

CITY OF GROSSE POINTE WOODS

NOTICE OF ELECTRONIC RE-SCHEDULED REGULAR PENSION MEETING Pension Retirement System Board of Trustees

Thursday, May 7, 2020

4:00 PM

Agenda

The Pension Board will be conducting a meeting of the Grosse Pointe Woods Pension Board of Trustees by video (Zoom) and telephone conference in accordance with Governor Gretchen Whitmer's Executive Order Nos. 2020-15 and 2020-21 resulting from the Coronavirus pandemic (COVID-19). This notice is being provided to ensure that those wishing to participate in the meeting have an opportunity to do so. Additional instructions are listed below.

Join Zoom Meeting:

Join URL: <https://zoom.us/j/98473936900?pwd=bGVDNk9rWGZ3dFplZWJlVlFWWGkvZz09>

Meeting ID: 984-7393-6900

Password: **531380**

Join by phone:

877 853 5247 US Toll-free

888 788 0099 US Toll-free

Meeting ID: 984-7393-6900

Password: **531380**

Find your local number: <https://zoom.us/u/aiUV0MYkF>

AGENDA

1. Call to order
2. Roll call
3. Acceptance of the meeting agenda.
4. Meeting minutes dated February 6, 2020.
5. Trial balance through March 31, 2020
6. Reciprocal Act 88 – C. Behrens
7. Rodwan Consulting Co. – 2018 City of Grosse Pointe Woods Experience Study
8. 1st Quarter Fund Evaluation Group Report
 - a. Increasing Domestic Large Cap Equity
9. Payment of Invoices -

a. VanOverbeke, Michaud & Timmony, P.C.	\$601.60
b. FEG	\$14,655.00
c. Rodwan Consulting Company	\$7,100.00
d. Comerica Trust Services	\$1,500.00
10. New Business/Public Comment

11. Adjournment

Next Regular Board Meeting – August 6, 2020

6:00 PM

IN ACCORDANCE WITH PUBLIC ACT 267 (OPEN MEETINGS ACT)
POSTED AND COPIES GIVEN TO NEWSPAPERS

The City of Grosse Pointe Woods will provide necessary, reasonable auxiliary aids and services to individuals with disabilities. Closed captioning and audio will be provided for all electronic meetings. All additional requests must be made in advance of a meeting.

Instructions for meeting participation

1. **To join through Zoom:** The meeting may be joined by clicking on the link provided on the agenda at the start time posted on the agenda, enter the meeting identification number, and password. Zoom may provide a couple of additional instructions for first time use. As an alternative to using the link, accessibility to the meeting may be obtained by using the browser at join.zoom.us. If having trouble logging in, try a different browser e.g. Chrome.

Join Zoom Meeting:

Join URL: <https://zoom.us/j/98473936900?pwd=bGVDNk9rWGZ3dFplZWJEVlFWWGkvZz09>

Meeting ID: 984-7393-6900

Password: **531380**

2. **Join by telephone:** Dial the toll-free conferencing number provided and enter the meeting identification number, and password. Dial *9 to be heard under Public Comment.

877 853 5247 US Toll-free

888 788 0099 US Toll-free

Meeting ID: 984-7393-6900

Password: **531380**

Find your local number: <https://zoom.us/j/aiUV0MYkF>

In an effort to alleviate feedback and disruption of the meeting, choose one of the media options, either phone or Zoom, not both.

Meeting notices are posted on the City of Grosse Pointe Woods website home page at www.gpwmi.us and the on-line calendar, both containing a link to the agenda. The agenda contains all pertinent information including business to be conducted at the meeting, a hyperlink to participate using Zoom, and call-in telephone number with necessary meeting identification, and a password. Agendas will also be posted on six (6) City bulletin boards along Mack Avenue.

The following are procedures by which persons may contact members of the public body to provide input or ask questions:

1. To assist with meeting flow and organization, all public comment will be taken at the end of the meeting unless it is moved to a different location on the agenda upon a consensus of the Pension Board of Trustees;
2. The phone-in audience, when making public comment please state your name (optional) when called upon;
3. Audience participants will be muted upon entry and will have a chance to speak during the public comment portion of the meeting at the end of the agenda, at which time the microphones will be unmuted.
4. Those joining by Zoom will also be muted and may use the virtual raised “hand” to request to be heard under Public Comment.
5. Those joining by telephone need to dial in using the phone number provided on the agenda. When prompted, enter the meeting number and the password also located on the agenda. Dial *9 to be heard under Public Comment.
6. The published agenda invites participants from the community to provide written questions, comments, and concerns in advance of the meeting to any Elected Official or the Pension Administrator regarding relevant City business and may be read under Public Comment. Emails may be sent to:

Chairperson Mayor Robert E. Novitke	mayornovitke@comcast.net	586 899-2082
Vicki Granger, Trustee	grangergpw@aol.com	313 882-9878
Anthony Chalut, Trustee	achalut@gpwmi.us	313-343-2422
Matthew Crook, Trustee	Mcrook944@gmail.com	313-343-2460
Gary Zarb, Trustee	Gzarb99@yahoo.com	313-886-1219

Jeffrey Davis, Vice President/Consultant, FEG	jdavis@feg.com	513-977-4400
City Attorney Charles (Chip) Berschback	blbwlaw@yahoo.com	586-777-0400
Pension Attorney Michael VanOverbeke	mvanoverbeke@vmtlaw.com	313-578-1200
Sandra Rodwan, Rodwan Consulting	srodwan@aol.com	248-399-8760
Tina Hoenicke, Pension Secretary	thoenicke@gpwmi.us	313-343-2430

You may contact Cathrene Behrens, Pension Administrator, at cbehrens@gpwmi.us should you have any questions prior to the meeting starting.

NOTE TO PETITIONERS: YOU, OR A REPRESENTATIVE, ARE REQUESTED TO BE IN ATTENDANCE AT THE MEETING SHOULD COUNCIL HAVE QUESTIONS REGARDING YOUR REQUEST
--

MINUTES OF A REGULAR MEETING OF THE BOARD OF TRUSTEES FOR THE RETIREMENT SYSTEM (i.e. The Board) OF THE CITY OF GROSSE POINTE WOODS, HELD ON THURSDAY, FEBRUARY 6, 2020, IN THE JURY ROOM OF THE MUNICIPAL BUILDING, 20025 MACK PLAZA, GROSSE POINTE WOODS, MICHIGAN.

The meeting was called to order at 6:00 p.m. by Vice Chairperson Granger.

The following members were present:

Vice Chairperson Victoria Granger
General Employee Representative Matt Crook
Public Safety Representative Anthony Chalut

Also present:

Pension Administrator, Cathrene Behrens
Deputy Comptroller, Shawn Murphy
City Attorney, Chip Berschback
Pension Attorney, Michael VanOverbeke
Fund Evaluation Group (FEG), Jeffrey Davis
Rodwan Consulting Co., Sandra Rodwan

Motion by Chalut, supported by Crook to excuse Chairman Mayor Novitke from tonight's meeting.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

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

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Crook, supported by Chalut to accept and place on file the minutes of the pension board meetings dated 11/7/2019.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Chalut, supported by Crook to receive and place on file the trial balance report as presented through December 31, 2019.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Crook, supported by Chalut to authorize the Pension Administrator to refund former employee Ashley Radcliffe the employee portion of her pension contribution, with interest, in the total amount of \$3,325.10.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Chalut, supported by Crook to acknowledge the presentation by the Retirement System's Actuary, Sandra Rodwan of Rodwan Consulting Company, of the actuarial valuation of the retirement system as of June 30, 2019 and to direct that a copy of the valuation be forwarded to appropriate city representatives as an indication of the funding status of the plan and the required employer contribution for fiscal year commencing July 1, 2020.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Crook, supported by Chalut to acknowledge the presentation and receipt by the Retirement System's Actuary, Sandra Rodwan of Rodwan Consulting Company, of the GASB 67/68 actuarial valuation and the Supplemental Annuity actuarial valuation of the retirement system as of June 30, 2019 and to direct that a copy of the valuation be forwarded to appropriate city representatives as an indication of the funding status of the plans.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook
NO: None
ABSENT: Novitke, Zarb

Motion by Crook, supported by Chalut to acknowledge receipt of the June 30, 2019 Summary Annual Report and to direct that a copy of the valuation be forwarded to appropriate city representatives.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Motion by Crook supported by Chalut to acknowledge receipt of the 2014 – 2018 Experience Study prepared by the Retirement System's Actuary, Sandra Rodwan of Rodwan Consulting Company for the period ending June 30, 2018 and to direct that a copy of the valuation be forwarded to the appropriate city representatives.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Motion by Chalut, supported by Crook to receive and place on file 4th Quarter Fund Evaluation Group Report for period ending December 31, 2019.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Motion by Chalut, supported by Crook to authorize payment of the invoices from VanOverbeke, Michaud & Timmony, P.C. in the amount of \$2016.50, the invoice from FEG for \$14,664.00, the invoice from Rodwan Consulting Company for \$1,600.00 and the invoice from Comerica Trust Services in the amount of \$1,500.00.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Pension Board Meeting

2/6/2020

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New Business/Public Comment:

Motion by Crook, supported by Chalut to excuse Citizen Representative Gary Zarb from tonight's meeting.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Motion by Crook, supported by Chalut to adjourn at 7:20 pm.

Motion CARRIED by the following vote:

YES: Granger, Chalut, Crook

NO: None

ABSENT: Novitke, Zarb

Minutes recorded by Cathrene Behrens

Approved by the Pension Board:

Cathrene Behrens, Pension Administrator

PERIOD ENDING 03/31/2020

		2019-20	ACTIVITY FOR		YEAR-TO-DATE	END BALANCE
GL NUMBER	DESCRIPTION	ORIGINAL BUDGET	2019-20 AMENDED BUDGET	MONTH 03/31/2020 INCREASE (DECREASE)	THRU 03/31/20 INCREASE (DECREASE)	03/31/2020 NORMAL (ABNORMAL)
Fund 731 - PENSION FUND						
Assets						
Dept 000						
731-000-005.000	CASH			(1,001.02)	15,610.97	192,414.86
731-000-005.001	SCHWAB CASH			340,068.71	(157,187.38)	181,899.72
731-000-056.000	INTEREST REC			27.62	(119.08)	287.56
731-000-121.000	BONDS			(1,770,261.74)	(1,614,166.39)	6,084,269.93
731-000-122.000	STOCKS			(2,383,453.81)	(3,119,705.42)	13,001,012.50
731-000-123.000	INDEXES			(1,152,907.63)	(1,802,411.98)	11,057,071.84
Total Dept 000				(4,967,527.87)	(6,677,979.28)	30,516,956.41
TOTAL ASSETS				(4,967,527.87)	(6,677,979.28)	30,516,956.41
Fund Equity						
Dept 000						
731-000-381.000	RETIREE BENEFITS RES			0.00	0.00	33,151,402.56
731-000-395.000	PRIOR FUND BALANCE			0.00	0.00	4,043,533.13
Total Dept 000				0.00	0.00	37,194,935.69
TOTAL FUND EQUITY				0.00	0.00	37,194,935.69
Revenues						
Dept 000						
731-000-581.000	EMPLOYER CONTRIBUTION-GENL	612,664.00	612,664.00	45,455.40	470,402.34	470,402.34
731-000-582.000	EMPLOYER CONTRIB-PS	743,754.00	743,754.00	51,577.05	465,645.95	465,645.95
731-000-583.000	EMPLOYER CONTRIBUTION-MEDICARE	95,000.00	95,000.00	7,499.20	126,530.84	126,530.84
731-000-588.000	EMPLOYEE CONTRIB	358,094.00	358,094.00	19,345.34	198,150.54	198,150.54
731-000-666.100	INVEST INCOME-INTERS	6,500.00	6,500.00	307.73	2,950.79	2,950.79
731-000-666.150	CAPITAL GAINS	0.00	0.00	0.00	280.11	280.11
731-000-666.200	INVEST INCOME-DIVIDE	500,000.00	500,000.00	0.00	468,150.94	468,150.94
731-000-694.000	OTHER INCOME	2,500.00	2,500.00	0.00	19,885.17	19,885.17
731-000-695.000	GAIN ON MKT VALUE	0.00	0.00	(4,783,268.74)	(5,574,889.77)	(5,574,889.77)
731-000-699.000	TRF F/PRIOR YR RES	1,505,102.00	1,505,102.00	0.00	0.00	0.00
Total Dept 000		3,823,614.00	3,823,614.00	(4,659,084.02)	(3,822,893.09)	(3,822,893.09)
TOTAL REVENUES		3,823,614.00	3,823,614.00	(4,659,084.02)	(3,822,893.09)	(3,822,893.09)

PERIOD ENDING 03/31/2020

		2019-20	ACTIVITY FOR		YEAR-TO-DATE	END BALANCE
GL NUMBER	DESCRIPTION	ORIGINAL BUDGET	2019-20 AMENDED BUDGET	MONTH 03/31/2020 INCREASE (DECREASE)	THRU 03/31/20 INCREASE (DECREASE)	03/31/2020 NORMAL (ABNORMAL)
Fund 731 - PENSION FUND						
Expenditures						
Dept 237 - RETIREE BENEFITS						
731-237-860.000	EDUCATION & TRAINING	6,650.00	6,650.00	0.00	864.23	864.23
731-237-874.000	RETIREE BENEFIT PAYM	3,662,364.00	3,662,364.00	304,231.74	2,744,723.12	2,744,723.12
731-237-874.100	ANNUITY WITHDRAWAL	25,000.00	25,000.00	4,212.11	7,965.09	7,965.09
731-237-876.000	BANK & BENEFIT PAYMENT PROCESSING FEES	7,500.00	7,500.00	0.00	6,000.00	6,000.00
731-237-973.000	INVESTMENT ADVISOR FEES	60,000.00	60,000.00	0.00	30,000.00	30,000.00
731-237-973.100	ATTORNEY FEES	10,000.00	10,000.00	0.00	5,740.75	5,740.75
731-237-973.200	ACTUARIAL FEES	27,600.00	27,600.00	0.00	37,450.00	37,450.00
731-237-973.300	FIDUCIARY INSURANCE	14,500.00	14,500.00	0.00	12,343.00	12,343.00
731-237-976.000	ADMINISTRATIVE COST	10,000.00	10,000.00	0.00	10,000.00	10,000.00
Total Dept 237 - RETIREE BENEFITS		3,823,614.00	3,823,614.00	308,443.85	2,855,086.19	2,855,086.19
TOTAL EXPENDITURES		3,823,614.00	3,823,614.00	308,443.85	2,855,086.19	2,855,086.19
Total Fund 731 - PENSION FUND						
TOTAL ASSETS				(4,967,527.87)	(6,677,979.28)	30,516,956.41
BEG. FUND BALANCE						37,194,935.69
+ NET OF REVENUES & EXPENDITURES				(4,967,527.87)	(6,677,979.28)	(6,677,979.28)
= ENDING FUND BALANCE				(4,967,527.87)	(6,677,979.28)	30,516,956.41
+ LIABILITIES				0.00	0.00	0.00
= TOTAL LIABILITIES AND FUND BALANCE				(4,967,527.87)	(6,677,979.28)	30,516,956.41

PERIOD ENDING 03/31/2020

		2019-20	ACTIVITY FOR		YEAR-TO-DATE	END BALANCE
GL NUMBER	DESCRIPTION	ORIGINAL	2019-20	MONTH 03/31/2020	THRU 03/31/20	03/31/2020
		BUDGET	AMENDED	BUDGET INCREASE (DECREASE)	INCREASE (DECREASE)	NORMAL (ABNORMAL)
Fund 732 - SUPPLEMENTAL ANNUITY FUND						
Assets						
Dept 000						
732-000-005.000	CASH			0.00	0.00	8,771.09
732-000-005.001	SCHWAB CASH			0.00	335,830.00	352,651.83
732-000-056.000	INTEREST RECEIVABLE			0.00	0.00	20.17
732-000-121.100	BONDS			0.00	0.00	381,913.04
732-000-122.000	STOCKS			0.00	0.00	799,735.44
732-000-123.000	INDEXES			0.00	0.00	637,948.33
Total Dept 000				0.00	335,830.00	2,181,039.90
TOTAL ASSETS				0.00	335,830.00	2,181,039.90
Fund Equity						
Dept 000						
732-000-382.000	SUPPLEMENTAL ANNUITY RESERVE			0.00	0.00	788,255.00
732-000-390.000	CURRENT FUND BALANCE			0.00	0.00	991,026.90
732-000-395.000	PRIOR FUND BALANCE			0.00	0.00	65,928.00
Total Dept 000				0.00	0.00	1,845,209.90
TOTAL FUND EQUITY				0.00	0.00	1,845,209.90
Revenues						
Dept 000						
732-000-581.000	EMPLOYER CONTRIB-GEN	328,969.00	328,969.00	0.00	335,830.00	335,830.00
732-000-582.000	EMPLOYER CONTRIB-PS	11,937.00	11,937.00	0.00	0.00	0.00
732-000-666.100	INVEST INCOME-INTERS	200.00	200.00	0.00	0.00	0.00
732-000-666.200	INVEST INCOME-DIVIDE	5,000.00	5,000.00	0.00	0.00	0.00
732-000-694.000	OTHER INCOME	500.00	500.00	0.00	0.00	0.00
732-000-695.000	UNREALIZED GAIN/LOSS	40,000.00	40,000.00	0.00	0.00	0.00
Total Dept 000		386,606.00	386,606.00	0.00	335,830.00	335,830.00
TOTAL REVENUES		386,606.00	386,606.00	0.00	335,830.00	335,830.00

PERIOD ENDING 03/31/2020

GL NUMBER	DESCRIPTION	2019-20	ACTIVITY FOR		YEAR-TO-DATE	END BALANCE
		ORIGINAL BUDGET	2019-20 AMENDED BUDGET	MONTH 03/31/2020 INCREASE (DECREASE)	THRU 03/31/20 INCREASE (DECREASE)	03/31/2020 NORMAL (ABNORMAL)
Fund 732 - SUPPLEMENTAL ANNUITY FUND						
Expenditures						
Dept 237 - RETIREE BENEFITS						
732-237-874.000	RETIREMENT BENEFITS	274,795.00	274,795.00	0.00	0.00	0.00
Total Dept 237 - RETIREE BENEFITS		274,795.00	274,795.00	0.00	0.00	0.00
TOTAL EXPENDITURES		274,795.00	274,795.00	0.00	0.00	0.00
Total Fund 732 - SUPPLEMENTAL ANNUITY FUND						
TOTAL ASSETS				0.00	335,830.00	2,181,039.90
BEG. FUND BALANCE						1,845,209.90
+ NET OF REVENUES & EXPENDITURES		111,811.00	111,811.00		335,830.00	335,830.00
= ENDING FUND BALANCE				0.00	335,830.00	2,181,039.90
+ LIABILITIES				0.00	0.00	0.00
= TOTAL LIABILITIES AND FUND BALANCE				0.00	335,830.00	2,181,039.90



CITY OF GROSSE POINTE WOODS MEMORANDUM

Date: April 23, 2020

To: Pension Board Trustees

From: Cathrene Behrens, Pension Administrator

A handwritten signature in blue ink, appearing to be "CB", is written over the name "Cathrene Behrens" in the "From:" line.

Re: Prior Service Credit – Treasurer/Comptroller Cathrene Behrens

Please find attached pension verification reports from the Municipal Employees Retirement System (MERS) for Cathrene A. Behrens. I am requesting recognition of my service credits for retirement purposes from my time with the City of Walled Lake and the Village of Holly. Both the City of Walled Lake and the Village of Holly are Reciprocal Act 88 municipalities.

I am requesting a motion to accept my prior municipal service with the City of Walled Lake and the Village of Holly under Reciprocal Act 88 for retirement purposes only.

Thank you for your consideration.

April 22, 2020

Cathrene A Behrens
1422 Apple Orchard Ln
Wolverine Lake, MI 48390-1801

Dear Cathrene A Behrens:

Thank you for your inquiry. The following is an unaudited account summary for Cathrene A Behrens, through the City of Walled Lake. Service credit may change once a complete audit of this account is conducted. As a participant of the Municipal Employees' Retirement System (MERS) of Michigan Defined Benefit Plan, the following information applies:

Benefit plan type:	401a Defined Benefit
Status:	Terminated
Vesting Provision:	6 years
Eligibility Conditions:	Age 50 with 25 years of service
Vested member:	Yes
Service Total:	20 years 5 months
Effective Date:	4/22/2020
Contributory member:	Yes
Contribution balance:	\$44,782.61

You can apply for retirement benefits once you have met the age and eligibility requirements of your employer.

