

CITY OF GROSSE POINTE WOODS
NOTICE OF REGULAR MEETING
Pension Retirement System Board of Trustees
Thursday, November 3, 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 August 4, 2022
5. Trial Balance through September 30, 2022
6. Retirement Application
 - a. Gary Guidas-November 16, 2022
 - b. Michael Lapansie-Deferred Retirement August 31, 2022
 - c. Scott Nota-September 14, 2022
 - d. Eugene Tutag-September 30, 2022
7. Reciprocal Act 88 Service Credit Request
 - a. Scott Nota
8. Employee Contribution Refund
 - a. Jeremy Collins
 - b. Jonathan Terey
 - c. Michael Verbruggen
9. 3rd Quarter 2022 Fund Evaluation Group Report
 - a. September 30, 2022 Performance Review
 - b. FEG Revised 2022 Capital Market Assumptions
10. Payment of Invoices -
 - a. FEG- \$14,433.00
 - b. Comerica quarterly invoice \$ 1,500.00
 - c. Rosati, Schultz, Joppich & Amtsbuechler, P.C. \$ 320.76
 - d. Rosati, Schultz, Joppich & Amtsbuechler, P.C. \$ 58.00
 - e. Foster & Foster Actuaries and Consultants \$15,900.00
11. Annual Administrative Fee Payment
12. New Business/Public Comment
13. Adjournment

Next Regular Board Meeting – February 2, 2023

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, AUGUST 4, 2022, IN THE CONFERENCE ROOM OF THE MUNICIPAL BUILDING, 20025 MACK PLAZA, GROSSE POINTE WOODS, MICHIGAN.

The meeting was called to order at 6:07 p.m. by Chairperson Mayor Arthur Bryant.

The following members were present:

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

Also present:

Pension Administrator, Shawn Murphy
City Attorney, Debra Walling
Fund Evaluation Group (FEG), Jeffrey Davis
Recording Secretary, Tina Hoenicke

Motion by Granger, supported by Crook that all items on today's agenda be received and placed on file.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Zarb to accept and place on file the minutes of the pension board meeting dated May 5, 2022 as presented.

Motion CARRIED by the following vote:

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

Motion by Crook, supported by Granger to receive and place on file the trial balance report as presented through June 30, 2022.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Zarb to accept and place on file the retirement applications received from Detective Kevin Bonk & Mr. William Babcock.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Zarb to acknowledge receipt of the correspondence received from the City of Royal Oak regarding Amber McNeil's prior service of 2 years, 28 days under Reciprocal Act 88 of 1961.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Zarb to refund unvested pension contributions, with interest, to the following individuals: Kim Rupinski, in the amount of \$576.98 and Josephine Modrack in the amount of \$4,280.65.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Crook to set the 2023 Pension Board meeting dates as follows:

Thursday February 2, 2023
Thursday May 4, 2023
Thursday August 3, 2023
Thursday November 2, 2023

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Crook to re-adopt the Amended Pension Investment Policy as presented.

Motion CARRIED by the following vote:

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

Motion by Crook supported by Conigliaro to receive and place on file the 2nd Quarter Investment Report from FEG ending June 30, 2022.

Motion CARRIED by the following vote:

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

Jeffrey Davis provided a presentation of the 2nd Quarter Investment Report from FEG ending June 30, 2022; including the FEG Memo, Bear In Mind, We've Been Here Before.

Motion by Granger, supported by Zarb to approve payment for invoices 11.b through 11.d.; Comerica in the amount of \$1,500.00, Rosati, Schultz, Joppich & Amtsbuechler, PC for the following amounts: \$145.00 & \$274.34.

Motion CARRIED by the following vote:

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

New Business/Public Comment:

Motion by Granger, supported by Crook to approve payment to Vanoverbeke, Michaud & Timmony, PC in the amount of \$2,905.50.

Motion CARRIED by the following vote:

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

Motion by Granger, supported by Zarb to authorize the Pension Administrator to execute the fiduciary insurance binder documents with The Cincinnati Insurance Company for an annual premium of \$14,879.00 with the City Attorney to review the policy upon receipt.

Pension Board Meeting

8/4/2022

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Motion CARRIED by the following vote:

YES: Bryant, Granger, Conigliaro, Crook, Zarb

NO: None

ABSENT: None

Motion by Crook, supported by Zarb to adjourn at 6:36 pm.

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:

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	174,558.83
731-000-005.001	SCHWAB CASH	220,904.80
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	468.80
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	6,061,147.59
731-000-122.000	STOCKS	13,260,483.49
731-000-123.000	INDEXES	15,532,096.79
731-000-124.000	REAL ESTATE INV.	0.00
Total Assets		35,249,660.30
*** Liabilities ***		
731-000-201.000	WEEKLY A/P	0.00
731-000-202.000	ACCOUNTS PAYABLE	0.00
Total Liabilities		0.00
*** 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
Total Fund Balance		45,943,628.00
Beginning Fund Balance - 21-22		45,943,628.00
Net of Revenues VS Expenditures - 21-22		(7,827,690.94)
*21-22 End FB/22-23 Beg FB		38,115,937.06
Net of Revenues VS Expenditures - Current Year		(2,866,276.76)
Ending Fund Balance		35,249,660.30
Total Liabilities And Fund Balance		35,249,660.30

* Year Not Closed

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	10,793.67
732-000-005.001	SCHWAB CASH	365,677.29
732-000-016.000	CASH	0.00
732-000-017.000	CASH -MERRILL LYNCH	0.00
732-000-056.000	INTEREST RECEIVABLE	10.89
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	333,325.41
732-000-122.000	STOCKS	884,174.33
732-000-123.000	INDEXES	1,050,146.93
Total Assets		2,644,128.52
*** Liabilities ***		
732-000-201.000	WEEKLY A/P	0.00
732-000-202.000	ACCOUNTS PAYABLE	0.00
Total Liabilities		0.00
*** 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
Total Fund Balance		2,605,835.07
Beginning Fund Balance - 21-22		2,605,835.07
Net of Revenues VS Expenditures - 21-22		(290,907.55)
*21-22 End FB/22-23 Beg FB		2,314,927.52
Net of Revenues VS Expenditures - Current Year		329,201.00
Ending Fund Balance		2,644,128.52
Total Liabilities And Fund Balance		2,644,128.52

* Year Not Closed

COPY

EMPLOYEES RETIREMENT SYSTEM
APPLICATION FOR SERVICE RETIREMENT

Pension Membership No. 566

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

I, Gary Guidas a member of the Retirement System, hereby apply (select one).

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

Date of birth: [REDACTED]

I request my retirement be effective: 11-14-2022

My title on the payroll is: Operator II Department: Department of Public Service

Dated at Grosse Pointe Woods, MI this 29 day of September, 2022.

Shawn Murphy
Signature of Witness

[Signature]
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 + 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: _____

Supplemental annuity payment (if applicable) per month will be: \$ 350.00

Shawn Murphy 9-29-22
Signature of Witness & Date

[Signature] 9/29/22
Signature of Member & Date

NOMINATION OF BENEFICIARY

I nominate as my beneficiary:
Starr P. Guidas

Beneficiary's date of birth: 2-10-1958

Beneficiary's relationship to me: wife

Sex: Female

Beneficiary's address:
23015 East Ten Mile
St Clair Shores MI 48088

Beneficiary's place of birth: Detroit

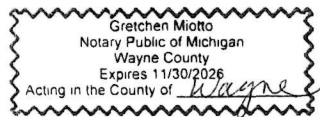
Dated at Grosse Pointe Woods, MI this 29 day of Sept., 2022.

Signed: [Signature]

Subscribed and sworn to before me this 29th day of Sept., 2022.

My commission expires on: 11/30/2026

Notary Public [Signature]



EMPLOYEES RETIREMENT SYSTEM
APPLICATION FOR SERVICE RETIREMENT

COPY

Pension Membership No. 430

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

I, MICHAEL J. LAPANSIE a member of the Retirement System, hereby apply (select one).

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

Date of birth: 8-31-1962 I request my retirement be effective: 8-31-22

My title on the payroll is: CREW CHIEF Department: D.P.W.

Dated at Grosse Pointe Woods, MI this 13 day of AUGUST, 2020 ²⁰²²

Donna A. Fowler
Signature of Witness

[Signature]
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: LISA LAPANSIE

Supplemental annuity payment (if applicable) per month will be: \$ 0

Donna A. Fowler
Signature of Witness & Date
8-13-2022

[Signature]
Signature of Member & Date

NOMINATION OF BENEFICIARY

I nominate as my beneficiary: Lisa Lapansie Beneficiary's date of birth: 7-3-1962

Beneficiary's relationship to me: spouse

Beneficiary's address: [Redacted] Sex: F

[Redacted] Beneficiary's place of birth: Detroit

Dated at Grosse Pointe Woods, MI this 13 day of August, 2020 ²⁰²²

Signed: [Signature]

Subscribed and sworn to before me this 13 day of August, 2020 ²⁰²²

My commission expires on: 12-23-2026

Notary Public Donna A. Fowler

DONALD A FOWLER
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF MACOMB
My Commission Expires December 23, 2026
Acting in the County of Macomb

**EMPLOYEES RETIREMENT SYSTEM
APPLICATION FOR SERVICE RETIREMENT**

COPY

Pension Membership No. 511

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

I, Scott G Nota a member of the Retirement System, hereby apply (select one).

1. Service & Age Retirement XX
2. Disability Retirement _____

Date of birth: [redacted] I request my retirement be effective: 09-14-2022

My title on the payroll is: Public Safety Officer Department: Public Safety

Dated at Grosse Pointe Woods, MI this _____ day of _____, 20122.

[Signature]
Signature of Witness

[Signature]
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 - 100% Survivor (For life of member* & Potential to beneficiary).

*Reverts to Straight Life amount if beneficiary pre-deceases member.

- 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: Shawn Marie Nota - Wife

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

[Signature]
Signature of Witness & Date

[Signature] 10/12/22
Signature of Member & Date

NOMINATION OF BENEFICIARY

I nominate as my beneficiary: _____ Beneficiary's date of birth: [redacted]

Shawn Marie Nota Beneficiary's relationship to me: Spouse

Sex: Female

Beneficiary's address: [redacted] Beneficiary's place of birth: Garden City MI

Dated at Grosse Pointe Woods, MI this 2 day of October, 20122 (SN)

Signed: *[Signature]*

Subscribed and sworn to before me this 12th day of October, 20122 TR
My commission expires on: 04/05/2024

[Signature]
Notary Public

TRAVIA J FREEMAN
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF WAYNE
My Commission Expires April 05, 2024
Acting in the County of Wayne

COPY

EMPLOYEES RETIREMENT SYSTEM
APPLICATION FOR SERVICE RETIREMENT

Pension Membership No. 532

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

I, Eugene J. Tutag a member of the Retirement System, hereby apply (select one).

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

Date of birth: [REDACTED]

I request my retirement be effective: 10/1/2022

My title on the payroll is: Building Official Department: Building Dept

Dated at Grosse Pointe Woods, MI this 5 day of August, 2022.

[Signature]
Signature of Witness

[Signature]
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 100% Survivor

- 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: Vita Tutag

Supplemental annuity payment (if applicable) per month will be: \$ 350.00

[Signature] 8/5/22
Signature of Witness & Date

[Signature] 8/5/22
Signature of Member & Date

NOMINATION OF BENEFICIARY

I nominate as my beneficiary:

Beneficiary's date of birth: [REDACTED]

Vita Tutag

Beneficiary's relationship to me: Wife

Beneficiary's address: [REDACTED]

Sex: F

Beneficiary's place of birth: Detroit MI

Dated at Grosse Pointe Woods, MI this 5th day of Aug., 2022.

Signed: [Signature]

Subscribed and sworn to before me this 5th day of August, 2022.

My commission expires on: 04/02/2026

Notary Public [Signature]

Catherine A Tarleton
Notary Public, State of Michigan
County of Macomb
My Commission Expires 04-02-2026
Acting in the county of _____



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: August 3, 2022

To: Pension Board Trustees

From: Shawn Murphy, Pension Administrator

Re: Prior Service Credit – Scott Nota

Please find attached a request from Public Safety Officer, Scott Nota requesting recognition of his service credit for vesting purposes from his employment with the City of Highland Park.

Mr. Nota was employed with the City of Highland Park from October 1995 through September 1998. Total service credit is two (2) years and eleven (11) months.

I am requesting a motion to accept Scott Nota's prior municipal service with the City of Highland Park Reciprocal Act 88 for vesting purposes only.

Thank you for your consideration.



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: November 3, 2022
To: Pension Board Trustees
From: Shawn Murphy, Pension Administrator
Re: Refund Employee Contributions

On August 15, 2022, Jeremy Collins resigned from the City of Grosse Pointe Woods. Mr. Collins made contributions to the pension system, but he did not vest.

I respectfully request authorization from the Board to refund Jeremy Collins' employee contributions in the amount of \$2,664.93 and interest earnings in the amount of \$11.40, totaling \$2,676.33.

Thank you.



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: November 3, 2022
To: Pension Board Trustees
From: Shawn Murphy, Pension Administrator
Re: Refund Employee Contributions

On September 23, 2022, Jonathan Terey resigned from the City of Grosse Pointe Woods. Mr. Terey made contributions to the pension system, but he did not vest.

I respectfully request authorization from the Board to refund Jonathan Terey's employee contributions in the amount of \$3,803.05 and interest earnings in the amount of \$66.03, totaling \$3,869.08.

Thank you.



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: November 3, 2022
To: Pension Board Trustees
From: Shawn Murphy, Pension Administrator
Re: Refund Employee Contributions

On September 28, 2022, Michael Verbruggen resigned from the City of Grosse Pointe Woods. Mr. Verbruggen made contributions to the pension system, but he did not vest.

I respectfully request authorization from the Board to refund Michael Verbruggen's employee contributions in the amount of \$10,735.04 and interest earnings in the amount of \$427.26, totaling \$11,162.30.

Thank you.



COMPOSITE PERFORMANCE REVIEW

Report for Periods Ending September 30, 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

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THIRD QUARTER 2022 MARKET SUMMARY

The third quarter of 2022 provided little respite for investors hoping for a change following significant downside volatility in the year's first half. While a relief rally was witnessed in July, the positive sentiment reversed course in August and September, with most major equity index levels establishing fresh year-to-date lows and interest rates ascending to the highest level in over a decade. Key policy actions by the Federal Reserve (Fed) during the quarter included a doubling of the pace of quantitative tightening and a 75 basis points (bps) hike to the federal funds rate.

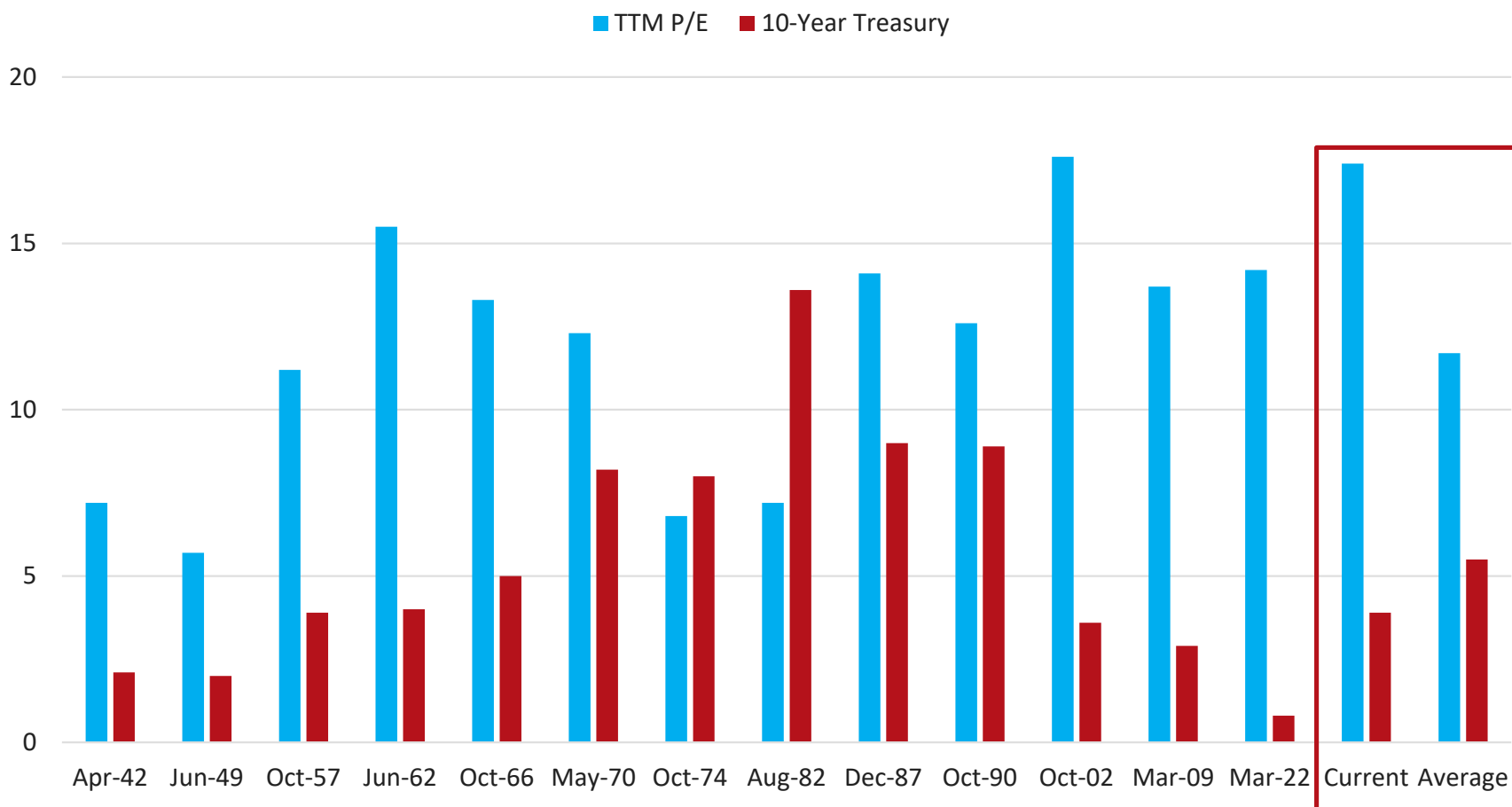
Global equity returns were overwhelmingly negative in the third quarter, as domestic equities witnessed solid relative outperformance versus their international developed and emerging market counterparts. Small cap generated meaningful relative outperformance versus large cap, while stylistically, growth outperformed value. Bond sentiment, particularly among rate-sensitive sectors, deteriorated further as sticky inflation supported a further increase in interest rates. However, a slight quarterly decline in high yield credit spreads provided a modest, bright spot. Real assets were not spared from the selloff pressures, with double-digit declines experienced across real estate investment trusts (REITs), global listed infrastructure, and commodity futures.

MARKET INSIGHTS

- Most bear market bottoms have had equity market valuations well below the current market valuation, though the market is only a few multiples above many previous market bottoms.
- Bond yields are similarly approaching levels consistent with many previous bear market bottoms.

VALUATIONS ARE REACHING PAST BEAR MARKET BOTTOMS

S&P 500 Index Trailing 12-month P/E and 10-year Treasury Yield at Bear Market Bottoms



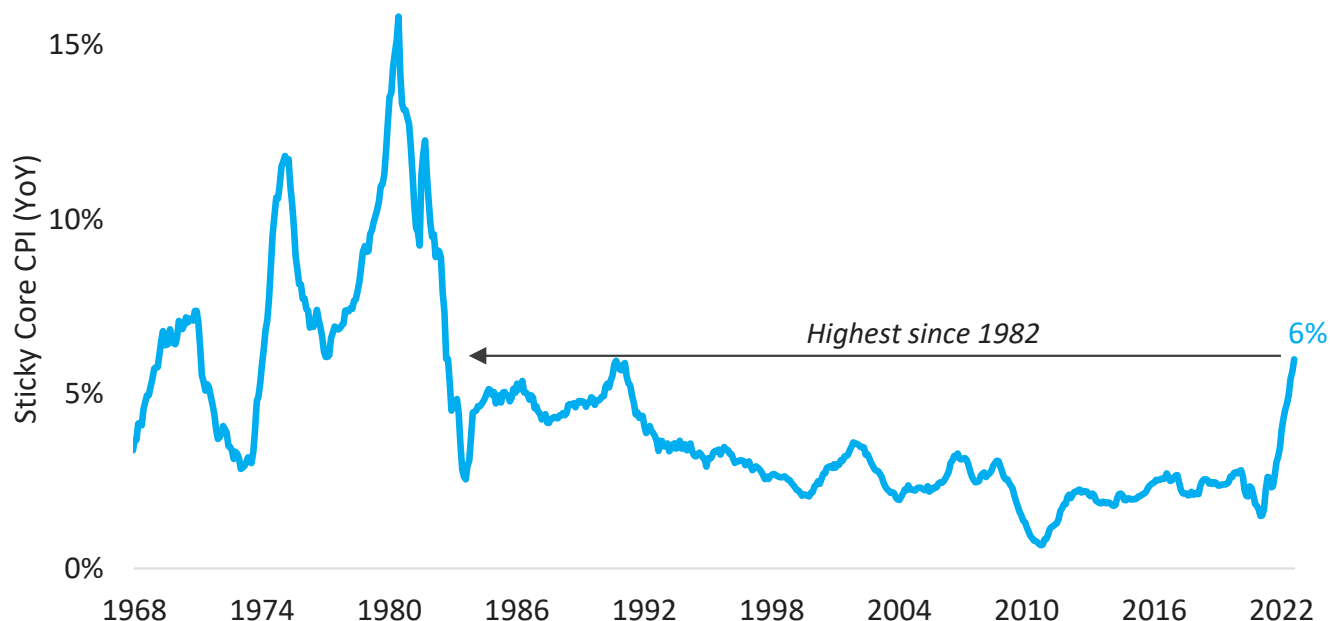
Data source: Strategas

ECONOMIC INSIGHTS

- The Fed hiked the federal funds rate by 75 bps at their late-September meeting, placing the new upper bound on the target rate at 3.25%. This rate now exceeds the long-run neutral level by 75 bps, formally placing this key interest rate into restrictive territory.
- Recent U.S. inflationary data likely points to even further tightening in the coming months, as the stickiness of the current inflationary regime has shown little evidence of reversing course.
- While the U.S. continues to grapple with one of the most severe cost-of-living crises in decades, the sharply appreciating U.S. dollar (USD) has likely contained some of the inflationary impulses that often accompany a significantly depreciating local currency.

U.S. EQUITIES HAVE DECLINED WITH THE REDUCTION OF LIQUIDITY

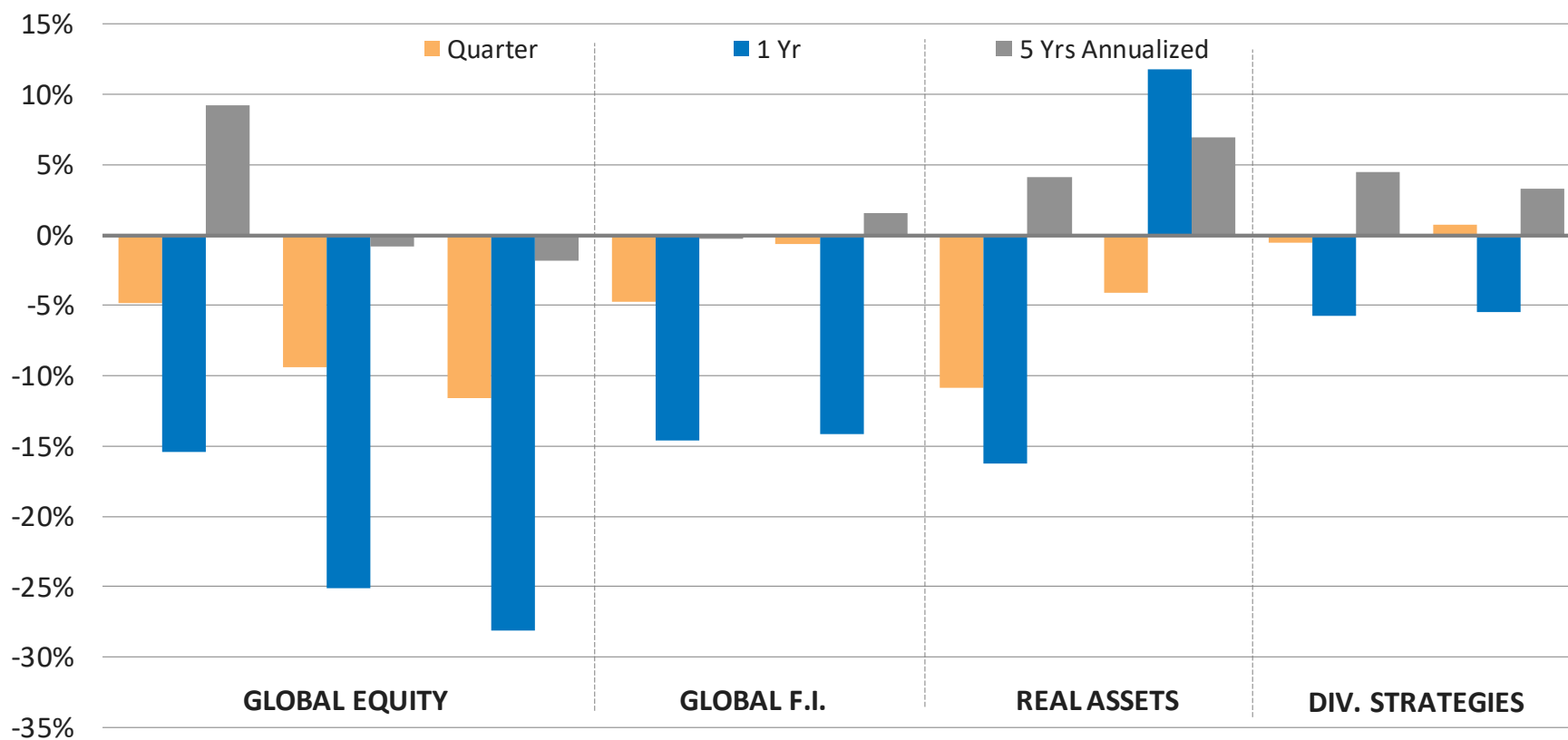
Atlanta Fed Sticky CPI Index (Core)



Data source: Atlanta Fed; Data as of August 2022

MARKET RETURNS

MAJOR ASSET CLASS RETURNS



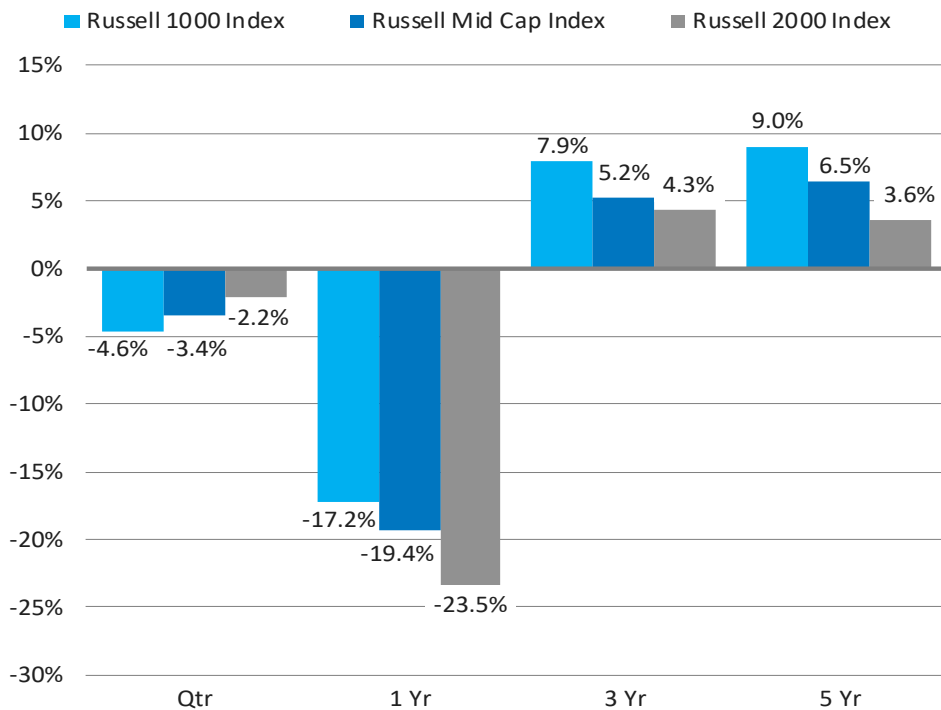
	S&P 500 Index	MSCI EAFE Index	MSCI Emerging Mkts Index	Blmbrg U.S. Agg Index	Blmbrg HY Index	FTSE NAREIT All Equity Index	Blmbrg Cmdty Index	HFRI Fund Wtd Comp. Index	HFRI Fund of Fund Index
Quarter	-4.9%	-9.4%	-11.6%	-4.8%	-0.6%	-10.8%	-4.1%	-0.6%	0.7%
1 Yr	-15.5%	-25.1%	-28.1%	-14.6%	-14.1%	-16.3%	11.8%	-5.8%	-5.5%
5 Yrs Annualized	9.2%	-0.8%	-1.8%	-0.3%	1.6%	4.1%	7.0%	4.5%	3.3%

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

GLOBAL EQUITY, U.S.

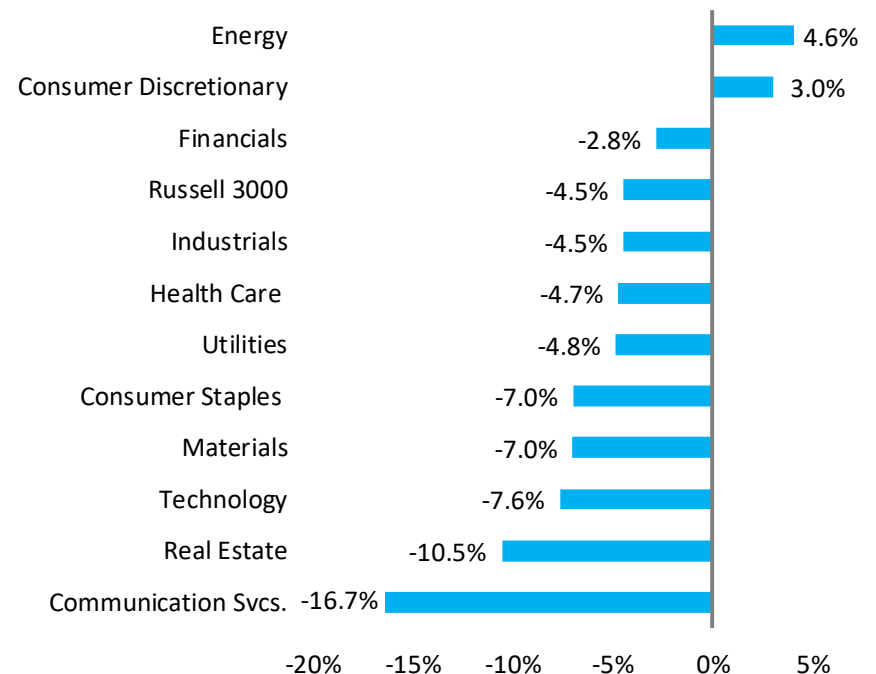
- U.S. equities returns were negative for the quarter amid ongoing inflationary pressures and concerns of an economic recession. To start the quarter, equity returns rebounded until the Fed’s Jackson Hole summit, when central bankers reiterated that their primary goal was taming inflation as opposed to supporting economic growth.
- The cyclical sectors of energy, which led market performance despite falling energy prices, and consumer discretionary, provided positive performance while all other sectors declined and typically defensive sectors lagged.
- Growth equities outperformed value equities over the third quarter overcoming weakness in growth in September and year-to-date. Before the Jackson Hole summit, market expectations of an interest rate cut in early 2023 benefited growth equities. However, as the market theme reversed, value equities outperformed to conclude the quarter amid the Fed’s commitment to tamping inflation.

LARGE CAP, MID CAP, AND SMALL CAP



Data source: Russell

RUSSELL 3000 SECTOR PERFORMANCE

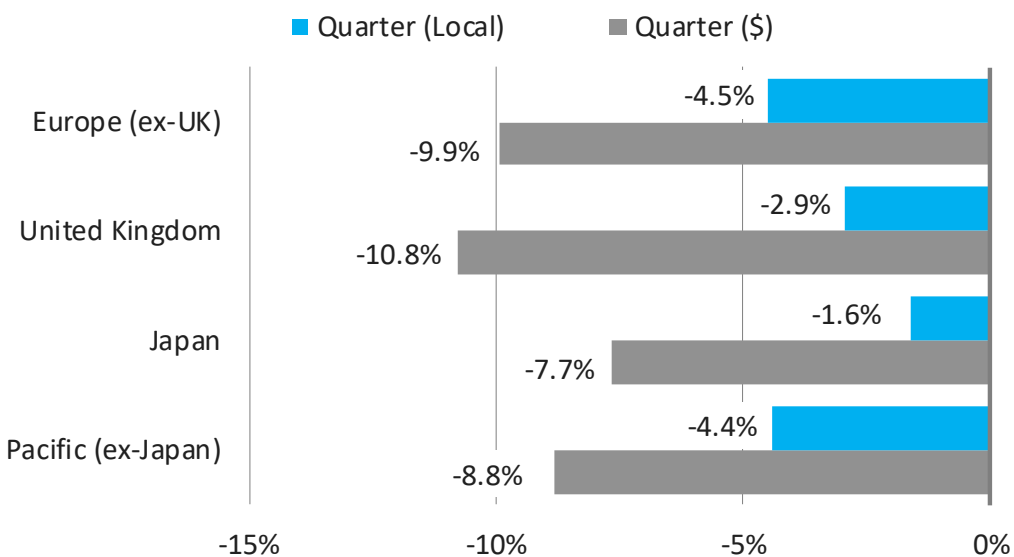


Data source: Russell

GLOBAL EQUITY, NON-U.S.

