aspect affecting the Retirement System. This fee shall, in addition to the services delineated in Article I, Section A above, also include the preparation of up to five (5) benefit calculations per Plan year for members retiring.

Fees in subsequent years will be determined based on the increase in Consumer Price Index for All Urban Consumers determined for the one-year period ending in May prior to the June 30<sup>th</sup> fiscal year end.

**B. Actuarial Certification and Calculation of Final Benefits/Options**

The Board will be charged for the preparation of calculations regarding final benefit options offered to each participant or beneficiary when such participant or beneficiary becomes eligible to receive benefit. Such fee will also cover the actuarial certification of benefits calculations and the calculation of all optional forms of settlement under the terms of the Retirement System. Up to five (5) individual calculations are included in the annual retainer fee; additional calculations will be performed for a per calculation charge of Three Hundred Dollars (\$300).

**C. Actuarial Calculation of Eligible Domestic Relations Orders**

The Board will be charged a fee of Four Hundred Dollars (\$400) for each actuarial calculation relating to Eligible Domestic Relations Orders.

**D. Participant Statements**

The Actuary will provide annual individual benefit statements on behalf of each eligible active participant if requested by Board. The total fee for these statements will be One Thousand Dollars (\$1,000) per year.

**E. Attendance at Board Meetings**

The Actuary will attend one meeting of the Board annually, as part of the Basic Retained Services. For attendance at all other meetings of the Board, the Board will be charged the applicable hourly rate.

**G. Fees for Other Services**

If the Actuary performs other authorized services for the Board which fees are not specifically set forth in Article IV, Paragraphs A through E above, then the Board agrees to pay the Actuary for such services at the normal hourly billing rates then in effect for the performance of such services unless the Board and the Actuary agree in advance on a project based fee based upon the scope of services requested.

The Actuary's normal hourly rates presently in effect are as follows:

	<u>Amount</u>
Actuaries and Consultants:	\$ 300 - \$ 350
Actuarial Analysts:	\$ 250 - \$ 300
Clerical:	\$ 60

Actuary shall provide the Board with at least thirty (30) days advance written notice of any proposed increase to the hourly fees.

**H. Additional Expenses**

The parties to this Agreement agree that there will be no charge for travel time or travel expenses.

**V. TERM OF AGREEMENT**

This Agreement may be terminated by the Board, with or without cause, upon written notification to Actuary, with the effective date of termination as indicated in the written notice of termination. The Actuary may resign and thus terminate this Agreement upon 60 days written notice to the Board.

In the event of termination, as provided above, Actuary agrees to assist the Board with respect to the transition of actuarial services to the Board's successor actuary. All such transition services shall be billed at the normal hourly billing rates then in effect.

All rights, liabilities, limitations and remedies associated with this Agreement are cumulative and will survive termination of this Agreement.

**VI. MISCELLANEOUS**

**A. Confidentiality**

It is agreed that all records of the Retirement System are confidential and will not be released, except that the Actuary will release Retirement System records upon written authorization from the Board, specifically indicating what records will be released and to whom.

**B. Governing Law**

This Agreement is subject to and governed by the laws of the State of Michigan, and all questions concerning its validity, construction, and administration will be determined under such laws.

**C. Binding Effect**

This Agreement is binding upon the parties hereto and upon their respective successors and assignees.

**D. Severability**

The invalidity or unenforceability of any particular provision of this Agreement will not adversely affect the other provisions of this Agreement, and this Agreement will be construed in all respects as if any invalid or unenforceable provision(s) was/were omitted.

**E. Entire Agreement**

This Agreement embodies the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior discussions and proposals. Neither this Agreement nor any provision hereof may be amended, modified, changed, or assigned except by an instrument in writing duly signed by an authorized officer of the parties hereto.

**EXECUTED** the date first written above.

**Foster & Foster Consulting Actuaries, Inc.**

**Board of Trustees of the City of City of  
Grosse Pointe Employees' Retirement  
System**

**By:**

\_\_\_\_\_

**By:**

\_\_\_\_\_

**Its:**

**Its:** \_\_\_\_\_



ROSATI, SCHULTZ, JOPPICH & AMTSBUECHLER, P.C.  
 27555 Executive Drive, Suite 250  
 Farmington Hills, MI 48331  
 (248) 489-4100 Tax ID# 38-3107356

February 9, 2022

City of Grosse Pointe Woods  
 Attn: Bruce Smith, City Adminsitrator  
 20025 Mack Plaza  
 Grosse Pointe Woods, MI 48236

Invoice # 1076963

In Reference To: City of Grosse Pointe Woods Retirement System & Retiree Health Care

Professional Services Rendered Through January 31, 2022

	Hrs/Rate	Amount
1/4/2022 DAW Telephone conference with pension attorney Michael Gro VanOverbeke concerning recovery issue	0.30 \$145.00/hr	43.50
SUBTOTAL:	[ 0.30	43.50]
For professional services rendered	0.30	\$43.50
Previous balance		\$356.50
Balance due		\$400.00

Please include your Invoice Number on your payment. Thank you.

Attorney Summary

Name	Hours	Rate
Debra A. Walling, Associate	0.30	145.00

ROSATI, SCHULTZ, JOPPICH & AMTSBUECHLER, P.C.  
 27555 Executive Drive, Suite 250  
 Farmington Hills, MI 48331  
 (248) 489-4100 Tax ID# 38-3107356

March 15, 2022

City of Grosse Pointe Woods  
 Attn: Bruce Smith, City Administrator  
 20025 Mack Plaza  
 Grosse Pointe Woods, MI 48236

Invoice # 1077140

In Reference To: City of Grosse Pointe Woods Retirement System & Retiree Health Care

Professional Services Rendered Through February 28, 2022

	<u>Hrs/Rate</u>	<u>Amount</u>
2/4/2022 DAW Telephone conference with Michael VanOverbeke regarding pension matter and need for closed session; Correspondence to Deputy City Clerk regarding closed session agenda and notice of meeting; Review Michael VanOverbeke's legal opinion; Correspondence with Finance and City Clerk regarding closed session	0.80 \$145.00/hr	116.00
DAW Research regarding Open Meetings Act and correspondence to M. VanOverbeke	0.80 \$145.00/hr	116.00
2/7/2022 DAW Correspondence from and to Treasurer regarding actuary presenting remotely to the Pension Board due to COVID exposure	0.20 \$145.00/hr	29.00
2/8/2022 DAW Receipt/review of meeting agenda and back-up packet for meeting on 2/10/22 and Retiree Healthcare Plan & Trust	0.50 \$145.00/hr	72.50
2/10/2022 DAW Attend meeting	2.00 \$145.00/hr	290.00
 SUBTOTAL:	 [ 4.30	 623.50]



	<u>Hours</u>	<u>Amount</u>
For professional services rendered	4.30	\$623.50
Additional charges:		
	<u>Qty/Price</u>	
2/10/2022 Attorney Mileage - Board meetings [D. Walling]	73	42.34
	0.58	
SUBTOTAL:		[ 42.34]
Total costs		<u>\$42.34</u>
Total amount of this bill		\$665.84
Previous balance		\$400.00
2/15/2022 Payment - thank you. Check No. 774862367		(\$356.50)
Balance due		<u><u>\$709.34</u></u>

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Please include your Invoice Number on your payment. Thank you.

Attorney Summary		
<u>Name</u>	<u>Hours</u>	<u>Rate</u>
Debra A. Walling, Associate	4.30	145.00