Retirement benefits under the plan are not subject to bankruptcy. For specifics on this ruling, please visit www.mersofmich.com to view the Plan Document, Section 10.

Contributions in the plan are not a liquid asset and are not available for loan. Upon termination of employment, your participant contributions are eligible for a refund. However, if you elect a refund, all accrued service for the period refunded will be forfeited. This means you may not be eligible for a retirement benefit.

If you have any questions or need additional information, please contact our Service Center at 800.767.MERS (6377).

Sincerely,

Municipal Employees' Retirement System
Ref: 6324 /171023

April 22, 2020

Cathrene A Behrens
1422 Apple Orchard Ln
Wolverine Lake, MI 48390-1801

Dear Cathrene A Behrens:

Thank you for your inquiry. The following is an unaudited account summary for Cathrene A Behrens, through the Village of Holly. Service credit may change once a complete audit of this account is conducted. As a participant of the Municipal Employees' Retirement System (MERS) of Michigan Defined Benefit Plan, the following information applies:

Benefit plan type:	401a Defined Benefit
Status:	Terminated
Vesting Provision:	10 years
Eligibility Conditions:	Age 55 with 25 years of service
Vested member:	Yes
Service Total:	20 years 5 months
Effective Date:	4/22/2020
Contributory member:	No
Contribution balance:	\$0.00

You can apply for retirement benefits once you have met the age and eligibility requirements of your employer.

Retirement benefits under the plan are not subject to bankruptcy. For specifics on this ruling, please visit www.mersofmich.com to view the Plan Document, Section 10.

Contributions in the plan are not a liquid asset and are not available for loan. Upon termination of employment, your participant contributions are eligible for a refund. However, if you elect a refund, all accrued service for the period refunded will be forfeited. This means you may not be eligible for a retirement benefit.

If you have any questions or need additional information, please contact our Service Center at 800.767.MERS (6377).

Sincerely,

Municipal Employees' Retirement System
Ref: 6317 / 171023

City of Grosse Pointe Woods

Employees Retirement System

Experience Study

July 1, 2014 through June 30, 2018

February 5, 2020

The Board of Trustees
City of Grosse Pointe Woods Employees Retirement System
Grosse Pointe Woods, Michigan

Dear Board Members:

This report contains the results of an Experience Study for the City of Grosse Pointe Woods Employees Retirement System covering the period from July 1, 2014 through June 30, 2018.

The Experience Study was based upon data submitted by the Retirement System for the years ending June 30, 2015, 2016, 2017 and 2018.

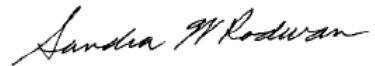
The results of the Experience Study are used in the process of selecting the actuarial assumptions to be used in the annual actuarial valuations of the Retirement System.

This report was prepared under the direction of a member of the American Academy of Actuaries who meets the qualification standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Denise M. Jones



Sandra W. Rodwan, M.A.A.A.

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Section One:

Introduction and Summary of Experience



Purpose of the Experience Study

The annual actuarial valuations of the Retirement System are performed to compute the liabilities associated with active, retired and vested inactive members of the System, and to determine contribution rates which will finance those liabilities. The funding objective of the System is to make contributions annually, which will fund benefits as they accrue and remain level as a percent of active member payroll.

In order to compute the liabilities and contribution rates, it is necessary to make assumptions about the long-term experience of the System. These assumptions can be categorized in two categories: demographic and economic.

The demographic assumptions include:

- Withdrawal Rates
- Retirement Rates
- Disability Rates
- Mortality Rates

The economic assumptions include:

- Investment Return
- Inflation Rate
- Across the Board Salary Increases

The purpose of this Experience Study is to compile and analyze the actual experience of the Retirement System. Information is then used in the process of selecting the assumptions used for the annual actuarial valuations of the Retirement System.

Period Covered by the Study

This Experience Study covers the 4 year period from July 1, 2014 through June 30, 2018.

Summary of Results

Demographic Assumptions

Withdrawal Rates

Actual rates of withdrawal of active members for reasons other than retirement, disability or death were slightly less than currently assumed for General members.

Retirement Rates

Actual rates of age and service retirements were slightly higher than currently assumed for Public Safety.

Disability Rates

Actual rates of disability retirements were close to those currently assumed.

Mortality Rates

Actual rates of mortality were greater than those currently assumed for females and less than those currently assumed for males. The mortality experience of the System is insufficient to generate a mortality table.

Economic Assumptions

The rates of i) investment return (based on the smoothed market value of assets), ii) inflation and iii) salary increases have generally been less than assumed over the period of the experience study.

Section Two:

Withdrawal Rates



Withdrawal Rates - General

During the 4 year experience study period there were 11.4 expected vs. 7 actual active General members who quit prior to retirement. The 11.4 expected withdrawals were based on the current withdrawal assumption.

Service Years	0-4	4+	Total
Actual Withdrawals	5	2	7
Expected Withdrawals	8.5	2.9	11.4
Ratio of Actual to Expected	0.6	0.7	0.6

The following table shows the currently assumed rates of withdrawal for the period covered by the experience study.

Actual and Assumed Rates of Withdrawal - General

Ages	Service	Actual Withdrawal Rates For Members With Indicated Age/Service	Assumed Withdrawal Rates For Members With Indicated Age/Service
All	0	0.0%	20.00%
All	1	13.0	15.00
All	2	8.0	12.00
All	3	15.0	10.00
All	4	0.0	8.00
25-29	5 and Over	0.0	6.00
30-34		0.2	6.00
35-39		0.0	5.00
40-44		0.0	3.00
45-49		0.2	2.00
50-54		0.0	2.00
55-59		0.0	1.30
60-64		0.0	1.30
65+		0.0	0.00

Withdrawal Rates – Public Safety

During the 5 year experience study period there were 3.6 expected vs. 4 actual active member who quit prior to retirement. The 3.6 expected withdrawals were based on the current withdrawal assumption.

Service Years	0-4	4+	Total
Actual Withdrawals	3	1	4
Expected Withdrawals	2.2	1.4	3.6
Ratio of Actual to Expected	1.4	0.7	1.1

The following table shows the actual rates of withdrawal for the period covered by the experience study and compares them with currently assumed rates.

Actual and Assumed Rates of Withdrawal for Public Safety Members

Ages	Service	Actual Withdrawal Rates For Members With Indicated Age/Service	Assumed Withdrawal Rates For Members With Indicated Age/Service
All	0	18.18%	12.00%
All	1	16.67	9.00
All	2	0.00	8.00
All	3	0.00	7.00
All	4	0.00	6.00
25-29	5 and Over	0.00	4.50
30-34		0.00	3.90
35-39		0.00	2.30
40-44		20.00	0.90
45-49		0.00	0.50
50-54		0.00	0.50
55-59		0.00	0.50
60-64		0.00	0.50
65+		0.00	0.00

Withdrawal Rates --Recommendation

We recommend the following changes in the rates of withdrawal:

Sample Ages	Years of Service	No. of Active Members Withdrawing Within Next Year	
		General	Public Safety
			(No Change)
All	0	20.00%	12.00%
	1	15.00	9.00
	2	12.00	8.00
	3	10.00	7.00
	4	8.00	6.00
25	5 and Over	5.50%	4.50
30		5.50	3.90
35		5.00	2.30
40		3.00	0.90
45		2.00	0.50
50		2.00	0.50
55		1.30	0.50
60		1.30	0.50

Section Three:
Retirement Rates



Retirement Rates

The rates of retirement are the probabilities that a member will retire at a given age or amount of service following attainment of the age and service requirements for retirement. A member was assumed to be eligible for normal retirement after attaining age 50 with 25 years of service, or after attaining age 55 with 20 of service or age 60 with 10 or more years of service.

During the 4 year experience study period actual vs. expected retirements were as follows:

	General	Public Safety	Totals
Actual Retirements	5.0	4.0	9.0
Expected Retirements	10.4	1.5	11.9
Ratio of Actual to Expected	0.5	2.7	0.8

The following table shows the actual rates of retirement during the study period compared with current assumed rates.

% Retiring at Indicated Age

Age	Assumed Rates General	Assumed Rates Public Safety	Actual General	Actual Public Safety
50	30%	40%	0%	100%
51	25	40	0	100
52	20	30	0	0
53	20	30	0	0
54	20	30	0	0
55	30	40	33	0
56	30	30	0	0
57	25	30	0	100
58	25	30	0	0
59	25	30	50	0
60	30	40	0	0
61	15	15	0	100
62	35	20	25	0
63	15	15	0	0
64	15	15	0	0
65	60	60	0	0
66	30	30	0	0
67	40	40	0	0
68	50	50	50	0
69	90	70	0	0
70	100	100	0	0

Retirement Rates--Recommendation

We recommend that the assumed rates be changed as follows:

% Retiring at Indicated Age

Age	Current Rates – General (No Change)	Current Rates – Public Safety	Proposed Rates – Public Safety
50	30%	40%	50%
51	25	40	45
52	20	30	30
53	20	30	30
54	20	30	30
55	30	40	40
56	30	30	30
57	25	30	30
58	25	30	30
59	25	30	30
60	30	40	40
61	15	15	15
62	35	20	20
63	15	15	15
64	15	15	15
65	60	60	60
66	30	30	30
67	40	40	40
68	50	50	50
69	90	70	70
70	100	100	100

Section Four:

Disability Rates



Disability Rates

The disability rates are the probabilities of an active member becoming disabled and receiving a disability pension.

There were 0 General disabilities and 1 Public Safety disability reported during the period covered by the experience study and 0.3 expected in General and 0.8 expected in Public Safety for the period based on current assumptions.

	General	Public Safety
Actual Disability Retirements	0	1
Expected Disability Retirements	0.3	0.8
Ratio of Actual to Expected	0.0	1.3

The following table shows the currently assumed rates of disability for the period covered by the experience study.

Age	% Becoming Disabled Within a Year	
	General	Public Safety
20	0.04%	0.08%
25	0.04	0.15
30	0.04	0.30
35	0.04	0.49
40	0.10	0.68
45	0.15	0.87
50	0.25	1.06
55	0.49	1.26
60	1.20	1.46

Recommendation: We recommend no changes in the assumed disability rates.

Section Five

Mortality Rates



Mortality Rates

There were 5 male retired life deaths and 7 female retired life deaths reported during the period covered by the experience study and 11.6 expected for the period based on current assumptions.

	Males	Females
Actual Retired Life Deaths	5	7
Expected Retired Life Deaths	6.9	4.7
Ratio of Actual to Expected	0.7	1.5

The current mortality table used for the actuarial valuations of the City of Grosse Pointe Woods Employees Retirement System is the RP 2014 Healthy Annuitant Mortality Table with no projections for increases in longevity.

Recommendation:

The Society of Actuaries has recently published new mortality tables based on Public Plan experience. The new Pub-2010 mortality tables include General, Public Safety, and Teachers. This is the first time that mortality tables have been produced specifically for Public Plans.

We recommend that the Board consider adoption of Pub-2010 tables. The table below shows a comparison of the current table with Pub-2010 tables including generational improvement scale MP 2018.

Sample Ages	Future Life Expectancy (years)					
	Present Assumption RP 2014		Pub 2010 Public Safety Healthy Retirees with Generational MP 2018		Pub 2010 General Healthy Retirees with Generational MP 2018	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
55	28.2	30.7	30.6	32.6	30.7	33.7
60	24.1	26.3	25.7	27.7	26.0	28.8
65	20.1	22.0	21.1	23.0	21.5	24.1
70	16.2	18.0	16.8	18.6	17.2	19.6
75	12.7	14.3	12.9	14.5	13.3	15.3
80	9.5	10.9	9.5	10.9	9.8	11.5

Section Six

Economic Assumptions



Economic Assumptions

The economic assumptions include the rate of investment return, inflation, across-the-board salary increases and the real rates of return over inflation and across-the-board salary increases.

The current economic assumptions used for the Retirement System are as follows:

Investment Return	7.75%
Inflation	3.50%
Across-the-Board Salary Increases – General	3.50%
- Public Safety	3.50%
Real Rates of Return (Net of Expenses)	
-Over Inflation	4.25%
-Over Across-the-Board Salary Increases	4.25%

Inflation Experience

The following table shows the rates of inflation (as measured by the Consumer Price Index) over the period of the Experience Study.

Year Ended June 30	Increase in CPI	Assumed Inflation
2015	0.1%	3.5%
2016	1.0	3.5
2017	1.6	3.5
2018	2.9	3.5
4 Yr. Average	1.4	3.5

Average Salary Increases Compared to Assumed Increases

Year Ended June 30	Increase in Average Salary	Assumed Across-the- Board Salary Increases	Increase in Average Salary	Assumed Across-the- Board Salary Increases
	General		Public Safety	
2015	0.5%	3.5%	3.5%	3.5%
2016	0.0	3.5	(2.0)	3.5
2017	0.5	3.5	3.1	3.5
2018	1.1	3.5	0.0	3.5
4 Yr. Average	0.5%	3.5	1.1%	3.5

Over the period of the Experience Study, the increases in average salary have been less than assumed.

Nominal Rates of Investment Return

The following table shows the nominal rates of investment return based upon the smoothed market value of assets. These nominal rates of return based on the smoothed market value are of use for the actuarial valuation, but are not to be used to compare investment performance with other retirement plans or benchmarks. The actual market value returns reported by the investment counselor should be used for that purpose.

Actuarial Valuation as of June 30	Nominal Rate of Return (Smoothed Asset Value)	Assumed Rate of Return (Net of Expenses)
2015	9.87%	7.75%
2016	5.14	7.75
2017	7.18	7.75
2018	5.75	7.75
4 Yr. Average	6.97%	7.75

Real Rates of Return

Annual Valuation June 30	Real Rate of Return Over			Assumed Real Rate of Return Over		
	Inflation	Increase in Average Salary		Inflation	Across-The Board Salary Increases	
		General	Public Safety		General	Public Safety
2015	9.8%	9.4%	6.4%	4.25%	4.25%	4.25%
2016	4.1	5.1	7.1	4.25	4.25	4.25
2017	5.6	6.7	4.1	4.25	4.25	4.25
2018	2.9	4.7	5.8	4.25	4.25	4.25
4 Yr. Average	5.6%	6.5%	5.8%	4.25%	4.25%	4.25%

Recommendation

During the 4-year period ending June 30, 2018, the average of the rates of inflation (as measured by the consumer price index) was 1.4%, which was less than the assumed rate of 3.5%. The increases in average salary were also less than the assumed 3.5%. But the average nominal rate of return on the smoothed funding value of assets of 6.97% was less than the assumed 7.75%.

As with all of the assumptions, the economic assumptions need to be based on the long-term expected experience, not simply the rates from the 4-year experience study. The asset allocation of the Fund and the risk tolerance of the Board must be taken into consideration.

If the actual economic experience is less favorable than assumed (i.e. lower investment income than assumed, greater inflation and salary increases than assumed), contribution rates will rise as the negative experience develops. Conversely, if investment return is greater than assumed and/or salary increases are less than assumed, the growth in the contribution rates will be reduced.

The Board should consult with its investment advisor regarding the potential returns given the asset allocation. If economic experience is expected to be less favorable than currently assumed over the long term, this should be reflected in the economic assumptions to avoid long-term increases in funding requirements. We highly recommend that consideration be given to lowering the assumed rate of investment return from the current 7.75%.



Section Seven

Summary of Recommendations



The following table summarizes the recommended changes in assumptions and the effect on the liabilities.


Demographic Assumptions	Recommendation	Effect of Change on Liabilities
Withdrawal	Lower rates-General	Slightly higher
Retirement	Higher rates-Public Safety	Higher
Disability	No change	-
Mortality	Lower rates	Higher
Economic Assumptions		
Investment Return	Lower rate	Higher
Salary		
Across the Board Rate	No Change	
Merit and Longevity Rates	No Change	



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

NICK A. KHOURI
STATE TREASURER

DATE: September 25, 2018
TO: Local Units of Government
FROM: Nick Khouri, State Treasurer 
SUBJECT: Public Act 202: Selection of the Uniform Assumptions

A key component of Public Act 202 of 2017 (the Act) requires the State Treasurer to annually establish uniform actuarial assumptions of retirement systems that include, but are not limited to, investment returns, salary increase rates, mortality tables, discount rates, and healthcare inflation. These uniform assumptions will allow the citizens of Michigan to compare local retirement systems on a standard basis.

Determination of Underfunded Status

Consistent with the Act, these uniform assumptions are only required to be used for reporting under the Act and may differ from the assumptions used by local governments in their audited financial statements. The Act requires underfunded status to be determined according to the local government's most recent audited financial statement (*MCL 38.2805*). Unless local units are using the uniform assumptions for financial reporting purposes, they will be reporting two sets of funded ratios and contributions within their annual *Form 5572 (Retirement System Annual Report)*. Pursuant to the Act, the determination of underfunded status will continue to use the funded ratios and actuarially determined contribution (ADC) reported in the audited financial statements. Reporting for uniform assumptions will utilize information from a regularly scheduled actuarial valuation or alternative measurement method as appropriate. While uniform assumptions are not required to be used for funding retirement systems, my hope over time is that local governments will use assumptions for funding that also align with the uniform assumptions, resulting in the same set of financial information for both funding and reporting.

Overall Impact of Actuarial Assumptions

The uniform actuarial assumptions listed below can have a large impact on the total pension and retiree healthcare liabilities for systems throughout Michigan, and careful consideration was given to the selection of each uniform assumption. In summary, assumptions set too low or too conservatively may overstate retirement liabilities. Conversely, setting assumptions too high or too aggressively may understate retirement liabilities.

Fiscal Year 2019 Assumptions

Assumption	Uniform Assumption
Investment Rate of Return	Maximum of 7.00%
Discount Rate	<p>Blended discount rate calculated using GASB Statements No. 68 and 75 methodology</p> <p>For periods in which projected plan assets are Sufficient to make Projected Benefit Payments: <u>Maximum of 7.00%</u></p> <p>For periods in which projected plan assets are Not Sufficient to make Projected Benefit Payments: <u>3.00%</u></p>
Salary Increase	A minimum of 3.50% or based on an actuarial experience study conducted within the last five years.
Mortality Table	A version of the RP-2014 Mortality Table or based on an actuarial experience study conducted within the last five years.
Healthcare Inflation (for Medical and Drug) ¹	<p>Non-Medicare: Initial rate of 8.50% decreasing .25% per year to a 4.50% long-term rate</p> <p>Medicare: Initial rate of 7.00% decreasing .25% per year to a 4.50% long-term rate</p>
Amortization of the Unfunded Actuarial Accrued liability	<p>Local units must amortize the unfunded actuarial accrued liability (UAAL) over a maximum closed period of:</p> <ul style="list-style-type: none"> • Pension Systems: 20 Years • Retiree Healthcare Systems: 30 Years <p>Closed plans must use a level dollar amortization method.</p> <p>Open plans may use a level dollar or percent of pay amortization method.</p>

Implementation

The Department will adjust the *Form 5572 (Retirement System Annual Report)* to receive pension and retiree healthcare system assets, liabilities, funded ratio, and ARC (ADC/ARC²) when using the uniform assumptions. Again, this reporting will be in addition to the assets, liabilities, funded ratio, and ADC contained in financial statements that are used in the determination of underfunded status.

¹ Separate trend scales used to value other ancillary benefits can continue to be used as is.

² See Numbered Letter 2018-3 for additional detail on Annual Required Contributions (ARC) and Actuarially Determined Contributions (ADC)

To allow time for implementation, local units will need to report using the uniform assumptions after their next regularly scheduled actuarial valuation. As general guidance, actuarial valuations issued after December 31, 2018 should include the figures required for uniform assumption reporting. Beginning with Form 5572 submissions for fiscal year 2019, local units are required to report uniform assumptions if the local audited financial statement is based on a valuation issued after December 31, 2018. If the fiscal year 2019 audited financial statement is based on a valuation issued prior to December 31, 2018, local units are required to report uniform assumptions no later than fiscal year 2020. Consistent with Governmental Accounting Standards Board (GASB) statements No. 68 and 75, actuarial valuations are to be performed at least every two years, with more frequent valuations encouraged. Local units may utilize roll-forward procedures in non-valuation years to calculate the uniform assumptions. The Act requires local units to annually report their Form 5572 no later than six months after the end of the local unit's fiscal year.

Local units who utilize the alternative measurement method allowed by the GASB may continue to do so; however, these local units must adjust the calculation of their retirement assets, liabilities, funded ratio, and ARC using Treasury's uniform assumptions if necessary.