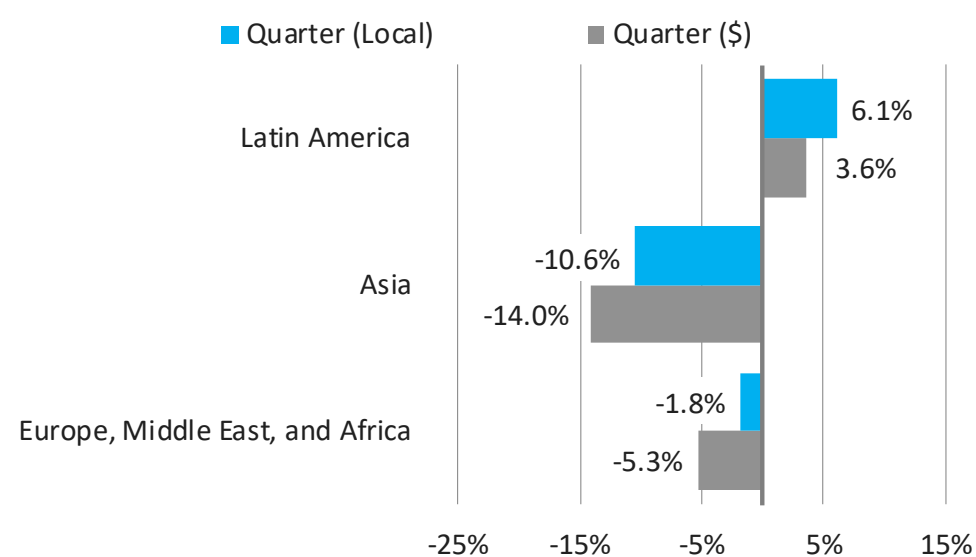
- International equity declines were comparable to those of the U.S. market, but USD strength has negatively impacted U.S.-based investors; earlier this year, the euro reached parity with the dollar for the first time since 2002.
- Inflation and the energy crisis in Europe continued to impact the poor outlook for economic growth. European PMI data declined, and the European Central Bank hiked rates for the first time in over a decade. UK equities outperformed other European markets, but the pound's decline in response to the announcement of the UK government's fiscal policy, which would increase government borrowing, weighed on returns in U.S. dollar terms.
- Japanese equities followed their developed market counterparts, starting the quarter strong and declining in September. The Japanese yen weakened throughout the quarter, approaching a 24-year low against the U.S. dollar amid the Bank of Japan's loose monetary policy before the Ministry of Finance intervened.
- Broadly, emerging market equity returns were negative. China's property market issues, restrictive COVID-19 lockdown policies, and weakening domestic demand contributed to poor performance over the quarter. Conversely, Indian equity returns were positive as economic growth was sustained, and Brazilian equity performance led due in part to moderating inflation.

MSCI EAFE REGIONAL QUARTERLY RETURNS



Data source: MSCI Barra

MSCI EM REGIONAL QUARTERLY RETURNS



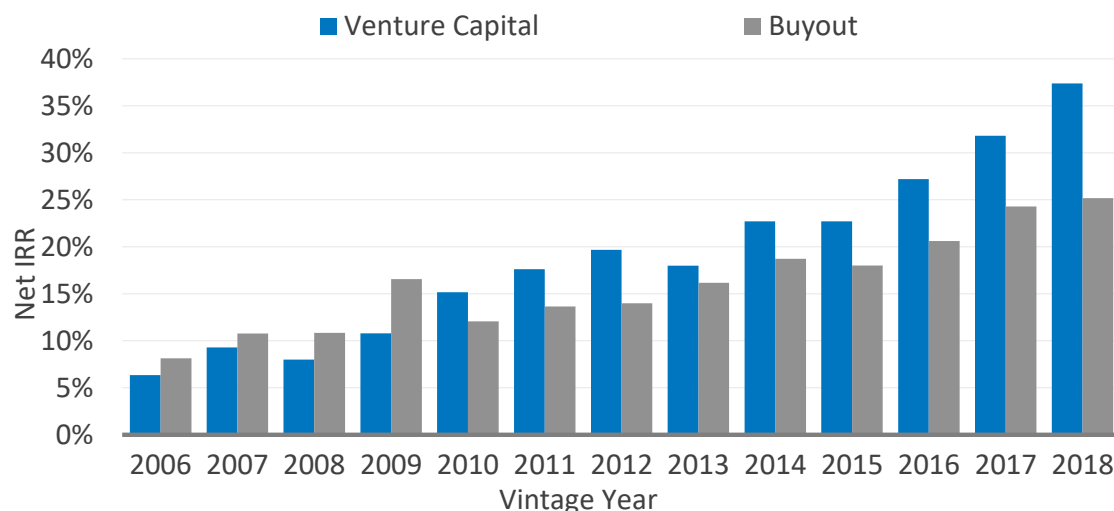
Data source: MSCI Barra

GLOBAL EQUITY, PRIVATE

- Private equity reports performance on a lag; the latest data available are through March 31, 2022.
- The public market volatility during 2022 has not yet been fully reflected in private equity return data. We expect industry performance to return to more normalized levels if public market valuations remain under pressure.
- Median private equity returns for both venture capital and buyout funds have generally been 15% or better since the 2010 vintage year, with venture returns in recent years over 25%.
- 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.
- Fundraising activity for venture capital and buyout funds was strong to start the year. Fundraising should be expected to moderate if performance remains under pressure.

MEDIAN VENTURE CAPITAL AND BUYOUT VINTAGE YEAR IRR

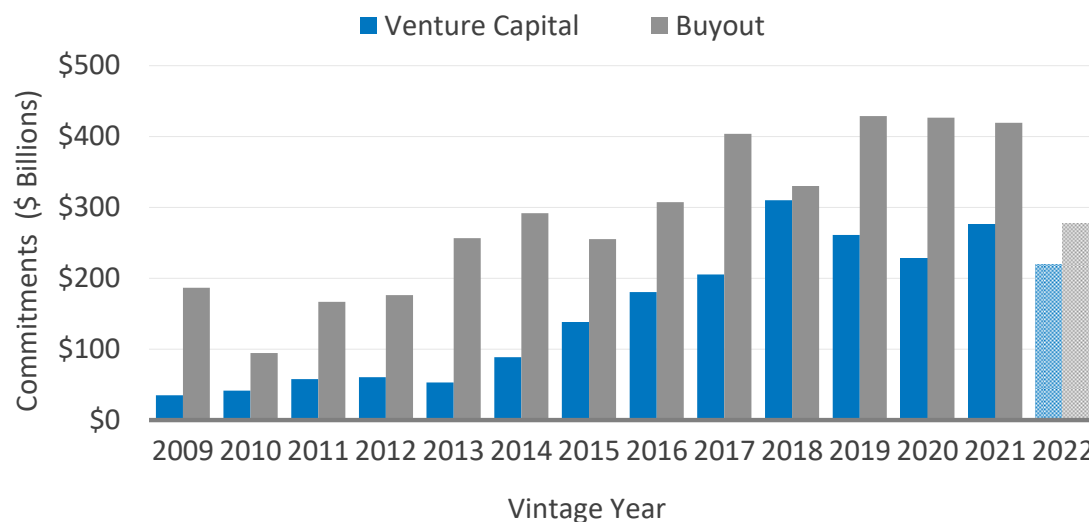
As of March 31, 2022



Data source: Thomson One; the most recent private equity return information available is through March 31, 2022

VENTURE CAPITAL AND BUYOUT FUNDRAISING ACTIVITY

As of September 30, 2022

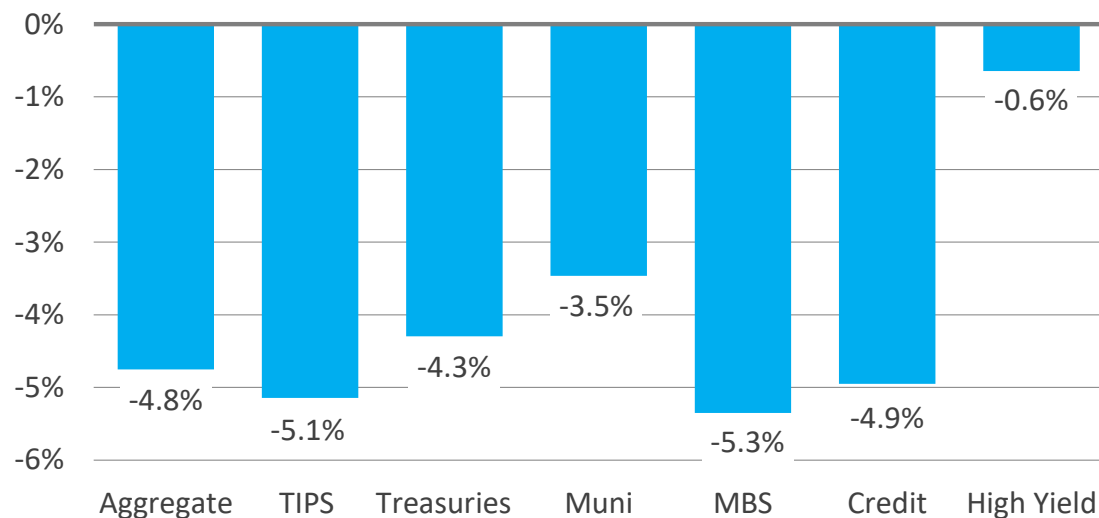


Data source: Pitchbook

GLOBAL FIXED INCOME

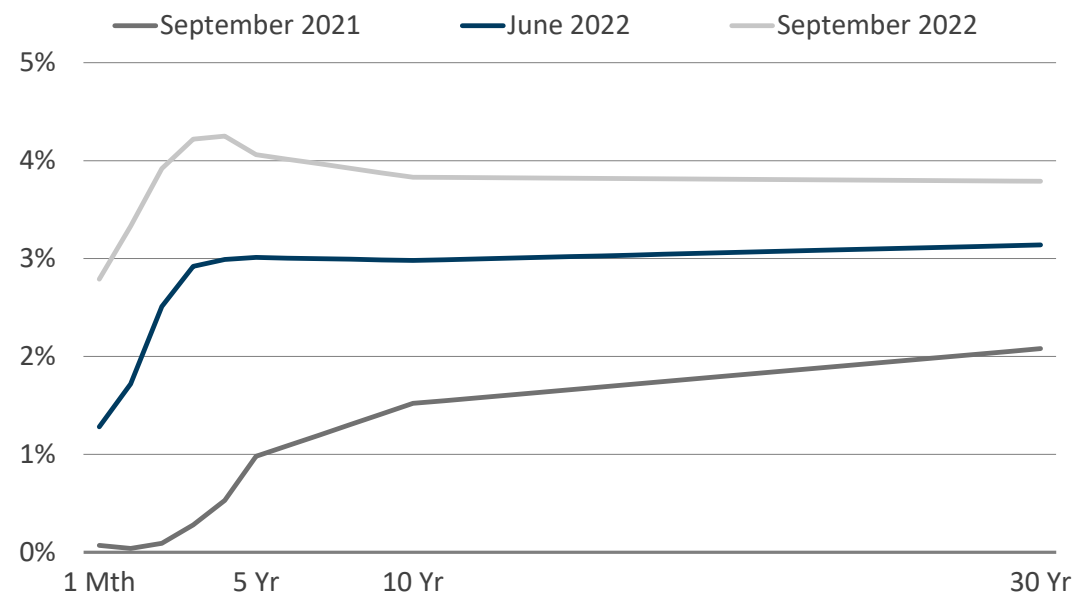
- Rates rallied to start the quarter as market participants yearned for a pivot in restrictive Fed policy.
- Interest rates sold off sharply following Chair Powell's late August Jackson Hole and September FOMC speeches as hawkish commentary by various Fed officials was hammered home by the FOMC Chair.
- Corporate credit spreads followed a similar pattern of retreating through early August before widening into the quarter's close. Investment grade and high yield spreads widened by 3 bps and compressed by 44 bps, respectively.
- Interest rate volatility and tightening financial conditions continue to dominate the market narrative. Global central banks have intervened in currency and rate markets to combat inflationary financial conditions.
- Domestically, the dollar and still volatile Treasury markets have not experienced outsized stress; however foreign currency markets have been impacted by the arguably slow response of global central banks.

BLOOMBERG U.S. FIXED INCOME INDEX RETURNS



Data source: FactSet

U.S. TREASURY YIELD CURVE

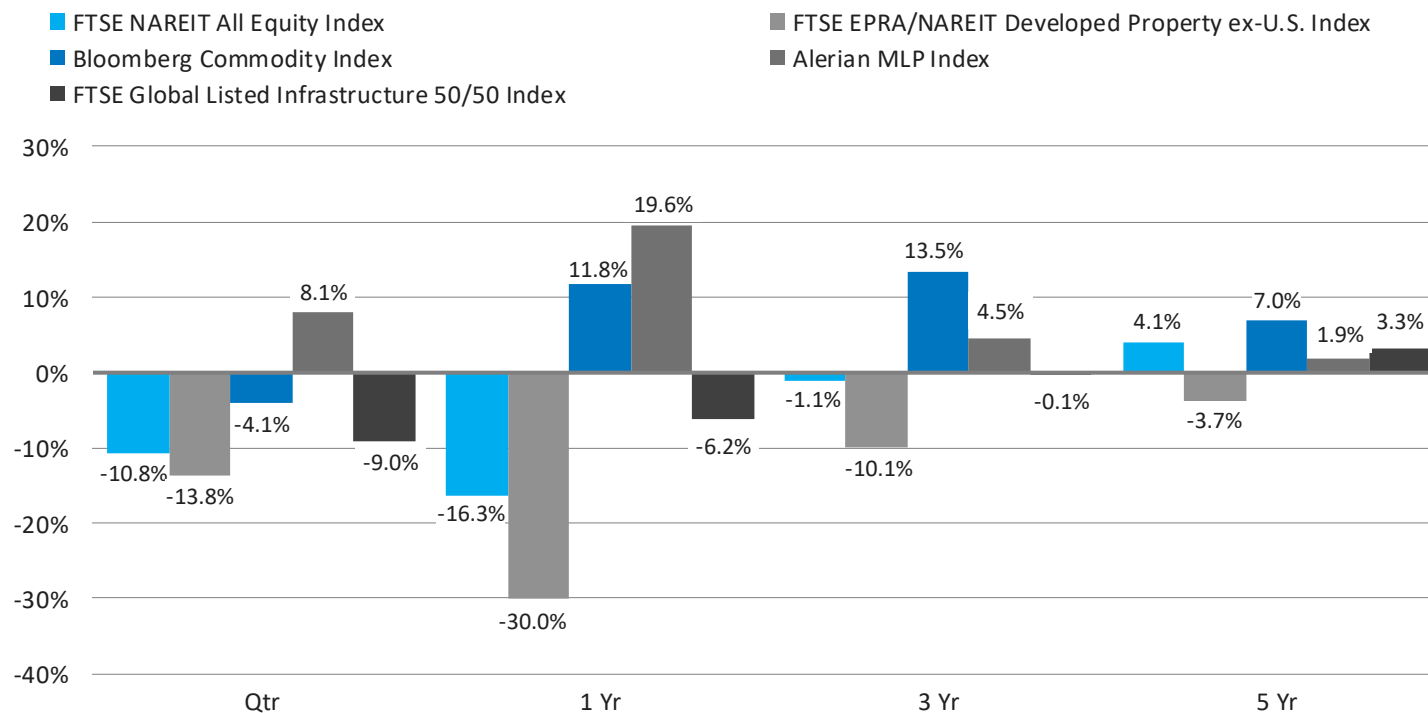


Data source: FactSet

REAL ASSETS

- Publicly traded real estate securities (REITs) declined across all sectors and regions during the quarter. U.S. and European real estate continued to sell off due to expectations of continued interest rate increases and concerns about economic weakness and the consequential impacts on rent growth, cap rates, and borrowing costs.
- The energy markets have been volatile during 2022. Numerous macroeconomic factors continue to drive volatility in the sector, including rising interest rates, inflation, the Russian invasion of Ukraine, the Nord Stream pipeline attack, and OPEC+ production cuts, all of which supported higher price volatility in the energy markets.
- Midstream energy was the only positive returning sub-sector within global listed infrastructure during the quarter. Midstream has outperformed primarily due to debt reduction, share buybacks, mergers and acquisitions activity, and continues to benefit from resilient cashflows amidst an environment of unpredictable energy prices.

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

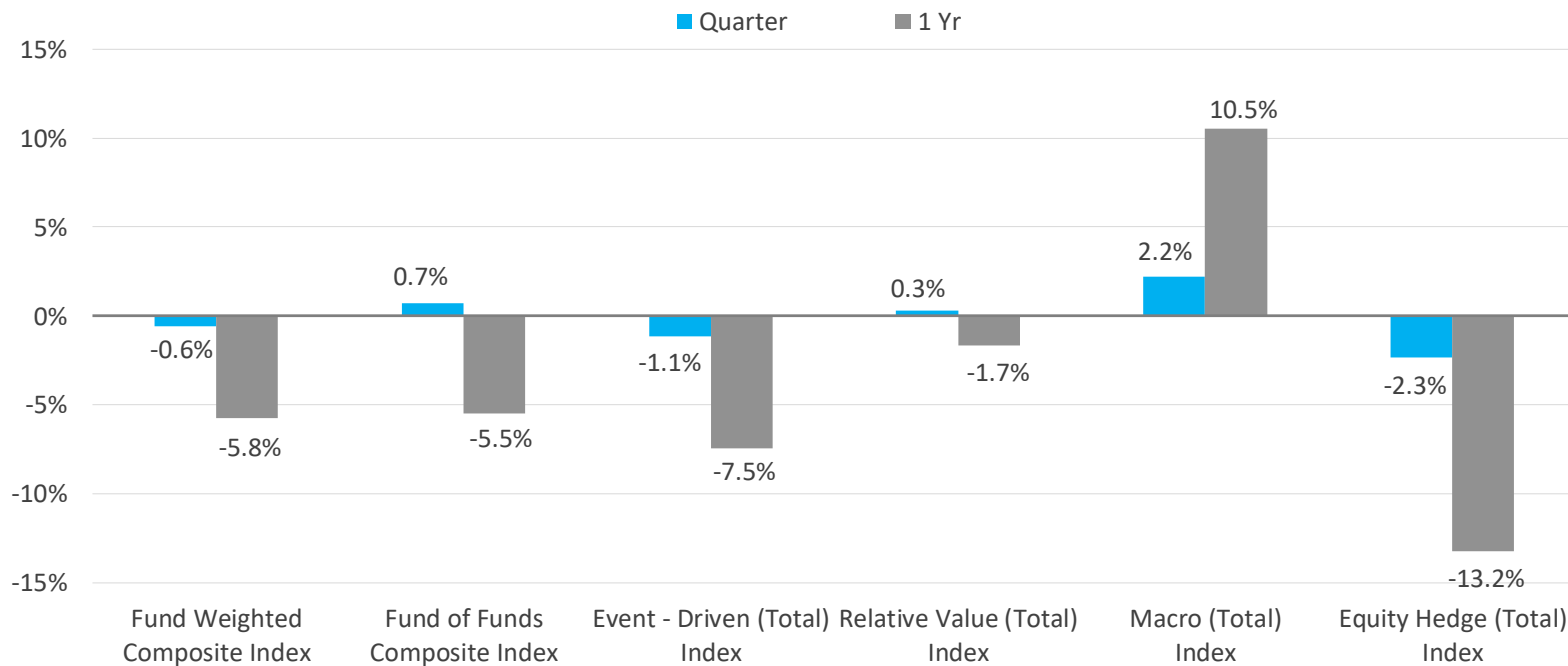


Data sources: NAREIT, FactSet, and Alerian

DIVERSIFYING STRATEGIES, HEDGE FUNDS

- Although hedge funds declined broadly during the quarter, performance compared well to traditional equity and fixed-income markets. Relative value and macro strategies produced positive returns over the quarter, while equity hedge and event-driven both had negative results.
- Systematic trend following strategies generated strong performance due in part to a surging U.S. dollar against a plunging British pound. Short equity positions benefited from steep equity market declines.
- Equity hedge manager’s continued weakness in technology and healthcare-focused strategies led to poor returns. The only bright spots within long/short equity were energy-oriented managers who benefited from continued supply shortages. Additionally, equity market-neutral strategies, which attempt to remove general market risk, performed well.
- Event-driven manager returns were negative across the board except for merger arbitrage strategies. Activist managers, who tend to carry higher equity beta, struggled toward the end of the quarter, wiping out early gains.

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 September 30, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr			
Total Composite	-5.8%	-22.4%	-18.6%	2.9%	3.1%	5.1%	5.2%	5.1%	1/05	\$37,707,958
Target Weighted Index ¹	-5.3	-20.9	-17.7	2.3	2.9	5.1	4.9	5.4		
Broad Policy Index ²	-6.2	-22.3	-18.7	1.9	3.3	5.6	5.5	5.4		
Actuarial Rate ³	1.8	5.6	7.5	7.6	7.7	7.7	7.7	7.7		
Domestic Equity										
iShares S&P 500 Index	-4.9	-23.9	-15.5	8.1	9.2	11.4	-	9.5	8/14	11,447,749
S&P 500 Index	-4.9	-23.9	-15.5	8.2	9.2	11.4	-	9.5		
S&P 500 Equal Weighted Index	-5.2	-21.8	-15.1	5.6	5.9	8.2	-	6.3		
iShares Russell Midcap Index	-3.5	-24.3	-19.5	5.0	6.3	8.6	-	7.5	9/14	2,151,198
Russell Midcap Index	-3.4	-24.3	-19.4	5.2	6.5	8.8	-	7.6		
Small Cap Equity										
Vanguard S&P Small Cap 600 Index	-5.2	-23.2	-19.0	5.4	-	-	-	6.4	8/19	2,983,296
S&P SmallCap 600 Index	-5.2	-23.2	-18.8	5.5	-	-	-	6.5		
International Equity										
EuroPacific Growth Fund	-9.4	-32.2	-32.9	-1.4	-0.3	3.6	-	2.5	9/14	3,302,044
MSCI AC World Index ex-US	-9.9	-26.5	-25.2	-1.5	-0.8	3.3	-	1.2		
Templeton Inst'l Foreign Smaller Co.	-12.3	-33.4	-33.1	-4.2	-3.2	1.5	-	0.8	9/14	843,966
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	3.2	-	2.9		
Brown International Small Company	-9.2	-40.1	-38.4	-	-	-	-	-28.2	5/21	817,545
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-	-	-	-	-25.6		
MSCI ACWI ex-U.S. Small Cap Index	-8.4	-29.4	-28.9	-	-	-	-	-22.8		
Redwheel Global Emerging Equity Fund	-11.5	-30.4	-31.4	-0.4	-	-	-	-5.4	2/18	1,078,845
DFA Emerging Markets Fund	-11.6	-24.5	-24.4	-0.8	-1.1	4.3	-	1.1	9/14	2,319,799
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	-	0.7		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending September 30, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<u>Fixed Income</u>										
Dodge & Cox Income Fund	-4.0%	-13.3%	-13.6%	-1.7%	-	-	-	0.3%	2/19	\$2,212,459
Bloomberg IG Credit Index	-5.2	-17.8	-17.7	-3.7	-	-	-	-0.5		
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-	-	-	-0.8		
DoubleLine Total Return Bond Fund	-4.2	-12.5	-12.6	-3.0	-	-	-	-1.1	2/19	2,021,636
Bloomberg U.S. MBS Index	-5.3	-13.7	-14.0	-3.7	-	-	-	-1.8		
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-	-	-	-0.8		
Vanguard Total Bond Fund	-4.7	-14.6	-14.7	-3.3	-	-	-	-0.7	2/19	2,160,379
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-	-	-	-0.8		
<u>Low Volatility</u>										
Gateway Fund	-3.9	-15.8	-12.2	1.4	-	-	-	0.9	8/18	1,550,329
PIMCO All Asset Fund	-6.2	-17.5	-14.9	2.5	-	-	-	3.6	11/18	1,247,354
HFRX Equity Hedge Index	-0.1	-4.8	-2.3	4.7	-	-	-	4.5		
<u>Real Estate</u>										
Principal Real Estate Securities Fund	-8.5	-26.9	-16.2	-0.2	5.1	6.3	-	7.1	9/14	837,766
FTSE NAREIT Equity REIT Index	-9.9	-28.1	-16.4	-2.0	2.9	4.9	-	5.5		
FTSE NAREIT All Equity Index	-10.8	-27.9	-16.3	-1.1	4.1	6.1	-	6.3		
<u>Natural Resources</u>										
Tortoise MLP & Pipeline Fund	1.4	11.6	12.6	3.8	2.4	-	-	2.9	8/17	1,085,978
Alerian MLP Index	8.1	18.9	19.6	4.5	1.9	-	-	2.0		
Tortoise North American Pipeline Index	-3.7	7.9	11.7	5.6	5.2	-	-	5.4		
Cohen & Steers Global Listed Infrastructure	-9.1	-	-	-	-	-	-	-13.9	5/22	1,061,033
FTSE Global Core Infrastructure 50/50	-9.0	-	-	-	-	-	-	-14.6		
DJ Brookfield Global Infrastructure Index	-10.2	-	-	-	-	-	-	-17.2		
<u>Cash</u>										
Schwab Government Money Fund	0.4	0.5	0.5	0.4	0.8	0.6	-	0.5	7/14	586,582
U.S. 91-Day Treasury Bills	0.7	1.0	1.0	0.6	1.1	0.9	-	0.8		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending September 30, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<u>Long Term Manager Performance</u>										
<u>Domestic Equity</u>										
iShares S&P 500 Index	-4.9%	-23.9%	-15.5%	8.1%	9.2%	11.4%	11.7%	8.6%	<i>1/05</i>	
S&P 500 Index	-4.9	-23.9	-15.5	8.2	9.2	11.4	11.7	8.6		
S&P 500 Equal Weighted Index	-5.2	-21.8	-15.1	5.6	5.9	8.2	9.3	7.2		
iShares Russell Midcap Index	-3.5	-24.3	-19.5	5.0	6.3	8.6	10.1	8.5	<i>1/05</i>	
Russell Midcap Index	-3.4	-24.3	-19.4	5.2	6.5	8.8	10.3	8.7		
Vanguard S&P Small Cap 600 Index	-5.2	-23.2	-19.0	5.4	4.8	8.8	10.0	10.9	<i>9/10</i>	
S&P SmallCap 600 Index	-5.2	-23.2	-18.8	5.5	4.8	8.9	10.1	11.0		
<u>International Equity</u>										
EuroPacific Growth Fund	-9.4	-32.2	-32.9	-1.4	-0.3	3.6	4.4	3.7	<i>8/08</i>	
MSCI AC World Index ex-U.S.	-9.9	-26.5	-25.2	-1.5	-0.8	3.3	3.0	2.0		
Templeton Inst'l Foreign Smaller Co.	-12.3	-33.4	-33.1	-4.2	-3.2	1.5	3.0	5.3	<i>1/05</i>	
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	3.2	5.3	4.7		
Brown International Small Company	-9.2	-40.1	-38.4	1.8	5.3	8.9	-	8.9	<i>9/15</i>	
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	3.2	-	3.2		
MSCI ACWI ex-U.S. Small Cap Index	-8.4	-29.4	-28.9	0.4	-0.6	4.0	-	4.0		
Redwheel Global Emerging Equity Fund	-11.0	-30.5	-31.5	0.0	-2.2	6.6	4.8	5.5	<i>7/12</i>	
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	1.0	1.6		
DFA Emerging Markets Fund	-11.6	-24.5	-24.4	-0.8	-1.1	4.3	1.5	5.5	<i>1/05</i>	
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	1.0	5.3		
<u>Fixed Income</u>										
Dodge & Cox Income Fund	-4.0	-13.3	-13.6	-1.7	0.7	1.8	1.9	3.6	<i>1/05</i>	
Bloomberg IG Credit Index	-5.2	-17.8	-17.7	-3.7	-0.2	1.2	1.5	3.4		
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	2.9		
DoubleLine Total Return Bond Fund	-4.2	-12.5	-12.6	-3.0	-0.3	0.5	1.4	3.5	<i>4/10</i>	
Bloomberg U.S. MBS Index	-5.3	-13.7	-14.0	-3.7	-0.9	-0.1	0.5	1.4		
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	1.9		
Vanguard Total Bond Fund	-4.7	-14.6	-14.7	-3.3	-0.3	0.5	0.8	2.9	<i>1/05</i>	
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	2.9		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending September 30, 2022

	Annualized							Since Inception	Date	Market Value
	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<u>Low Volatility</u>										
Gateway Fund	-3.9%	-15.8%	-12.2%	1.4%	1.8%	3.6%	3.6%	3.6%	<i>1/05</i>	
PIMCO All Asset Fund	-6.2	-17.5	-14.9	2.5	2.6	5.2	3.1	4.7	<i>1/05</i>	
HFRX Equity Hedge Index	-0.1	-4.8	-2.3	4.7	2.8	3.2	3.2	1.3		
<u>Real Estate</u>										
Principal Real Estate Securities Fund	-8.5	-26.9	-16.2	-0.2	5.1	6.3	7.7	8.2	<i>1/05</i>	
FTSE NAREIT Equity REIT Index	-9.9	-28.1	-16.4	-2.0	2.9	4.9	6.3	6.9		
FTSE NAREIT All Equity Index	-10.8	-27.9	-16.3	-1.1	4.1	6.1	7.0	7.4		
<u>Natural Resources</u>										
Tortoise MLP & Pipeline Fund	1.4	11.6	12.6	3.8	2.4	4.8	3.6	5.5	<i>5/11</i>	
Alerian MLP Index	8.1	18.9	19.6	4.5	1.9	2.5	0.7	2.1		
Tortoise North American Pipeline Index	-3.7	7.9	11.7	5.6	5.2	7.6	6.1	-		
Cohen & Steers Global Listed Infrastructure	-9.1	-12.9	-5.8	0.9	4.5	6.3	6.9	6.4	<i>1/05</i>	
FTSE Global Core Infrastructure 50/50	-9.0	-12.7	-6.2	-0.1	3.3	6.1	6.5	-		
DJ Brookfield Global Infrastructure Index	-10.2	-13.1	-7.2	-0.7	1.9	4.4	5.1	7.6		
<u>Cash</u>										
Schwab Government Money Fund	0.4	0.5	0.5	0.4	0.8	0.6	0.4	1.0	<i>1/05</i>	
U.S. 91-Day Treasury Bills	0.7	1.0	1.0	0.6	1.1	0.9	0.7	1.2		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending September 30, 2022

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.

¹ 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.