Rationale for the Established Assumptions

The following sections within this memo outline the uniform assumptions and the rationale for their selection. We hired an independent actuary firm to assist us in the selection of the uniform assumptions. In addition, we met with multiple stakeholders representing local governments, employees and retirees, actuaries, and accounting professionals.

Investment Rate of Return

The investment rate of return assumption reflects the long-term rate of return on retirement assets. The fiscal year 2019 uniform assumption for the investment rate of return is a maximum of 7.00%. The use of 7.00% reflects the 50th percentile of expected investment returns using the average asset allocation amongst most major pension systems³, as well as current capital market assumptions⁴. For retirement systems that utilize an investment rate of return that is less than 7.00% for funding purposes, the local unit should use the lower investment rate of return for the uniform assumption as well.

The sustained period of low interest rates since 2009 has caused many public pension plans to re-evaluate their long-term expected investment returns, leading to an unprecedented reduction in plan investment return assumptions. In its annual public pension plan investment return assumption study, the National Association of State Retirement Administrators (NASRA) found that among the 129 plans measured, nearly three-fourths have reduced their investment return assumption since 2010⁵, with the median assumed rate of investment return at 7.50% in 2018.

³ Based on the Public Plans Database of approximately 170 public pension plans <http://publicplansdata.org/public-plans-database/>

⁴ Horizon's 2017 Survey of Capital Market Assumptions:
http://www.horizonactuarial.com/uploads/3/0/4/9/30499196/horizon_cma_survey_2017_v0822.pdf

⁵ <https://www.nasra.org/files/Issue%20Briefs/NASRAInvReturnAssumptBrief.pdf>

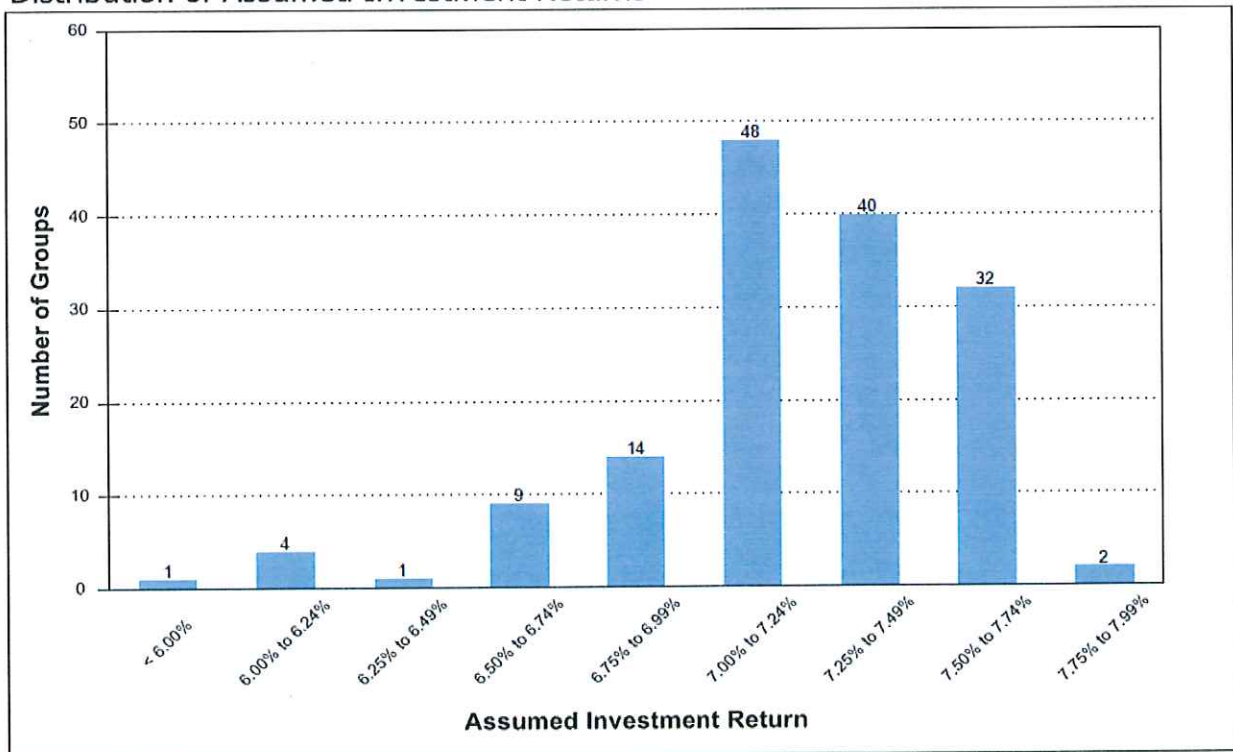
The trend to reduce the assumed rate of investment return is also true for the State of Michigan's retirement systems. As positive investment performance is realized by the state's plans, it has been reducing the assumed rate of investment return through its dedicated gains policy. The table below shows the state's recent decrease in this assumption:

	2015 Valuation	2017 Valuation
Michigan Public Schools Employees Retirement System (Legacy)	8.00 %	7.05 %
Michigan Public Schools Employees Retirement System (Pension Plus)	7.00%	7.00%
Michigan Public Schools Employees Retirement System (Pension Plus II)	N/A	6.00%
Michigan State Employees Retirement System	8.00 %	7.00 %
Michigan State Police Retirement System	8.00 %	7.05 %
Michigan Judges Employee Retirement System	8.00 %	6.75 %

The Municipal Employees Retirement System, which administers most local government pension plans in Michigan, has reduced its investment rate of return from 8.00% in 2014 to 7.75% in the system's 2015 valuation.

Lastly, a partnering actuary firm provided data on contribution rate groups within plans to help us assess what non-MERS plans were utilizing at the local level. The average of these groups was 7.10%. Again, this helped us validate the trend that assumed rate of investment returns are heading towards 7.00%.

Distribution of Assumed Investment Returns



Ultimately, the decision to set the assumed rate of investment return to 7.00% was based on two factors: 1) the expected return on a typical asset allocation; and 2) the trend for setting this

assumption. Based on these two factors, a maximum rate of 7.00% will be used for fiscal year 2019. This important assumption will be reviewed annually. In the future it is more likely to decrease than increase, depending on actual and expected market returns.

Discount Rate

The discount rate is the single rate of return that results in the present value of all projected pension and retiree health benefit payments. The approach to calculating the discount rate should be consistent with GASB Statements No. 68 and 75: insofar as the portion of the plan's fiduciary net position is projected to be sufficient to make all projected benefit payments, a local government may use a maximum discount rate of 7.00%. To the extent the plan's fiduciary net position is not sufficient to make projected benefit payments, a discount rate of 3.00% shall be used.

The 3.00% lower rate is reflective of the index rate for 20-year, tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher as of July 30, 2018.

Historically, Michigan law requires local units to prefund their pension system, so we do not anticipate the blended discount rate will be necessary for many pension systems. However, many retiree healthcare plans are significantly underfunded, and the use of a blended discount rate could be more prevalent.

Salary Increase Rate

The salary increase rate assumption is the rate that salaries will increase over time. The higher the assumed salary increase assumption, the higher the projected pension benefit obligation. The uniform assumption for the salary increase rate is set at a minimum of 3.50%. However, if the local unit has conducted an actuarial experience study within the last five years, and the experience study recommended a different rate be used, the local government may utilize this salary increase rate in lieu of the 3.50% minimum requirement.

The 3.50% salary increase assumption is based on a 2.25% inflation assumption plus 1.25% real wage increase above inflation. The Consensus Revenue Agreement Executive Summary dated May 16, 2018⁶ indicates that Detroit's CPI is expected to increase at 2.3% (which we rounded to 2.25%). Furthermore, both the 2017 Old-Age Survivors and Disability Insurance Program (Social Security) Trustees' Report for intermediate cost assumptions and the Consensus Revenue Agreement Executive Summary include real wage increases of about 1.25% per year.

In setting this uniform assumption, we also reviewed the salary increase assumption utilized by the Michigan Public School Employees Retirement System (MPSERS), the Michigan State Employees Retirement System (SERS), and the Municipal Employees' Retirement System (MERS). MERS, which represents about 85% of the local pension plans within the state, is currently utilizing a 3.75% salary increase assumption. MPSERS and SERS are utilizing a 3.5% salary increase assumption.

⁶ <http://www.senate.michigan.gov/sfa/Publications/BudUpdates/ConsensusRevExecSumMay18.pdf>

Mortality Table

The mortality assumption table provides the underlying projections for expected death rates used by actuaries. This assumption reflects the length of time system members will spend drawing a pension or retiree health benefit in retirement. The uniform assumption for mortality is a version of the RP-2014 mortality table. However, if the local unit has conducted an actuarial experience study within the last five years, and the experience study recommended a different mortality table be used, the local government may utilize this table in lieu of a version of the RP-2014 mortality table.

The RP-2014 mortality tables are the most recently issued tables by the Society of Actuaries. This uniform assumption will be reviewed annually and set to the most recent mortality table issued by the Society of Actuaries moving forward.

Healthcare Inflation

The healthcare inflation assumption is used to project expected growth rates in medical premiums and expenditures. The uniform assumption for healthcare inflation varies based on if the plan utilizes Medicare. The table below provides the uniform assumption for Medicare retiree benefits and another set for Non-Medicare retiree benefits.

Medicare/Non-Medicare	Initial Trend Rate	Annual Decrease to Long Term Trend	Long Term Trend
Non-Medicare – Medical and Drug	8.50%	.25% annually	4.50%
Medicare – Medical and Drug	7.00%	.25% annually	4.50%

This uniform assumption is based on a survey of over 100 health insurers, managed care organizations, pharmacy benefit managers, and third-party administrators about forecasted health plan cost trends. Respondents included the five largest health insurance payers in the U.S., the five largest pharmacy benefits managers in the U.S., and the largest health insurance plan in the State of Michigan.⁷

Initial Trend Rate:

The healthcare trend survey showed a 7.70% trend for an active or non-Medicare retiree PPO plans. For active and non-Medicare prescription drugs, the survey shows a 10.30% trend, prior to the impact of prescription drug rebates. Non-Medicare claim split is typically similar to active plans, where a 70%/30% medical and prescription drug split might be typical. Using this assumed 70%/30% split yields a weighted initial trend of 8.48%, which we rounded to 8.50%.

The survey's average Medicare supplement trend over the last two years is 4.00%. We used a two-year average, due to the significant variation in Medicare prescription drug trend over the period. The medical and prescription drug claim split depends heavily on how a plan coordinates with Medicare. Under a Medicare Supplement, a typical split might be 35%/65% between medical and prescription drugs. Using this assumed 35%/65% split yields a weighted initial trend of 7.05% which we rounded to 7.00%.

⁷ Healthcare trend survey published by Segal Consulting in Fall 2017

Annual Decrease and the Long-Term Trend Rate:

Historically, medical cost increases have significantly outpaced the rate of inflation. It is generally accepted that it is unlikely that these increases will continue over the long term to exceed the overall growth rate of the economy. This is because an unlimited growth in medical care expenses would eventually equal 100 percent of the Gross Domestic Product (GDP). As such, indicators for healthcare include a slow reduction in the annual healthcare inflation rate to a point in which the rise in healthcare cost is stabilized and sustainable for the long term. The Congressional Budget Office, Centers for Medicare & Medicaid Services, Office of the Actuary, and the Social Security Income Trustees reports use inflation, real per capita GDP, and “excess” (new technology, etc.) to determine long-term medical cost increases. Based on these reports, 4.50% is in the “center” of the projection. Long run projections are usually at least 10 years for the trend to reach the long-term rate, so we set the annual decrease as .25% annually. At .25%, it would take 10 years to get from an initial trend of 7.00% to a long-term trend of 4.50%.

Other Considerations

Setting the uniform assumption for healthcare inflation is more challenging than setting the other uniform assumptions. Setting appropriate trend rates for a given plan depend on multiple factors, including the non-Medicare plan type offered (PPO, HMO, HDHP, etc.), Medicare plan type and/or coordination method, and consideration that some plans may exclude medical or prescription drugs entirely. We acknowledge that setting this uniform assumption will result in certain plans having a materially mismatched funding assumption with the uniform assumption, particularly for the initial trend rate.

We also considered setting a range for this uniform assumption. For example, the initial trend rate could be set at 10.50% - 6.50%; the annual decrease as .10% - .75% annually; to the long-term trend rate of 3.50% - 5.50%. This would provide flexibility for matching the assumptions with each local unit’s benefit program circumstances. However, results would no longer be on a uniform basis making comparisons more difficult. Furthermore, local units may select the lower end of the ranges to lower retiree healthcare liabilities inappropriately.

We also considered the impact of other supplemental benefits such as vision and dental coverage. After discussion with various actuaries, we felt including an inflation component for vision and dental plans would not have a material impact in the calculation of funded ratios. Therefore, to keep this uniform assumption as simple as possible, we did not set a uniform assumption for dental and vision coverages.

We also reviewed the Michigan State Police Retirement System and the Michigan State Employees Retirement System healthcare inflation assumption. Both systems utilize the same assumption: 9.50% initial trend rate; .75 annual decrease; to a 3.50% long term rate.

Amortization of the Unfunded Actuarial Accrued Liability

The calculation of the ARC includes the normal cost payment and the annual amortization payment for past service cost to fund the unfunded actuarial accrued liability (UAAL). There are many alternatives available to local units when setting the amortization schedule in calculating the ARC. The amortization schedule determines how much of the UAAL the actuary will recommend be paid in the upcoming year.

The uniform assumption is to calculate the ARC as normal cost plus a portion of the UAAL calculated on a closed amortization schedule not to exceed 20 years for pension and not to exceed 30 years for retiree healthcare. For plans that are utilizing an amortization period that is shorter for funding purposes, the local government should use the shorter timeframe for the uniform assumption as well. For plans that are closed to new entrants, the UAAL must be amortized using a level-dollar amortization method. For plans that are still open to new entrants, a level-dollar or percent of pay amortization method may be utilized.

The Government Finance Officers Association recommends that the ideal amortization period should fall between the 15-20 year range.⁸ The decision to extend healthcare to 30 years is based on recent data showing many local governments got a late start on prefunding retirement healthcare. Each year moving forward, the annual establishment of the uniform assumption base year will be reduced by one year (i.e. 20 to 19 for pension and 30 to 29 for retiree healthcare).

⁸ <http://www.gfoa.org/core-elements-funding-policy>



COMPOSITE PERFORMANCE REVIEW

Report for Periods Ending March 31, 2020

City of Grosse Pointe Woods Employees Retirement System

Presented by:

Jeffrey A. Davis, CAIA
Vice President



City of Grosse Pointe Woods Employees Retirement System

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FIRST QUARTER 2020 MARKET SUMMARY

In the matter of a few months, the conversation among market participants evolved from, “will there be a recession in 2020” to “how deep will the downturn be?” Like all market downturns, the sharp declines triggered by the “black swan event” of the COVID-19 pandemic, augmented by the oil price war between Saudi Arabia and Russia, were painful for investors.

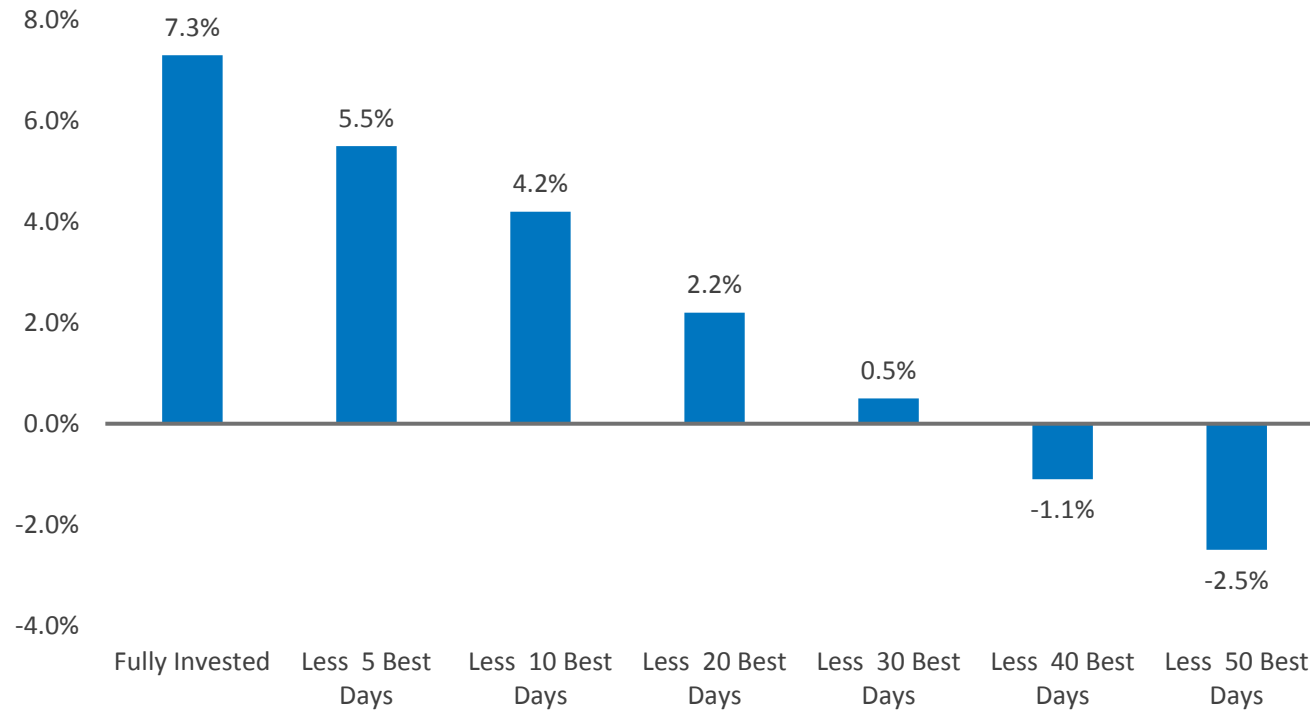
Global equities witnessed a broad-based selloff in the first quarter, as investors fled risk assets. Domestic markets suffered their worst quarterly loss since the fourth quarter of 2008, but marginally outperformed international developed and emerging markets. Rate-sensitive sectors meaningfully outperformed the credit-oriented areas of the market, with core bonds protecting value amid historically-elevated equity volatility. Risk premiums rose sharply across both corporate and structured credit, as high yield credit spreads widened to over 1,000 bps for the first time since 2009. Real assets posted overwhelmingly negative returns in the first quarter. Energy infrastructure performance witnessed the worst quarterly decline on record, and nation-wide store closures and mandated work-from-home orders sparked fears of a looming downturn in real estate.

MARKET INSIGHTS

- Market volatility means large swings both to the downside and the upside. Attempting to time markets and avoid downturns often means missing out on subsequent rallies.
- Although an investor would not be uninvested on only 10 specific days, as illustrated in this example, one can see that the upside rallies, similar to those witnessed in late-March, are meaningful contributors to long-term total return.