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

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

^A RWC 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	30.4%	30.0%	5.0% - 35.0%
Mid Cap Equity	5.7%	5.0%	0.0% - 15.0%
Small Cap Equity	7.9%	7.0%	5.0% - 30.0%
International Equity	8.8%	10.0%	5.0% - 25.0%
International Small Cap Equity	4.4%	5.0%	0.0% - 15.0%
Emerging Markets	9.0%	10.0%	5.0% - 20.0%
Fixed Income	17.0%	20.0%	5.0% - 30.0%
Public Real Estate	2.2%	3.0%	0.0% - 10.0%
Public Natural Resources	5.7%	3.0%	0.0% - 10.0%
Low Volatility	7.4%	7.0%	0.0% - 20.0%
Cash	1.6%	0.0%	0.0% - 5.0%
Total	100.0%	100.0%	

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%	\$11,447,749	30.4%
Mid Cap Equity - Broad	iShares Russell Midcap Index	100.0%	0.0%	\$2,151,198	5.7%
Small Cap Equity - Broad	Vanguard S&P Small Cap 600 Index	100.0%	0.0%	\$2,983,296	7.9%
International Equity - Core	EuroPacific Growth Fund	100.0%	0.0%	\$3,302,044	8.8%
International Small Cap Equity - Core	Brown International Small Company	100.0%	0.0%	\$817,545	2.2%
International Small Cap Equity - Core	Templeton Inst'l Foreign Smaller Co.	100.0%	0.0%	\$843,966	2.2%
Emerging Markets - Core	DFA Emerging Markets Fund	100.0%	0.0%	\$2,319,799	6.2%
Emerging Markets - Growth	Redwheel Global Emerging Equity Fund	100.0%	0.0%	\$1,078,845	2.9%
Fixed Income - Core	Dodge & Cox Income Fund	100.0%	0.0%	\$2,212,459	5.9%
Fixed Income - Core	Vanguard Total Bond Fund	100.0%	0.0%	\$2,160,379	5.7%
Fixed Income - Core Plus	DoubleLine Total Return Bond Fund	100.0%	0.0%	\$2,021,636	5.4%
Public Real Estate - Equity	Principal Real Estate Securities Fund	100.0%	0.0%	\$837,766	2.2%
Public Natural Resources - Infrastructure	Cohen & Steers Global Listed Infrastructure	100.0%	0.0%	\$1,061,033	2.8%
Public Natural Resources - MLP	Tortoise MLP & Pipeline Fund	100.0%	0.0%	\$1,085,978	2.9%
Low Volatility - Liquid	Gateway Fund	100.0%	0.0%	\$1,550,329	4.1%
Low Volatility - Tactical	PIMCO All Asset Fund	100.0%	0.0%	\$1,247,354	3.3%
Cash - Cash	Schwab Government Money Fund	0.0%	100.0%	\$586,582	1.6%
Total				\$37,707,958	100.0%

City of Grosse Pointe Woods Employees Retirement System

Investment Metrics

Report for Periods Ending September 30, 2022

Statistical Measures	Sharpe Ratio	Standard Deviation	Tracking Error	Information Ratio
Total Composite	0.1	14.6%	2.4%	-0.1
Target Weighted Index	0.1	13.8	1.9	0.1
Broad Policy Index	0.2	13.1	0.0	--

Asset Growth Summary (in thousands)	Qtr	YTD
Beginning Market Value	\$ 40,242	\$ 49,722
Net Contributions/(Distributions)	\$ (197)	\$ (925)
Market Appreciation/(Depreciation)	\$ (2,337)	\$ (11,089)
Ending Market Value	\$ 37,708	\$ 37,708

* 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
iShares S&P 500 Index	-4.9%	-23.9%	-15.5%	8.1%	9.2%	11.4%	11.7%	8.6%	1/05
S&P 500 Index	-4.9	-23.9	-15.5	8.2	9.2	11.4	11.7	8.6	
S&P 500 Equal Weighted Index	-5.2	-21.8	-15.1	5.6	5.9	8.2	9.3	7.2	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
iShares S&P 500 Index	1.00	0.0%	1.00	20.0%	0.0%	-1.7
S&P 500 Index	1.00	0.0	1.00	20.0	0.0	--
S&P 500 Equal Weighted Index	1.05	-3.7	0.93	21.3	5.2	0.6

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
iShares S&P 500 Index	17.6	3.6	468,518.6M	1.8%	--%
S&P 500 Index	17.6	3.6	468,518.6	1.8	--
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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: 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

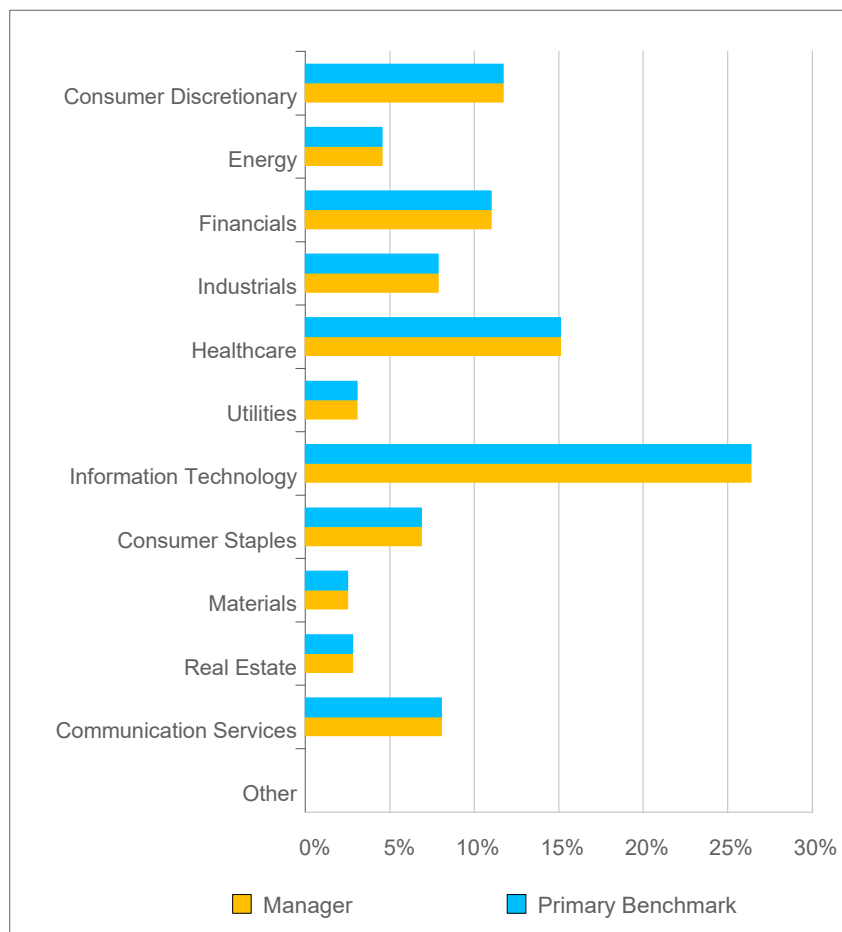
City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

Equity Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Consumer Discretionary	12%	12%	4.4%	-20.9%
Energy	5	5	2.4	45.7
Financials	11	11	-3.1	-17.7
Industrials	8	8	-4.7	-13.9
Healthcare	15	15	-5.2	-3.4
Utilities	3	3	-6.0	5.6
Information Technology	26	26	-6.2	-20.0
Consumer Staples	7	7	-6.6	-0.1
Materials	3	3	-7.1	-12.2
Real Estate	3	3	-11.0	-11.0
Communication Services	8	8	-12.7	-39.1
Other	0	0	-	-

Top Five Holdings	Weighting
APPLE INC	6.9%
MICROSOFT CORP	5.8
AMAZON COM INC	3.3
TESLA INC	2.3
ALPHABET INC CLASS A	1.9

Number of Holdings: 503

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

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

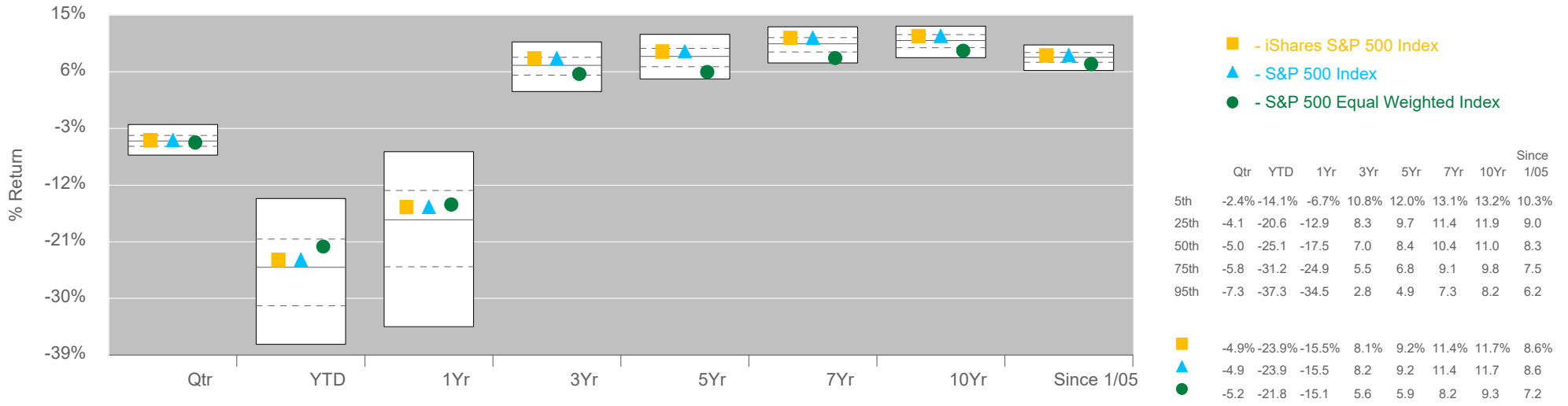
* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

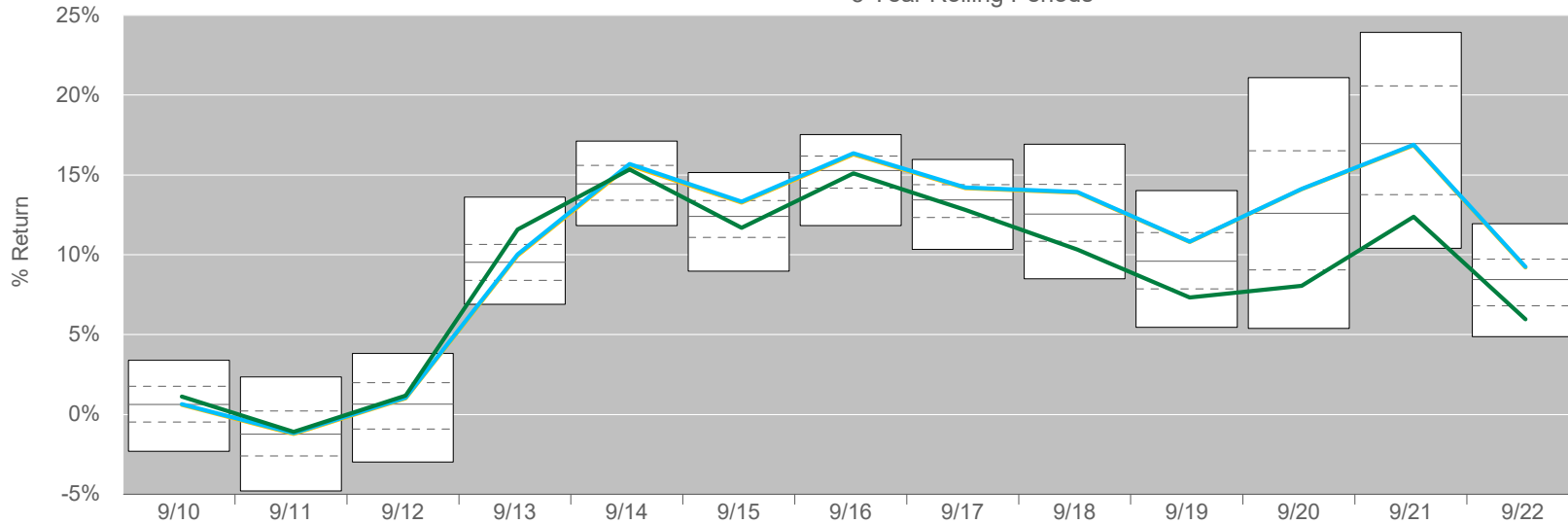
Broad Large Cap Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
iShares Russell Midcap Index	-3.5%	-24.3%	-19.5%	5.0%	6.3%	8.6%	10.1%	8.5%	1/05
Russell Midcap Index	-3.4	-24.3	-19.4	5.2	6.5	8.8	10.3	8.7	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
iShares Russell Midcap Index	1.00	-0.2%	1.00	22.1%	0.1%	-2.5
Russell Midcap Index	1.00	0.0	1.00	22.1	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
iShares Russell Midcap Index	15.0	2.7	19,347.0 M	1.8%	--%
Russell Midcap Index	15.0	2.7	19,347.0	1.8	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: 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

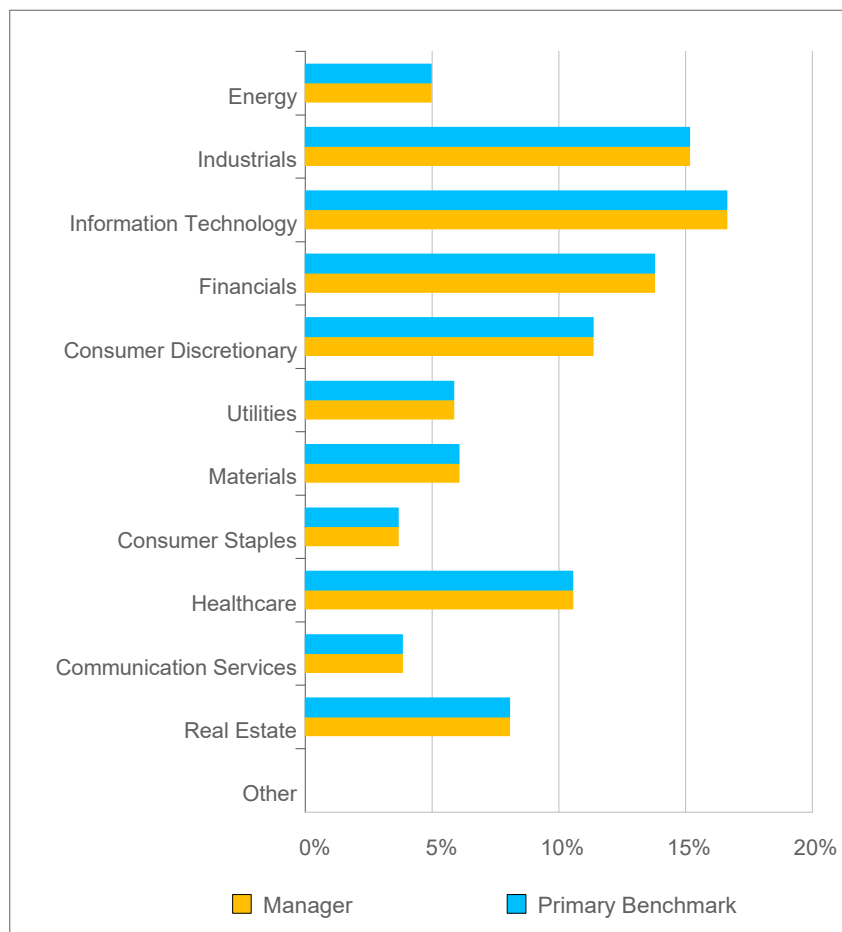
City of Grosse Pointe Woods Employees Retirement System

iShares Russell Midcap Index

Equity Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	5%	5%	1.2%	40.8%
Industrials	15	15	0.0	-17.9
Information Technology	17	17	-1.1	-27.3
Financials	14	14	-1.7	-15.6
Consumer Discretionary	11	11	-2.8	-31.6
Utilities	6	6	-5.5	4.2
Materials	6	6	-5.7	-8.9
Consumer Staples	4	4	-6.4	-1.0
Healthcare	11	11	-6.8	-27.5
Communication Services	4	4	-7.7	-45.0
Real Estate	8	8	-9.2	-17.9
Other	0	0	-	-

Top Five Holdings

	Weighting
Synopsys Inc.	0.5%
Cadence Design Systems	0.5
O Reilly Automotive Inc	0.5
Chipotle Mexican Grill	0.5
Autozone 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.

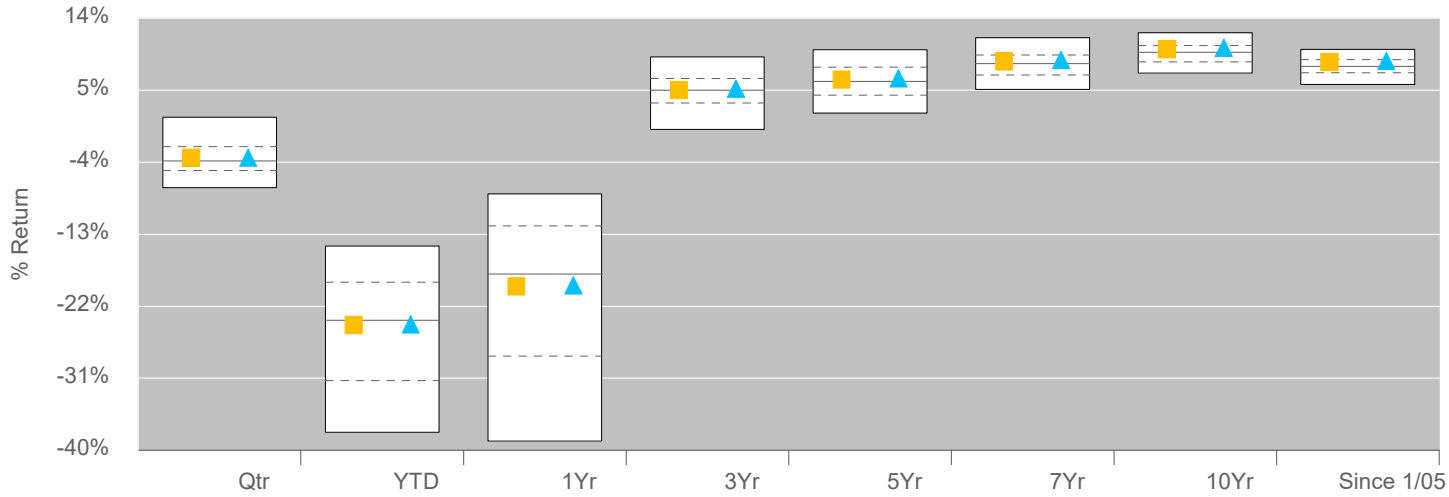
* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

City of Grosse Pointe Woods Employees Retirement System

iShares Russell Midcap Index

Broad Mid Cap Universe

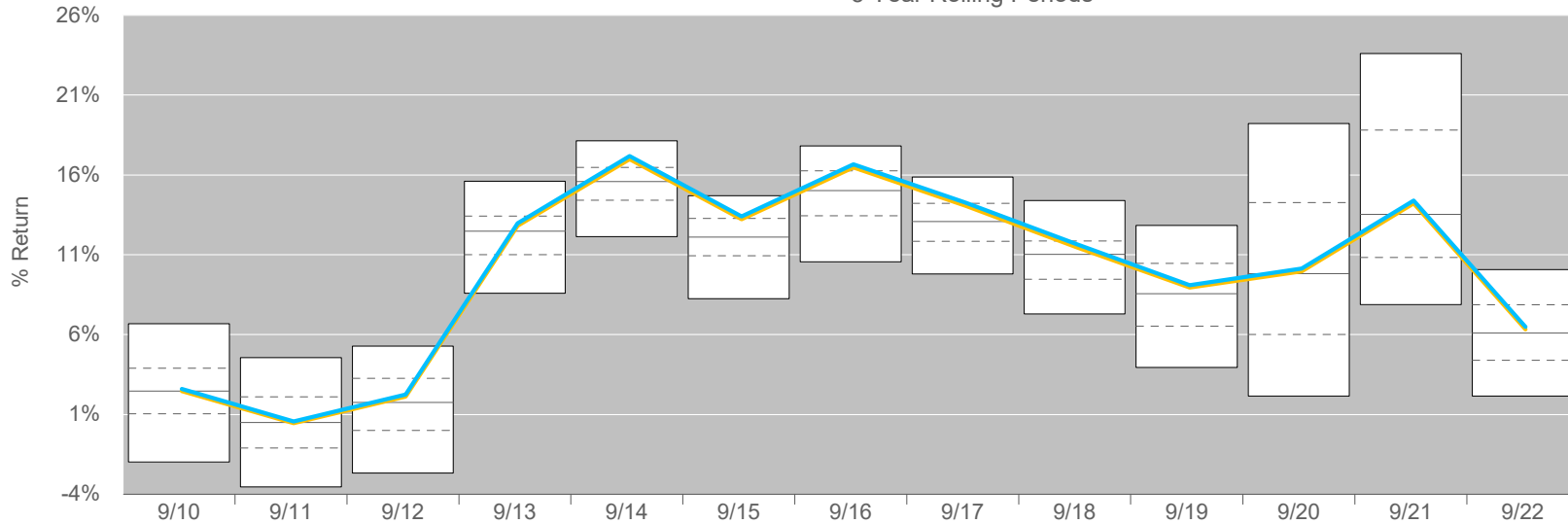
For Report Periods Ending September 30, 2022



	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	1.6%	-14.5%	-7.9%	9.2%	10.1%	11.6%	12.2%	10.1%
25th	-2.1	-19.0	-12.0	6.5	7.9	9.4	10.6	8.8
50th	-3.8	-23.8	-18.0	5.0	6.1	8.3	9.7	8.0
75th	-5.0	-31.3	-28.2	3.4	4.4	6.9	8.5	7.2
95th	-7.2	-37.8	-38.9	0.1	2.1	5.1	7.1	5.7
■	-3.5%	-24.3%	-19.5%	5.0%	6.3%	8.6%	10.1%	8.5%
▲	-3.4	-24.3	-19.4	5.2	6.5	8.8	10.3	8.7

Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Vanguard S&P Small Cap 600 Index	-5.2%	-23.2%	-19.0%	5.4%	4.8%	8.8%	10.0%	10.9%	<i>9/10</i>
S&P SmallCap 600 Index	-5.2	-23.2	-18.8	5.5	4.8	8.9	10.1	11.0	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
Vanguard S&P Small Cap 600 Index	1.00	0.0%	1.00	24.6%	0.1%	-0.9
S&P SmallCap 600 Index	1.00	0.0	1.00	24.7	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Vanguard S&P Small Cap 600 Index	13.0	1.6	2,115.6M	1.9%	--%
S&P SmallCap 600 Index	13.0	1.6	2,115.6	1.9	--

* 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 S&P Small Cap 600 Index

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: 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

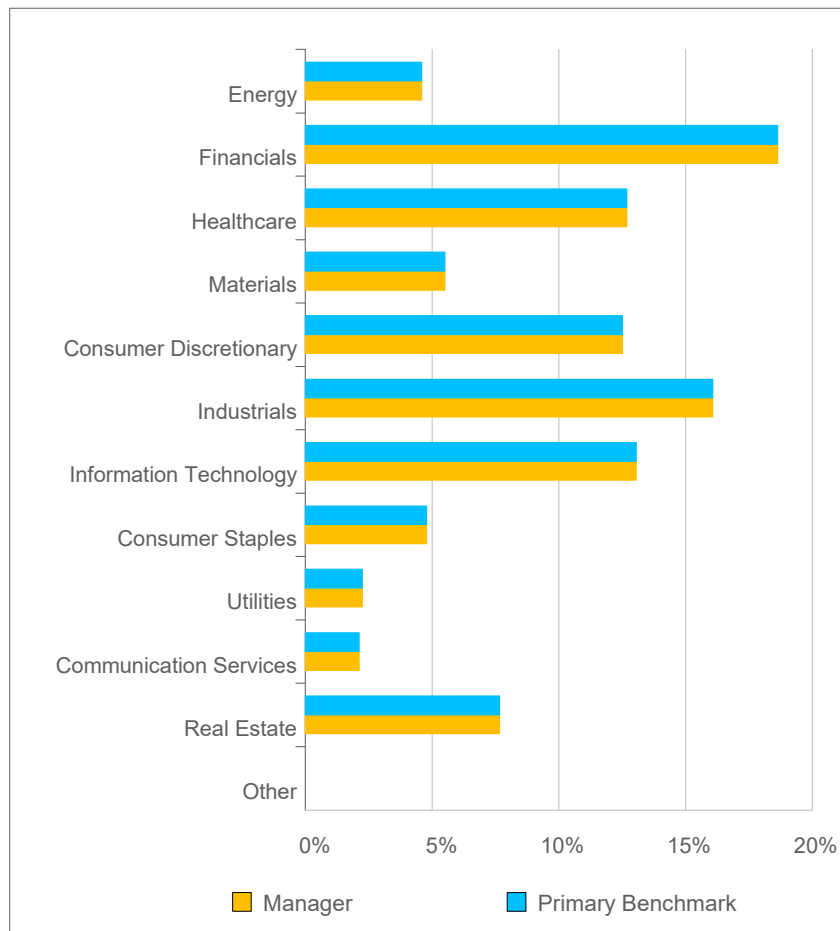
City of Grosse Pointe Woods Employees Retirement System

Vanguard S&P Small Cap 600 Index

Equity Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Energy	5%	5%	-2.1%	13.3%
Financials	19	19	-2.6	-15.5
Healthcare	13	13	-4.0	-28.0
Materials	6	6	-4.1	-10.6
Consumer Discretionary	13	13	-4.2	-32.5
Industrials	16	16	-4.4	-13.4
Information Technology	13	13	-4.4	-20.3
Consumer Staples	5	5	-7.4	-5.8
Utilities	2	2	-8.5	3.0
Communication Services	2	2	-10.5	-34.7
Real Estate	8	8	-14.5	-14.5
Other	0	0	-	-

Top Five Holdings

Top Five Holdings	Weighting
LIVENT CORP	0.7%
AGREE REALTY REIT CORP	0.7
LANTHEUS HOLDINGS INC	0.6
SM ENERGY	0.6
AMN HEALTHCARE 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.

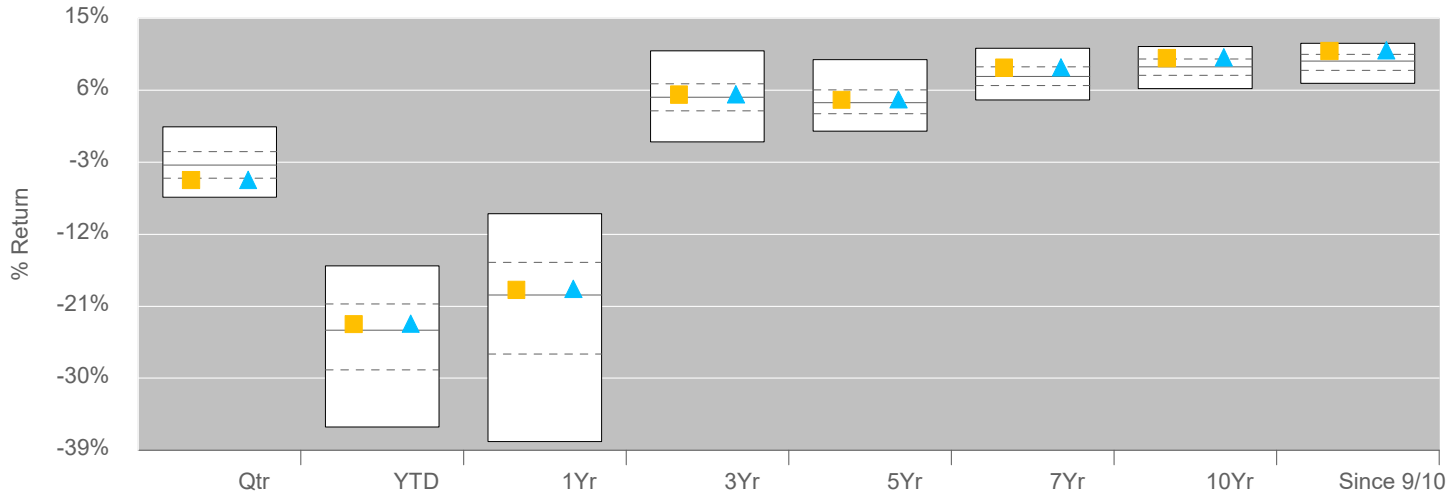
* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

City of Grosse Pointe Woods Employees Retirement System

Vanguard S&P Small Cap 600 Index

Broad Small Cap Universe

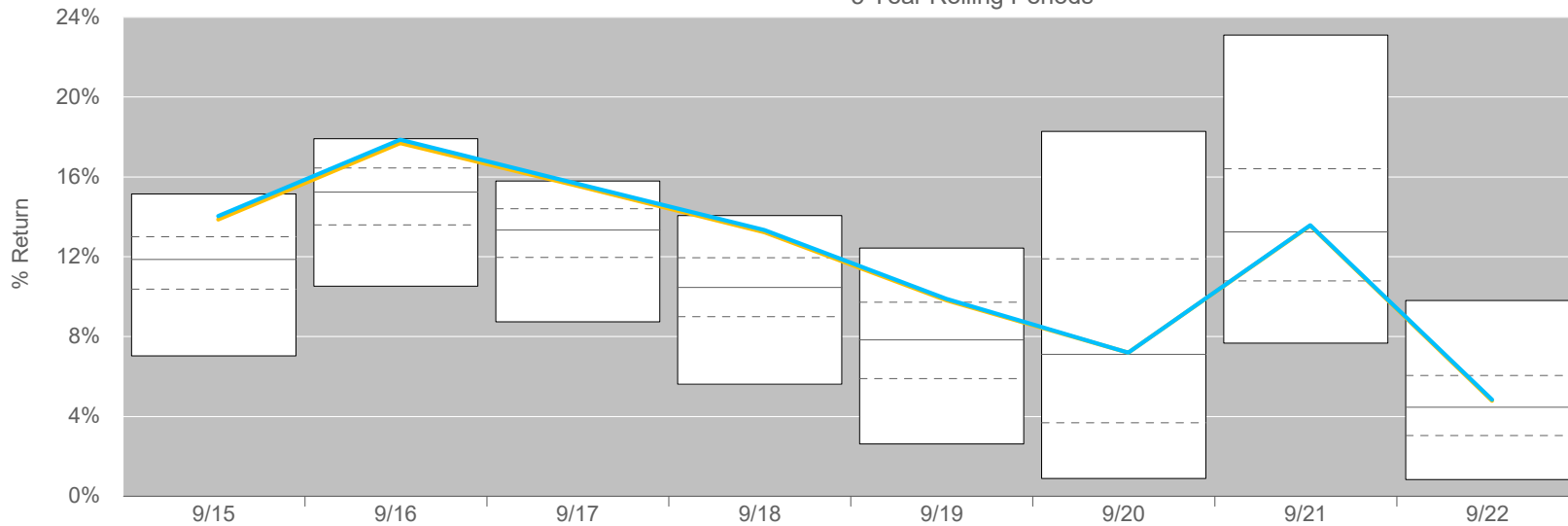
For Report Periods Ending September 30, 2022



	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 9/10
5th	1.4%	-16.0%	-9.5%	10.9%	9.8%	11.2%	11.5%	11.8%
25th	-1.7	-20.7	-15.5	6.8	6.0	8.9	9.9	10.5
50th	-3.4	-24.0	-19.6	5.1	4.5	7.7	8.9	9.7
75th	-5.0	-29.0	-27.0	3.4	3.0	6.6	7.9	8.5
95th	-7.4	-36.1	-37.9	-0.5	0.8	4.8	6.2	6.8
■	-5.2%	-23.2%	-19.0%	5.4%	4.8%	8.8%	10.0%	10.9%
▲	-5.2	-23.2	-18.8	5.5	4.8	8.9	10.1	11.0

Report From September 30, 2010 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
EuroPacific Growth Fund	-9.4%	-32.2%	-32.9%	-1.4%	-0.3%	3.6%	4.4%	3.7%	8/08
MSCI AC World Index ex-U.S.	-9.9	-26.5	-25.2	-1.5	-0.8	3.3	3.0	2.0	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
EuroPacific Growth Fund	1.06	0.6%	0.95	18.1%	4.2%	0.1
MSCI AC World Index ex-U.S.	1.00	0.0	1.00	16.6	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
EuroPacific Growth Fund	18.4	2.8	94,000.0 M	1.8%	29.0%
MSCI AC World Index ex-U.S.	12.5	1.5	54,213.6	3.6	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.5%	Yes
Beta < 1.20	Beta = 1.06	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

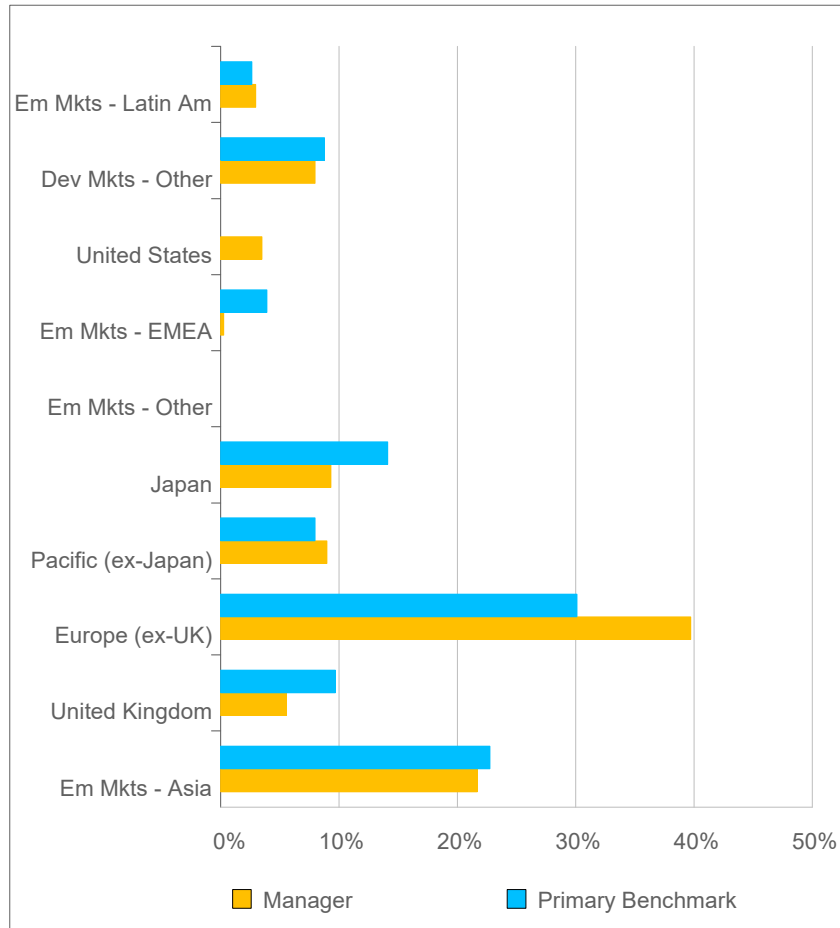
City of Grosse Pointe Woods Employees Retirement System

EuroPacific Growth Fund

International Sector

Report For Periods Ending September 30, 2022

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	3%	3%	3.6%	0.2%
Dev Mkts - Other	8	9	-1.9	-21.8
United States	3	0	-4.8	-17.6
Em Mkts - EMEA	0	4	-5.3	-33.8
Em Mkts - Other	0	0	-6.5	-25.2
Japan	9	14	-7.7	-29.3
Pacific (ex-Japan)	9	8	-8.8	-18.8
Europe (ex-UK)	40	30	-9.9	-27.8
United Kingdom	6	10	-10.8	-14.1
Em Mkts - Asia	22	23	-14.7	-31.0

Top Five Countries

	Weighting
France	9.5%
Japan	9.3
India	7.4
China	7.1
Canada	7.0

Number of Holdings: 359

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

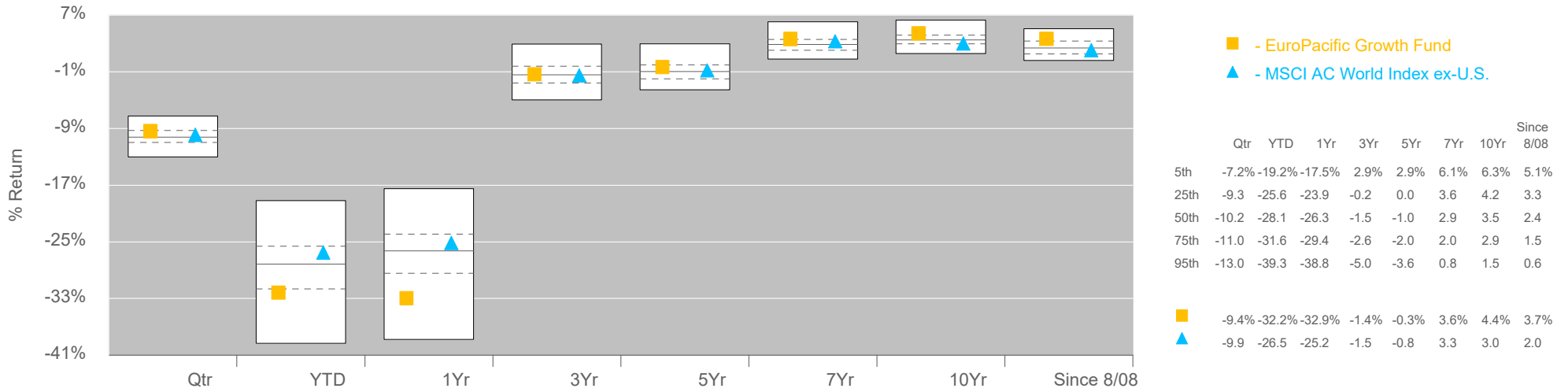
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