THE COST OF MARKET TIMING AND MISSING REBOUNDS

S&P 500 Compound Annual Growth Rate (January 1, 1995 - March 15, 2020)



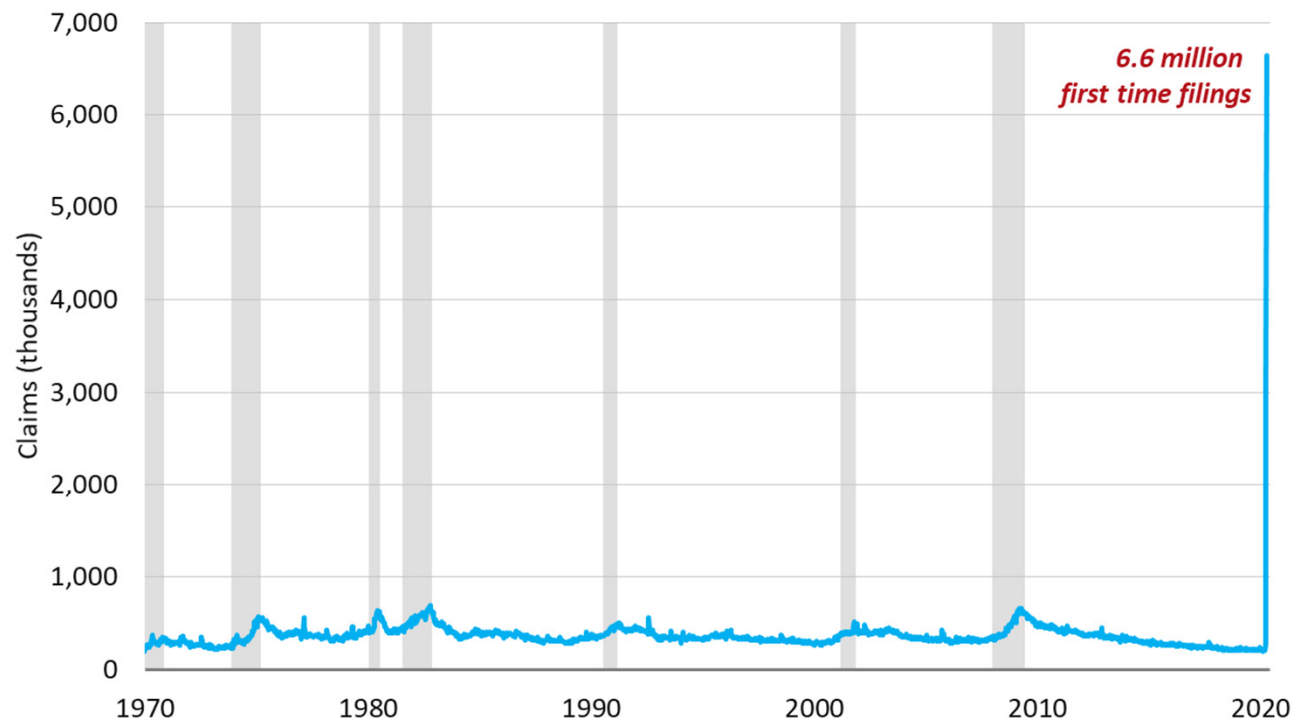
Data source: Strategas

ECONOMIC INSIGHTS

- The first impacts of the COVID-19 pandemic on employment were measured when first time filings for unemployment insurance surged to 3.3 million persons in mid-March. The measure was 5 times larger than the worst weekly print witnessed during the Global Financial Crisis (GFC) of 665,000 persons in late-March 2009.
- March finished with weekly data showing jobless claims swelling further, doubling the prior week's print to 6.6 million persons and bringing the trailing 2-week job loss tally to nearly 10 million.
- The Bureau of Labor Statistics also reported the first contraction in nonfarm payrolls (-701k) since the GFC, which missed the median sell-side consensus estimate of -100k and drove the headline unemployment rate to 4.4%.

FIRST TIME FILINGS FOR UNEMPLOYMENT INSURANCE SKYROCKET

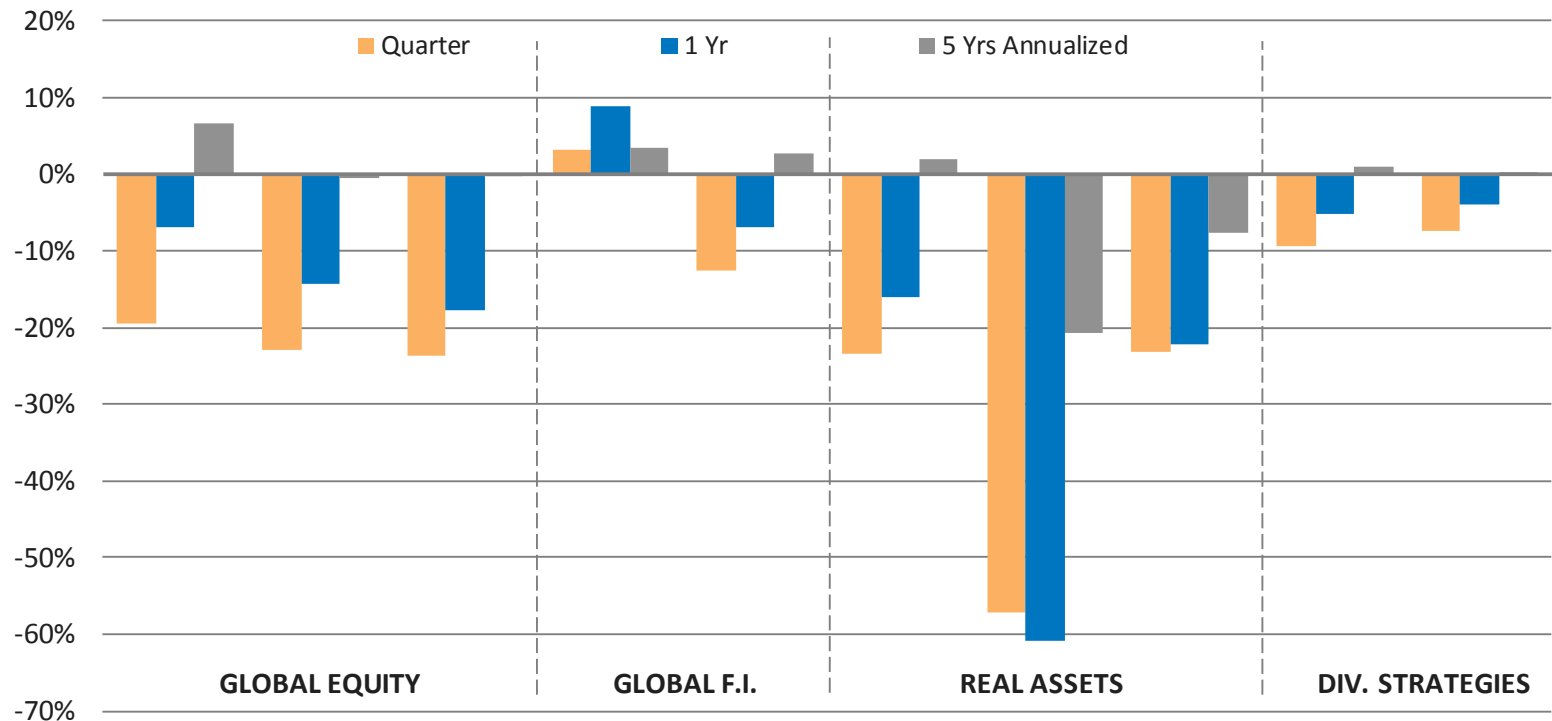
Weekly First Time Unemployment Insurance Filings



Data sources: DOL, Bloomberg, L.P., NBER; Data as of 3/28/2020

MARKET RETURNS

MAJOR ASSET CLASS RETURNS



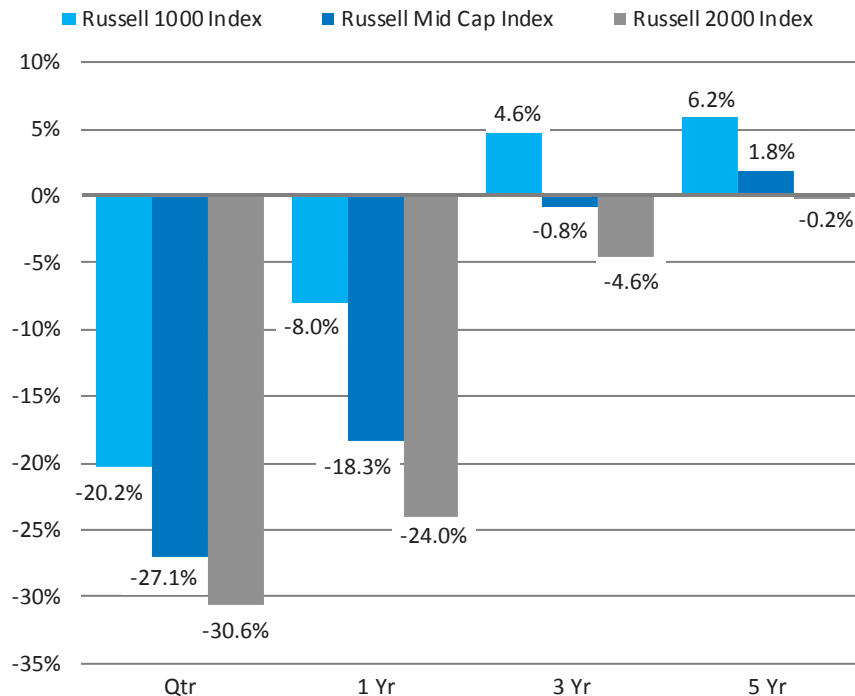
	S&P 500 Index	MSCI EAFE Index	MSCI Emerging Mkts Index	Blmbrg Barclays U.S. Agg Index	Blmbrg Barclays HY Index	FTSE NAREIT All Equity Index	Alerian MLP Index	Blmbrg Cmdty Index	HFRI Fund Wtd Comp. Index	HFRI Fund of Fund Index
Quarter	-19.6%	-22.8%	-23.6%	3.1%	-12.7%	-23.4%	-57.2%	-23.3%	-9.4%	-7.3%
1 Yr	-7.0%	-14.4%	-17.7%	8.9%	-6.9%	-15.9%	-60.9%	-22.3%	-5.1%	-3.9%
5 Yrs Annualized	6.7%	-0.6%	-0.4%	3.4%	2.8%	2.0%	-20.7%	-7.8%	1.1%	0.3%

Data sources: Lipper and HedgeFund Research

GLOBAL EQUITY, U.S.

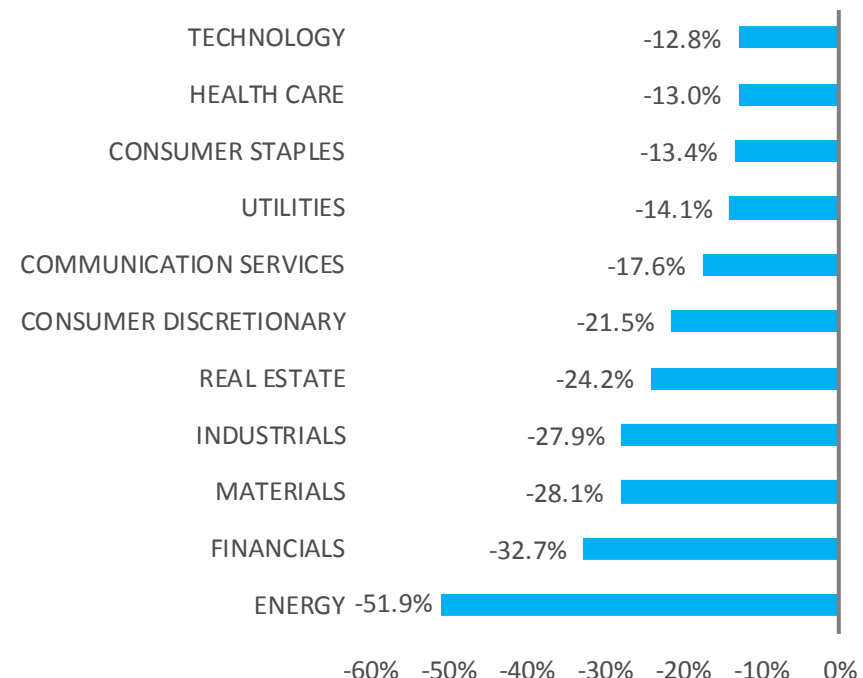
- The S&P 500 fell approximately 20% during the quarter, with small weighted sectors within the index detracting the most from performance.
- The energy sector was the worst performing sector and traded down over 50%, which was followed by the financials sector, which fell over 30%. The information technology and health care sectors held up the strongest.
- Global themes have remained consistent and large cap and growth stocks continued to outperform small and value stocks, respectively. Conversely, during the past two major downturns—the 2001 Tech Bubble and the 2008 GFC—stock leadership changed as high-flying market segments suffered the worst declines in those instances.

LARGE CAP, MID CAP, AND SMALL CAP



Data source: Russell

RUSSELL SECTOR PERFORMANCE

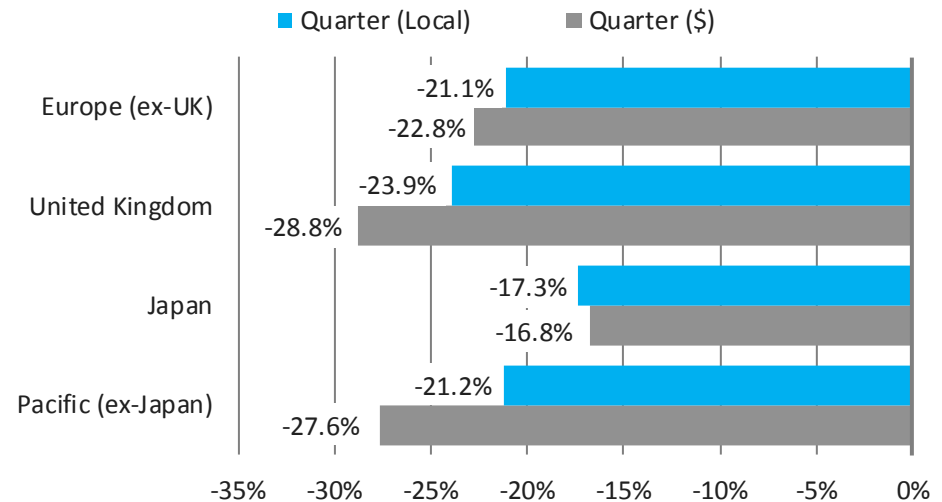


Data source: Russell

GLOBAL EQUITY, NON-U.S.

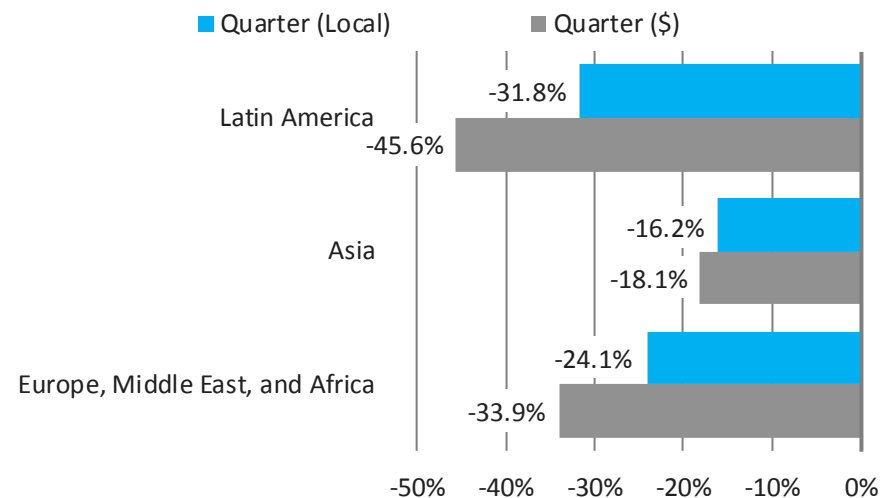
- International developed markets outperformed emerging markets during the quarter as developed market governments such as the United Kingdom and Germany were fast to react to the spread of the virus and economic downturn. Both countries' governments enacted strong stimulus to counteract the negative economic effects from the coronavirus.
- Despite being the original epicenter of the COVID-19 outbreak, Asia was the best performing region around the globe due to the strength of the Chinese equity markets, which fell only approximately 10% amid expectations of economic activity resuming. Most other primary Asian emerging markets were down 20% to 30%.

MSCI EAFE REGIONAL QUARTERLY RETURNS



Data source: MSCI Barra

MSCI EM REGIONAL QUARTERLY RETURNS



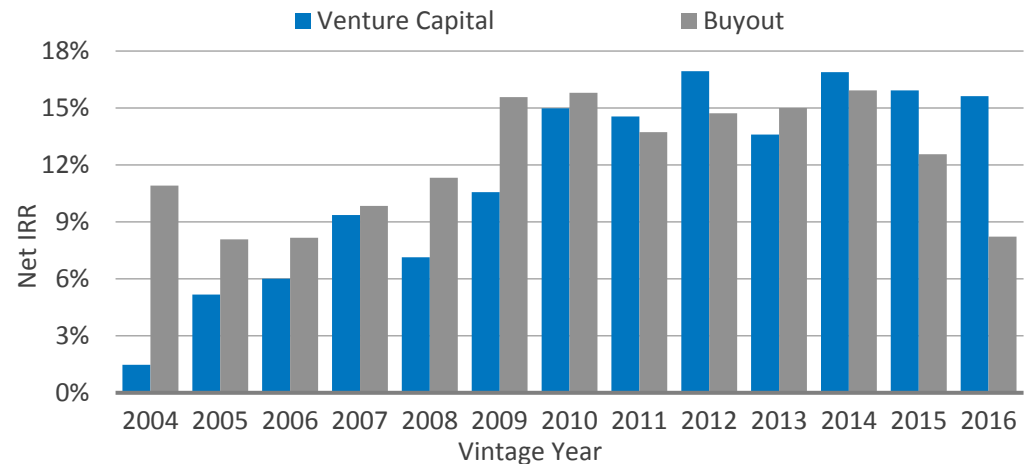
Data source: MSCI Barra

GLOBAL EQUITY, PRIVATE

- Median private equity returns for both venture capital and buyout funds have generally been in the low to mid-teens since the 2010 vintage year. Buyout funds performed better than venture funds during the 2000s, while median venture funds performed better in five of the last six vintage years. Private equity performance data does not yet reflect impacts from the COVID-19 outbreak.
- Fundraising finished the year strong with buyout funds reaching their highest annual level since the GFC. Commitments to venture funds were off to a strong start in the first quarter, although fundraising is expected to slow due to COVID-19 and volatility in the public markets.
- Initial public offering (IPO) exit activity for venture-backed companies was robust in 2019 and was off to a strong start in the first quarter of 2020. Expectations are that IPO activity will be muted in 2020.

MEDIAN VENTURE CAPITAL AND BUYOUT VINTAGE YEAR IRR

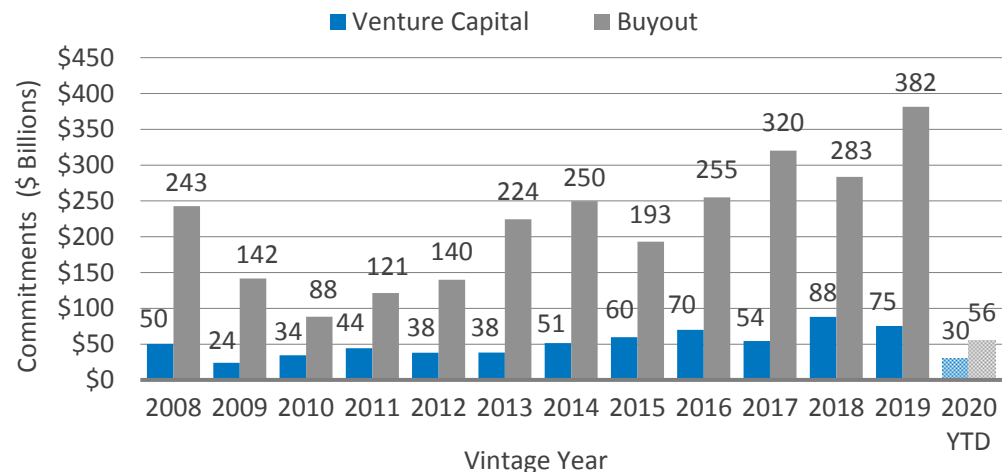
As of September 30, 2019



Data source: Pitchbook; The most recent private equity return information available is through September 30, 2019

VENTURE CAPITAL AND BUYOUT FUNDRAISING ACTIVITY

As of March 31, 2020

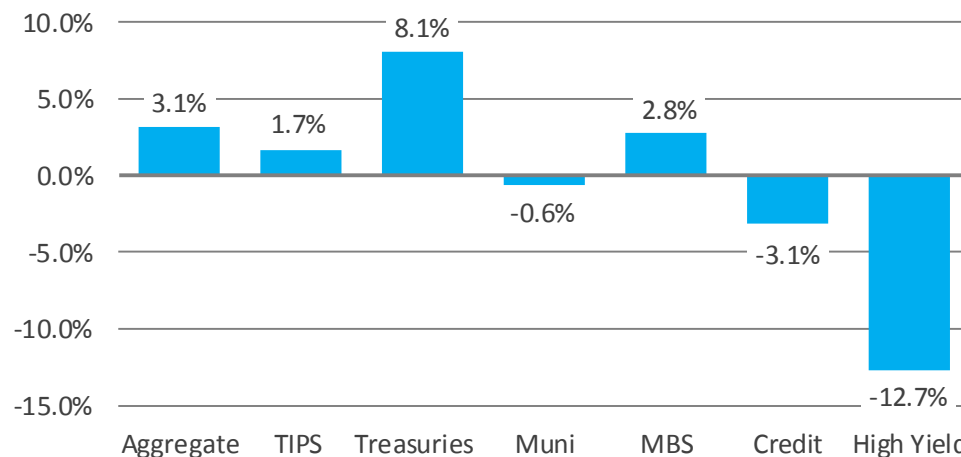


Data source: Pitchbook

GLOBAL FIXED INCOME

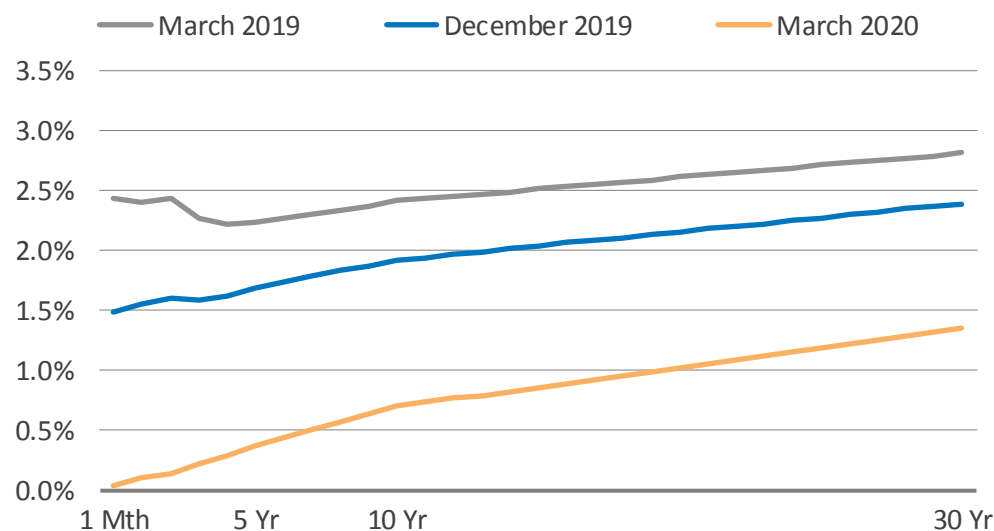
- Fixed income was a tale of two markets in the first quarter of 2020. January and February were characterized by a rapid fall in U.S. Treasury yields, while March saw credit markets plummet and then recover slightly, with the Bloomberg Barclays U.S. Corporate Index experiencing its two most extreme weeks of spread widening and spread tightening on record.
- Investment-grade credit, high yield, and bank loans funds saw huge withdrawals starting in mid-March, as investors continued to seek liquidity in a turbulent market environment. Investment-grade funds collectively witnessed their largest outflows on record and the month of worst excess return in March.
- Overall, higher quality assets outperformed their lower quality peers for the quarter, and assets supported by the Federal Reserve (Fed)—either explicitly or implicitly—outperformed those not addressed in the Fed’s recently announced programs.