EuroPacific Growth Fund

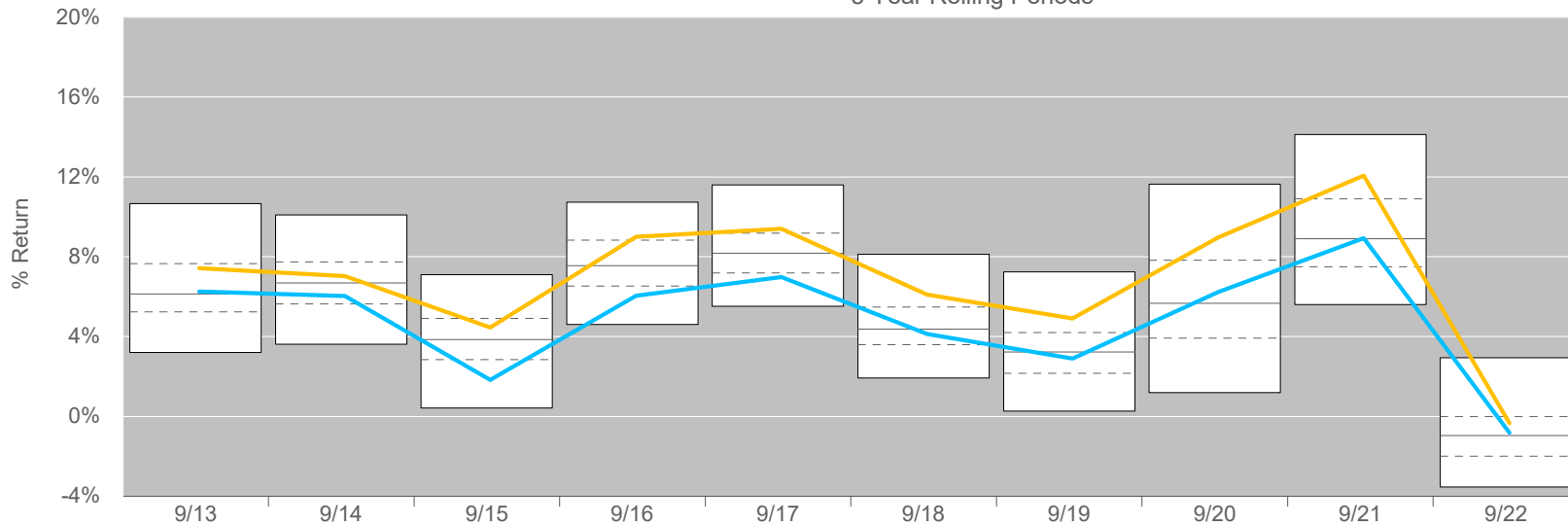
International Equity Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2008 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Templeton Inst'l Foreign Smaller Co.	-12.3%	-33.4%	-33.1%	-4.2%	-3.2%	1.5%	3.0%	5.3%	1/05
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	3.2	5.3	4.7	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
Templeton Inst'l Foreign Smaller Co.	0.99	-1.5%	0.93	19.5%	5.0%	-0.3
MSCI Small Cap EAFE Index	1.00	0.0	1.00	19.2	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.	11.9	1.5	1,635.2M	3.4%	31.1%
MSCI Small Cap EAFE Index	14.0	1.2	1,680.0	3.3	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -1.4%	No
Beta < 1.20	Beta = 0.99	Yes
Alpha > 0.0%	Alpha = -1.5%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No

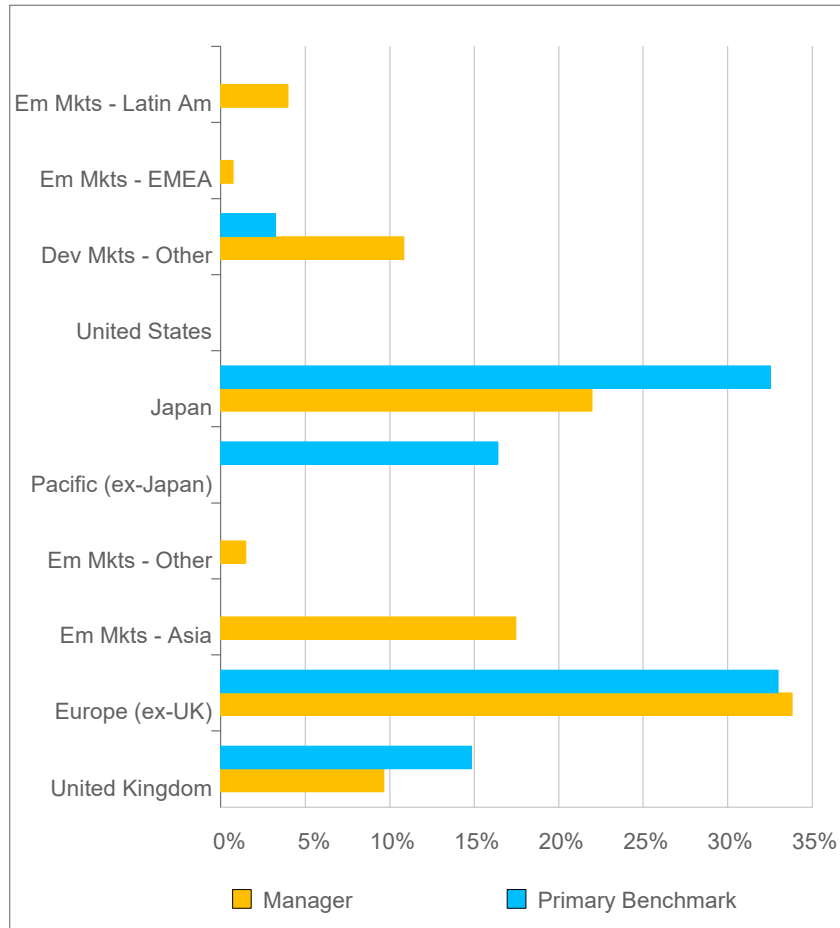
City of Grosse Pointe Woods Employees Retirement System

Templeton Inst'l Foreign Smaller Co.

International Sector

Report For Periods Ending September 30, 2022

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	4%	0%	5.0%	-12.6%
Em Mkts - EMEA	1	0	-0.4	-17.6
Dev Mkts - Other	11	3	-1.7	-12.0
United States	0	0	-2.4	-20.9
Japan	22	33	-4.4	-27.3
Pacific (ex-Japan)	0	16	-6.0	-22.5
Em Mkts - Other	1	0	-6.5	-25.2
Em Mkts - Asia	17	0	-6.7	-25.0
Europe (ex-UK)	34	33	-13.8	-36.3
United Kingdom	10	15	-16.5	-41.2

Top Five Countries	Weighting
Japan	22.0%
Taiwan	10.0
United Kingdom	9.7
Italy	7.6
Germany	6.2

Number of Holdings: 111

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

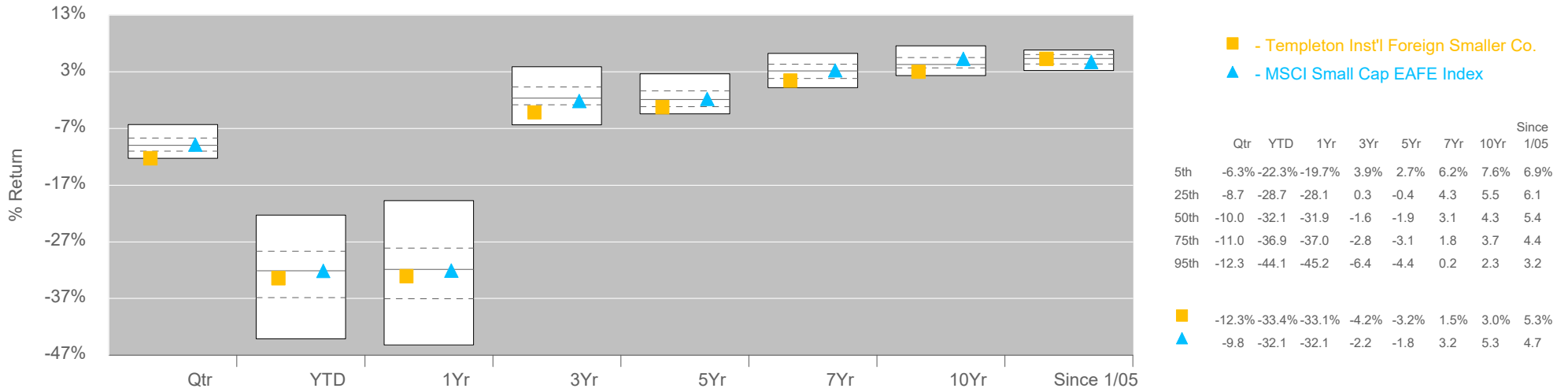
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Templeton Inst'l Foreign Smaller Co.

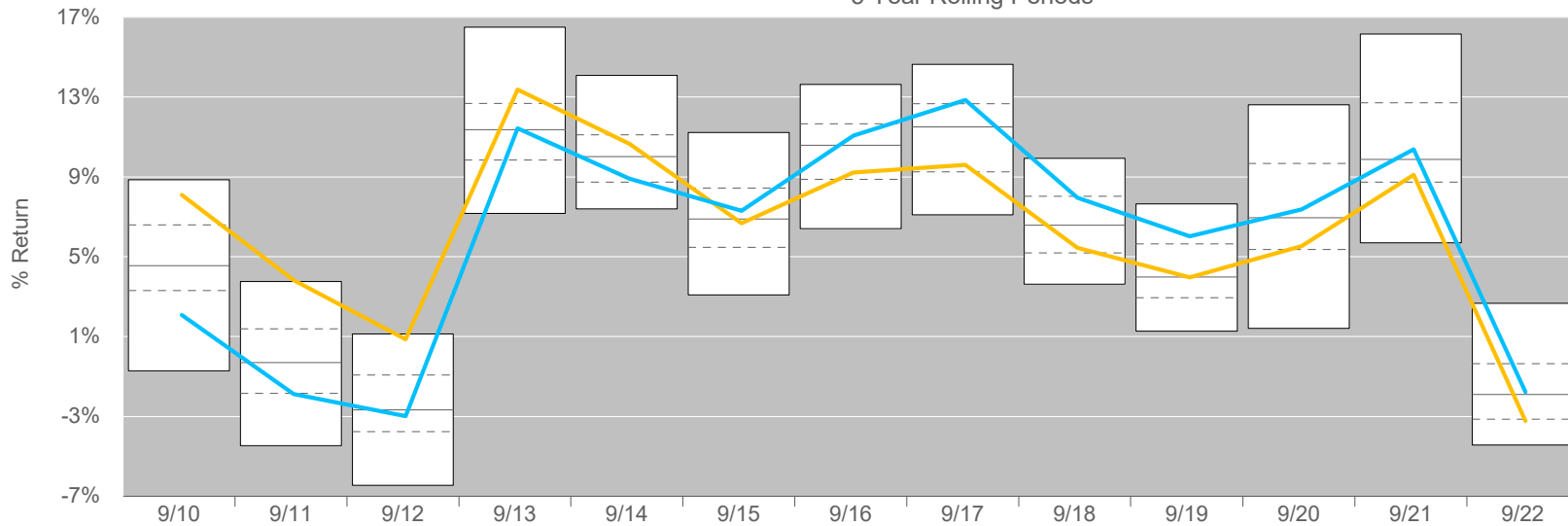
International Small Cap Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
Brown International Small Company	-9.2%	-40.1%	-38.4%	1.8%	5.3%	8.9%	8.9%	<i>9/15</i>
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	3.2	3.2	
MSCI ACWI ex-U.S. Small Cap Index	-8.4	-29.4	-28.9	0.4	-0.6	4.0	4.0	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Brown International Small Company	0.98	7.0%	0.78	22.7%	10.1%	0.7
MSCI Small Cap EAFE Index	1.00	0.0	1.00	19.2	0.0	--
MSCI ACWI ex-U.S. Small Cap Index	1.00	1.2	0.98	19.6	10.6	0.5

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Brown International Small Company	44.9	20.4	3,904.0 M	1.1%	8.5%
MSCI Small Cap EAFE Index	14.0	1.2	1,680.0	3.3	--
MSCI ACWI ex-U.S. Small Cap Index	13.9	1.2	1,473.2	3.3	--

Asset Growth Summary (in thousands)

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

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 7.0%	Yes
Beta < 1.20	Beta = 0.98	Yes
Alpha > 0.0%	Alpha = 7.0%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 5th Percentile	Yes

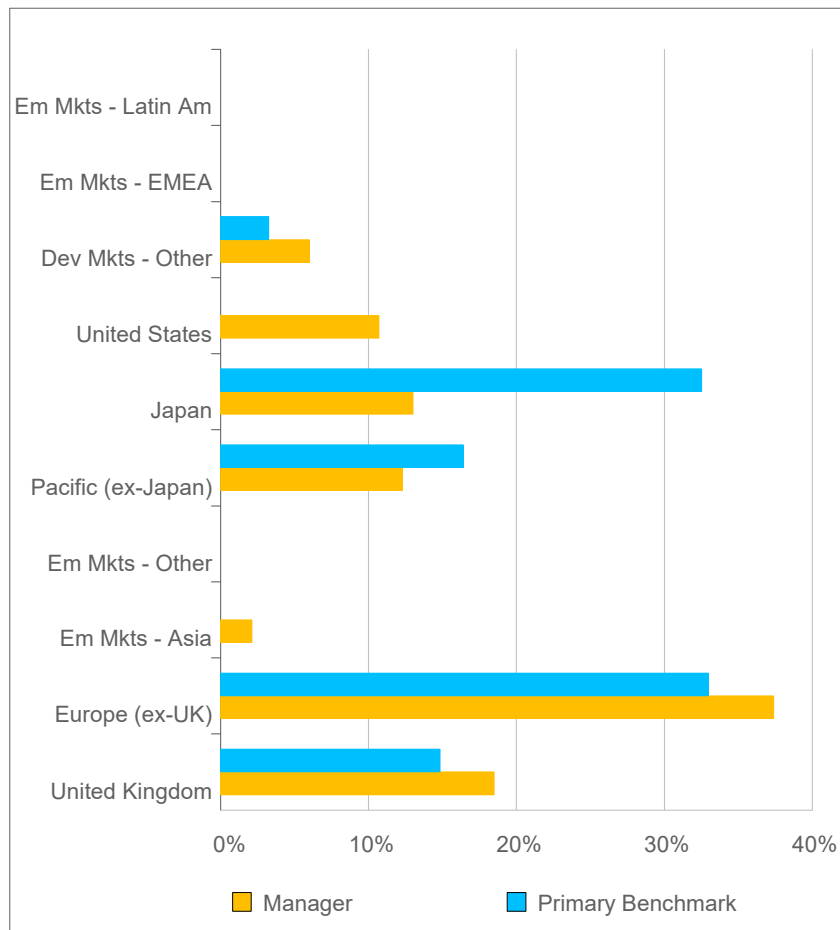
City of Grosse Pointe Woods Employees Retirement System

Brown International Small Company

International Sector

Report For Periods Ending September 30, 2022

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	0%	0%	5.0%	-12.6%
Em Mkts - EMEA	0	0	-0.4	-17.6
Dev Mkts - Other	6	3	-1.7	-12.0
United States	11	0	-2.4	-20.9
Japan	13	33	-4.4	-27.3
Pacific (ex-Japan)	12	16	-6.0	-22.5
Em Mkts - Other	0	0	-6.5	-25.2
Em Mkts - Asia	2	0	-6.7	-25.0
Europe (ex-UK)	37	33	-13.8	-36.3
United Kingdom	19	15	-16.5	-41.2

Top Five Countries

	Weighting
United Kingdom	17.9%
Japan	12.7
Germany	11.6
France	11.3
Canada	10.4

Number of Holdings: 42

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

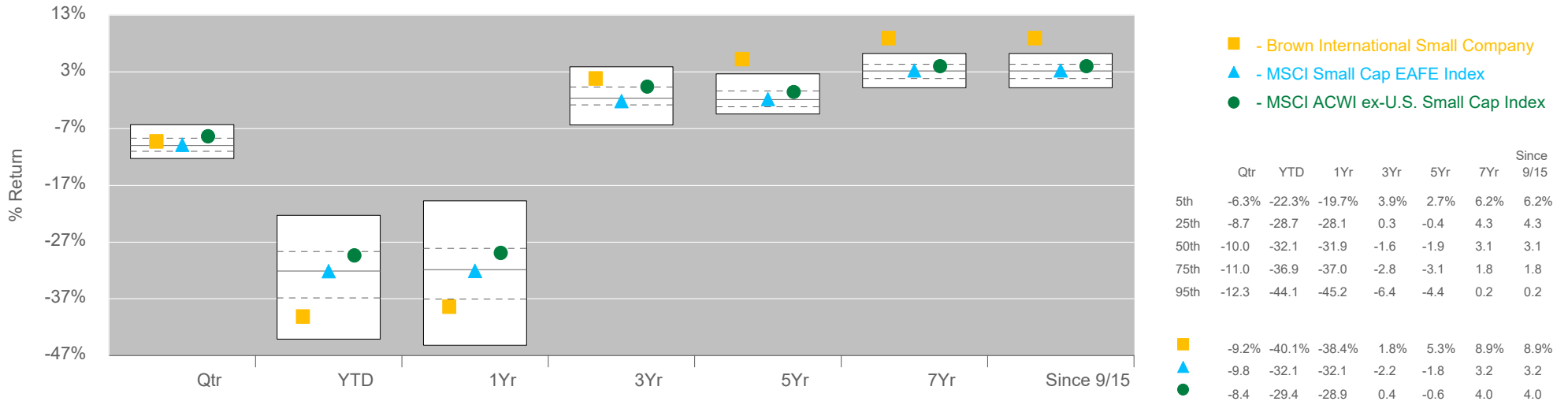
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Brown International Small Company

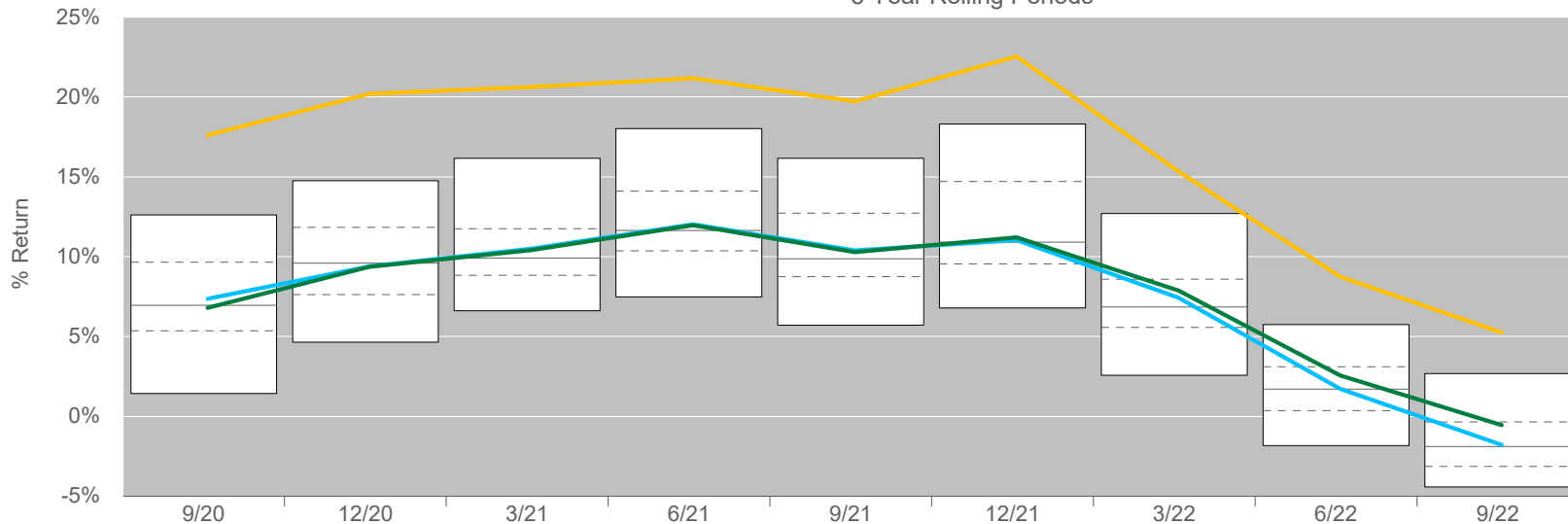
International Small Cap Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2015 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Redwheel Global Emerging Equity Fund	-11.0%	-30.5%	-31.5%	0.0%	-2.2%	6.6%	4.8%	5.5%	7/12
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	1.0	1.6	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Redwheel Global Emerging Equity Fund	1.20	0.2%	0.90	22.6%	7.7%	-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	14.6	1.6	76,945.0 M	2.4%	113.6%
MSCI Emerging Markets Index	11.5	1.5	50,371.6	3.6	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.4%	No
Beta < 1.20	Beta = 1.20	Yes
Alpha > 0.0%	Alpha = 0.2%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

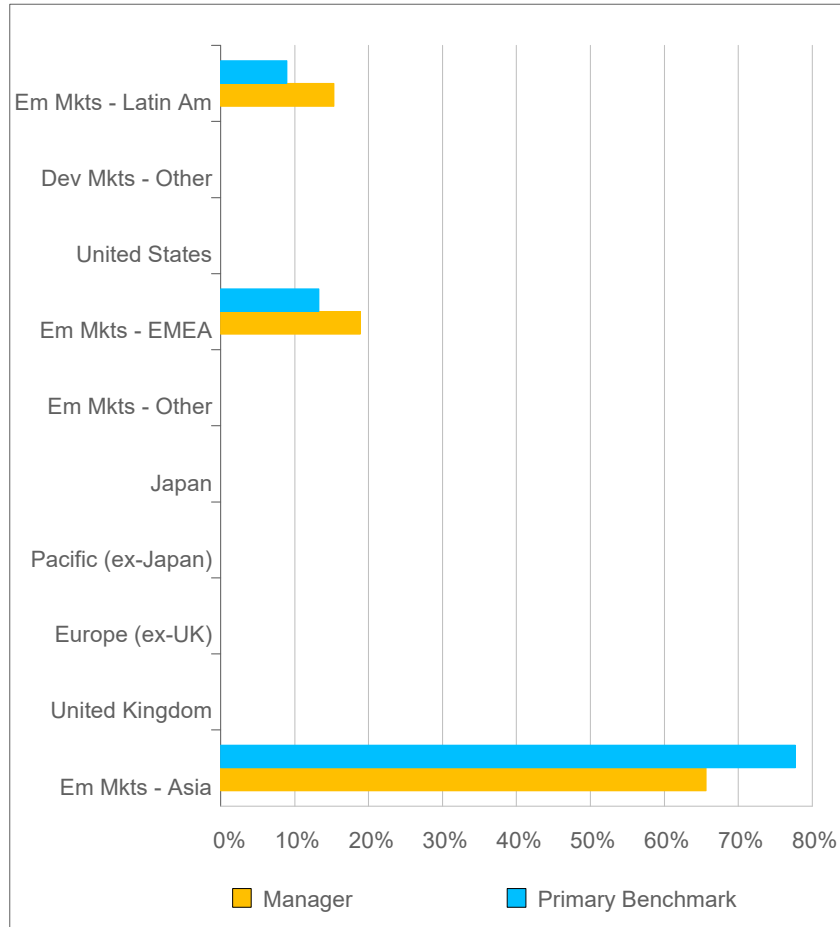
City of Grosse Pointe Woods Employees Retirement System

Redwheel Global Emerging Equity Fund

Emerging Markets Sector

Report For Periods Ending September 30, 2022

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	15%	9%	3.6%	0.2%
Dev Mkts - Other	0	0	-1.9	-21.8
United States	0	0	-4.8	-17.6
Em Mkts - EMEA	19	13	-5.3	-33.8
Em Mkts - Other	0	0	-6.5	-25.2
Japan	0	0	-7.7	-29.3
Pacific (ex-Japan)	0	0	-8.8	-18.8
Europe (ex-UK)	0	0	-9.9	-27.8
United Kingdom	0	0	-10.8	-14.1
Em Mkts - Asia	66	78	-14.7	-31.0

Top Five Countries	Weighting
China	35.7%
India	13.5
Brazil	7.7
Korea, South	6.4
Taiwan	5.1

Number of Holdings: 61

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

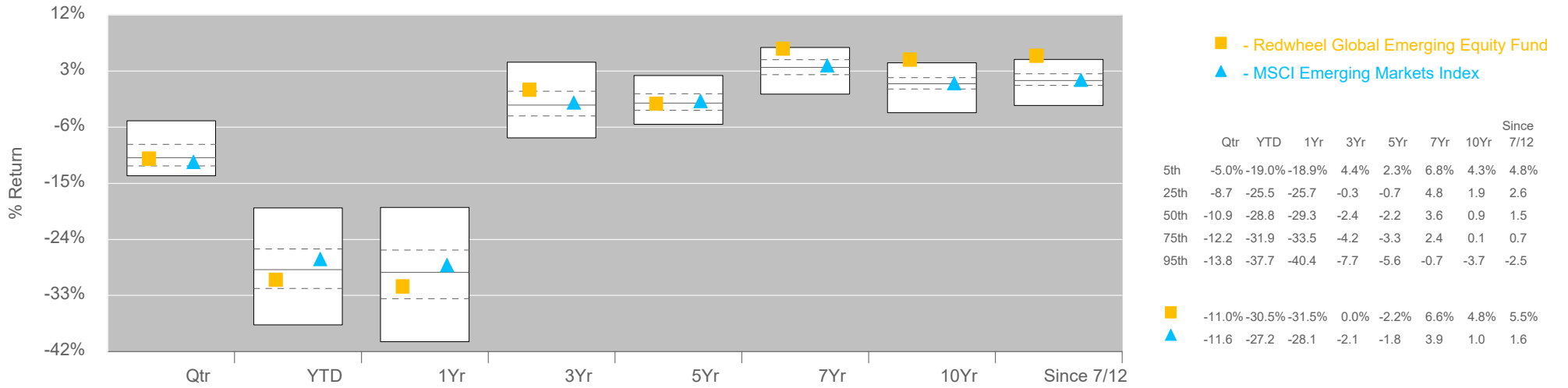
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Redwheel Global Emerging Equity Fund

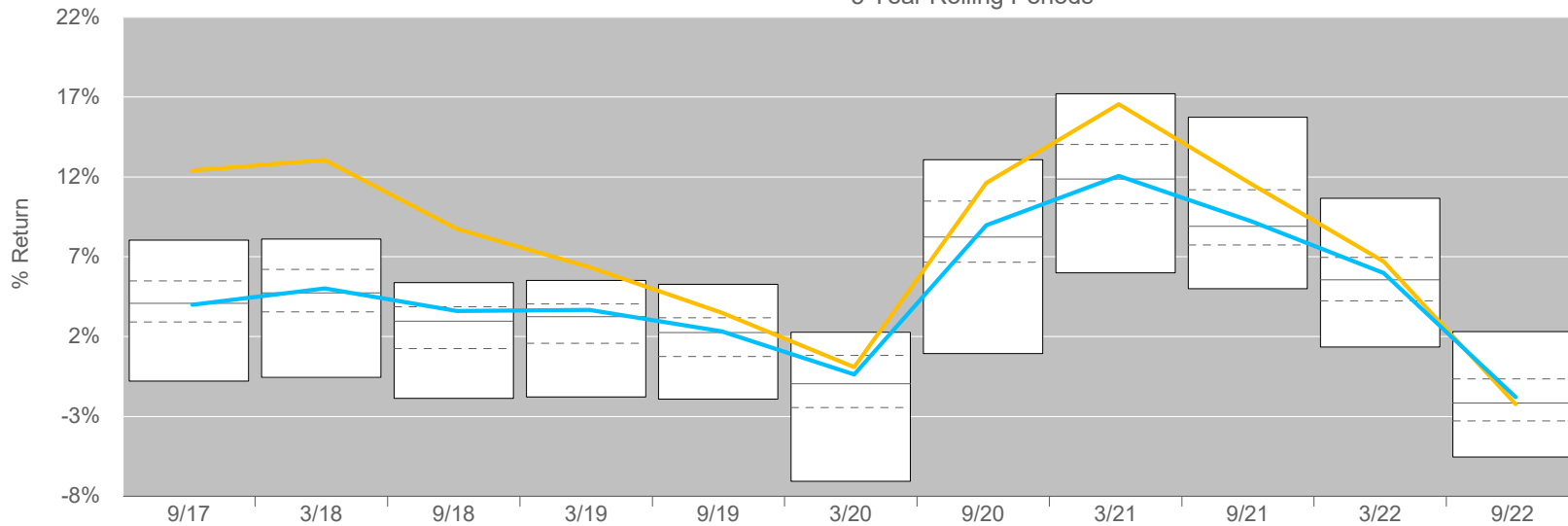
Emerging Markets Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2012 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
DFA Emerging Markets Fund	-11.6%	-24.5%	-24.4%	-0.8%	-1.1%	4.3%	1.5%	5.5%	1/05
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	1.0	5.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
DFA Emerging Markets Fund	1.00	0.7%	0.97	18.1%	3.3%	0.2
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	9.0	1.4	64,193.3M	3.7%	19.0%
MSCI Emerging Markets Index	11.5	1.5	50,371.6	3.6	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.7%	Yes
Beta < 1.20	Beta = 1.00	Yes
Alpha > 0.0%	Alpha = 0.7%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

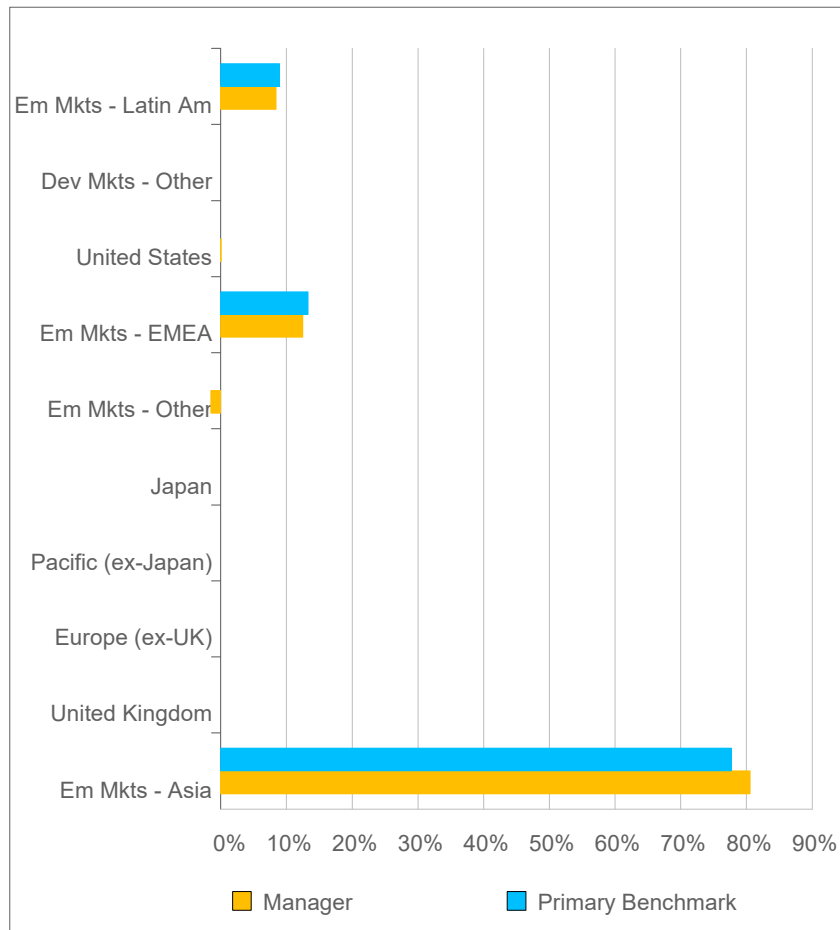
City of Grosse Pointe Woods Employees Retirement System

DFA Emerging Markets Fund

Emerging Markets Sector

Report For Periods Ending September 30, 2022

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Em Mkts - Latin Am	8%	9%	3.6%	0.2%
Dev Mkts - Other	0	0	-1.9	-21.8
United States	0	0	-4.8	-17.6
Em Mkts - EMEA	12	13	-5.3	-33.8
Em Mkts - Other	-2	0	-6.5	-25.2
Japan	0	0	-7.7	-29.3
Pacific (ex-Japan)	0	0	-8.8	-18.8
Europe (ex-UK)	0	0	-9.9	-27.8
United Kingdom	0	0	-10.8	-14.1
Em Mkts - Asia	81	78	-14.7	-31.0

Top Five Countries

	Weighting
China	27.8%
India	17.7
Taiwan	15.8
Korea, South	10.9
Brazil	5.2

Number of Holdings: 1862

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

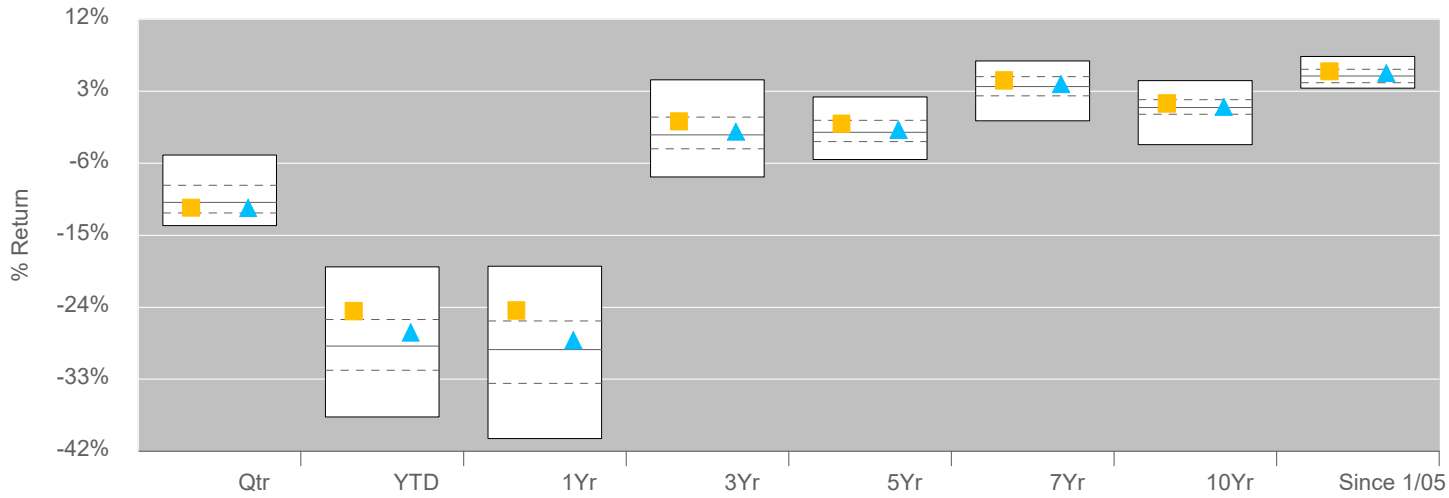
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

DFA Emerging Markets Fund

Emerging Markets Universe

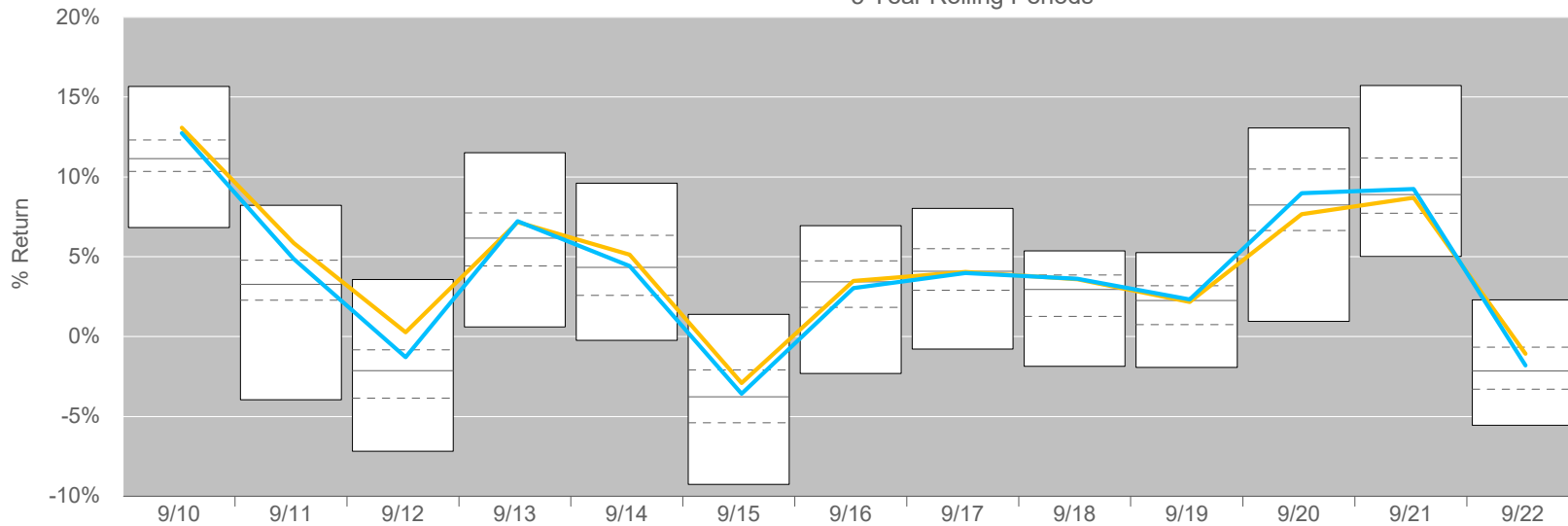
For Report Periods Ending September 30, 2022



	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	-5.0%	-19.0%	-18.9%	4.4%	2.3%	6.8%	4.3%	7.3%
25th	-8.7	-25.5	-25.7	-0.3	-0.7	4.8	1.9	5.7
50th	-10.9	-28.8	-29.3	-2.4	-2.2	3.6	0.9	4.9
75th	-12.2	-31.9	-33.5	-4.2	-3.3	2.4	0.1	4.1
95th	-13.8	-37.7	-40.4	-7.7	-5.6	-0.7	-3.7	3.3
■ - DFA Emerging Markets Fund	-11.6%	-24.5%	-24.4%	-0.8%	-1.1%	4.3%	1.5%	5.5%
▲ - MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	3.9	1.0	5.3

Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Dodge & Cox Income Fund	-4.0%	-13.3%	-13.6%	-1.7%	0.7%	1.8%	1.9%	3.6%	<i>1/05</i>
Bloomberg IG Credit Index	-5.2	-17.8	-17.7	-3.7	-0.2	1.2	1.5	3.4	
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	2.9	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
Dodge & Cox Income Fund	0.68	0.4%	0.95	4.8%	2.4%	0.4
Bloomberg IG Credit Index	1.00	0.0	1.00	6.7	0.0	--
Bloomberg U.S. Aggregate Index	0.66	-0.5	0.87	4.8	2.1	0.5

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
Dodge & Cox Income Fund	5.5yrs	10.5yrs	A	5.8%	74.0%
Bloomberg IG Credit Index	--	--	--	--	--
Bloomberg U.S. Aggregate Index	6.4	8.5	AA	4.8	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.9%	Yes
Beta < 1.20	Beta = 0.68	Yes
Alpha > 0.0%	Alpha = 0.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

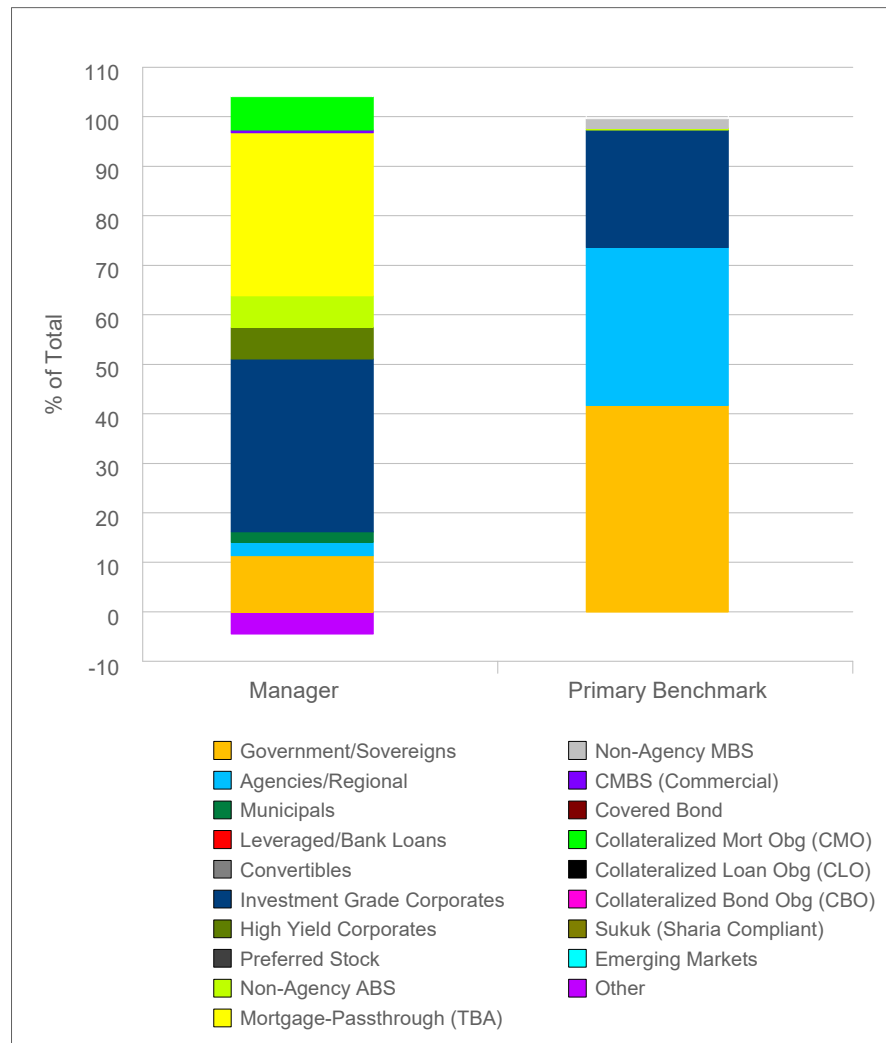
City of Grosse Pointe Woods Employees Retirement System

Dodge & Cox Income Fund

Fixed Income Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-4.8%	-14.6%
Government/Sovereigns	11	42	-4.3	-3.7
Agencies/Regional	3	32	-2.7	-3.9
Municipals	2	0	-3.5	-4.5
Leveraged/Bank Loans	0	0	3.4	-0.5
Convertibles	0	0	0.3	-2.2
Investment Grade Corporates	35	24	-5.1	-4.2
High Yield Corporates	6	0	-0.7	-0.7
Preferred Stock	0	0	-2.0	-2.7
Non-Agency ABS	6	0	-1.3	-3.1
Mortgage-Passthrough (TBA)	33	0	-6.5	-21.3
Non-Agency MBS	0	2	-5.4	-4.9
CMBS (Commercial)	1	0	-3.8	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	7	0	-5.4	-4.9
Collateralized Loan Obg (CLO)	0	0	3.4	-0.5
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-4.6	-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.

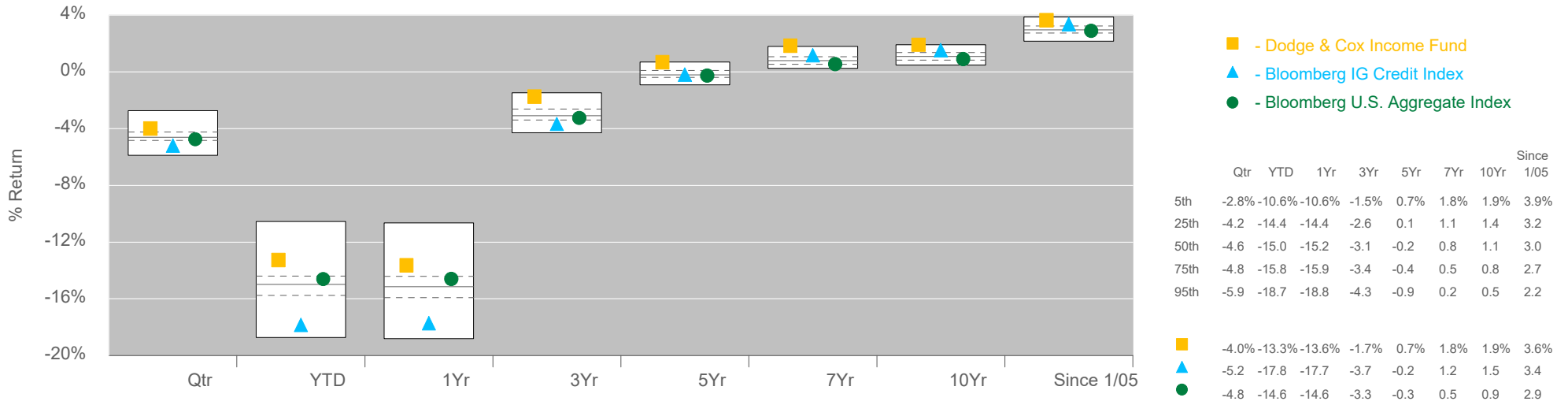
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Dodge & Cox Income Fund

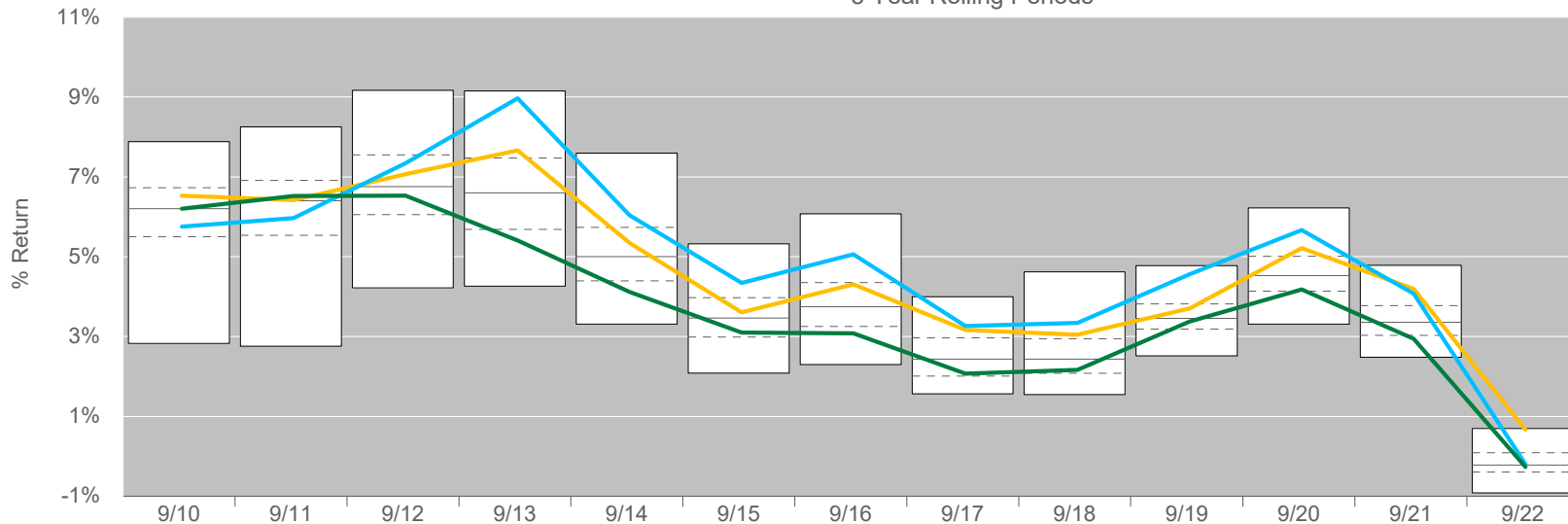
Core Fixed Income Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
DoubleLine Total Return Bond Fund	-4.2%	-12.5%	-12.6%	-3.0%	-0.3%	0.5%	1.4%	3.5%	<i>4/10</i>
Bloomberg U.S. MBS Index	-5.3	-13.7	-14.0	-3.7	-0.9	-0.1	0.5	1.4	
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	1.9	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
DoubleLine Total Return Bond Fund	0.73	0.1%	0.59	4.1%	2.9%	0.2
Bloomberg U.S. MBS Index	1.00	0.0	1.00	4.3	0.0	--
Bloomberg U.S. Aggregate Index	1.00	0.6	0.82	4.8	2.1	0.0

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
DoubleLine Total Return Bond Fund	5.0yrs	7.3yrs	A-	4.8%	89.0%
Bloomberg U.S. MBS Index	--	--	--	--	--
Bloomberg U.S. Aggregate Index	6.4	8.5	AA	4.8	--

* 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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.6%	Yes
Beta < 1.20	Beta = 0.73	Yes
Alpha > 0.0%	Alpha = 0.1%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

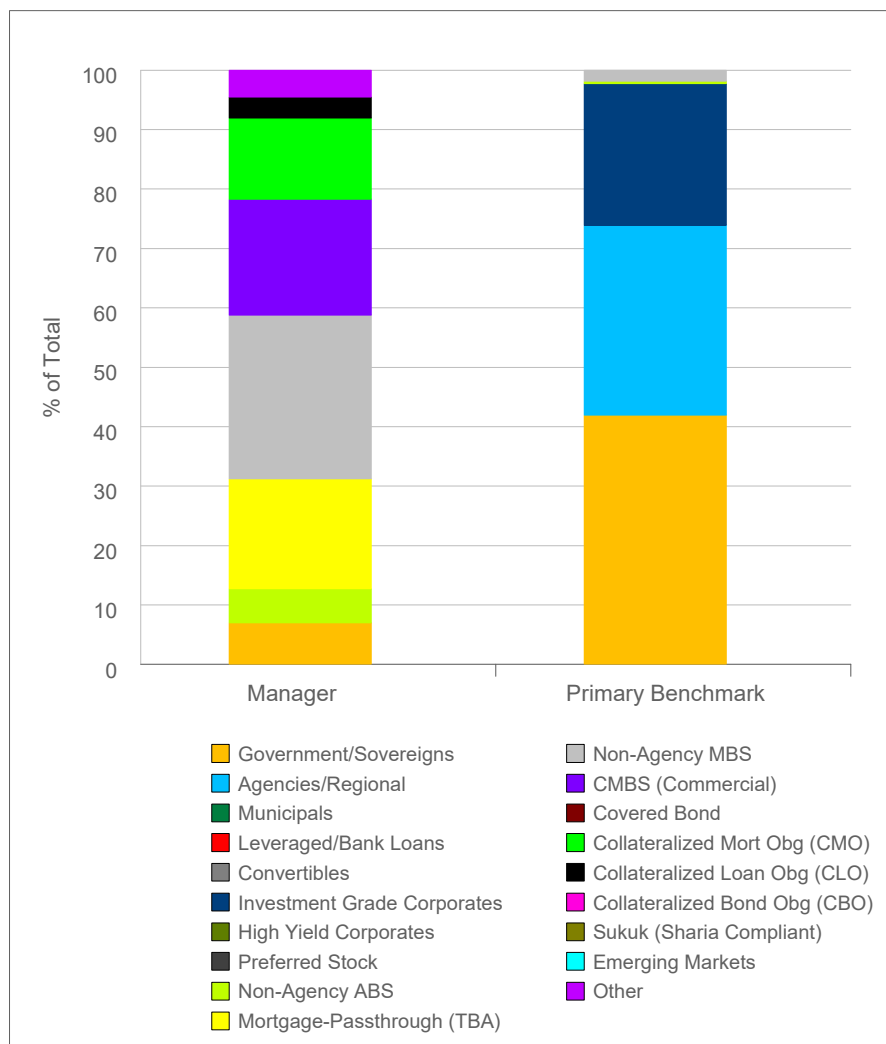
City of Grosse Pointe Woods Employees Retirement System

DoubleLine Total Return Bond Fund

Fixed Income Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-4.8%	-14.6%
Government/Sovereigns	7	42	-4.3	-3.7
Agencies/Regional	0	32	-2.7	-3.9
Municipals	0	0	-3.5	-4.5
Leveraged/Bank Loans	0	0	3.4	-0.5
Convertibles	0	0	0.3	-2.2
Investment Grade Corporates	0	24	-5.1	-4.2
High Yield Corporates	0	0	-0.7	-0.7
Preferred Stock	0	0	-2.0	-2.7
Non-Agency ABS	6	0	-1.3	-3.1
Mortgage-Passthrough (TBA)	19	0	-6.5	-21.3
Non-Agency MBS	28	2	-5.4	-4.9
CMBS (Commercial)	20	0	-3.8	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	14	0	-5.4	-4.9
Collateralized Loan Obg (CLO)	4	0	3.4	-0.5
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-4.6	-7.4
Other	5	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.

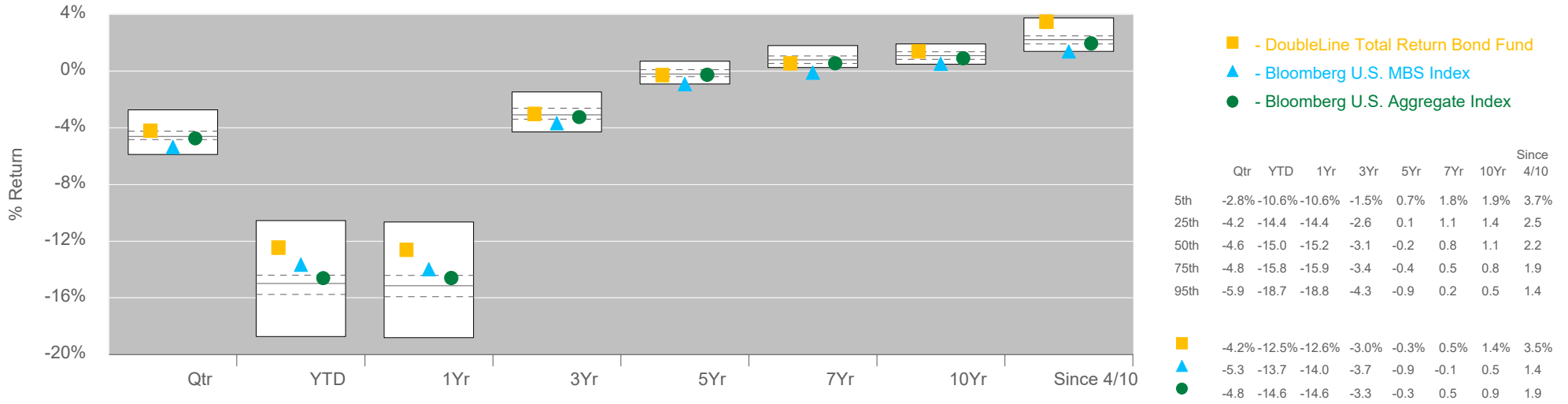
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

DoubleLine Total Return Bond Fund

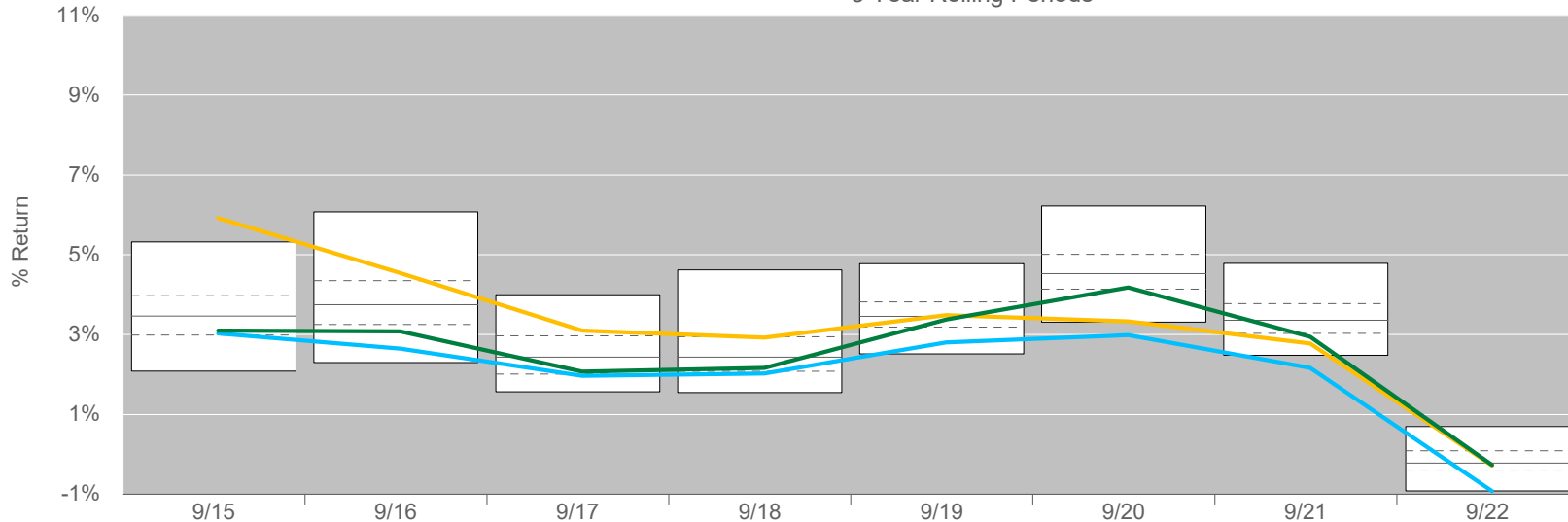
Core Fixed Income Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2010 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Vanguard Total Bond Fund	-4.7%	-14.6%	-14.7%	-3.3%	-0.3%	0.5%	0.8%	2.9%	1/05
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.5	0.9	2.9	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
Vanguard Total Bond Fund	1.00	0.0%	1.00	4.8%	0.3%	0.0
Bloomberg U.S. Aggregate Index	1.00	0.0	1.00	4.8	0.0	--

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
Vanguard Total Bond Fund	6.4yrs	8.5yrs	AA	4.8%	--%
Bloomberg U.S. Aggregate Index	6.4	8.5	AA	4.8	--

* 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 September 30, 2022

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

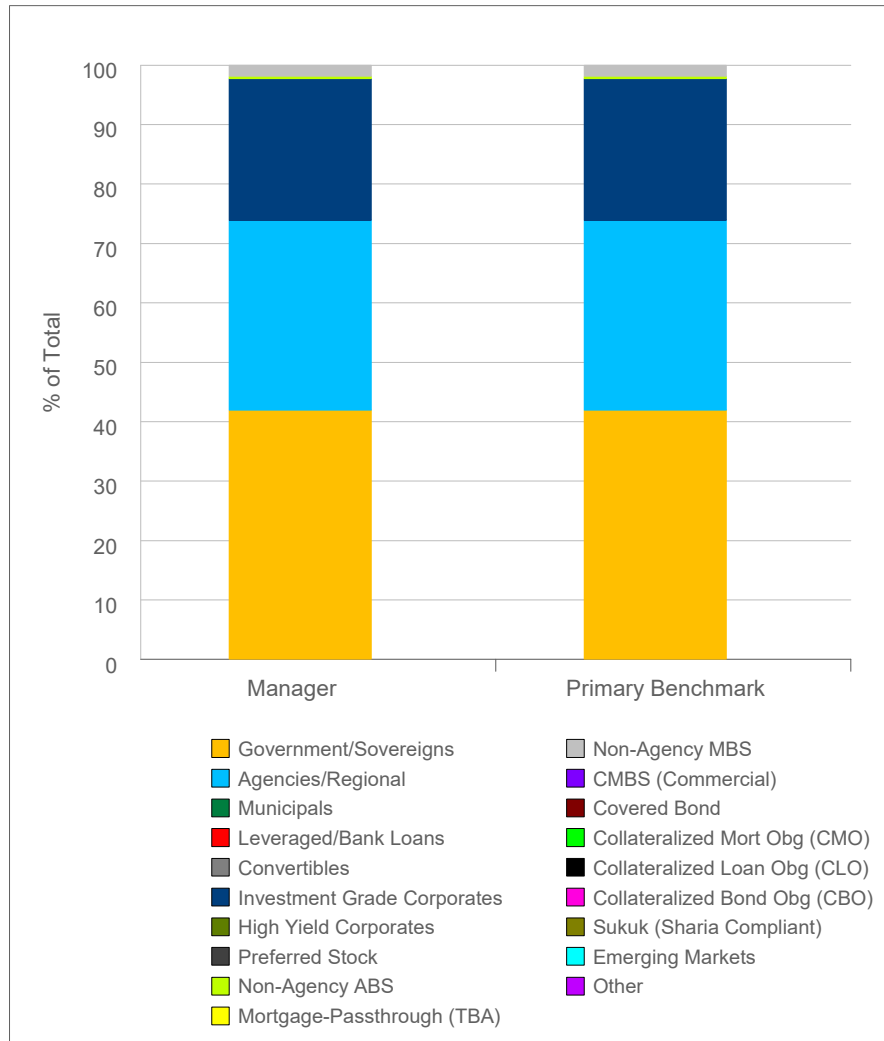
City of Grosse Pointe Woods Employees Retirement System

Vanguard Total Bond Fund

Fixed Income Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Total Weighting	100%	100%	-4.8%	-14.6%
Government/Sovereigns	42	42	-4.3	-3.7
Agencies/Regional	32	32	-2.7	-3.9
Municipals	0	0	-3.5	-4.5
Leveraged/Bank Loans	0	0	3.4	-0.5
Convertibles	0	0	0.3	-2.2
Investment Grade Corporates	24	24	-5.1	-4.2
High Yield Corporates	0	0	-0.7	-0.7
Preferred Stock	0	0	-2.0	-2.7
Non-Agency ABS	0	0	-1.3	-3.1
Mortgage-Passthrough (TBA)	0	0	-6.5	-21.3
Non-Agency MBS	2	2	-5.4	-4.9
CMBS (Commercial)	0	0	-3.8	-4.4
Covered Bond	0	0	0.0	0.0
Collateralized Mort Obg (CMO)	0	0	-5.4	-4.9
Collateralized Loan Obg (CLO)	0	0	3.4	-0.5
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-4.6	-7.4
Other	0	0	0.0	0.0

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

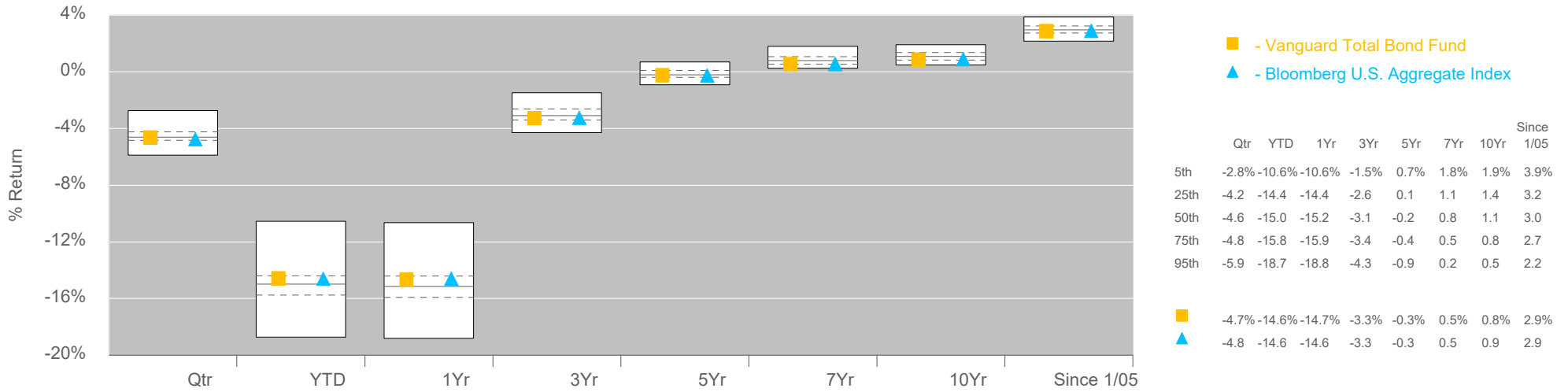
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Vanguard Total Bond Fund

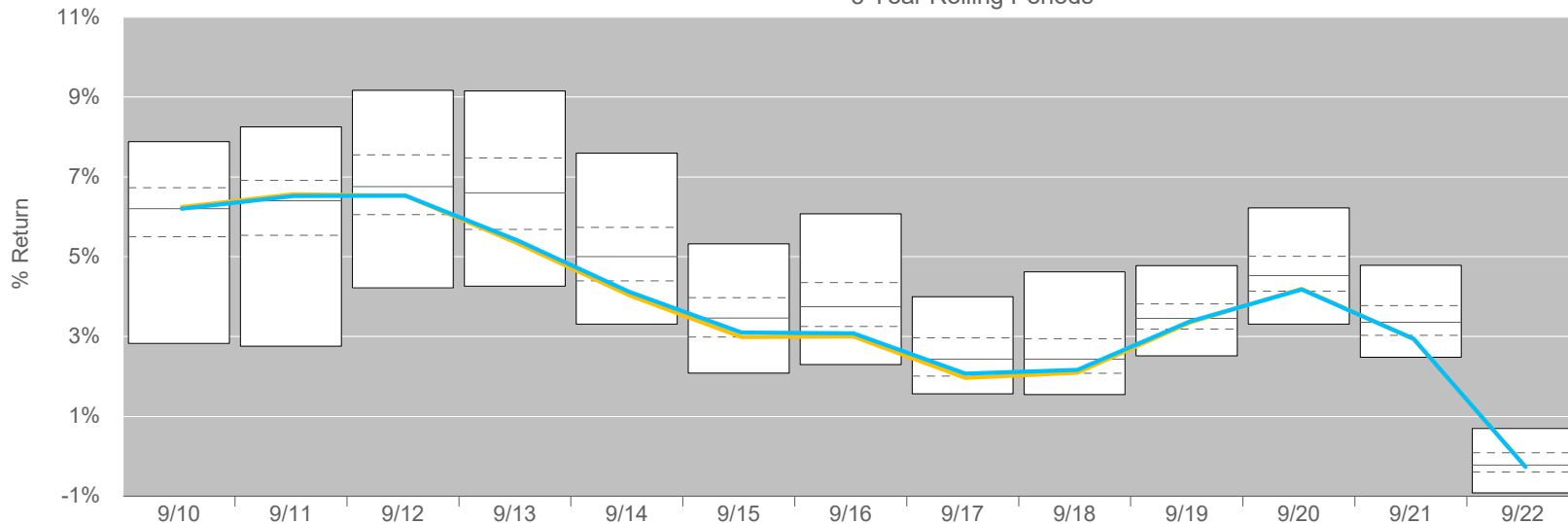
Core Fixed Income Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Principal Real Estate Securities Fund	-8.5%	-26.9%	-16.2%	-0.2%	5.1%	6.3%	7.7%	8.2%	<i>1/05</i>
FTSE NAREIT Equity REIT Index	-9.9	-28.1	-16.4	-2.0	2.9	4.9	6.3	6.9	
FTSE NAREIT All Equity Index	-10.8	-27.9	-16.3	-1.1	4.1	6.1	7.0	7.4	