BLOOMBERG BARCLAYS U.S. FIXED INCOME INDEX RETURNS



Data source: Barclays

U.S. TREASURY YIELD CURVE

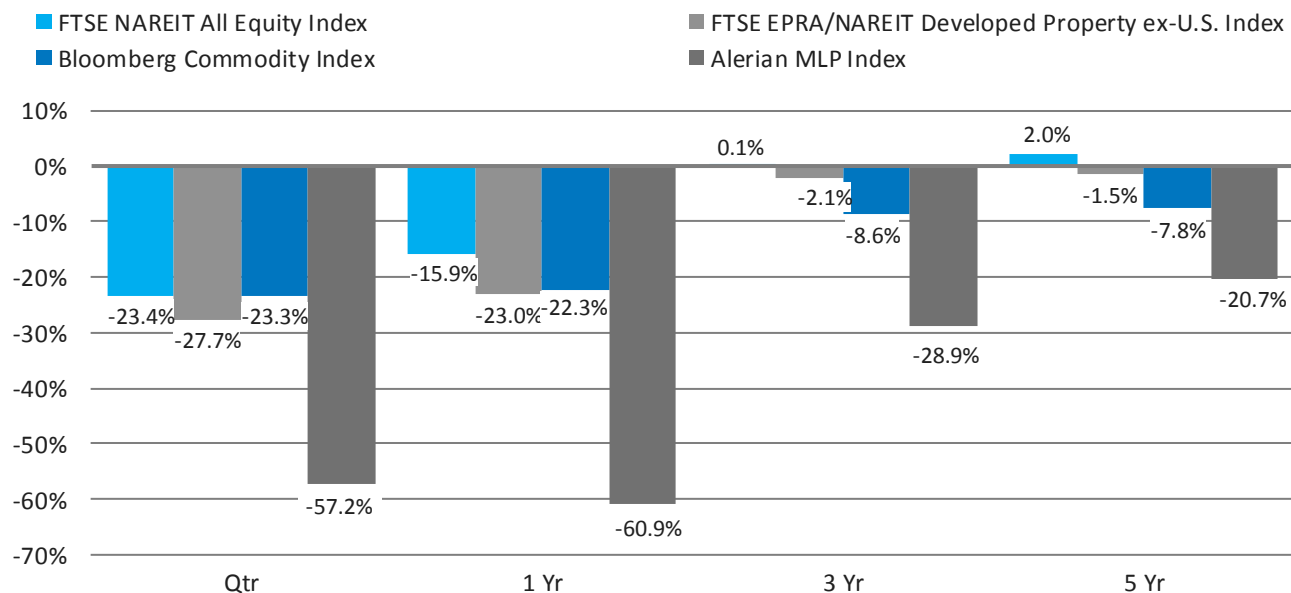


Data source: Bloomberg, L.P.

REAL ASSETS

- Stay at home orders and a broad suspension of economic activity due to COVID-19 has significantly impacted nearly all areas of the REIT market. Retail and lodging have been keenly affected by the virus, with nearly all travel suspended, and over 70,000 national retail stores temporarily closing. This comes on the back of sluggish performance through 2019 for both sectors. The expectation of investors is that many tenants will require lease payment deferrals or forgiveness to weather the impact of the virus. The only sector to post positive returns in the first quarter was data centers, which exhibits defensive characteristics in this pandemic.
- Crude prices fell over 66% year-to-date due to the COVID-19 demand shock and futures curves display expectations that crude will remain under \$40/barrel through the next 12 months. In total, global markets face a near-term glut of crude supply that is already challenging storage infrastructure.
- Midstream energy companies sold off in line with crude over the course of the quarter. One contributing factor to this decline was forced selling by levered, closed-end funds, which exasperated the initial sell-off for the asset class.

PUBLIC REAL ASSETS – REAL ESTATE, COMMODITIES, AND MLPs

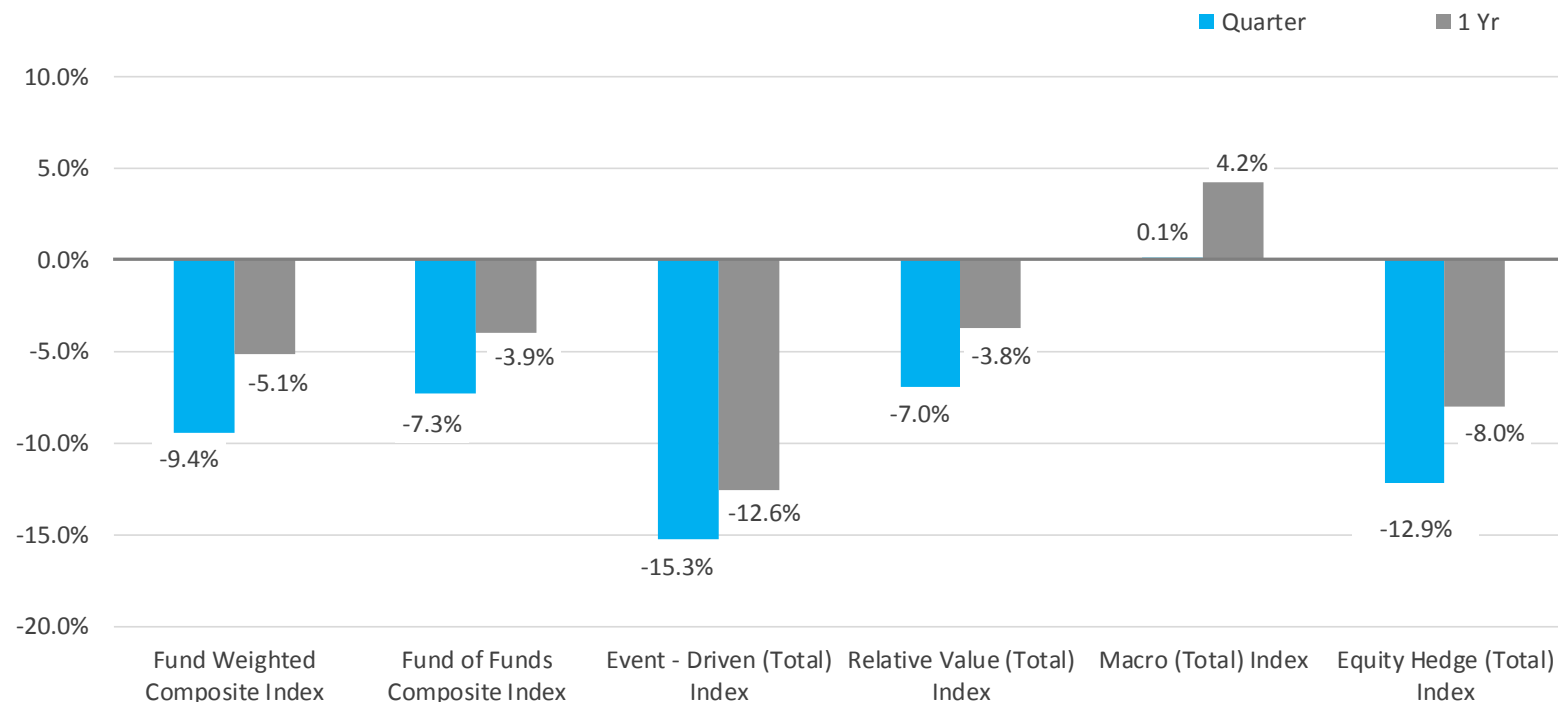


Data sources: NAREIT, Bloomberg, L.P., and Alerian

DIVERSIFYING STRATEGIES, HEDGE FUNDS

- Hedge funds struggled during the first quarter, mainly during the rapid March upheaval of markets. Event-driven strategies faced the biggest headwinds as merger arbitrage deals saw their spreads widen, due to market uncertainty.
- Credit strategies were adversely impacted by severe moves across the credit spectrum, including municipal bonds, structured credit, and investment-grade paper. The dislocation could lead to an increase in corporate defaults, resulting in a distressed cycle, which would be a welcomed sight for credit hedge funds.
- Global macro strategies, both systematic and discretionary, tended to outperform all other hedge funds. Discretionary macro managers with higher concentration in emerging markets fared worse than their developed market brethren.

HFRI INDICES PERFORMANCE RETURNS IN U.S. DOLLARS



Data source: HedgeFund Research

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending March 31, 2020

	Annualized							Since Inception	Date	Market Value
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr			
<u>Total Composite</u>	-18.8%	-13.6%	-11.4%	-0.7%	0.6%	3.0%	4.6%	4.3%	1/05	\$32,496,503
Target Weighted Index ¹	-17.5	-12.3	-10.0	0.3	1.5	3.1	4.4	4.9		
Broad Policy Index ²	-14.4	-8.4	-5.2	2.8	3.2	4.7	5.5	5.2		
Actuarial 7.75%	1.9	5.8	7.8	7.8	7.8	7.8	7.8	7.8		
<u>Domestic Equity</u>										
iShares S&P 500 Index	-19.6	-10.8	-7.0	5.1	6.7	-	-	6.8	8/14	7,640,113
S&P 500 Index	-19.6	-10.8	-7.0	5.1	6.7	-	-	6.8		
iShares Russell Midcap Index	-27.1	-21.6	-18.4	-0.9	1.7	-	-	3.3	9/14	1,713,547
Russell Midcap Index	-27.1	-21.5	-18.3	-0.8	1.8	-	-	3.5		
<u>Small Cap Equity Composite</u>	-32.6	-31.5	-30.1	-7.3	3.2	-	-	3.3	8/14	2,341,361
Russell 2000 Index	-30.6	-25.5	-24.0	-4.6	-0.2	-	-	1.1		
Vanguard S&P Small Cap 600 Index	-32.6	-	-	-	-	-	-	-24.7	8/19	2,341,361
S&P SmallCap 600 Index	-32.6	-	-	-	-	-	-	-24.7		
Russell 2000 Index	-30.6	-	-	-	-	-	-	-22.1		
<u>International Equity</u>										
EuroPacific Growth Fund	-22.5	-16.0	-12.8	0.2	0.8	-	-	1.5	9/14	3,334,368
MSCI AC World Index ex-US	-23.4	-18.0	-15.6	-2.0	-0.6	-	-	-0.7		
Templeton Inst'l Foreign Smaller Co.	-31.9	-26.9	-25.8	-6.0	-2.5	-	-	-1.8	9/14	1,632,404
MSCI Small Cap EAFE Index	-27.5	-19.5	-18.1	-2.9	1.0	-	-	1.5		
RWC Global Emerging Equity Fund	-28.0	-23.1	-23.9	-	-	-	-	-20.0	2/18	1,057,332
DFA Emerging Markets Fund	-27.1	-22.5	-21.8	-4.1	-1.5	-	-	-1.9	9/14	2,193,889
MSCI Emerging Markets Index	-23.6	-18.2	-17.7	-1.6	-0.4	-	-	-0.8		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending March 31, 2020

	Annualized									
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Date	Market Value
<u>Fixed Income</u>										
Dodge & Cox Income Fund	-0.7%	2.2%	5.1%	-	-	-	-	6.3%	2/19	\$2,208,229
Bloomberg Barclays IG Credit Index	-0.5	3.2	7.5	-	-	-	-	9.2		
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	-	-	-	-	10.1		
DoubleLine Total Return Bond Fund	-0.8	0.6	3.0	-	-	-	-	4.0	2/19	2,060,590
Bloomberg Barclays US MBS Index	2.8	5.0	7.0	-	-	-	-	7.9		
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	-	-	-	-	10.1		
Vanguard Total Bond Fund	3.3	5.8	9.1	-	-	-	-	10.3	2/19	2,197,364
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	-	-	-	-	10.1		
<u>Low Volatility</u>										
Gateway Fund	-10.0	-5.6	-4.8	-	-	-	-	-4.5	8/18	1,523,372
PIMCO All Asset Fund	-16.0	-12.9	-10.6	-	-	-	-	-5.1	11/18	1,613,048
HFRX Equity Hedge Index	-13.3	-9.5	-9.4	-	-	-	-	-6.1		
70/30 Blended Index ³	-14.4	-8.4	-5.2	-	-	-	-	-0.6		
<u>Real Estate</u>										
Principal Real Estate Securities Fund	-22.7	-16.3	-13.7	1.3	2.1	-	-	5.6	9/14	1,009,633
FTSE NAREIT Equity REIT Index	-27.3	-22.2	-21.3	-3.1	-0.3	-	-	3.0		
FTSE NAREIT All Equity Index	-23.4	-17.4	-15.9	0.1	2.0	-	-	4.8		
<u>Natural Resources</u>										
Credit Suisse Commodity Return Fund	-22.1	-20.4	-21.6	-	-	-	-	-9.7	8/17	856,941
Bloomberg Commodity Index	-23.3	-21.4	-22.3	-	-	-	-	-9.8		
Tortoise MLP & Pipeline Fund	-49.3	-50.3	-50.5	-	-	-	-	-21.9	8/17	579,760
Alerian MLP Index	-57.2	-61.0	-60.9	-	-	-	-	-30.0		
Tortoise North American Pipeline Index	-41.0	-40.6	-39.9	-	-	-	-	-14.5		
<u>Cash</u>										
Schwab Government Money Fund	0.2	1.0	1.4	1.1	0.7	-	-	0.6	7/14	534,552
U.S. 91-Day Treasury Bills	0.3	1.2	1.8	1.7	1.1	-	-	1.0		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

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	Annualized									
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Date	Market Value
<u>Long Term Manager Performance</u>										
<u>Domestic Equity</u>										
iShares S&P 500 Index	-19.6%	-10.8%	-7.0%	5.1%	6.7%	9.6%	10.5%	7.5%	1/05	
S&P 500 Index	-19.6	-10.8	-7.0	5.1	6.7	9.6	10.5	7.5		
iShares Russell Midcap Index	-27.1	-21.6	-18.4	-0.9	1.7	6.2	8.6	7.2	1/05	
Russell Midcap Index	-27.1	-21.5	-18.3	-0.8	1.8	6.4	8.8	7.3		
Vanguard S&P Small Cap 600 Index	-32.6	-27.2	-25.9	-5.4	0.4	5.1	-	8.4	9/10	
S&P SmallCap 600 Index	-32.6	-27.2	-25.9	-5.3	0.5	5.2	-	8.5		
Russell 2000 Index	-30.6	-25.5	-24.0	-4.6	-0.2	4.2	-	7.3		
<u>International Equity</u>										
EuroPacific Growth Fund	-22.5	-16.0	-12.8	0.2	0.8	3.4	3.9	3.4	8/08	
MSCI AC World Index ex-U.S.	-23.4	-18.0	-15.6	-2.0	-0.6	1.1	2.1	1.3		
Templeton Inst'l Foreign Smaller Co.	-31.9	-26.9	-25.8	-6.0	-2.5	0.3	3.2	5.0	1/05	
MSCI Small Cap EAFE Index	-27.5	-19.5	-18.1	-2.9	1.0	3.3	4.8	4.5		
RWC Global Emerging Equity Fund	-28.0	-22.5	-22.6	-4.7	0.2	3.0	-	4.2	7/12	
MSCI Emerging Markets Index	-23.6	-18.2	-17.7	-1.6	-0.4	-0.4	-	0.8		
DFA Emerging Markets Fund	-27.1	-22.5	-21.8	-4.1	-1.5	-1.2	0.4	5.1	1/05	
MSCI Emerging Markets Index	-23.6	-18.2	-17.7	-1.6	-0.4	-0.4	0.7	5.5		
<u>Fixed Income</u>										
Dodge & Cox Income Fund	-0.7	2.2	5.1	3.9	3.3	3.3	4.1	4.6	1/05	
Bloomberg Barclays IG Credit Index	-0.5	3.2	7.5	4.8	3.7	3.8	5.0	4.7		
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	3.9	4.3		
DoubleLine Total Return Bond Fund	-0.8	0.6	3.0	3.2	2.7	2.9	-	5.3	4/10	
Bloomberg Barclays US MBS Index	2.8	5.0	7.0	4.0	2.9	2.9	-	3.2		
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	-	3.8		
Vanguard Total Bond Fund	3.3	5.8	9.1	4.8	3.3	3.1	3.8	4.2	1/05	
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	3.9	4.3		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending March 31, 2020

	Annualized									
	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Date	Market Value
<u>Low Volatility</u>										
Gateway Fund	-10.0%	-5.6%	-4.8%	0.8%	2.4%	3.1%	3.7%	3.5%	1/05	
PIMCO All Asset Fund	-16.0	-12.9	-10.6	-1.0	1.1	0.9	3.5	4.1	1/05	
HFRX Equity Hedge Index	-13.3	-9.5	-9.4	-2.4	-1.8	0.0	-0.3	-0.2		
70/30 Blended Index ³	-14.4	-8.4	-5.2	2.8	3.2	4.7	5.5	5.2		
<u>Real Estate</u>										
Principal Real Estate Securities Fund	-22.7	-16.3	-13.7	1.3	2.1	6.0	8.9	7.9	1/05	
FTSE NAREIT Equity REIT Index	-27.3	-22.2	-21.3	-3.1	-0.3	3.5	7.4	6.2		
FTSE NAREIT All Equity Index	-23.4	-17.4	-15.9	0.1	2.0	4.9	8.6	7.0		
<u>Natural Resources</u>										
Credit Suisse Commodity Return Fund	-22.1	-20.4	-21.6	-8.6	-7.6	-9.9	-6.7	-4.3	1/05	
Bloomberg Commodity Index	-23.3	-21.4	-22.3	-8.6	-7.8	-10.0	-6.7	-4.3		
Tortoise MLP & Pipeline Fund	-49.3	-50.3	-50.5	-21.0	-14.2	-7.7	-	-2.0	5/11	
Alerian MLP Index	-57.2	-61.0	-60.9	-28.9	-20.7	-14.6	-	-8.5		
Tortoise North American Pipeline Index	-41.0	-40.6	-39.9	-13.2	-7.9	-3.0	-	-		
<u>Cash</u>										
Schwab Government Money Fund	0.2	1.0	1.4	1.1	0.7	0.5	0.3	1.1	1/05	
U.S. 91-Day Treasury Bills	0.3	1.2	1.8	1.7	1.1	0.8	0.6	1.3		

City of Grosse Pointe Woods Employees Retirement System

Summary of Investment Performance

Report for Periods Ending March 31, 2020

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: 23.0% 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 Barclays US Aggregate Index, 1.0% U.S. 91-Day Treasury Bills, 3.0% Bloomberg Commodity Index, 3.0% FTSE NAREIT All Equity Index, 10.0% HFRI FOF: Conservative Index, and 3.0% S&P 500 Energy Sector Index. Please see Appendix for benchmark history.