Risk Statistics (5 years)	Beta	Alpha	R²	Standard Deviation	Tracking Error	Information Ratio
Principal Real Estate Securities Fund	0.91	2.4%	0.98	19.8%	3.3%	0.7
FTSE NAREIT Equity REIT Index	1.00	0.0	1.00	21.2	0.0	--
FTSE NAREIT All Equity Index	0.94	1.3	0.98	20.3	2.5	0.4

Portfolio Statistics	Current P/FFO	Growth in FFO	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Principal Real Estate Securities Fund	17.3	11.7%	23,646.4M	3.6%	16.2%
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 September 30, 2022

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 2.2%	Yes
Beta < 1.20	Beta = 0.91	Yes
Alpha > 0.0%	Alpha = 2.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

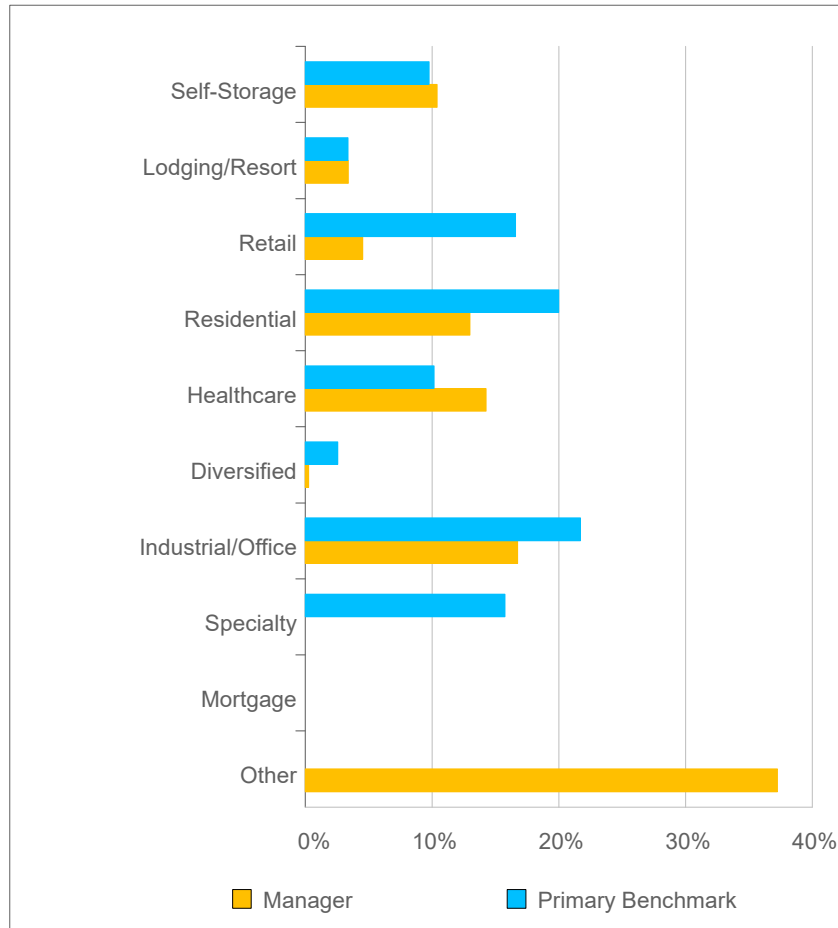
City of Grosse Pointe Woods Employees Retirement System

Principal Real Estate Securities Fund

Real Estate Sector

Report For Periods Ending September 30, 2022

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Self-Storage	10%	10%	-1.7%	1.4%
Lodging/Resort	3	3	-4.1	-17.1
Retail	5	17	-7.2	-15.1
Residential	13	20	-8.5	-15.3
Healthcare	14	10	-16.2	-20.8
Diversified	0	3	-16.5	-17.3
Industrial/Office	17	22	-	-
Specialty	0	16	-	-
Mortgage	0	0	-	-
Other	37	0	-	-

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

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

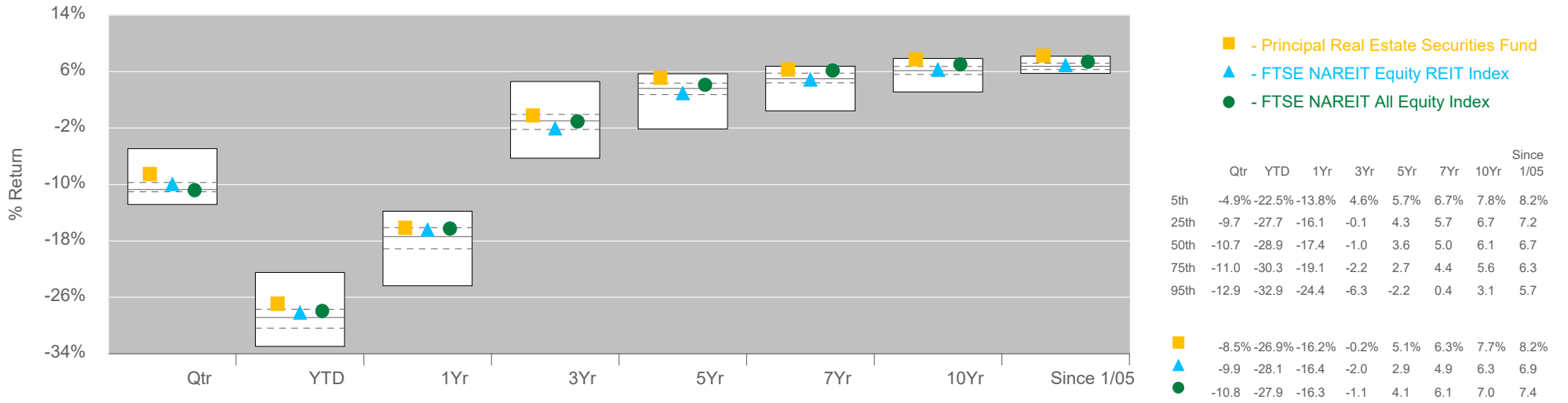
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Principal Real Estate Securities Fund

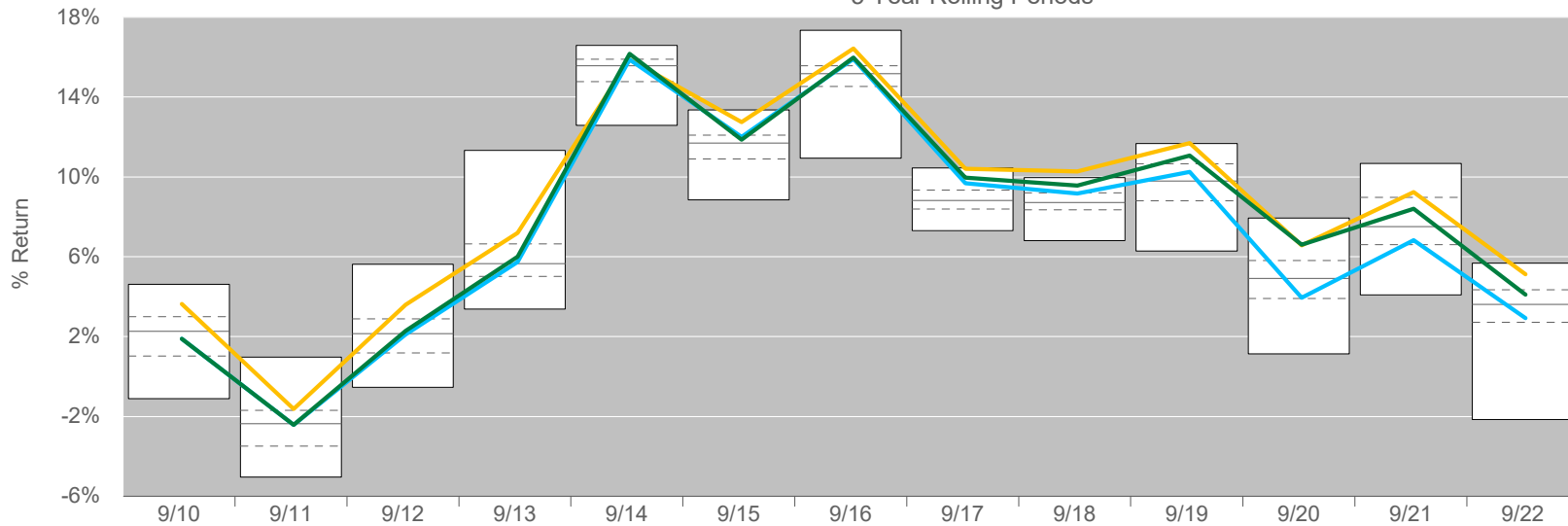
REIT Manager Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2005 to September 30, 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 September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Tortoise MLP & Pipeline Fund	1.4%	11.6%	12.6%	3.8%	2.4%	4.8%	3.6%	5.5%	<i>5/11</i>
Alerian MLP Index	8.1	18.9	19.6	4.5	1.9	2.5	0.7	2.1	
Tortoise North American Pipeline Index	-3.7	7.9	11.7	5.6	5.2	7.6	6.1	--	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Tortoise MLP & Pipeline Fund	0.76	0.7%	0.93	34.1%	12.7%	0.0
Alerian MLP Index	1.00	0.0	1.00	45.1	0.0	--
Tortoise North American Pipeline Index	0.62	3.6	0.89	28.9	6.5	-0.4

* 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

Tortoise MLP & Pipeline Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending September 30, 2022

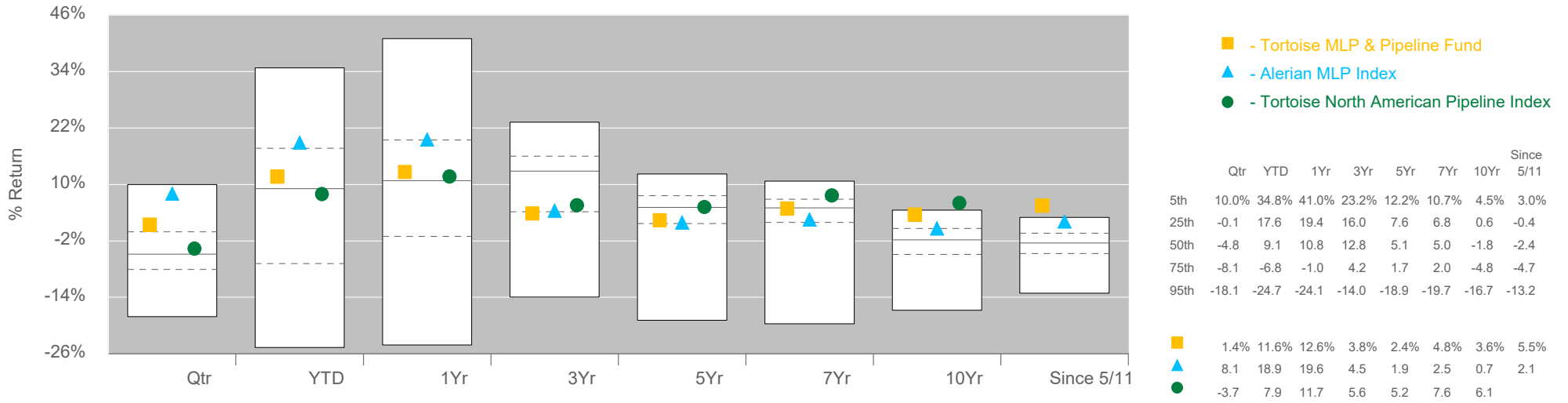
Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.5%	Yes
Beta < 1.20	Beta = 0.76	Yes
Alpha > 0.0%	Alpha = 0.7%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No

City of Grosse Pointe Woods Employees Retirement System

Tortoise MLP & Pipeline Fund

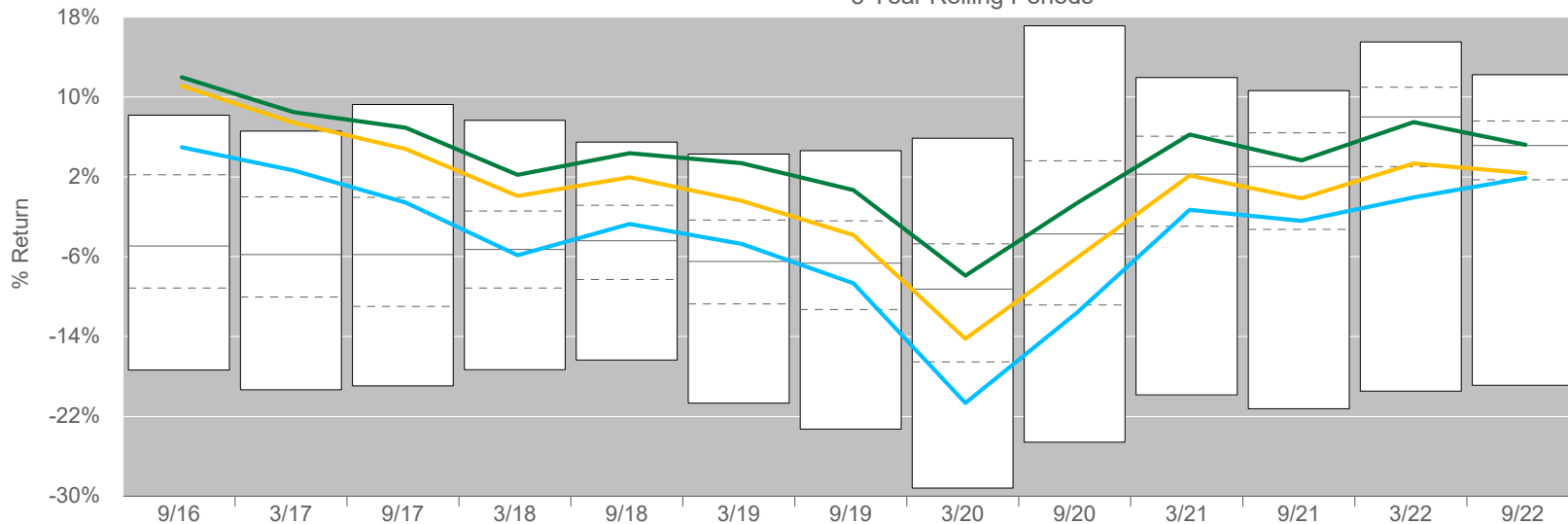
Natural Resources Universe

For Report Periods Ending September 30, 2022



Report From September 30, 2011 to September 30, 2022

5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Cohen & Steers Global Listed Infrastructure

Summary of Performance and Statistics

Report For Periods Ending September 30, 2022

Performance Results	Qtr	YTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Cohen & Steers Global Listed Infrastructure	-9.1%	-12.9%	-5.8%	0.9%	4.5%	6.3%	6.9%	6.4%	<i>1/05</i>
FTSE Global Core Infrastructure 50/50	-9.0	-12.7	-6.2	-0.1	3.3	6.1	6.5	--	
DJ Brookfield Global Infrastructure Index	-10.2	-13.1	-7.2	-0.7	1.9	4.4	5.1	7.6	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Cohen & Steers Global Listed Infrastructure	0.91	1.4%	0.97	14.8%	2.8%	0.4
FTSE Global Core Infrastructure 50/50	1.00	0.0	1.00	15.8	0.0	--
DJ Brookfield Global Infrastructure Index	1.10	-1.6	0.95	17.6	5.4	0.5

Asset Growth Summary (in thousands)

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

* 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

Cohen & Steers Global Listed Infrastructure

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending September 30, 2022

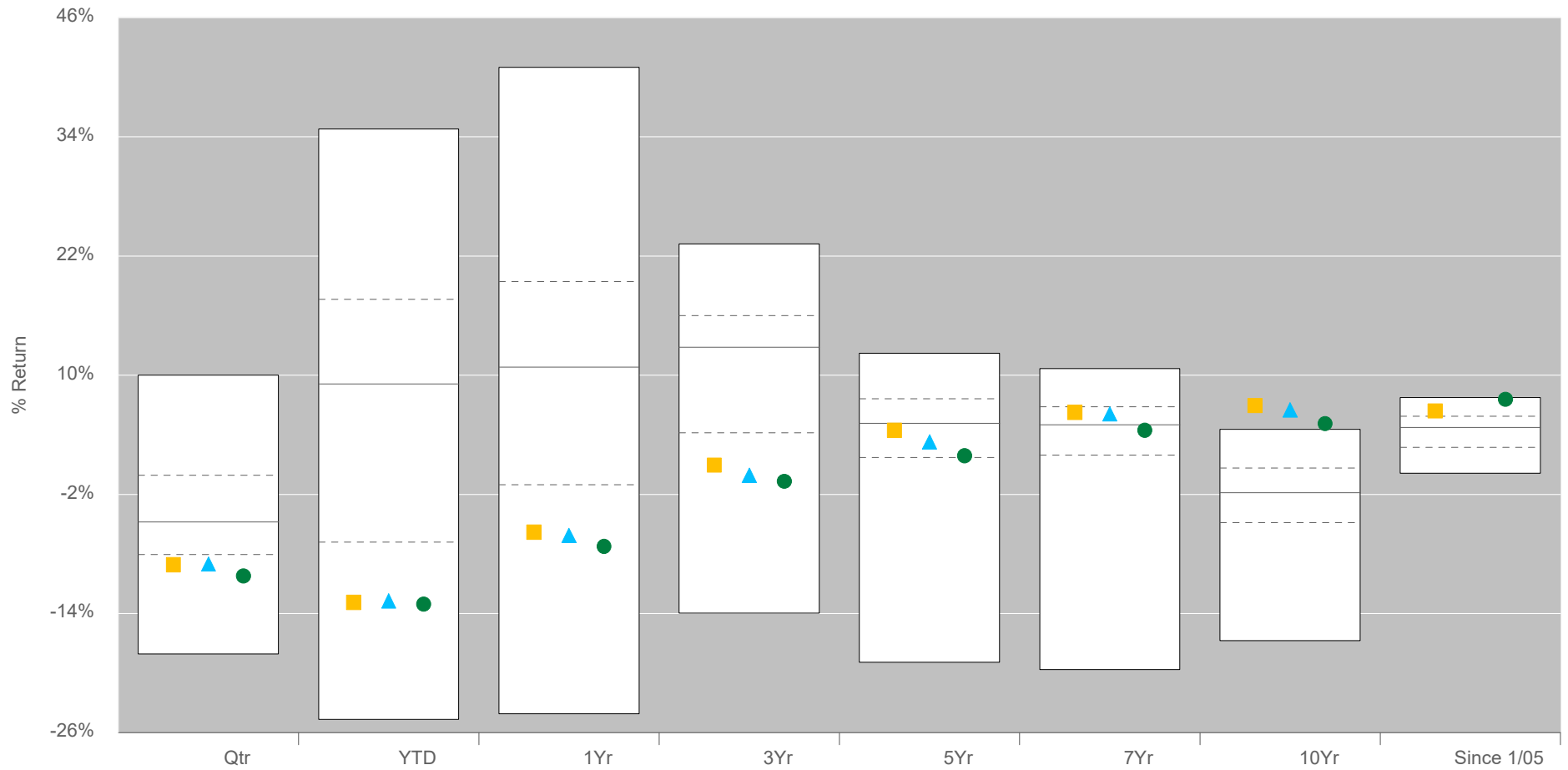
Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 1.2%	Yes
Beta < 1.20	Beta = 0.91	Yes
Alpha > 0.0%	Alpha = 1.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

City of Grosse Pointe Woods Employees Retirement System

Cohen & Steers Global Listed Infrastructure

Natural Resources Universe

For Report Periods Ending September 30, 2022



5th Percentile	10.0%	34.8%	41.0%	23.2%	12.2%	10.7%	4.5%	7.7%
25th Percentile	-0.1	17.6	19.4	16.0	7.6	6.8	0.6	5.9
50th Percentile	-4.8	9.1	10.8	12.8	5.1	5.0	-1.8	4.7
75th Percentile	-8.1	-6.8	-1.0	4.2	1.7	2.0	-4.8	2.7
95th Percentile	-18.1	-24.7	-24.1	-14.0	-18.9	-19.7	-16.7	0.1
■ - Cohen & Steers Global Listed Infrastructure	-9.1%	-12.9%	-5.8%	0.9%	4.5%	6.3%	6.9%	6.4%
▲ - FTSE Global Core Infrastructure	-9.05/50	-12.7	-6.2	-0.1	3.3	6.1	6.5	--
● - DJ Brookfield Global Infrastructure	-10.2e Index	-13.1	-7.2	-0.7	1.9	4.4	5.1	7.6

City of Grosse Pointe Woods Employees Retirement System

Breakdown of Fees

Report For Periods Ending September 30, 2022

	Annual Fee/ Expense Ratio	Market Value	Percent Allocation	Weighted Average Fee	Annualized Fee
iShares S&P 500 Index	0.04%	\$11,447,749	30.4%	0.01%	\$4,579
iShares Russell Midcap Index	0.20%	\$2,151,198	5.7%	0.01%	\$4,302
Vanguard S&P Small Cap 600 Index	0.10%	\$2,983,296	7.9%	0.01%	\$2,983
EuroPacific Growth Fund	0.57%	\$3,302,044	8.8%	0.05%	\$18,822
Templeton Inst'l Foreign Smaller Co.	1.04%	\$843,966	2.2%	0.02%	\$8,777
Brown International Small Company	1.08%	\$817,545	2.2%	0.02%	\$8,829
Redwheel Global Emerging Equity Fund	1.29%	\$1,078,845	2.9%	0.04%	\$13,917
DFA Emerging Markets Fund	0.36%	\$2,319,799	6.2%	0.02%	\$8,351
Dodge & Cox Income Fund	0.43%	\$2,212,459	5.9%	0.03%	\$9,514
DoubleLine Total Return Bond Fund	0.48%	\$2,021,636	5.4%	0.03%	\$9,704
Vanguard Total Bond Fund	0.05%	\$2,160,379	5.7%	0.00%	\$1,080
Gateway Fund	0.70%	\$1,550,329	4.1%	0.03%	\$10,852
PIMCO All Asset Fund	0.87%	\$1,247,354	3.3%	0.03%	\$10,852
Principal Real Estate Securities Fund	0.91%	\$837,766	2.2%	0.02%	\$7,624
Tortoise MLP & Pipeline Fund	0.97%	\$1,085,978	2.9%	0.03%	\$10,534
Cohen & Steers Global Listed Infrastructure	0.94%	\$1,061,033	2.8%	0.03%	\$9,974
Schwab Government Money Fund	0.23%	\$586,582	1.6%	0.00%	\$1,349
Total Investment Management Fees		\$37,707,958	100.0%	0.38%	\$142,044

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

* Annualized fee is an estimate based on market values as of September 30, 2022.

Index Summary Sheet for Periods Ending September 30, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
Global Equity						
MSCI AC World Index	-6.8%	-25.6%	-20.7%	3.7%	4.4%	7.3%
MSCI World Index	-6.2	-25.4	-19.6	4.6	5.3	8.1
S&P 500 Index	-4.9	-23.9	-15.5	8.2	9.2	11.7
Russell 3000 Index	-4.5	-24.6	-17.6	7.7	8.6	11.4
Russell 1000 Index	-4.6	-24.6	-17.2	7.9	9.0	11.6
Russell 1000 Growth Index	-3.6	-30.7	-22.6	10.7	12.2	13.7
Russell 1000 Value Index	-5.6	-17.8	-11.4	4.4	5.3	9.2
Russell Midcap Index	-3.4	-24.3	-19.4	5.2	6.5	10.3
Russell Midcap Growth Index	-0.7	-31.5	-29.5	4.3	7.6	10.9
Russell Midcap Value Index	-4.9	-20.4	-13.6	4.5	4.8	9.4
Russell 2000 Index	-2.2	-25.1	-23.5	4.3	3.6	8.6
Russell 2000 Growth Index	0.2	-29.3	-29.3	2.9	3.6	8.8
Russell 2000 Value Index	-4.6	-21.1	-17.7	4.7	2.9	7.9
Russell Microcap Index	-0.5	-25.5	-27.5	6.9	3.1	8.4
MSCI AC World Index ex-U.S.	-9.9	-26.5	-25.2	-1.5	-0.8	3.0
MSCI EAFE Index	-9.4	-27.1	-25.1	-1.8	-0.8	3.7
MSCI EAFE Growth Index	-8.5	-33.0	-30.3	-1.5	0.7	4.7
MSCI EAFE Value Index	-10.2	-21.1	-20.2	-2.8	-2.7	2.4
MSCI Small Cap EAFE Index	-9.8	-32.1	-32.1	-2.2	-1.8	5.3
MSCI Emerging Markets Index	-11.6	-27.2	-28.1	-2.1	-1.8	1.0
MSCI Emerging Markets Small Cap Index	-5.3	-24.2	-23.2	5.5	1.3	2.9
MSCI Frontier Markets Index	-6.5	-25.7	-25.2	-1.3	-1.2	3.6
HFRI Equity Hedge Index	-2.7	-14.1	-13.6	6.1	4.3	5.3
HFRI Emerging Markets	-6.3	-17.6	-18.0	1.5	0.5	2.8
HFRI FOF: Strategic Index	-1.9	-14.2	-13.7	3.0	2.0	3.3
Thomson One All Private Capital Index	0.0	-4.2	1.7	18.7	15.7	14.0
Thomson One Buyout Index	0.0	-4.4	2.6	19.5	16.8	15.6
Thomson One Fund of Funds Index	0.0	-8.6	-4.2	21.2	17.7	14.7
Thomson One Venture Capital Index	0.0	-12.4	-7.1	28.7	24.2	20.0
Global Fixed Income						
Bloomberg U.S. Aggregate Index	-4.8	-14.6	-14.6	-3.3	-0.3	0.9
Bloomberg U.S. TIPS Index	-5.1	-13.6	-11.6	0.8	2.0	1.0
Bloomberg Government Bond Index	-4.3	-12.9	-12.8	-3.1	-0.2	0.5
Bloomberg Municipals Index	-3.5	-12.1	-11.5	-1.9	0.6	1.8
Bloomberg Asset Backed Index	-1.3	-5.1	-5.6	-0.2	1.0	1.2

Index Summary Sheet for Periods Ending September 30, 2022

	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
Global Fixed Income (continued)						
Bloomberg US MBS Index	-5.3%	-13.7%	-14.0%	-3.7%	-0.9%	0.5%
Bloomberg IG CMBS Index	-3.8	-11.8	-12.4	-2.1	0.7	1.6
Bloomberg U.S. Credit Index	-4.9	-18.1	-17.9	-3.6	0.0	1.6
Bloomberg U.S. Corporate HY Index	-0.6	-14.7	-14.1	-0.5	1.6	3.9
Bloomberg Intermediate U.S. G/C Index	-3.1	-9.6	-10.1	-1.6	0.4	1.0
ICE BofA 1-3 Yr. Govt. Bond Index	-1.6	-4.4	-4.9	-0.5	0.6	0.6
U.S. 91-Day Treasury Bills	0.7	1.0	1.0	0.6	1.1	0.7
CS Leveraged Loan Index	3.4	-1.2	-0.5	2.8	3.4	3.9
JPMorgan Non-U.S. GBI Hedged Index	-3.2	-11.4	-11.3	-3.9	0.1	2.0
JPMorgan Non-U.S. GBI Index	-10.2	-27.0	-28.3	-10.0	-5.2	-3.2
JPMorgan EMBI Plus Index	-5.5	-30.7	-30.9	-9.9	-5.5	-0.9
JPMorgan EMBI Global Index	-4.2	-22.2	-22.2	-6.1	-2.3	1.0
HFRI RV: Fixed Income - Corporate Index	0.5	-5.7	-6.5	3.2	3.4	4.1
HFRI ED: Distressed/Restructuring Index	-1.5	-5.2	-4.5	7.0	4.7	5.0
Thomson One Distressed Index	0.0	3.1	8.7	13.5	10.0	10.3
Real Assets						
FTSE NAREIT All Equity Index	-10.8	-27.9	-16.3	-1.1	4.1	7.0
S&P Developed BMI Property Index	-11.6	-30.0	-23.2	-5.9	-0.8	3.3
S&P Developed ex-U.S. Property Index	-13.3	-31.1	-29.8	-8.9	-3.1	2.1
NCREIF Property Index	0.0	8.7	15.4	9.7	8.5	9.4
Bloomberg Commodity Index	-4.1	13.6	11.8	13.5	7.0	-2.1
Alerian MLP Index	8.1	18.9	19.6	4.5	1.9	0.7
NCREIF Timberland Index	0.0	5.1	9.9	5.0	4.2	5.7
Thomson One Private Real Estate Index	0.0	4.9	13.2	12.8	11.3	11.8
S&P Real Assets Equity Total Return Index	-9.4	-18.9	-11.6	-0.6	1.9	4.2
Diversifying Strategies						
HFRI Fund of Funds Index	-0.7	-7.2	-6.8	4.0	3.0	3.4
HFRI Fund Weighted Composite Index	-1.1	-6.7	-6.3	6.0	4.4	4.6
HFRI FOF: Conservative Index	0.2	-1.4	-0.7	4.7	3.8	3.6
HFRI Event Driven	-0.7	-8.0	-7.0	5.1	3.9	4.8
HFRI Relative Value Total Index	-0.2	-2.3	-2.1	3.4	3.3	4.1
HFRI Macro Index	1.7	10.3	10.0	7.7	5.6	3.1
Other						
Consumer Price Index - U.S.	0.5	5.8	8.2	5.1	3.9	2.6
U.S. Dollar Index	7.1	16.8	19.0	4.1	3.7	3.4

* 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.

R² – Also called the coefficient of determination. On the detail page, R² 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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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.

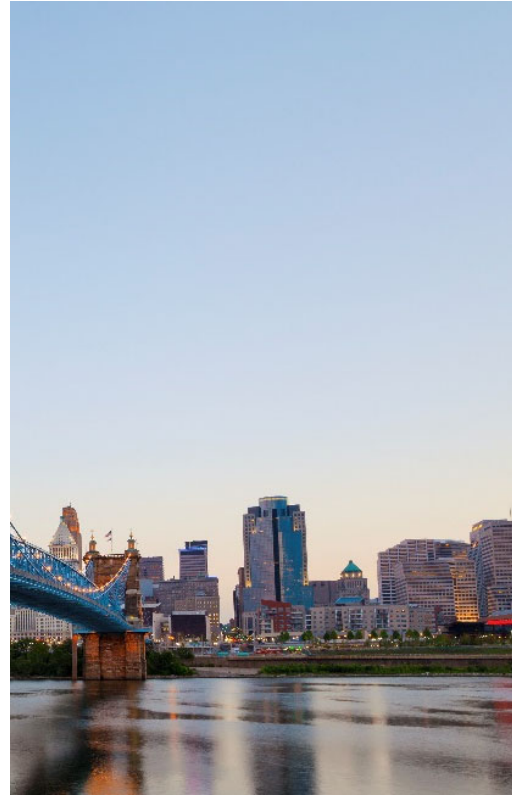
Monitoring of managers includes fundamental research for all investment managers, as well as enhanced coverage for managers that have been approved for FEG's recommended list. A Quarterly Content Questionnaire is the basis of fundamental coverage and requests qualitative (e.g., personnel, organizational 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.