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

³ 70/30 Blended Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg Barclays US Aggregate Index.

^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	23.5%	23.0%	5.0% - 35.0%
Mid Cap Equity	5.3%	5.0%	0.0% - 15.0%
Small Cap Equity	7.2%	7.0%	5.0% - 30.0%
International Equity	10.3%	10.0%	5.0% - 25.0%
International Small Cap Equity	5.0%	5.0%	0.0% - 15.0%
Emerging Markets	10.0%	10.0%	5.0% - 20.0%
Fixed Income	19.9%	20.0%	5.0% - 30.0%
Public Real Estate	3.1%	3.0%	0.0% - 10.0%
Public Natural Resources	4.4%	6.0%	0.0% - 10.0%
Low Volatility	9.7%	10.0%	0.0% - 20.0%
Cash	1.6%	1.0%	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%	\$7,640,113	23.5%
Mid Cap Equity - Broad	iShares Russell Midcap Index	100.0%	0.0%	\$1,713,547	5.3%
Small Cap Equity - Broad	Vanguard S&P Small Cap 600 Index	100.0%	0.0%	\$2,341,361	7.2%
International Equity - Core	EuroPacific Growth Fund	100.0%	0.0%	\$3,334,368	10.3%
International Small Cap Equity - Core	Templeton Inst'l Foreign Smaller Co.	100.0%	0.0%	\$1,632,404	5.0%
Emerging Markets - Core	DFA Emerging Markets Fund	100.0%	0.0%	\$2,193,889	6.8%
Emerging Markets - Growth	RWC Global Emerging Equity Fund	100.0%	0.0%	\$1,057,332	3.3%
Fixed Income - Core	Dodge & Cox Income Fund	100.0%	0.0%	\$2,208,229	6.8%
Fixed Income - Core	Vanguard Total Bond Fund	100.0%	0.0%	\$2,197,364	6.8%
Fixed Income - Core Plus	DoubleLine Total Return Bond Fund	100.0%	0.0%	\$2,060,590	6.3%
Public Real Estate - Equity	Principal Real Estate Securities Fund	100.0%	0.0%	\$1,009,633	3.1%
Public Natural Resources - Commodities	Credit Suisse Commodity Return Fund	100.0%	0.0%	\$856,941	2.6%
Public Natural Resources - MLP	Tortoise MLP & Pipeline Fund	100.0%	0.0%	\$579,760	1.8%
Low Volatility - Liquid	Gateway Fund	100.0%	0.0%	\$1,523,372	4.7%
Low Volatility - Tactical	PIMCO All Asset Fund	100.0%	0.0%	\$1,613,048	5.0%
Cash - Cash	Schwab Government Money Fund	100.0%	0.0%	\$534,552	1.6%
Total				\$32,496,503	100.0%

City of Grosse Pointe Woods Employees Retirement System

Investment Metrics

Report for Periods Ending March 31, 2020

Statistical Measures	Sharpe Ratio	Standard Deviation	Tracking Error	Information Ratio
Total Composite	0.0	10.5%	2.3%	-1.1
Target Weighted Index	0.0	10.2	1.7	-0.9
Broad Policy Index	0.2	9.9	0.0	--

Asset Growth Summary (in thousands)	Qtr	FYTD
Beginning Market Value	\$ 40,610	\$ 38,854
Net Contributions/(Distributions)	\$ (546)	\$ (1,247)
Market Appreciation/(Depreciation)	\$ (7,567)	\$ (5,110)
Ending Market Value	\$ 32,497	\$ 32,497

* Risk Statistics are based on monthly data.

* Target Weighted Index is currently comprised of: 23.0% 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 Barclays US Aggregate Index, 1.0% U.S. 91-Day Treasury Bills, 3.0% Bloomberg Commodity Index, 3.0% FTSE NAREIT All Equity Index, 10.0% HFRI FOF: Conservative Index, and 3.0% S&P 500 Energy Sector Index. Please see Appendix for benchmark history.

* Broad Policy Index is comprised of: 70.0% MSCI AC World Index and 30.0% Bloomberg Barclays US Aggregate Index.

City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

Summary of Performance and Statistics
Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
iShares S&P 500 Index	-19.6%	-10.8%	-7.0%	5.1%	6.7%	9.6%	10.5%	7.5%	1/05
S&P 500 Index	-19.6	-10.8	-7.0	5.1	6.7	9.6	10.5	7.5	
Risk Statistics (5 years)	Beta		Alpha		R²		Standard Deviation	Tracking Error	Information Ratio
iShares S&P 500 Index	1.00		0.0%		1.00		14.7%	0.0%	-2.1
S&P 500 Index	1.00		0.0		1.00		14.7	0.0	--
Portfolio Statistics	Trailing P/E		Trailing P/B		Wtd Avg Mkt Cap		Current Yield	Equity Annual Turnover	
iShares S&P 500 Index	17.0		2.8		279,283.0M		2.3%	--%	
S&P 500 Index	17.0		2.8		279,283.0		2.3	--	

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

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

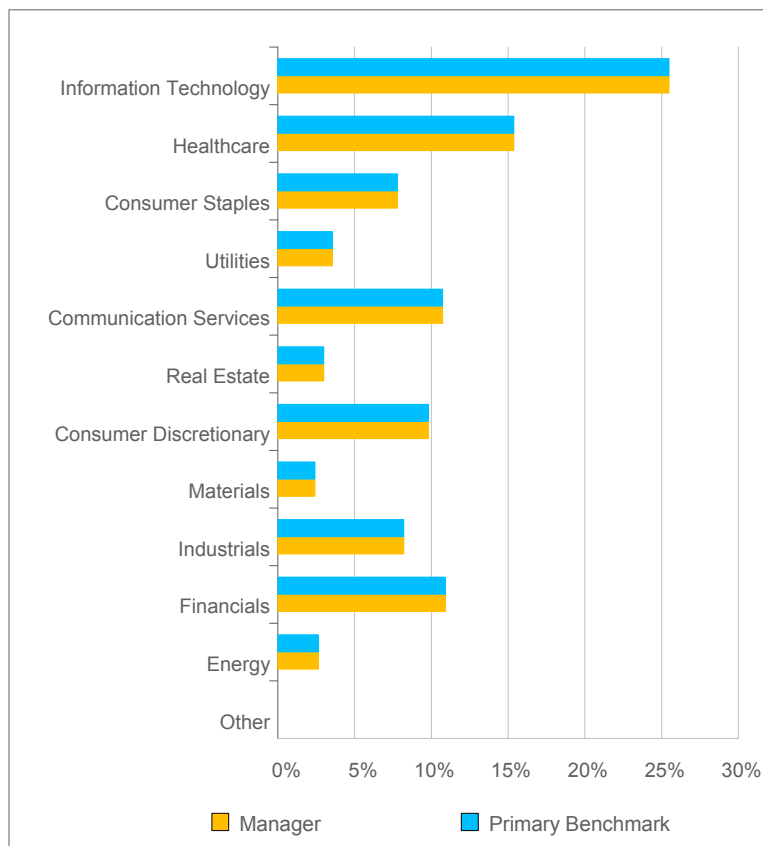
City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

Equity Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Information Technology	25%	25%	-11.9%	10.4%
Healthcare	15	15	-12.7	-1.0
Consumer Staples	8	8	-12.7	-0.6
Utilities	4	4	-13.5	-1.4
Communication Services	11	11	-17.0	-3.3
Real Estate	3	3	-19.2	-19.2
Consumer Discretionary	10	10	-19.3	-10.8
Materials	2	2	-26.1	-16.6
Industrials	8	8	-27.1	-19.5
Financials	11	11	-31.9	-17.2
Energy	3	3	-50.5	-52.4
Other	0	0	-	-

Top Five Holdings

	Weighting
MICROSOFT CORP	5.6%
APPLE INC	4.9
AMAZON COM INC	3.8
FACEBOOK CLASS A INC	1.8
BERKSHIRE HATHAWAY INC CLASS B	1.7

Number of Holdings: 505

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

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

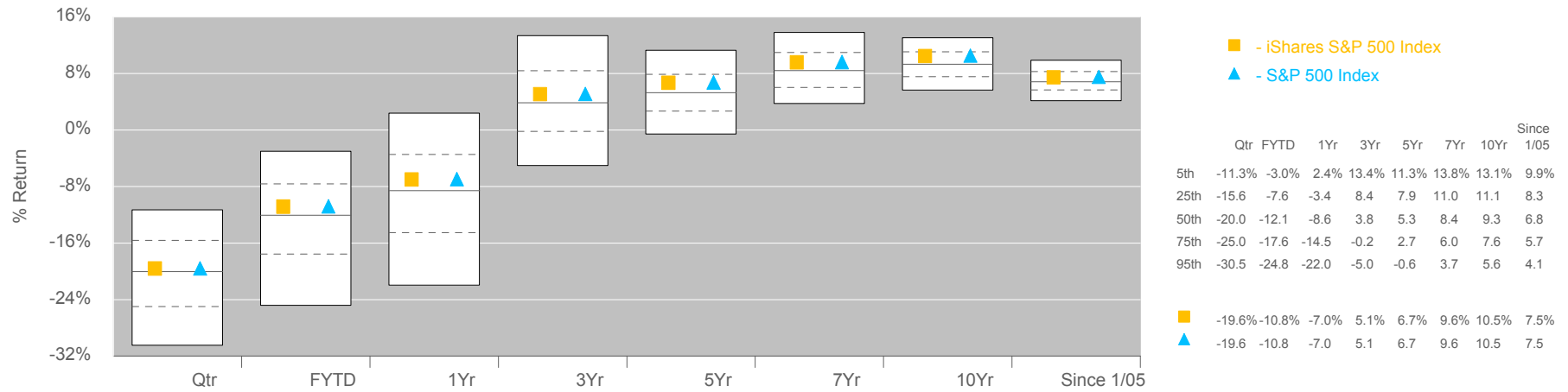
* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

City of Grosse Pointe Woods Employees Retirement System

iShares S&P 500 Index

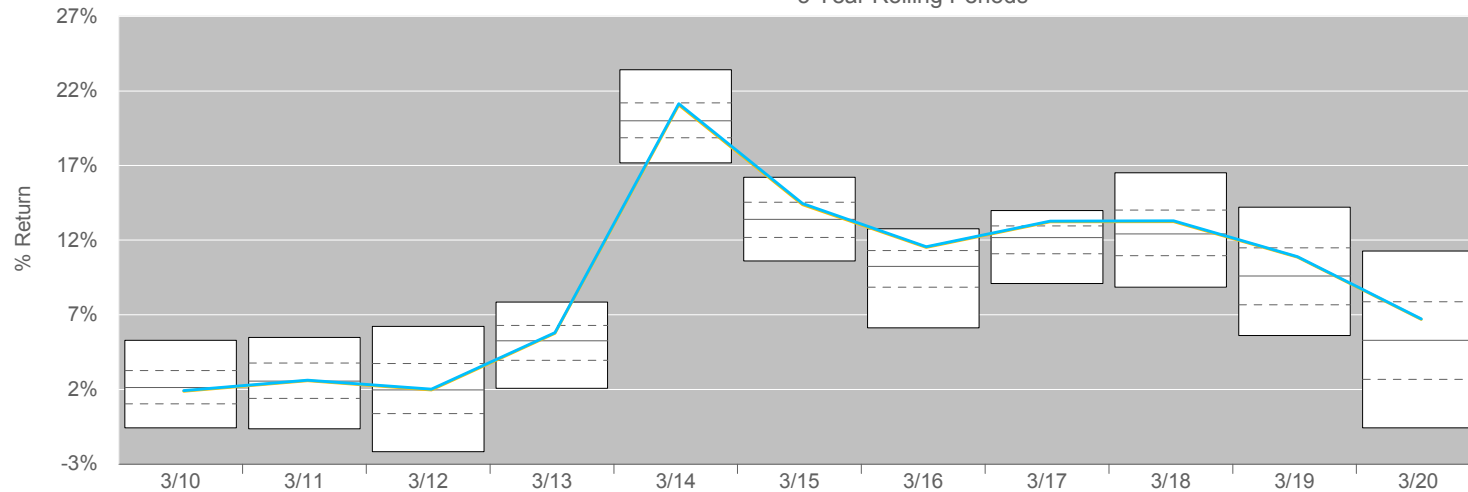
Broad Large Cap Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020

5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

iShares Russell Midcap Index Summary of Performance and Statistics Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
iShares Russell Midcap Index	-27.1%	-21.6%	-18.4%	-0.9%	1.7%	6.2%	8.6%	7.2%	1/05
Russell Midcap Index	-27.1	-21.5	-18.3	-0.8	1.8	6.4	8.8	7.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
iShares Russell Midcap Index	1.00	-0.2%	1.00	16.5%	0.1%	-2.5
Russell Midcap Index	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
iShares Russell Midcap Index	20.4	2.7	16,536.0M	1.8%	--%
Russell Midcap Index	20.4	2.7	16,536.0	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 March 31, 2020

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

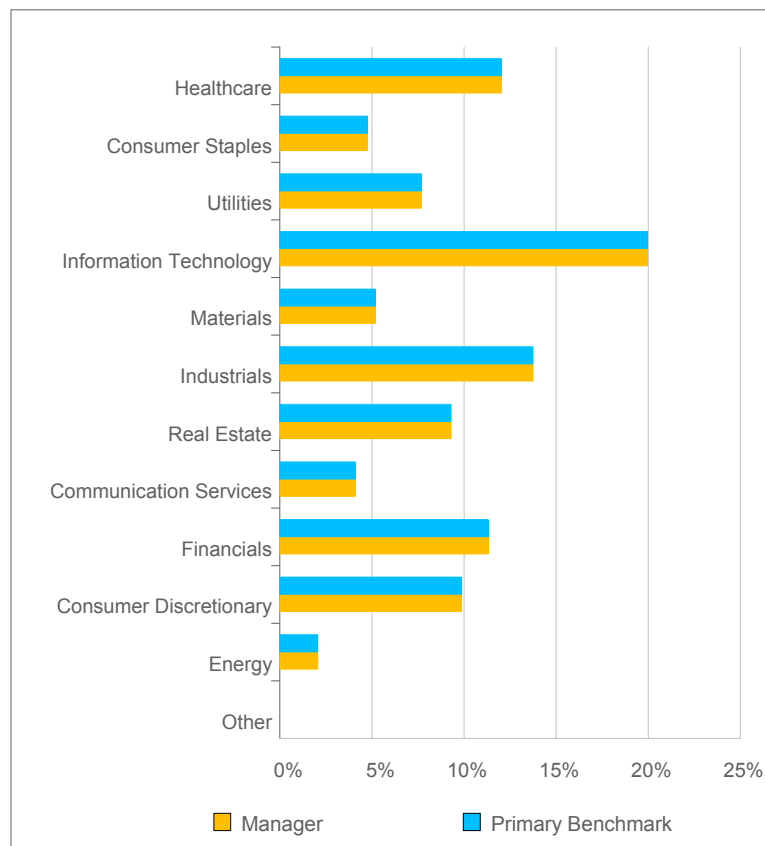
City of Grosse Pointe Woods Employees Retirement System

iShares Russell Midcap Index

Equity Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Healthcare	12%	12%	-14.5%	-7.6%
Consumer Staples	5	5	-15.9	-5.9
Utilities	8	8	-17.6	-8.6
Information Technology	20	20	-19.2	-6.5
Materials	5	5	-26.4	-19.2
Industrials	14	14	-27.8	-15.6
Real Estate	9	9	-28.7	-22.2
Communication Services	4	4	-29.0	-21.0
Financials	11	11	-35.6	-23.9
Consumer Discretionary	10	10	-36.3	-29.2
Energy	2	2	-61.5	-65.7
Other	0	0	-	-

Top Five Holdings

	Weighting
Fiserv Inc	0.8%
Global Payments Inc	0.6
L3harris Technologies	0.6
Dollar General Corp	0.5
Sempra Energy	0.5

Number of Holdings: 806

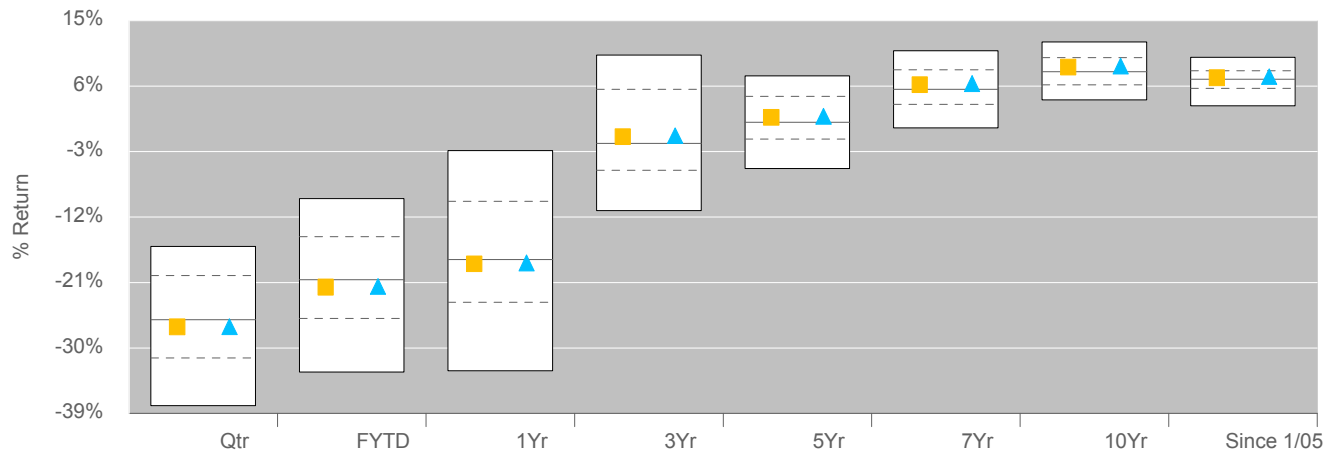
* Sector weightings may not add up to 100% due to rounding.

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

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

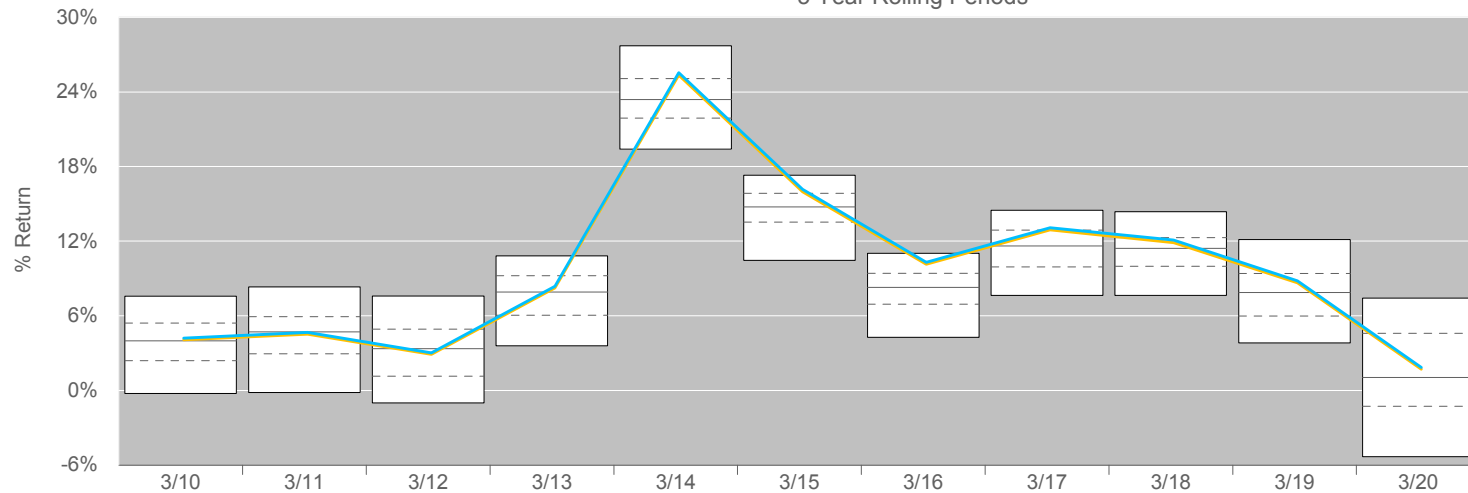
City of Grosse Pointe Woods Employees Retirement System

iShares Russell Midcap Index Broad Mid Cap Universe For Report Periods Ending March 31, 2020



	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since 1/05
5th	-16.1%	-9.5%	-2.9%	10.2%	7.4%	10.9%	12.1%	10.0%
25th	-20.0	-14.7	-9.8	5.5	4.6	8.2	9.9	8.1
50th	-26.1	-20.6	-17.9	-1.9	1.0	5.6	8.0	6.9
75th	-31.4	-25.9	-23.7	-5.6	-1.3	3.5	6.2	5.7
95th	-38.0	-33.3	-33.1	-11.2	-5.3	0.2	4.1	3.3
iShares Russell Midcap Index	-27.1%	-21.6%	-18.4%	-0.9%	1.7%	6.2%	8.6%	7.2%
Russell Midcap Index	-27.1%	-21.5%	-18.3%	-0.8%	1.8%	6.4%	8.8%	7.3%

Report From March 31, 2005 to March 31, 2020 5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Vanguard S&P Small Cap 600 Index

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
Vanguard S&P Small Cap 600 Index	-32.6%	-27.2%	-25.9%	-5.4%	0.4%	5.1%	8.4%	9/10
S&P SmallCap 600 Index	-32.6	-27.2	-25.9	-5.3	0.5	5.2	8.5	
Russell 2000 Index	-30.6	-25.5	-24.0	-4.6	-0.2	4.2	7.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Vanguard S&P Small Cap 600 Index	1.00	0.0%	1.00	20.1%	0.0%	-0.9
S&P SmallCap 600 Index	1.00	0.0	1.00	20.1	0.0	--
Russell 2000 Index	0.97	-0.7	0.98	19.6	2.7	0.2

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Vanguard S&P Small Cap 600 Index	17.3	1.3	1,498.0M	2.5%	--%
S&P SmallCap 600 Index	17.3	1.3	1,498.0	2.5	--
Russell 2000 Index	19.1	2.2	2,246.0	1.5	--

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

Vanguard S&P Small Cap 600 Index

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

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

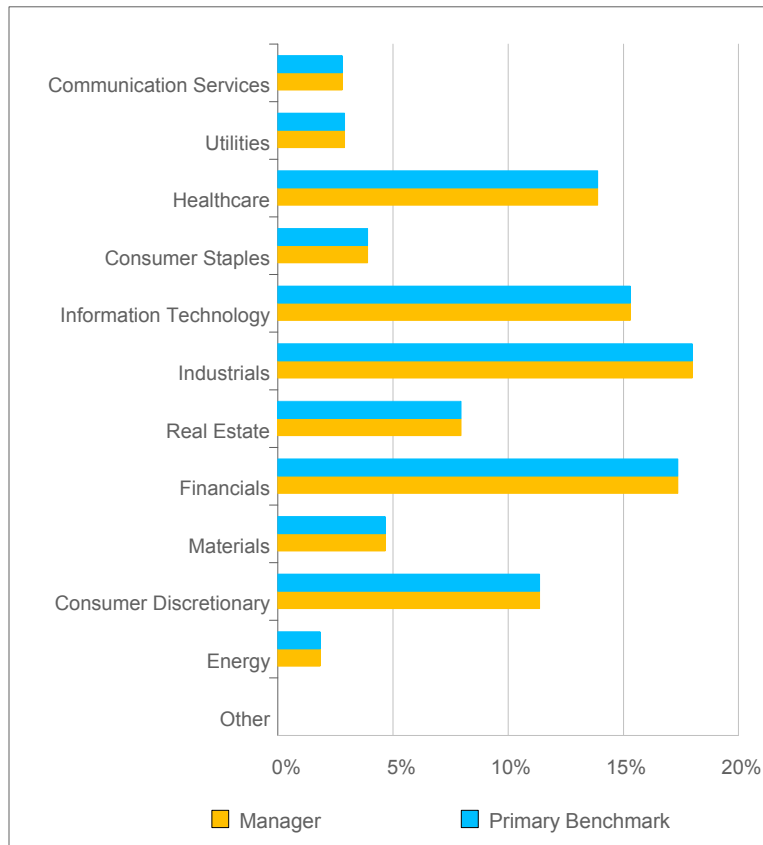
City of Grosse Pointe Woods Employees Retirement System

Vanguard S&P Small Cap 600 Index

Equity Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Communication Services	3%	3%	-8.1%	-15.0%
Utilities	3	3	-9.5	2.0
Healthcare	14	14	-19.9	-10.2
Consumer Staples	4	4	-21.1	-14.6
Information Technology	15	15	-26.0	-11.2
Industrials	18	18	-32.7	-22.5
Real Estate	8	8	-34.0	-34.0
Financials	17	17	-34.8	-26.1
Materials	5	5	-35.4	-34.5
Consumer Discretionary	11	11	-43.5	-39.7
Energy	2	2	-70.7	-79.6
Other	0	0	-	-

Top Five Holdings

	Weighting
LHC GROUP INC	0.8%
EXPONENT INC	0.7
COGENT COMMUNICATIONS HOLDINGS INC	0.7
NEOGEN CORP	0.7
EHEALTH INC	0.7

Number of Holdings: 601

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

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

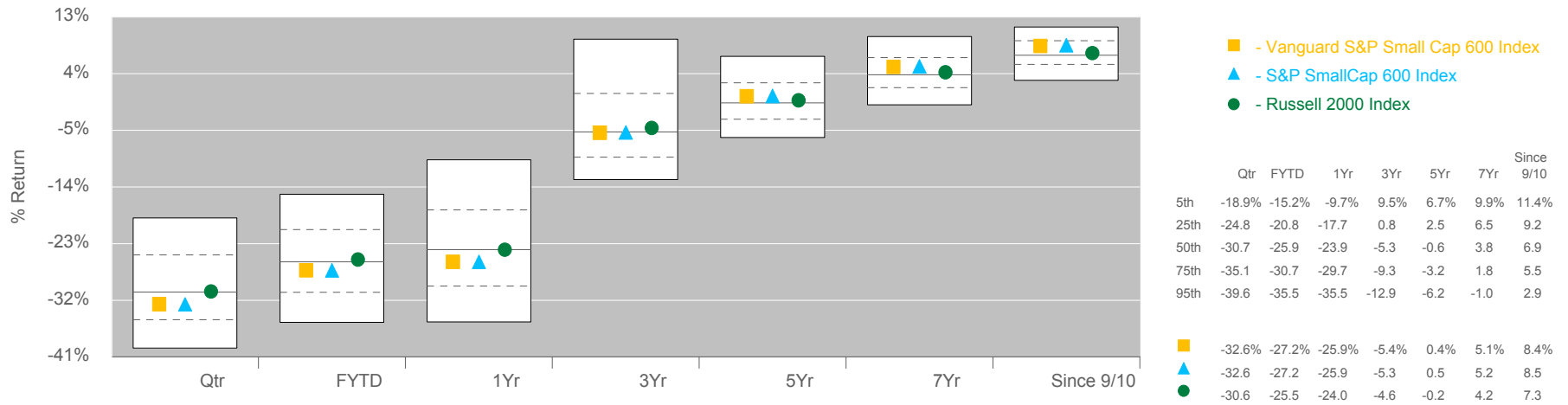
* Effective fourth quarter 2018, Telecommunication Services was replaced by Communication Services by the Global Industry Classification Standard (GICS). Some members of Consumer Discretionary, Technology, and Telecommunication Services were reclassified as Communication Services.

City of Grosse Pointe Woods Employees Retirement System

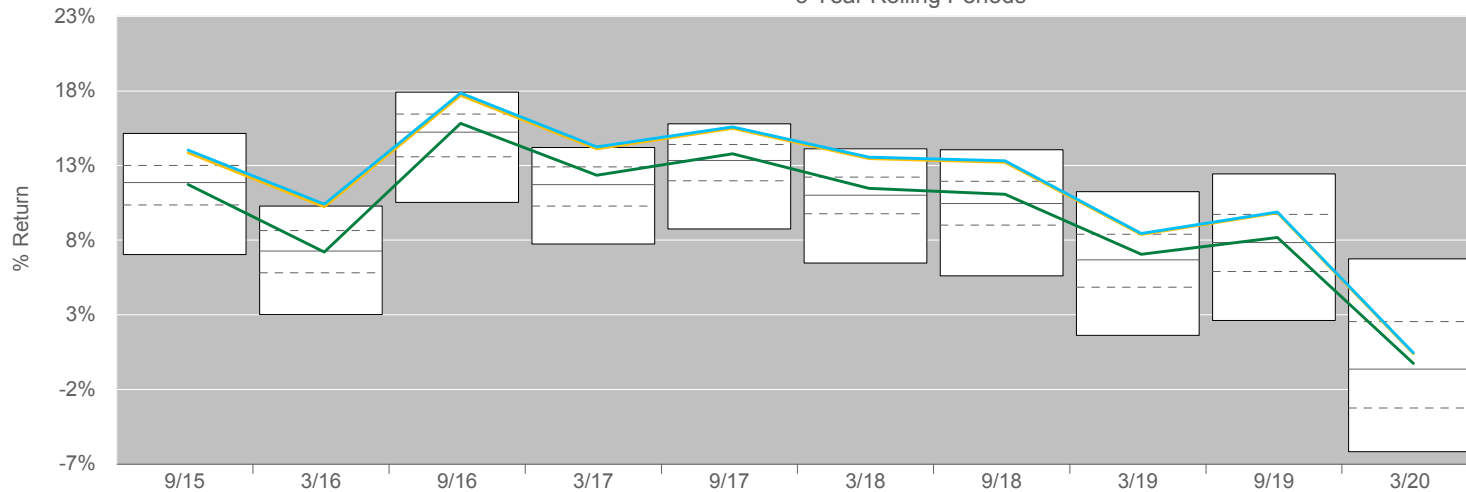
Vanguard S&P Small Cap 600 Index

Broad Small Cap Universe

For Report Periods Ending March 31, 2020



Report From September 30, 2010 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

EuroPacific Growth Fund

Summary of Performance and Statistics
Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
EuroPacific Growth Fund	-22.5%	-16.0%	-12.8%	0.2%	0.8%	3.4%	3.9%	3.4%	8/08
MSCI AC World Index ex-U.S.	-23.4	-18.0	-15.6	-2.0	-0.6	1.1	2.1	1.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
EuroPacific Growth Fund	0.95	1.4%	0.94	14.5%	3.5%	0.4
MSCI AC World Index ex-U.S.	1.00	0.0	1.00	14.6	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
EuroPacific Growth Fund	16.9	2.3	77,300.0M	2.1%	38.0%
MSCI AC World Index ex-U.S.	12.7	1.4	53,266.3	3.9	--

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

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

City of Grosse Pointe Woods Employees Retirement System

EuroPacific Growth Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 1.5%	Yes
Beta < 1.20	Beta = 0.95	Yes
Alpha > 0.0%	Alpha = 1.4%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

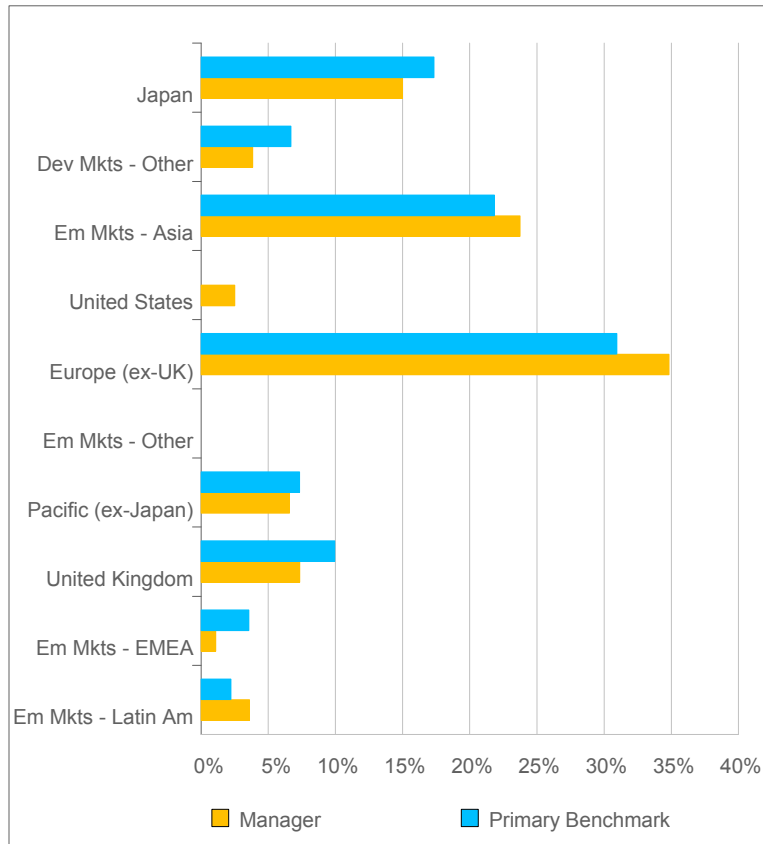
City of Grosse Pointe Woods Employees Retirement System

EuroPacific Growth Fund

International Sector

Report For Periods Ending March 31, 2020

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Japan	15%	17%	-16.8%	-6.7%
Dev Mkts - Other	4	7	-18.1	-18.4
Em Mkts - Asia	24	22	-18.3	-14.1
United States	3	0	-19.8	-7.7
Europe (ex-UK)	35	31	-22.8	-12.7
Em Mkts - Other	0	0	-26.6	-19.0
Pacific (ex-Japan)	7	7	-27.6	-23.7
United Kingdom	7	10	-28.8	-23.0
Em Mkts - EMEA	1	4	-33.9	-27.7
Em Mkts - Latin Am	4	2	-45.6	-40.8

Top Five Countries

	Weighting
Japan	14.9%
China	10.0
France	8.3
India	7.4
United Kingdom	7.4

Number of Holdings: 333

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

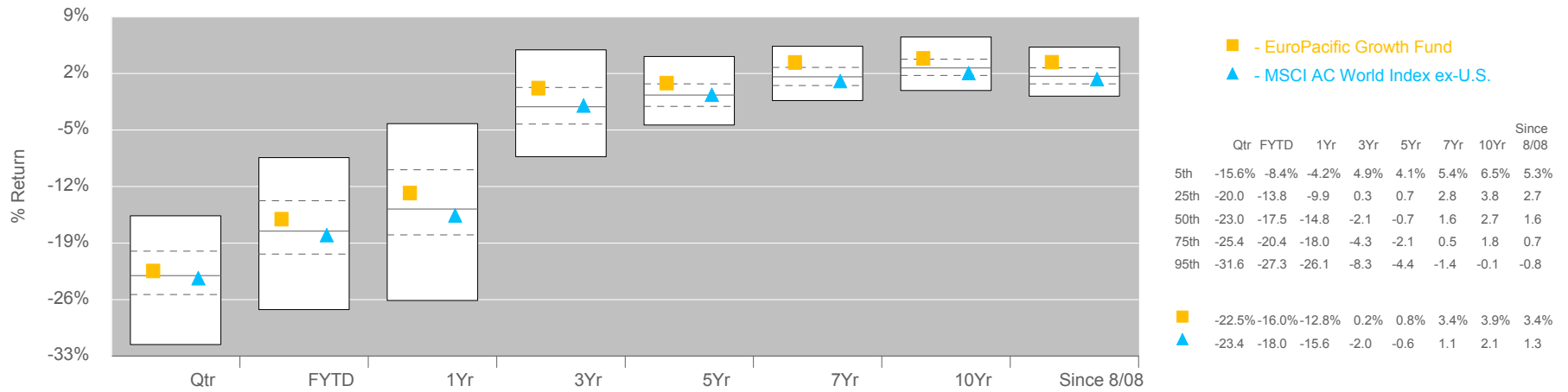
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

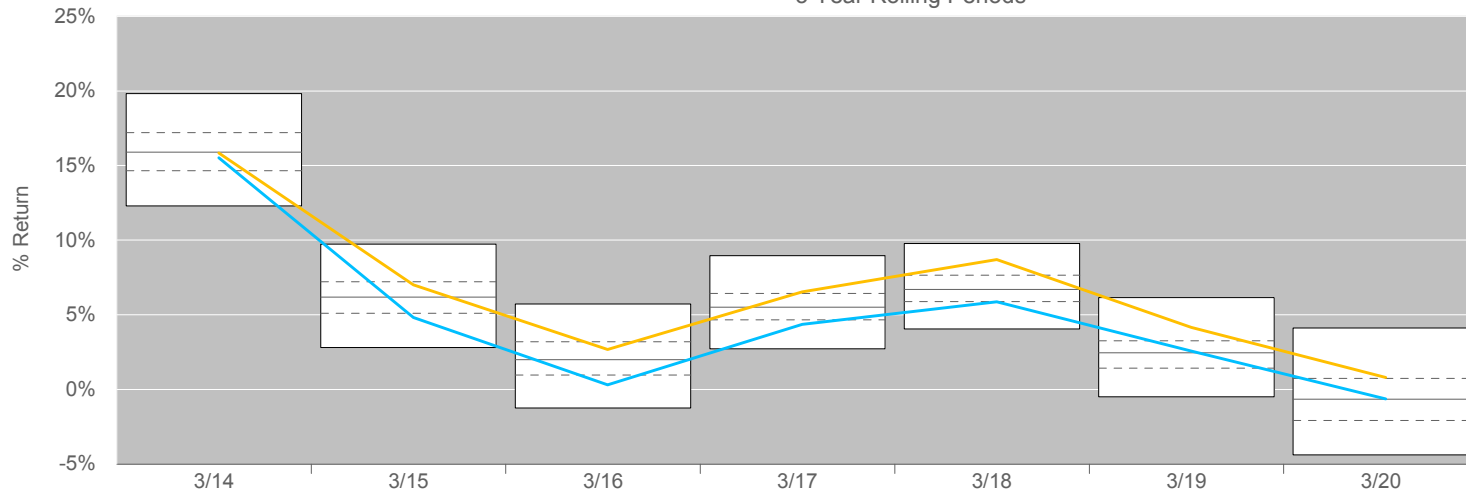
EuroPacific Growth Fund

International Equity Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2009 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Templeton Inst'l Foreign Smaller Co.

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Templeton Inst'l Foreign Smaller Co.	-31.9%	-26.9%	-25.8%	-6.0%	-2.5%	0.3%	3.2%	5.0%	1/05
MSCI Small Cap EAFE Index	-27.5	-19.5	-18.1	-2.9	1.0	3.3	4.8	4.5	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Templeton Inst'l Foreign Smaller Co.	1.04	-3.5%	0.94	16.5%	4.3%	-0.8
MSCI Small Cap EAFE Index	1.00	0.0	1.00	15.9	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.	12.4	1.3	1,890.1 M	3.3%	39.5%
MSCI Small Cap EAFE Index	13.2	1.1	1,672.8	3.5	--

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

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

City of Grosse Pointe Woods Employees Retirement System

Templeton Inst'l Foreign Smaller Co.

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -3.5%	No
Beta < 1.20	Beta = 1.04	Yes
Alpha > 0.0%	Alpha = -3.5%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 25th Percentile	No

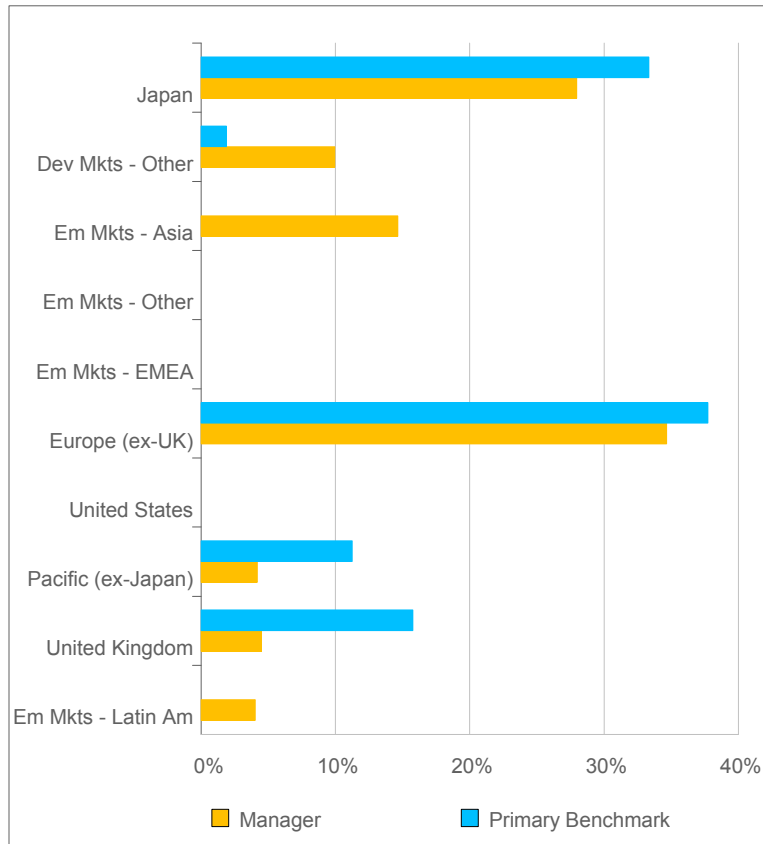
City of Grosse Pointe Woods Employees Retirement System

Templeton Inst'l Foreign Smaller Co.