CAPITAL MARKET ASSUMPTIONS

Summer 2022

ASSET CLASSES

	Expected Return	Expected Standard Deviation
GLOBAL EQUITY		
Long-Only Strategies	6.46%	19.65%
U.S. Equity	5.95%	16.65%
Large Cap	5.75%	15.00%
Mid Cap	6.25%	18.00%
Small Cap	6.75%	24.00%
International Equity	7.24%	24.16%
Large Cap Developed	6.75%	20.00%
Small Cap Developed	7.25%	24.00%
Emerging Markets	8.25%	33.00%
Global Hedged Equity	5.75%	13.00%
Private Equity	8.50%	17.00%

	Expected Return	Expected Standard Deviation
GLOBAL FIXED INCOME & CREDIT		
Interest Rate Sensitive Strategies	3.66%	6.29%
Core (Investment Grade)	3.80%	6.00%
Inflation Protected (TIPS)	3.40%	7.00%
Long Duration Corporate Debt	5.00%	8.50%
Emerging Market Debt	7.00%	13.00%
Credit Sensitive Strategies	6.33%	14.00%
High Yield	6.50%	16.00%
Bank Loans	5.00%	11.00%
Private Debt	7.50%	15.00%

	Expected Return	Expected Standard Deviation
REAL ASSETS		
Real Estate		
Public Real Estate	5.25%	20.00%
Private Real Estate	7.50%	18.00%
Natural Resources		
Commodities	4.00%	19.00%
Private Energy	8.50%	18.00%
Infrastructure		
Energy Infrastructure	6.50%	23.00%
Global Listed Infrastructure	5.75%	15.00%

	Expected Return	Expected Standard Deviation
DIVERSIFYING STRATEGIES		
Semi-Liquid Hedged Strategies	5.33%	8.40%
Event Driven	5.50%	9.50%
Macro	5.50%	7.00%
Relative Value	5.00%	8.00%
Illiquid Diversifying Strategies	8.00%	10.00%
Liquid Diversifying Strategies	5.00%	10.00%
Money Markets		
U.S. Inflation	2.75%	
U.S. Cash	2.25%	

SHIFT IN CAPITAL MARKET ASSUMPTIONS OVER LAST 2 YEARS



	2021 Expected Return	2022 Expected Return	July 2022 Expected Return ¹
Global Equity			
Long-Only Strategies	5.8%	5.3%	6.5%
U.S. Equity	5.2%	4.7%	6.0%
Large Cap	5.0%	4.5%	5.8%
Mid Cap	5.5%	5.0%	6.3%
Small Cap	6.0%	5.5%	6.8%
International Equity	6.6%	6.0%	7.2%
Large Cap Developed	6.0%	5.5%	6.8%
Small Cap Developed	6.0%	5.5%	7.3%
Emerging Markets	8.5%	7.5%	8.3%
Private Equity	8.5%	8.0%	8.5%
Global Fixed Income/Credit			
Rate Sensitive Strategies	1.4%	1.8%	3.7%
Core (Investment Grade)	1.2%	1.6%	3.8%
Inflation Protected (TIPS)	1.0%	1.3%	3.4%
Long Duration Corporate Debt	3.0%	3.0%	5.0%
Emerging Market Debt	4.0%	5.0%	7.0%
Credit Sensitive Strategies	4.7%	4.2%	6.3%
High Yield	4.0%	3.2%	6.5%
Bank Loans	3.0%	3.0%	5.0%
Private Debt	7.0%	6.5%	7.5%

Real Assets

Real Estate

Public Real Estate

Private Real Estate

Natural Resources

Commodities

Private Energy

Infrastructure

Energy Infrastructure/MLPs

Global Listed Infrastructure

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

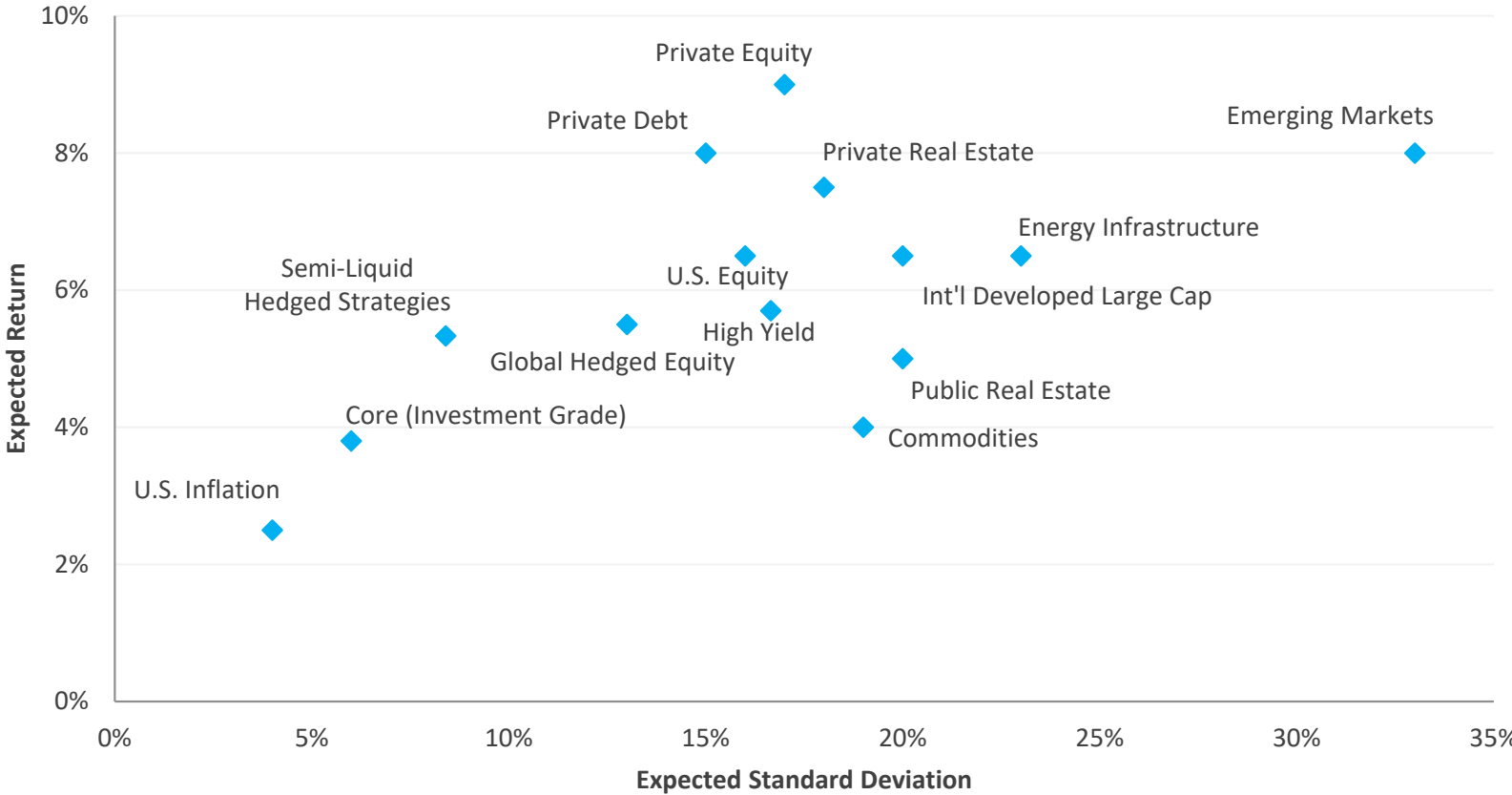
U.S. Cash

	2021 Expected Return	2022 Expected Return	July 2022 Expected Return ¹
Public Real Estate	5.5%	4.5%	5.3%
Private Real Estate	7.0%	7.0%	7.5%
Commodities	3.0%	3.0%	4.0%
Private Energy	7.5%	7.5%	8.5%
Energy Infrastructure/MLPs	7.0%	6.0%	6.5%
Global Listed Infrastructure	5.5%	5.0%	5.8%
Semi-liquid Hedged Strategies	4.8%	4.3%	5.3%
Event Driven	5.0%	4.5%	5.5%
Macro	5.0%	4.5%	5.5%
Relative Value	4.5%	4.0%	5.0%
Illiquid Diversifying Strategies	7.5%	7.0%	8.0%
Liquid Diversifying Strategies	3.8%	4.0%	5.0%
Global Hedged Equity	5.0%	4.5%	5.8%
U.S. Inflation	2.0%	2.3%	2.8%
U.S. Cash	0.3%	1.0%	2.3%

1. FEG's market assumptions updated mid-July 2022 given equity market sell-off and increase in interest rates.

ASSET CLASSES

FEG 7-10 Year Capital Market Assumptions



Source: FEG

METHODOLOGY

Introduction

FEG’s methodology for constructing capital market assumptions varies by asset class and considers long-term return drivers and the macroeconomic environment.

An asset class is defined as a group of securities with similar characteristics and properties that tend to react in a specific way to economic factors. Examples of pure asset classes are stocks, bonds, and real estate. The return drivers include the “building blocks” of equity returns, bond yields, and risk premiums, among others. We consider an array of data and metrics to build the mosaic that informs our expectations.

Our assumptions are forward-looking and do not assume that recent history will persist. Once we conclude the development of our assumptions, we review industry comparisons to “reality check” our results.

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		

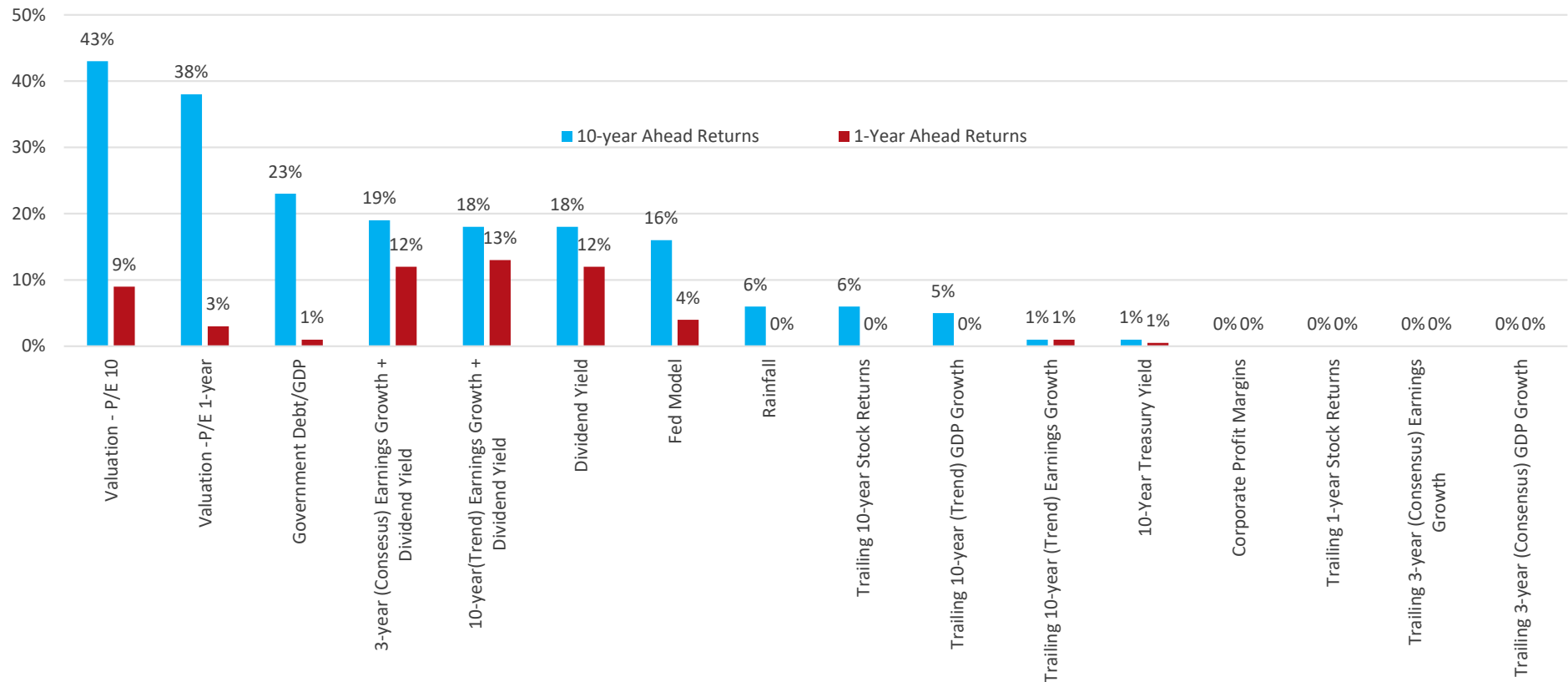
METHODOLOGY

Equity Return Drivers

- Valuation, earnings growth, and dividend yield have the strongest relationship with subsequent returns.
- Many commonly cited signals, such as recent stock returns, GDP growth, and profit margins, are as irrelevant as rainfall, which intuitively has no relationship with subsequent stock returns, and returns are unpredictable over the short term.

VALUATION MATTERS MOST

Proportion of Variance of Future Real Stock Returns Explained by Various Factors



Source: Vanguard

Note: Bars display the R-squared of a regression model of 10-year ahead and 1-year ahead real annualized stock returns on each variable, fitted over the January 1926-June 2012 sample of U.S. stock returns, with the exception of corporate profits, which are fitted for January 1929-June 2012 due to data limitations. Rainfall is included as a reality check and as an indicator of meaningful measures of R-squared, as intuitively there is nothing meaningful in the amount of rainfall to predicting subsequent equity returns.

METHODOLOGY

Issues with Alternatives

Asset categories that are considered "alternative," in that they provide patterns of risk and return characteristics that differ from the public equity and bond markets, should be modeled with caution due to the peculiarities of available data, which include:

- Returns for illiquid alternative investments (private equity, private real estate, private energy, and timber) are not directly comparable to time-weighted returns in liquid markets, as the returns are generally reported on an Internal Rate of Return basis because of the managers' control over the timing of cash flows. In addition, a "liquidity" premium should be required as capital is locked up for the life of the partnership, with much of the return produced at the end of an investment cycle of 5 to 10 years.
- Liquid alternative investments (hedge funds and managed futures) often use leverage, options, and other derivatives that create skewed return distributions. Standard deviation, which measures variability around the mean, is not a comprehensive measure of these immeasurable risks for these types of investments.
- Alternative investments' performance data is based on manager returns. Public market index data are securities-based. Manager-based indices may include alpha (excess return), survivorship bias, and self-selection bias; therefore, performance may be overstated compared to passively managed public market benchmarks.

Risk Assumptions

FEG's proprietary risk assessment system, Vigilance, provides portfolio risk decomposition, scenario testing, and shock analysis. We use Vigilance-derived asset class risk assumptions in our capital market assumptions.

- Vigilance measures are purely quantitative factor-derived risk estimates which provide a more robust approach to building the assumptions. Using imputation techniques, these measures offer consistent estimates by applying the complete data set to all covariance calculations.
- Vigilance models the time series dynamics of returns and volatility to capture serial dependence, volatility clustering, and mean reversion and uses Monte Carlo simulations to compute an ensemble of horizon returns using long-term horizon returns in our capital market assumptions. Further, Vigilance can adjust for the artificial smoothing of private capital returns to reduce bias in asset class volatility.

Correlation

- Correlation statistics can be misleading.
 - In illiquid markets, due to pricing lags compared to the public markets, and;
 - In liquid alternative investments, there tends to be a divergence of correlation in rising versus falling markets.

METHODOLOGY

Inflation

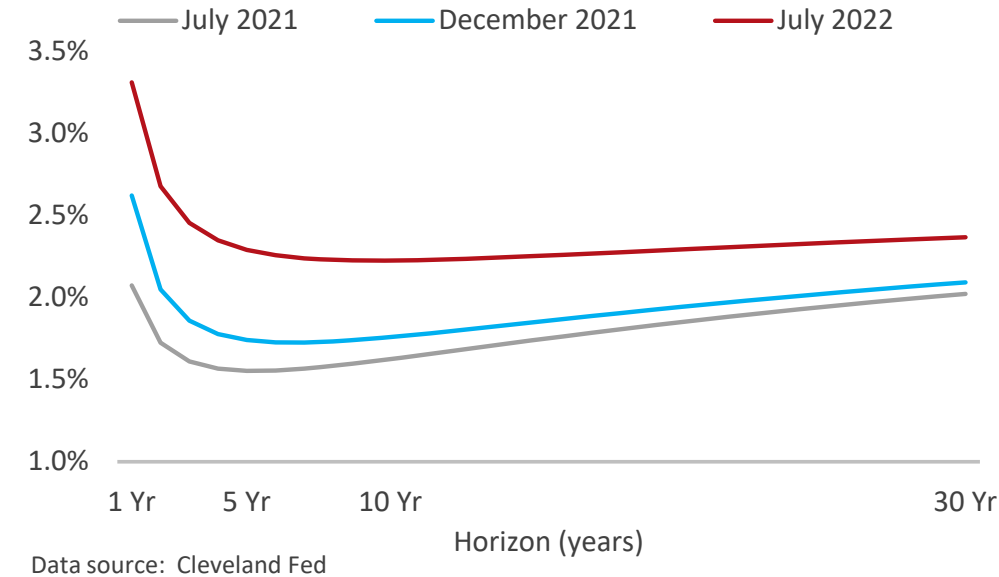
- Inflation had been hovering near 2% and slightly lower before the COVID-19 pandemic. The dual responses of Federal Reserve (Fed) support and multiple rounds of fiscal stimulus provided inflationary pressures.
- With the recovery of demand and ongoing supply-chain disruptions, current inflation has rebounded from deflationary lows and is reaching highs not witnessed in 40 years.
- Persistence of elevated inflation is in question with expectations of subsiding economic growth that may weigh on current inflationary pressures in future years. Idiosyncratic issues, such as changing energy policy and the duration of supply-chain disruptions, add uncertainty.
- Inflation is notoriously hard to forecast, and survey-based, as well as market-based measures, often reflect current inflation more than realized inflation. Model-based approaches developed by branches of the Fed provide some improvement in the forecast of inflation.
- We use the Cleveland Fed and Philadelphia Fed expectations to develop our expected inflation rate, which we have increased amid tremendous amounts of liquidity, which the Fed has only begun to rein in with hawkish monetary policy.

Cash

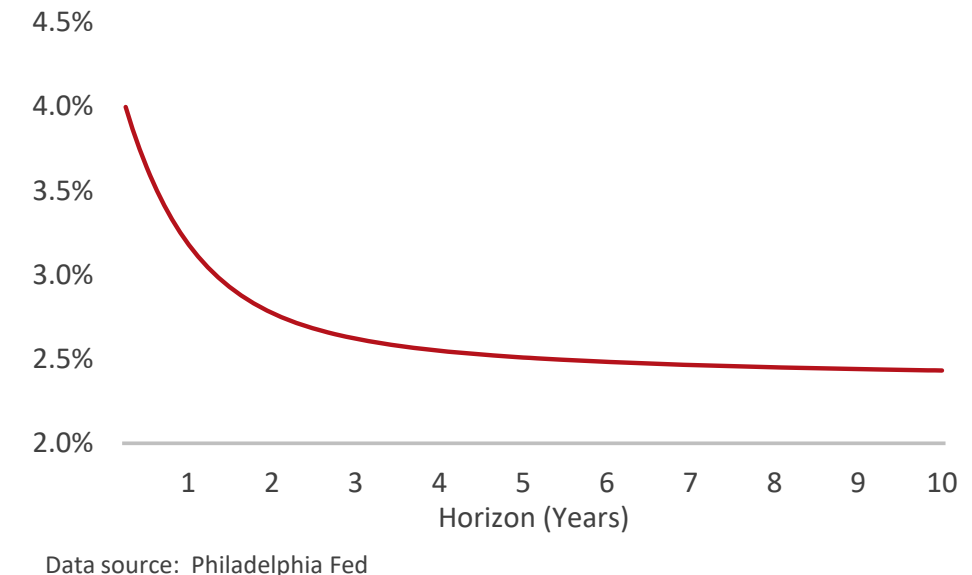
- Cash historically provides returns near the inflation rate as these investments are meant to protect principal.
- Cash yields continue to remain low even as the Fed has begun to raise rates. Our forecasted cash return assumes gradually rising rates to meet inflation over the long term.

FEG 7-10 Year Money Assumptions	Expected Rate
U.S. Inflation	2.5%
U.S. Cash	2.0%

Expected Inflation Term Structure Federal Reserve Bank of Cleveland



Expected Inflation Term Structure Federal Reserve Bank of Philadelphia



METHODOLOGY – EQUITY

U.S. Equity

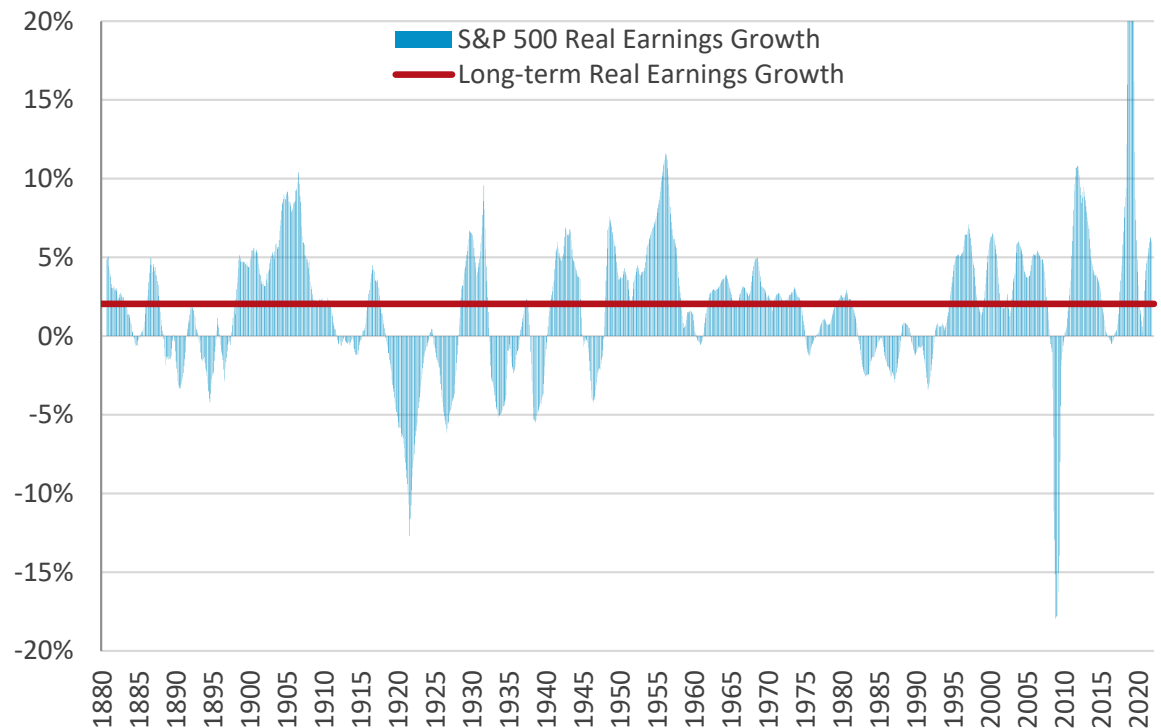
- Stocks are a distinct asset class, but small and mid cap are really subsegments of the broad equity markets. A stock with a \$10 billion market capitalization does not have different characteristics and properties than when it had a \$1 billion market capitalization.
- According to MSCI data, the U.S. stock market is comprised of approximately 85% large/mid cap and 15% small cap.

Large Cap Stocks

- Stock returns from one year to the next are not predictive (i.e., low serial correlation). Over very long-term (multi-decade) periods, real returns have been consistent.
- The building blocks methodology of dividend yield (including share buybacks), earnings growth, inflation, and change in valuation is FEG's preferred approach.
- Real earnings grew at a rate of 2% in real terms for almost 100 years and are subject to economic cyclicality. Total earnings growth cannot persist above the overall GDP growth for the long term.
- Real earnings growth since 2000 has generally been strong, averaging 4% due to the recovery from the dot-com bust, the great financial crisis, and the COVID-19 pandemic. Earnings growth is volatile, and as an example, real earnings compound annual growth rate measured just over 1% from 2000 through 2020 due to the impact of the pandemic. We expect the earnings to moderate amid strong inflationary pressures that weigh on margins in the near term and resume a constrained growth rate over the longer 7- to 10-year cyclical horizon.

10-YEAR REAL EARNINGS GROWTH ANNUALIZED

U.S. Large Cap Equities, 1880 – September 2020



Data source: Robert Shiller

METHODOLOGY – EQUITY

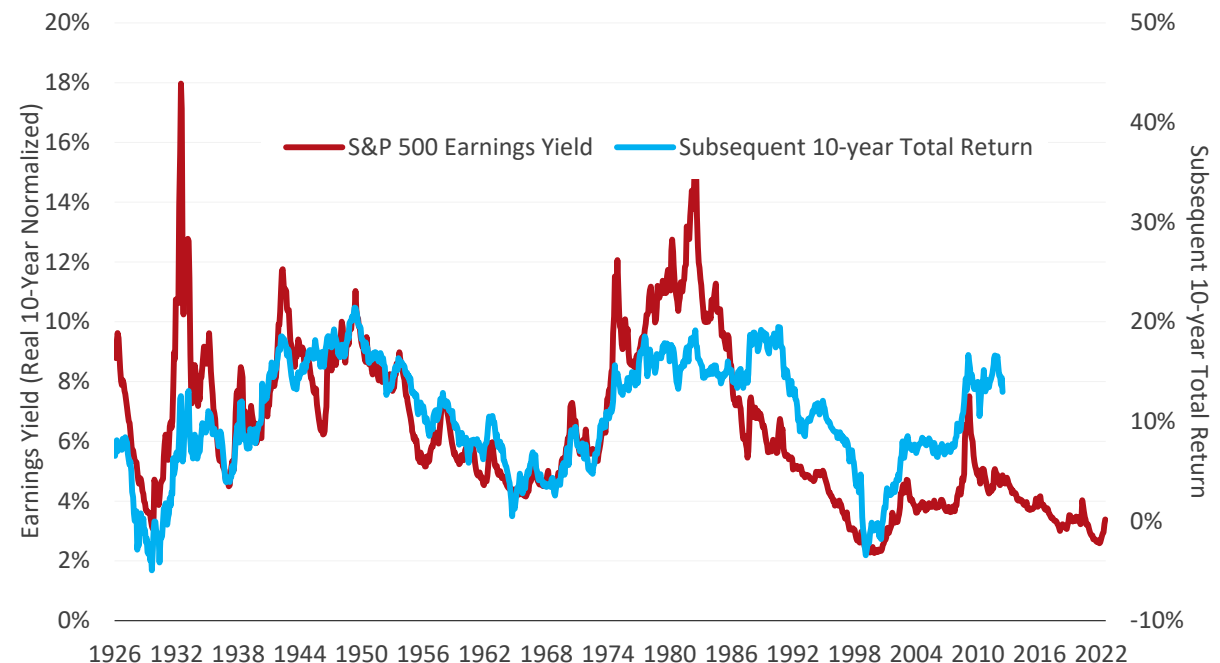
Large Cap Stocks continued

- The earnings yield on stocks, which is the inverse of the price-to-earnings (P/E) ratio, can also set expectations for real returns. The current normalized P/E ratio is approximately 29x. Using the inverse of the P/E ratio, today's valuation of large cap stocks would imply a 3.4% real return, or roughly a 6% nominal return.
- Dividend yields have declined since the 1950s and for a number of years were stable at 2% before falling to current measures near 1.5%, while share buybacks have become an important method for returning cash to shareholders.
- We evaluate a mosaic of valuation metrics and do not rely on a singular measure. Ratios of price-to-earnings (trailing and normalized), book value, sales, and cash flow are all still above their long-term averages despite recent declines but are much more favorable for long-term returns. The long-term average normalized P/E ratio range is in the high teens, but interest rates are still low, and constrained long-term growth may temper rates over the next decade relative to historical norms. Rising inflation creates a material risk to still elevated valuations. Thus, we consider valuations above equilibrium in our assumptions and temper the negative contribution from a return to equilibrium than if interest rates were substantially higher.

Large Cap Equity	Contribution to Expected Return
P/E Contraction	-2.50%
Dividends and Share Buybacks	2.50%
Earnings Growth	3.00%
Inflation	2.75%
Total	5.75%

HISTORICAL VALUATIONS: U.S. EARNINGS YIELD (10-YEAR NORMALIZED EARNINGS/PRICE) VS. SUBSEQUENT 10-YEAR RETURN

S&P 500, 1926 – June 2022



Data sources: Robert Shiller and Standard & Poor's

METHODOLOGY – EQUITY

Mid Cap Stocks

- P/E multiples indicate mid cap stocks are also valued above equilibrium, but to a lesser degree than large cap stocks. Dividend yields are only slightly below those of large cap stocks, and real earnings growth expectations are comparable, yet more volatile, than that of large cap stocks' earnings growth.
- In forming our return expectations, we expect a contraction from declining valuation multiples in mid cap, which lessens the reduction impacting the other return contributors, despite the lower dividend yield offered by mid cap stocks.

Small Cap Stocks

- Valuation multiples for small cap stocks have declined substantially, but the disparity of earnings among small cap equities makes earnings-based valuation metrics of questionable use. Other valuation measures, such as price-to-book value, are near equilibrium. Small cap stocks have fallen with their larger peers during this bear market, but small cap stocks also exhibited substantial weakness prior to the onset of the 2022 bear market. Thus, we do not forecast the same degradation of our return expectation for a contraction in valuation multiples.
- The robust fundraising environment in private equity witnessed in recent years could lead to continued acquisitions of smaller companies, supporting stronger returns above those of large cap stocks.
- We assume a moderate return decay from price multiples, which allows the lower dividend yield and earnings growth expectation to provide a small cap risk premium above large cap returns.

Asset Category	Dividend Yield and Buybacks	Return from P/E Change	Nominal Earnings Growth	Expected Return
U.S.				
Large Cap	2.50%	-2.50%	5.75%	5.75%
Mid Cap	1.50%	-1.00%	5.75%	6.25%
Small Cap	1.30%	-0.30%	5.75%	6.75%

Source: FEG Data

METHODOLOGY – EQUITY

International Developed Stocks

- Valuations and earnings fundamentals differ considerably between the U.S. and international markets. Valuations in the U.S. are materially higher than those of the international markets. Earnings growth has also subsided globally, but the earnings recovery in international markets was not as strong as in the U.S., and earnings globally have yet to reflect the bear market to the same degree as valuations. Currency will add to the volatility of returns, and attempting to predict currency movements is often a fool’s errand. The U.S. dollar is at a 20-year high, and a decline would add to potential international equity returns, but over the long term, currency is expected to net to zero in terms of total return.
- Developed international stocks trade at P/E multiples slightly below historical averages due to economic and monetary conditions. Due to weakness in most international markets, we assume no expansion of multiples. International dividend yields over U.S. yields have returned to levels historically witnessed. Further, we expect more heavily constrained earnings growth due to structural economic headwinds.
- International small cap stocks have demonstrated similar return premiums as U.S. small caps and trade well below their historical equilibrium. Therefore, we forecast a slight expansion of P/E multiples for international small cap equities.

Emerging Market Stocks

- Emerging market equity valuations have declined to historically low levels. Earnings growth, which has been historically volatile, suffered substantially during the pandemic but recovered with strength despite weakness in China. Global inflation and a strong U.S. dollar, however, present challenges for many emerging market nations. With emerging markets trading well below equilibrium, we conservatively forecast a moderate price multiple expansion. Further, we limit our return assumption by forecasting earnings growth to be consistent with a period of modest recovery from economic weakness and below that of U.S. earnings growth.

Asset Category	Dividend Yield	Return from P/E Change	Nominal Earnings Growth	Currency Premium	Expected Return
Broad International					
International Developed	3.00%	0.00%	3.75%	0.00%	6.75%
International Small Cap	3.00%	0.50%	3.75%	0.00%	7.25%
Emerging Markets	2.34%	1.16%	4.75%	0.00%	8.25%

The broad international markets are comprised of approximately 60% developed large cap, 15% international small cap, and 25% emerging markets.

Source: FEG Data

METHODOLOGY – EQUITY

Hedged Equity

- The problems associated with modeling hedge funds are discussed later in this document. Hedged equity strategies (predominantly long/short strategies) seek to generate stock-like returns with less risk than the stock market. Because of their ability to short stocks, use leverage, and the other structural benefits of hedge funds, we believe hedged equity funds should approach the same return as large cap stocks, but with slightly lower volatility.

	Expected Return	Expected Standard Deviation
Hedged Equity	5.75%	13.0%

Private Equity

- Private equity is not easily modeled. There are several subgroups, including venture capital and leveraged buyouts, as well as an international component. These markets all have unique characteristics. Additionally, because the funds are private, they are not frequently valued, and returns are calculated differently. Two approaches to dealing with this sector can be used.
- One is to make reasonable return estimates that fit the model framework. Historically, private equity strategies generated a premium over public equities. This premium was more consistent in buyout, where a 2012 study by Harris, Jenkinson, and Kaplan found a four to five percentage point premium over the return of the S&P 500 Index. Venture capital results were more dependent on the period measured but evidenced a significant premium in the 1990s and performance consistent with the public equity markets in the subsequent decade.
- A second approach does not attempt to model private equity. Instead, private equity is considered a return-enhancer for the equity portfolio. The allocation is based on return needs and the ability to accept illiquidity.
- We conservatively estimate private equity to return a constrained premium of two and one-half percentage points above U.S. equity markets due to the high level of fundraising in the private markets offset by the opportunities this period of market volatility may provide to private investors. We do not include an alpha estimate for top-performing funds in our assumptions for any private strategies.

	Expected Return
U.S. Public Equity	6.0%
Private Equity Risk Premium	2.5%
Private Equity	8.5%

METHODOLOGY – FIXED INCOME

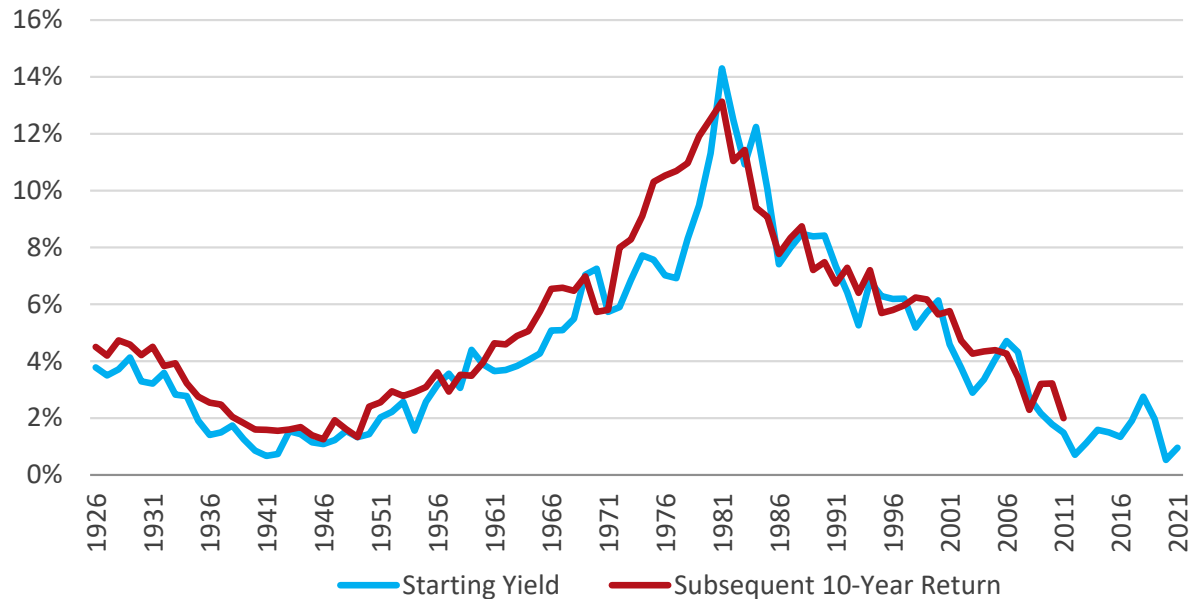
Interest Rate Sensitive Fixed Income

- Investment-grade bond total returns are primarily driven by yield. Default rates on investment-grade bonds have historically been minimal, averaging well below 1%. Therefore, our best predictor of future bond returns is based on current bond yields, for which we use the Bloomberg Barclays U.S. Aggregate Bond Index that benchmarks most core bond strategies.
- Treasury Inflation Protected Securities (TIPS) have different properties and behave differently than traditional bonds, and thus, are modeled separately. The expected returns, however, should not differ from Treasuries, assuming inflation expectations are not remarkably divergent from the actual inflation. 10-year TIPS have a longer duration than core bond portfolios and therefore, will be more susceptible to changes in interest rates. Further, one should note that the longer duration and smaller size of the TIPS market relative to core bonds can create periods of disparity. The 10-year TIPS yields approximately 0.7%. This yield added to our 2.75% inflation expectation is used to determine the expected return.
- Long duration corporate debt’s yield, slightly above 5.0%, is the driver of long-term returns, with the migration of investment-grade bonds to high yield as the predominant risk. Thus, we assume a return of 5.0% to account for the risk of deteriorating credit.
- Emerging market debt (EMD) return is primarily a function of yield, but the potential for sovereign default increases the relative risk and yield versus U.S. Treasuries. Additionally, EMD issued in local currency brings an added element of risk and opportunity, as foreign exchange movements impact returns. Currency movements are extremely volatile and difficult to forecast but are expected to wash out over time. Thus, we do not assume a currency impact but constrain our forecasted return for sovereign risks.

Interest Rate Sensitive Strategies	Expected Return
Core (Investment Grade)	3.8%
Inflation Protected (TIPS)	3.4%
Long Duration Corporate	5.0%
Emerging Market Debt	7.0%

Bond Returns Follow the Path of Bond Yields

Intermediate U.S. Government Bond Starting Yield (1926-2021) and Subsequent 10-year Return (1926-2021)



Data source: Ibbotson Associates

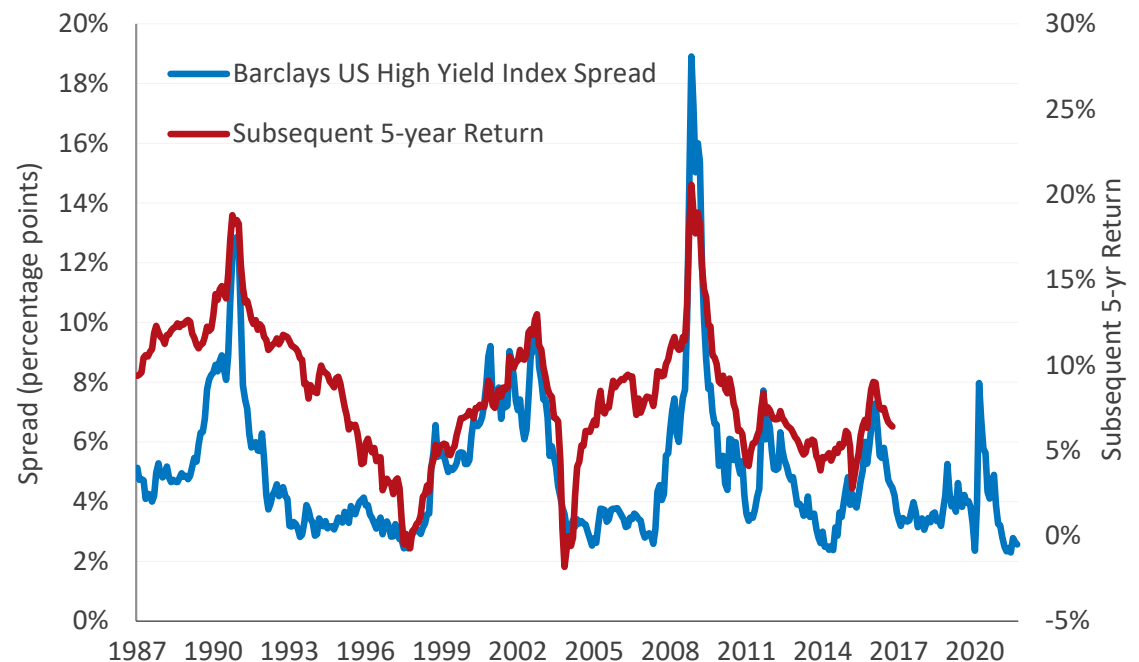
METHODOLOGY – FIXED INCOME

Credit

- The yield of a fixed income security provides an effective estimate for total return, assuming no defaults. The yield for high yield bonds is nearly 9.0%, resulting in an option-adjusted spread of just approximately 6.0%.
- According to Altman data, the cumulative 10-year default rate since 1971 for high yield bonds was approximately 30%, and the average recovery rate was approximately 45%. Using conservative assumptions of a 45% cumulative default rate and applying a tempered 40% recovery rate, due to credit concerns amid high inflation and weak economic growth risk, we conservatively assume a return of 6.5%.
- Bank loans are distinct from high yield credit, as the interest rate typically resets every 90 days. Because of their seniority in the capital structure, we expect bank loans to yield less than high yield bonds, have lower default rates, and have higher recovery rates than high yield bonds. Historically, bank loans returned 1.5 percentage points below high yield and 3.0 percentage points above cash. We assume a return of 5.0%.
- Like private equity, private debt modeling is reliant on sparse data. Senior private debt yields approximately 200-300 basis points above bank loans depending on the issue, while mezzanine debt generally yields 300-400 basis points above high yield. We assume a blend of senior and mezzanine debt and account for the risk of loss in distressed issues.

Credit Sensitive Strategies	Expected Return
High Yield	6.5%
Bank Loans	5.0%
Private Debt	7.5%

U.S. High Yield Bonds and Subsequent 5-Year Returns



Data source: Barclays Capital

METHODOLOGY – REAL ASSETS

Real Estate

- There are two markets in which to buy real estate: public and private. Although both are investments in the same underlying asset, pricing mechanisms have, at times, caused shorter-term return characteristics to differ.
- Real estate valuations have recovered from the COVID-19 pandemic. However, the disparity between sectors, such as digital real estate – cell towers and data centers – versus office, hotels, and retail properties has been evident throughout the recovery. Despite an uneven recovery across sectors, the real estate environment is not characterized by broad-based distress, as significant capital is available to be deployed, a record number of funds being raised, and low interest rates remain moderate.
- Real Estate Investment Trusts (REITs) trade at 20x price-to-funds from operations, above the historical average, and with a yield near 3.5%, measuring a spread above Treasuries of less than 1%. We note that REITs generally perform well following periods of yield spreads well above Treasuries and, conversely, performance tends to be weaker when interest rates pressure this dynamic.
- Core real estate should not be considered a growth business. Yield and price are the two primary determinants of long-term REIT returns. Dividends plus inflation is one method to evaluate the total return expectation for public core real estate. Expected inflation is an important driver of long-term net operating income growth as rents are adjusted, impacting returns. Dividend yields are only slightly above Treasury yields. When added to our inflation expectation, the total return expectation would be approximately 5.75%. Like the U.S. equity markets, REITs trade above the historical equilibrium price multiple; thus, we constrain our estimate for potential multiple contraction.
- Value-added and opportunistic private real estate investments are commonly used in real estate allocations. These investments carry higher risk and offer higher reward potential. Acquisition yields, or cap rates, defined as net operating income/asset price, account for the income portion of return. Cap rates on core private real estate measure in the range of 3.5% to 6% for most sectors. To account for asset appreciation, we assume long-term price appreciation equal to the rate of inflation in addition to a premium for opportunistic private real estate investments. When a conservative cap rate is added to our inflation expectation, as well as a small premium for opportunistic investment, we arrive at our return expectation for private real estate.

Real Estate	Expected Return
Public Real Estate	5.25%
Private Real Estate	7.50%

METHODOLOGY – REAL ASSETS

Commodities

- Unlike stocks, commodities do not have earnings or pay dividends and currently there is no consensus on estimating future risk premiums.
- An examination of the most widely followed commodity indexes reveals significantly different sector weightings. These weighting differences could result in materially different return expectations, even if a consensus pricing model was in place. For example, the S&P GSCI Index has an allocation of more than 70% to energy, while the Bloomberg Commodity Index is limited to 33% in energy.
- Historically, storable commodities directly linked to the intensity of economic activity produced the strongest returns and highest correlations to inflation over time. Storable commodities are typically found in the energy, industrial metals, and precious metals sectors.
- A key factor to consider with respect to its inflation hedging capability is whether the commodity's demand is linked to economic activity. Those commodities that enjoy a more or less constant demand, regardless of the level of economic activity, seem to provide little hedge against unexpected changes in inflation. Agricultural commodities tend to fall into this group. Those commodities that are most affected by the level of economic activity (energy, precious metals) have historically been better hedges against inflation.
- A building block approach to commodity futures returns can be considered in modeling expectations. The change in the underlying spot price of the commodity, plus the yield on cash collateral, and the impact of roll yield – either positive or negative as the futures and spot price converge – provide the total return.
- Historically, since the early 1970s, the change in spot price, which is a combination of inflation and real price changes, contributed to return in some periods, but not all. Roll yield has also varied between secular periods and across term-structures of different commodities, with those experiencing negative roll yield earning lower average returns. Cash collateral returns have been very meaningful to commodities futures' returns and are driven by interest rates. However, given low fixed income yields, cash collateral returns are constrained.
- While it is true that commodity prices are slightly inversely correlated to inflation, commodity total return is only modestly correlated to inflation due to the fact that price return has little effect on total return. Income and roll return contribute more to total return.
- Our estimated commodity return is driven by an increased but still limited expected collateral yield, backwardation in the commodity markets benefiting returns in the near term but unlikely to provide benefits in the long term, and limited price contribution to returns.

Natural Resources

Expected Return

Commodities

4.0%

METHODOLOGY – REAL ASSETS

Private Energy

- Private energy is focused on investments in the oil and gas sector, and like private equity, is not easily modeled. Further, the recovery in demand following the COVID-19 pandemic, the drop in rig count and production, and the changing tone in government policy greatly disrupt the evaluation of the energy markets. There are a variety of investments across the risk continuum, including exploration, production, services, refining, and development. Further, many private equity strategies are investing in renewable energy, an area of expected growth and favorable regulatory policy. Exploration investments are similar to early-stage venture, whereas development investments are similar to later-stage equity.
- Returns are impacted by acquisition and development costs, management of the production, and changes in commodity (natural gas, crude oil, etc.) prices. Upstream investments (exploration, drilling, development, production) will correlate more highly to commodity prices, whereas downstream investments (refining and distribution) will not be as directly correlated, as they are buyers of the commodity. Renewable energy projects are impacted by the metals and mining markets, including international trade and economic activity.
- In generating our return assumptions, we assume diversification by strategy, although most private energy investments are associated with more established production, increasing renewable energy projects, with a smaller allocation to exploration and more risky types of investments. Private energy, with some exceptions for renewable energy, does not face high levels of fundraising evident in other areas of the private markets. Further, strategies pursued by private energy funds may involve longer holding periods and fewer “quick” realizations.

Natural Resources	Expected Return
Private Energy	8.5%

Energy Infrastructure

- Energy infrastructure was previously dominated by master limited partnerships (MLPs). MLPs pay out a significant portion of their earnings and cash flows in the form of distributions. Many MLPs have converted to the C-corporation structure, which can be more appealing to some investors and makes these securities index eligible. There have been substantial improvements to MLPs, including a move to self-funding rather than reliance on the capital markets.
- Yield is a primary component of return in energy infrastructure. An approximately equal blend of MLPs and C-corporations yields approximately 7% following a period of substantial market turbulence. Despite restructuring that improved the financial integrity of many entities, we expect future growth of distributions to be limited and below levels previously witnessed. We conservatively use a return assumption that considers depressed pricing and yields that are expected to remain stagnant.

Infrastructure	Expected Return
Energy Infrastructure	6.5%

METHODOLOGY – REAL ASSETS

Global Listed Infrastructure

- Global listed infrastructure consists of publicly traded large and mid cap securities of companies that own long-lived assets in the utilities space, including electric, gas, and water utilities, as well as oil and gas storage. The segment also includes transportation infrastructure, such as railroads, airport services, highways/bridges, marine ports, and specialized REITs (telecommunications infrastructure). These assets are in the U.S., Europe, Australia, Japan, and other developed nations. Infrastructure is widely considered to have suffered from historical underinvestment due to government control and political debate, and many assets have been increasingly privatized.
- To determine our return expectation, we use the same building block approach used for the broad equity markets, where global listed infrastructure is traded. The asset class' heavy utilities component supports the dividend yield that is materially higher than the broad markets. The asset class is still subject to significant government oversight that limits earnings growth, which could be deemed politically untenable. We, therefore, constrain our earnings growth expectation and much like the broad markets, account for a contraction of valuation multiples, although to a lesser degree than large cap U.S. equities. When combining these elements with inflation, we assume a 5.75% return.

Infrastructure	Expected Return
Global Listed Infrastructure	5.75%

METHODOLOGY – DIVERSIFYING STRATEGIES

Diversifying Strategies

- Hedge funds, which vary widely in style and philosophy, are an investment strategy, not an asset class. Some argue that this prevents useful modeling of these investments in an asset allocation study. We offer the possibility to model hedge funds in this asset allocation study to analyze their expected impact but warn that these assumptions may not accurately reflect the true risk/return tradeoff.
- Hedge funds can be described as unconstrained funds. Although we have return data to analyze, the category is extremely broad and includes many asset classes. Using this data may not produce meaningful optimization output.
- Historical performance data on hedge funds are questionable for the following reasons:
 - No long-term performance data.
 - Survivorship bias taints the data. Hedge funds that have been closed due to poor performance are no longer included.
 - A self-selection bias. Many investment managers provide returns to benchmark developers only if their performance has been strong. Others never report because they choose not to for various reasons.
- Even if the performance data were free of the problems listed above, the standard deviation of that data would not incorporate all the risks.
 - Many hedge funds invest in illiquid securities. The infrequent pricing of such securities can have an artificial smoothing effect on returns that may not exist if securities were priced more frequently.
 - Some funds post small incremental returns over the long term but are at risk of experiencing substantial losses over a short period if the worst-case scenario for their strategy is experienced. Huge losses in a strategy that posts only incremental returns over time will not be recovered quickly.
 - Historical performance returns of most hedge fund strategies have not been normally distributed.
- Many hedge funds seek to have more bond-like volatility than stock-like volatility and can use leverage. They consist of investments where the primary source of risk and return is not a constant allocation to equity, fixed income, or real assets. This includes, but is not limited to, hedge funds where the approach can be described as absolute return – global macro, event-driven, and relative value. In aggregate, we expect absolute return strategies to provide returns approximately three to four percentage points above cash. We segregate these allocations to allow investors with varied investment goals to model for unique allocations, although, we generally consider the aggregate semi-liquid hedged allocation as 20% macro, 40% event-driven, and 40% relative value.
- Global macro strategies structure their investments across equity, fixed income, currency, and futures markets. On a stand-alone basis, macro strategies tend to be riskier than other diversifying strategies. However, when included in a diversifying strategies portfolio, the characteristics of macro strategies, specifically their positive skew and low correlation, help reduce overall portfolio risk.

METHODOLOGY – DIVERSIFYING STRATEGIES

Diversifying Strategies, continued

- Event-driven strategies attempt to take advantage of events, such as mergers and restructurings, that can result in the short-term mispricing of a company's stock. As a result, these strategies carry more global equity market risk, which is reflected in their slightly higher return expectation and higher expected standard deviation versus other diversifying strategies.
- Relative value strategies maintain positions in which the investment thesis is predicated on the realization of a valuation discrepancy in the relationships among multiple securities, ranging broadly across equity, fixed income, derivative, or other security types. Generally, these strategies are expected to provide consistent returns slightly lower than other diversifying strategies.
- Illiquid diversifying strategies are the most unique of investment options and allocate to wide and varied investments accessible through an illiquid partnership. These investments may include water rights, reinsurance, intellectual property, and cold storage facilities. We included this option for those that wish to reflect these strategies in their modeling, but there is no effective way to forecast returns broadly for such diverse and unique investments. As such, we use a blend of private equity and semi-liquid diversifying strategies and include a slight illiquidity premium to develop these measures.
- Investments in liquid diversifying strategies do not benefit from the full gamut of options available to strategies in a semi-liquid hedge fund structure. Thus, we expect these strategies to earn only a few percentage points above cash (below expectations for semi-liquid strategies), while still benefitting from the risk and correlation reducing benefits of these allocations.

Hedge Funds	Expected Return
Event-Driven	5.5%
Macro	5.5%
Relative Value	5.0%
Illiquid Diversifying Strategies	8.0%
Liquid Diversifying Strategies	5.0%

CORRELATION MATRIX

	Cash	US Large Cap	US Mid Cap	US Small Cap	Int'l Dev Equity	Int'l Small Cap	Emerging Markets Equity	Hedged Equity	Private Equity	Core Bonds	TIPS	Long Corporate Bonds	Long Corp Bonds	Bank Loans	High Yield Bonds	High Yield Bonds	Public Real Estate	Private Real Estate	Commodities	Private Energy	Energy Infrastructure	Energy Infra.	Global Listed Infra.	Macro	Relative Value	Illiquid Diversifying Strategies	Illiquid Div Strat
Cash	1	0.07	0.02	0.07	0.04	-0.07	0.05	0.32	-0.01	0.31	0.06	0.05	0.2	-0.06	0	-0.11	0.03	0.21	0.16	0.21	0.07	0.2	0.2	0.32	0.19	-0.03	0.34
US Large Cap	0.07	1	0.79	0.86	0.62	0.59	0.37	0.7	0.68	0.09	0.07	0.34	0.36	0.49	0.36	0.38	0.63	0.38	0.14	0.15	0.15	0.66	0.66	0.17	0.36	0.48	0.48
US Mid Cap	0.02	0.79	1	0.81	0.61	0.74	0.61	0.71	0.63	0.19	0.04	0.45	0.43	0.73	0.58	0.65	0.59	0.36	0.35	0.2	0.47	0.74	0.72	0.24	0.53	0.68	0.67
US Small Cap	0.07	0.86	0.81	1	0.58	0.62	0.37	0.74	0.59	0.04	0.04	0.34	0.26	0.52	0.36	0.53	0.61	0.32	0.17	0.12	0.19	0.59	0.72	0.17	0.35	0.56	0.49
International Developed Equity	0.04	0.62	0.61	0.58	1	0.89	0.42	0.69	0.75	0.02	0.06	0.18	0.27	0.58	0.23	0.49	0.42	0.27	0.24	0.2	0.21	0.71	0.75	0.08	0.36	0.42	0.62
International Small Cap	-0.07	0.59	0.74	0.62	0.89	1	0.44	0.68	0.68	0.02	0.06	0.27	0.24	0.61	0.27	0.52	0.41	0.26	0.27	0.17	0.24	0.62	0.78	0.08	0.37	0.51	0.7
Emerging Markets Equity	0.05	0.37	0.61	0.37	0.42	0.44	1	0.58	0.38	0	0	0.21	0.39	0.61	0.18	0.55	0.23	0.18	0.28	0.21	0.2	0.59	0.38	0.09	0.23	0.36	0.59
Hedged Equity	0.32	0.7	0.71	0.74	0.69	0.68	0.58	1	0.67	0.05	0	0.28	0.36	0.54	0.22	0.42	0.43	0.32	0.21	0.17	0.18	0.67	0.78	0.25	0.41	0.43	0.79
Private Equity	-0.01	0.68	0.63	0.59	0.75	0.68	0.38	0.67	1	0.06	0.07	0.06	0.3	0.41	0.25	0.28	0.5	0.41	0.18	0.14	0.18	0.74	0.69	0.1	0.39	0.43	0.54
Core Bonds	0.31	0.09	0.19	0.04	0.02	0.02	0	0.05	0.06	1	0.57	0.62	0.42	0.11	0.49	0.07	0.33	0.21	-0.07	-0.34	0.13	0.16	0.08	0.11	0.34	-0.01	0.06
TIPS	0.06	0.07	0.04	0.04	0.06	0.06	0	0	0.07	0.57	1	0.5	0.33	0.24	0.25	0.11	0.34	0.13	0.2	-0.12	0.06	0.21	0.07	0.17	0.17	0.19	0.12
Long Corporate Bonds	0.05	0.34	0.45	0.34	0.18	0.27	0.21	0.28	0.06	0.62	0.5	1	0.34	0.34	0.46	0.43	0.35	-0.18	0.07	-0.07	0.28	0.35	0.28	0.3	0.34	0.32	0.29
Emerging Markets Debt	0.2	0.36	0.43	0.26	0.27	0.24	0.39	0.36	0.3	0.42	0.33	0.34	1	0.44	0.5	0.42	0.35	0.11	0.11	0.09	0.3	0.45	0.4	0.26	0.52	0.41	0.45
Bank Loans	-0.06	0.49	0.73	0.52	0.58	0.61	0.61	0.54	0.41	0.11	0.24	0.34	0.44	1	0.7	0.75	0.47	0.32	0.37	0.19	0.59	0.63	0.61	0.04	0.66	0.63	0.6
High Yield Bonds	0	0.36	0.58	0.36	0.23	0.27	0.18	0.22	0.25	0.49	0.25	0.46	0.5	0.7	1	0.63	0.55	0.19	0.11	-0.04	0.57	0.41	0.42	0.17	0.75	0.5	0.32
Private Debt	-0.11	0.38	0.65	0.53	0.49	0.52	0.55	0.42	0.28	0.07	0.11	0.43	0.42	0.75	0.63	1	0.36	-0.23	0.31	0.16	0.52	0.52	0.54	0.11	0.5	0.65	0.48
Public Real Estate	0.03	0.63	0.59	0.61	0.42	0.41	0.23	0.43	0.5	0.33	0.34	0.35	0.35	0.47	0.55	0.36	1	0.5	0.11	-0.05	0.27	0.62	0.47	0.08	0.47	0.69	0.29
Private Real Estate	0.21	0.38	0.36	0.32	0.27	0.26	0.18	0.32	0.41	0.21	0.13	-0.18	0.11	0.32	0.19	-0.23	0.5	1	0.08	-0.04	0.08	0.34	0.28	-0.03	0.19	0.15	0.17
Commodities	0.16	0.14	0.35	0.17	0.24	0.27	0.28	0.21	0.18	-0.07	0.2	0.07	0.11	0.37	0.11	0.31	0.11	0.08	1	0.62	0.33	0.54	0.21	0.08	0.25	0.52	0.46
Private Energy	0.21	0.15	0.2	0.12	0.2	0.17	0.21	0.17	0.14	-0.34	-0.12	-0.07	0.09	0.19	-0.04	0.16	-0.05	-0.04	0.62	1	0.4	0.53	0.25	0.06	0.18	0.43	0.44
Energy Infrastructure	0.07	0.15	0.47	0.19	0.21	0.24	0.2	0.18	0.18	0.13	0.06	0.28	0.3	0.59	0.57	0.52	0.27	0.08	0.33	0.4	1	0.52	0.36	0.12	0.64	0.68	0.35
Global Listed Infrastructure	0.2	0.66	0.74	0.59	0.71	0.62	0.59	0.67	0.74	0.16	0.21	0.35	0.45	0.63	0.41	0.52	0.62	0.34	0.54	0.53	0.52	1	0.68	0.23	0.58	0.74	0.72
Event Driven	0.2	0.66	0.72	0.72	0.75	0.78	0.38	0.78	0.69	0.08	0.07	0.28	0.4	0.61	0.42	0.54	0.47	0.28	0.21	0.25	0.36	0.68	1	0.19	0.54	0.6	0.69
Macro	0.32	0.17	0.24	0.17	0.08	0.08	0.09	0.25	0.1	0.11	0.17	0.3	0.26	0.04	0.17	0.11	0.08	-0.03	0.08	0.06	0.12	0.23	0.19	1	0.12	0.09	0.37
Relative Value	0.19	0.36	0.53	0.35	0.36	0.37	0.23	0.41	0.39	0.34	0.17	0.34	0.52	0.66	0.75	0.5	0.47	0.19	0.25	0.18	0.64	0.58	0.54	0.12	1	0.6	0.62
Illiquid Diversifying Strategies	-0.03	0.48	0.68	0.56	0.42	0.51	0.36	0.43	0.43	-0.01	0.19	0.32	0.41	0.63	0.5	0.65	0.69	0.15	0.52	0.43	0.68	0.74	0.6	0.09	0.6	1	0.52
Liquid Diversifying Strategies	0.34	0.48	0.67	0.49	0.62	0.7	0.59	0.79	0.54	0.06	0.12	0.29	0.45	0.6	0.32	0.48	0.29	0.17	0.46	0.44	0.35	0.72	0.69	0.37	0.62	0.52	1

Source: Fund Evaluation Group, LLC, created with MPI Stylus Software

AVERAGING RETURNS

Geometric and Arithmetic Returns

- Geometric mean returns are backward-looking and best measure performance over more than one period. Thus, we establish expected returns using geometric mean returns over the next seven to ten years. Investors want to assess their return over a period, not what the average return was each year.
- Arithmetic mean returns, also known as simple averages, measure performance over one period. Asset allocation modeling requires the incorporation of arithmetic mean returns.
- Arithmetic mean returns are always higher than geometric mean returns, unless the standard deviation is zero. Consider a portfolio that returns 50% in year 1 and -50% in year 2. The arithmetic mean return is 0%, but the geometric mean return is -25%, or -13.4% annualized. The higher the standard deviation, the larger the difference in geometric and arithmetic mean returns.
- The one-year arithmetic mean returns utilized in our asset allocation model are shared in the table on this page.

	Expected Geometric Return	Expected Standard Deviation	Arithmetic Return
FEG 7-10 Year Capital Market Assumptions			
Global Equity			
Large Cap	5.75%	15.00%	6.82%
Mid Cap	6.25%	18.00%	7.93%
Small Cap	6.75%	24.00%	9.37%
Large Cap Developed	6.75%	20.00%	8.62%
Small Cap Developed	7.25%	24.00%	9.91%
Emerging Markets	8.25%	33.00%	12.93%
Frontier Markets	9.00%	35.00%	6.55%
Global Hedged Equity	5.75%	13.00%	9.81%
Private Equity	8.50%	17.00%	3.99%
Global Fixed Income/Credit			
Core (Investment Grade)	3.80%	6.00%	3.66%
Inflation Protected (TIPS)	3.40%	7.00%	5.41%
Long Duration Corporate Debt	5.00%	8.50%	5.80%
Emerging Market Debt	7.00%	13.00%	5.68%
Bank Loans	5.00%	11.00%	7.82%
High Yield	6.50%	16.00%	8.75%
Private Debt	7.50%	15.00%	7.13%
Real Assets			
Public Real Estate	5.25%	20.00%	9.36%
Private Real Estate	7.50%	18.00%	5.79%
Commodities	4.00%	19.00%	9.95%
Private Energy	8.50%	18.00%	8.75%
Energy Infrastructure	6.50%	23.00%	7.00%
Global Listed Infrastructure	5.75%	15.00%	5.93%
Diversifying Strategies			
Event Driven	5.50%	9.50%	5.78%
Macro	5.50%	7.00%	5.35%
Relative Value	5.00%	8.00%	8.55%
Illiquid Diversifying Strategies	8.00%	10.00%	5.55%
Liquid Diversifying Strategies	5.00%	10.00%	4.56%

DISCLOSURES

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Expected returns are forecasted based on asset category and 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 those investments will not incur losses.

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. 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 above 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.

The results presented 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. Diversification or asset allocation does not assure or guarantee better performance and cannot eliminate risk of investment loss. 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.

Monte Carlo simulations randomly generate thousands of values that exhibit a defined average and standard deviation, based on the expected return and risk inputs of a portfolio. These simulations calculate the probability of meeting various return objectives while looking at a 10-year period and evaluating the expected return and risk.

Neither the information nor any opinion expressed in this presentation constitutes an offer, or an invitation to make an offer, to buy or sell any securities.

Past performance is not indicative of future results.

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

R Squared A statistical measure that represents the percentage of a fund or security's movements that can be explained by movements in an independent variable.

Unless otherwise noted, charts use straight-line averages for the period measured in the charts

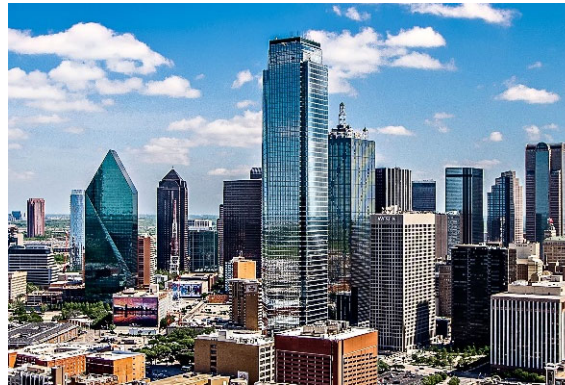
Index performance results do not represent any portfolio returns. An investor cannot invest directly in a presented index, as an investment vehicle replicating an index would be required. An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the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

Any opinions and/or recommendations mentioned in this presentation are solely based on FEG's research.

Historical long-term returns since 1926 from Ibbotson Associates. International equity historical returns from MSCI. Fixed income yields from Barclays Bank PLC and Credit Suisse. REIT data from NAREIT. Historical timber returns from NCREIF. MLP yield data from Alerian.

Data as of July 2022 unless otherwise noted.



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Dallas | Indianapolis



INVOICE



201 East Fifth Street, Suite 1600
Cincinnati, Ohio 45202

DATE	INVOICE #
10/31/22	202210149

BILL TO:
City of Grosse Pointe Woods Employees Retirement System Shawn Murphy 20025 Mack Plaza Grosse Pointe Woods, MI 48236

Fee Schedule: includes CIS
.12% first \$50 Million
.10% next \$50 Million
.05% next \$150 Million
.04% next \$250 Million
.03% over \$500 Million
Minimum annual fee \$60,000

Professional Services for the period *7/1/22-9/30/22*

					<u>AMOUNT</u>
Based on the market value of	\$	40,242,159	@	6/30/22	= \$ 14,433.00

Total Amount Due	<u>\$ 14,433.00</u>
<i>Payment due upon receipt of invoice</i>	

Reference: DAVIS
 Inception: 7/3/2014
 Updated: 12/1/15 Prorated w/ Retiree HC Benefits
 Note: Assets of Employee Retirement System and Healthcare Benefits Plan are aggregated for fee break purposes.

Remittance Information

Please include invoice number and make payable to Fund Evaluation Group
 Mail: P.O. Box 639176, Cincinnati, OH 45263-9176
 Wire or ACH: Fifth Third Bank, 38 Fountain Square Plaza, Cincinnati, OH 45263, R/T #042000314, Account #7027869440
 Remittance information to accountsreceivable@feg.com

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

September 12, 2022

City of Grosse Pointe Woods
 Attn: Frank Schulte, City Administrator
 20025 Mack Plaza
 Grosse Pointe Woods, MI 48236

Invoice # 1078112

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

Professional Services Rendered Through August 31, 2022

	<u>Hrs/Rate</u>	<u>Amount</u>
8/3/2022 DAW Review of agenda and packets	0.70 \$145.00/hr	101.50
8/4/2022 DAW Attend Pension Board and Retiree HealthCare Plan and Trust Fund meetings	1.20 \$145.00/hr	174.00
For professional services rendered	1.90	\$275.50
Additional charges:		
	<u>Qty/Price</u>	<u>Amount</u>
8/4/2022 Attorney Mileage - Pension Board meeting [D. Walling]	73 0.62	45.26
Total costs		\$45.26
Total amount of this bill		\$320.76
Previous balance		\$419.34
8/10/2022 Payment - thank you. Check No. 774900854		(\$419.34)

Rosati, Schultz, Joppich & Amtsbuechler, P.C.

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(248) 489-4100 Tax ID# 38-3107356

October 12, 2022

City of Grosse Pointe Woods
Attn: Frank Schulte, City Administrator
20025 Mack Plaza
Grosse Pointe Woods, MI 48236

Invoice # 1078283

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

Professional Services Rendered Through September 30, 2022

	<u>Hrs/Rate</u>	<u>Amount</u>
9/29/2022 DAW Correspondence to Treasurer regarding EROP Plan ordinance amendment; Receipt/review of Treasurer's reply; Draft correspondence to Attorney Van Overbeke	0.40 \$145.00/hr	58.00
For professional services rendered	<u>0.40</u>	<u>\$58.00</u>
Previous balance		\$320.76
Balance due		<u><u>\$378.76</u></u>

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	0.40	145.00

	<u>Amount</u>
Balance due	<u>\$320.76</u>

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	1.90	145.00



Invoice

Date	Invoice #
9/27/2022	24853

Bill To
City of Grosse Pointe Woods 20025 Mack Plaza Drive Grosse Pointe Woods, MI 48236

Phone: (630) 620-0200
 Fax: (239) 481-0634
 Email: AR@foster-foster.com
 Website: www.foster-foster.com
 Federal EIN: 59-1921114

City of Grosse Pointe Woods

Terms	Due Date
Net 30	10/27/2022

Description	Amount
Prepare 6/30/2022 Pension Valuation and PA 202 Report	9,750.00
Prepare 6/30/2022 GASB 67/68 Disclosure Information	6,150.00

Thank you for your business!

Most preferred method of payment is an ACH deposit.
 Please reference Plan name & Invoice # above.

- Account Title: Foster & Foster, Inc.
- Account Number: 6100000360
- Routing Number: 063114661
- Bank Name: Cogent Bank

Balance Due \$15,900.00

For payment via a mailed check, please remit to:
 Foster & Foster, Inc.
 184 Shuman Blvd., Ste.305, Naperville, IL 60563



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: October 25, 2022
To: Pension Board of Trustees
From: Shawn Murphy, Pension Administrator
Re: Payment of Annual Administrative Fees

Beginning in October, 2009 the Pension Board authorized an *annual* payment of \$10,000 to the City of Grosse Pointe Woods for administrative fees and services performed by Finance staff for pension related items.

I respectfully request a motion to approve payment of \$10,000 to the City of Grosse Pointe Woods General Fund, for administrative fees. This fee covers services rendered during fiscal year 2022-2023. Funds are to be taken from budget line 731-237-976.000 with a budgeted amount of \$10,000.

Thank you.