International Sector

Report For Periods Ending March 31, 2020

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Japan	28%	33%	-20.1%	-10.8%
Dev Mkts - Other	10	2	-25.9	-3.7
Em Mkts - Asia	15	0	-26.2	-27.1
Em Mkts - Other	0	0	-26.6	-19.0
Em Mkts - EMEA	0	0	-26.8	-15.5
Europe (ex-UK)	35	38	-27.5	-17.1
United States	0	0	-31.4	-24.9
Pacific (ex-Japan)	4	11	-32.7	-29.1
United Kingdom	5	16	-36.5	-25.1
Em Mkts - Latin Am	4	0	-50.6	-38.5

Top Five Countries

	Weighting
Japan	28.0%
Taiwan	7.2
Germany	6.8
Netherlands	5.7
Italy	5.2

Number of Holdings: 102

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

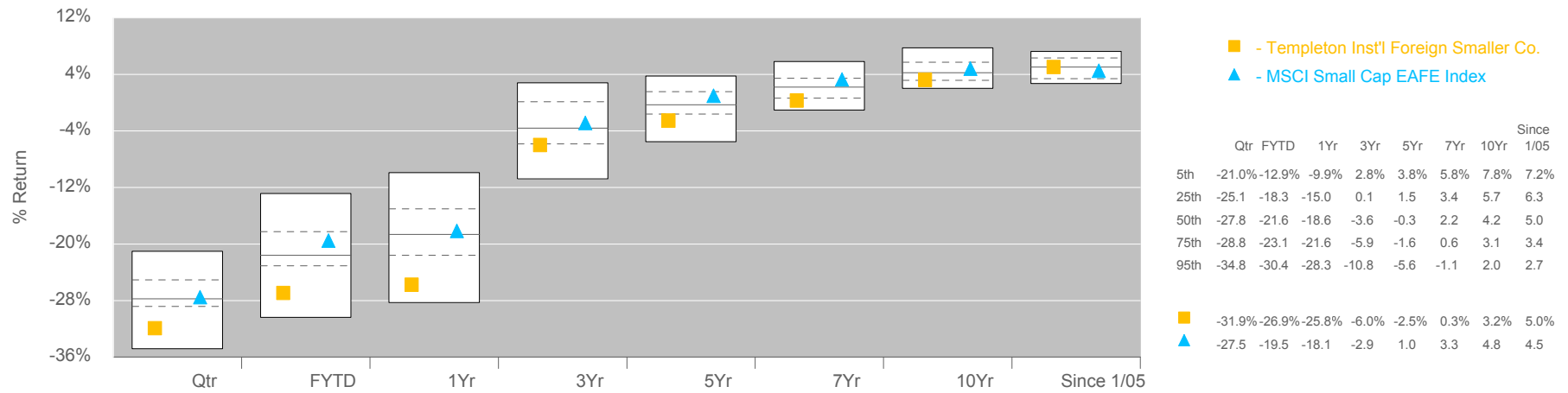
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

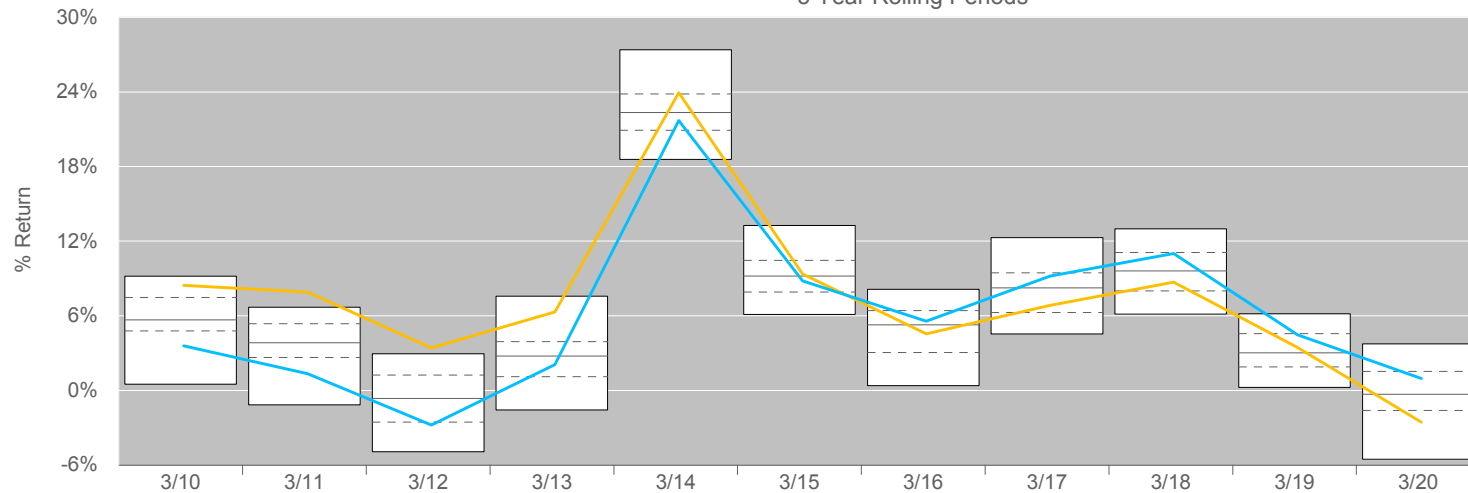
Templeton Inst'l Foreign Smaller Co.

International Small Cap Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

RWC Global Emerging Equity Fund

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
RWC Global Emerging Equity Fund	-28.0%	-22.5%	-22.6%	-4.7%	0.2%	3.0%	4.2%	7/12
MSCI Emerging Markets Index	-23.6	-18.2	-17.7	-1.6	-0.4	-0.4	0.8	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
RWC Global Emerging Equity Fund	1.13	0.8%	0.90	21.7%	7.1%	0.1
MSCI Emerging Markets Index	1.00	0.0	1.00	17.9	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
RWC Global Emerging Equity Fund	13.3	1.5	72,608.9M	2.0%	78.9%
MSCI Emerging Markets Index	12.5	1.4	68,698.8	3.2	--

* 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

RWC Global Emerging Equity Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.6%	Yes
Beta < 1.20	Beta = 1.13	Yes
Alpha > 0.0%	Alpha = 0.8%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 33rd Percentile	Yes

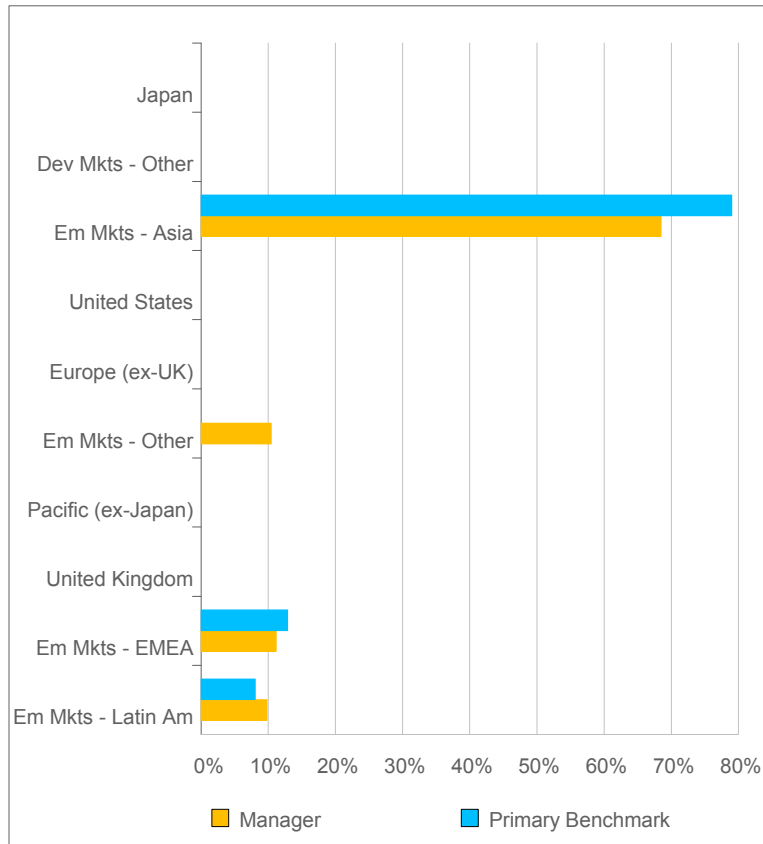
City of Grosse Pointe Woods Employees Retirement System

RWC Global Emerging Equity Fund

Emerging Markets Sector

Report For Periods Ending March 31, 2020

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Japan	0%	0%	-16.8%	-6.7%
Dev Mkts - Other	0	0	-18.1	-18.4
Em Mkts - Asia	68	79	-18.3	-14.1
United States	0	0	-19.8	-7.7
Europe (ex-UK)	0	0	-22.8	-12.7
Em Mkts - Other	10	0	-26.6	-19.0
Pacific (ex-Japan)	0	0	-27.6	-23.7
United Kingdom	0	0	-28.8	-23.0
Em Mkts - EMEA	11	13	-33.9	-27.7
Em Mkts - Latin Am	10	8	-45.6	-40.8

Top Five Countries

	Weighting
China	34.8%
Taiwan	12.9
Korea, South	10.4
India	7.4
Russia	5.4

Number of Holdings: 62

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

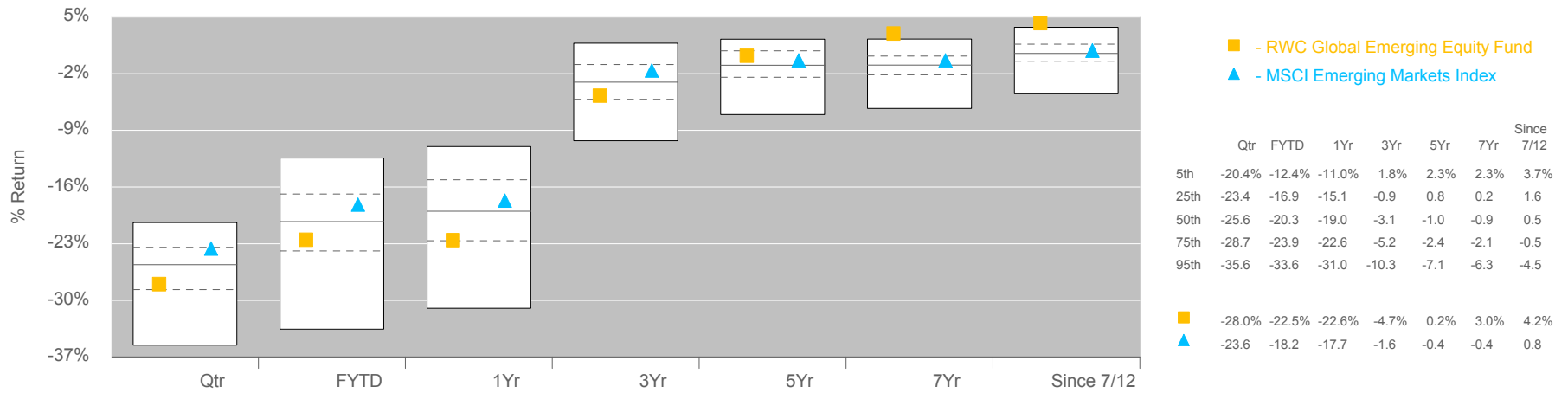
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City of Grosse Pointe Woods Employees Retirement System

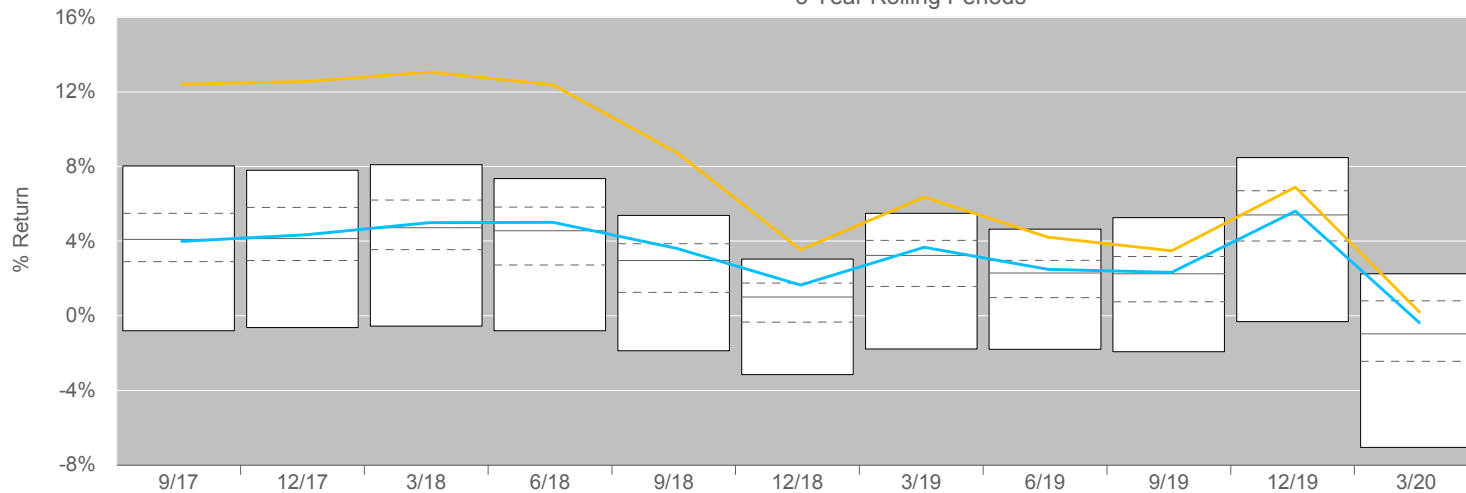
RWC Global Emerging Equity Fund

Emerging Markets Universe

For Report Periods Ending March 31, 2020



Report From September 30, 2012 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

DFA Emerging Markets Fund Summary of Performance and Statistics Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
DFA Emerging Markets Fund	-27.1%	-22.5%	-21.8%	-4.1%	-1.5%	-1.2%	0.4%	5.1%	1/05
MSCI Emerging Markets Index	-23.6	-18.2	-17.7	-1.6	-0.4	-0.4	0.7	5.5	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
DFA Emerging Markets Fund	0.99	-1.1%	0.97	17.7%	2.8%	-0.4
MSCI Emerging Markets Index	1.00	0.0	1.00	17.9	0.0	--

Portfolio Statistics	Trailing P/E	Trailing P/B	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
DFA Emerging Markets Fund	11.7	1.3	81,308.3M	3.2%	9.0%
MSCI Emerging Markets Index	12.5	1.4	68,698.8	3.2	--

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

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

City of Grosse Pointe Woods Employees Retirement System

DFA Emerging Markets Fund

Summary of Performance Relative to Investment Policy Statement Objectives

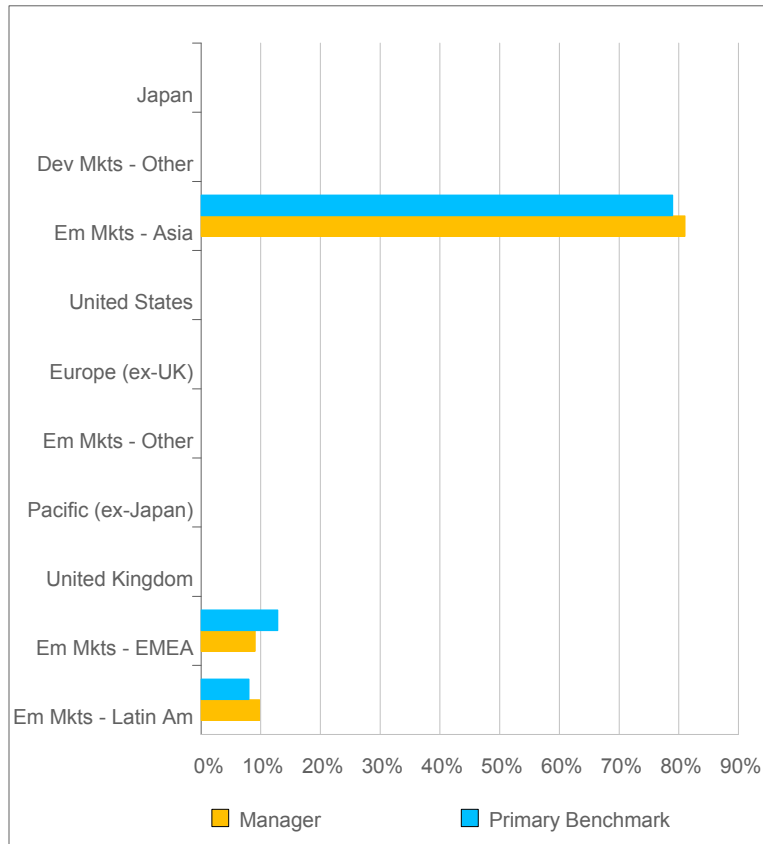
Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -1.1%	No
Beta < 1.20	Beta = 0.99	Yes
Alpha > 0.0%	Alpha = -1.1%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

City of Grosse Pointe Woods Employees Retirement System

DFA Emerging Markets Fund Emerging Markets Sector Report For Periods Ending March 31, 2020

Region Allocation



Region	Region Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Japan	0%	0%	-16.8%	-6.7%
Dev Mkts - Other	0	0	-18.1	-18.4
Em Mkts - Asia	81	79	-18.3	-14.1
United States	0	0	-19.8	-7.7
Europe (ex-UK)	0	0	-22.8	-12.7
Em Mkts - Other	0	0	-26.6	-19.0
Pacific (ex-Japan)	0	0	-27.6	-23.7
United Kingdom	0	0	-28.8	-23.0
Em Mkts - EMEA	9	13	-33.9	-27.7
Em Mkts - Latin Am	10	8	-45.6	-40.8

Top Five Countries	Weighting
China	29.2%
Taiwan	16.9
Korea, South	15.0
India	11.4
Brazil	5.7

Number of Holdings: 1178

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

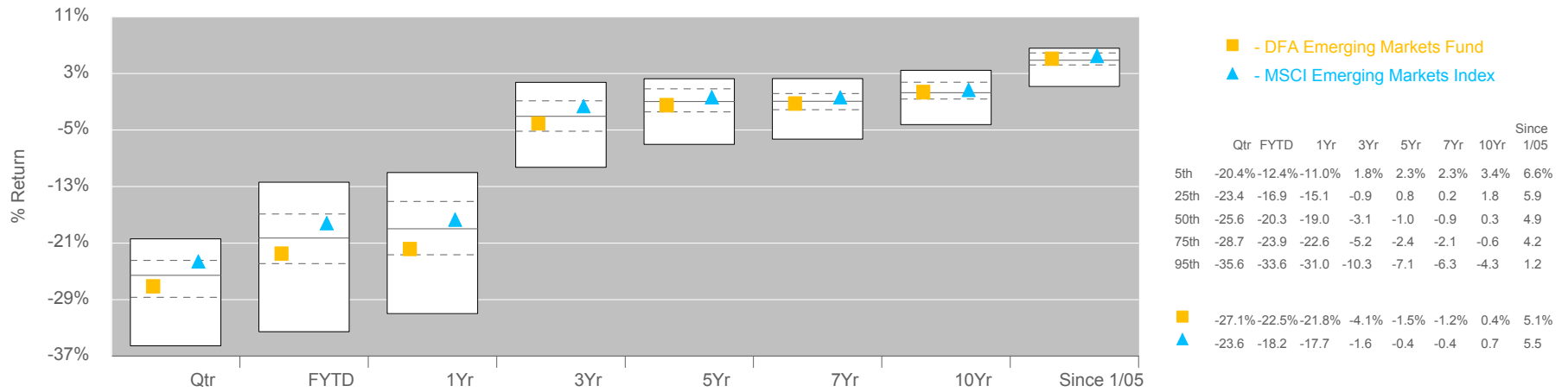
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

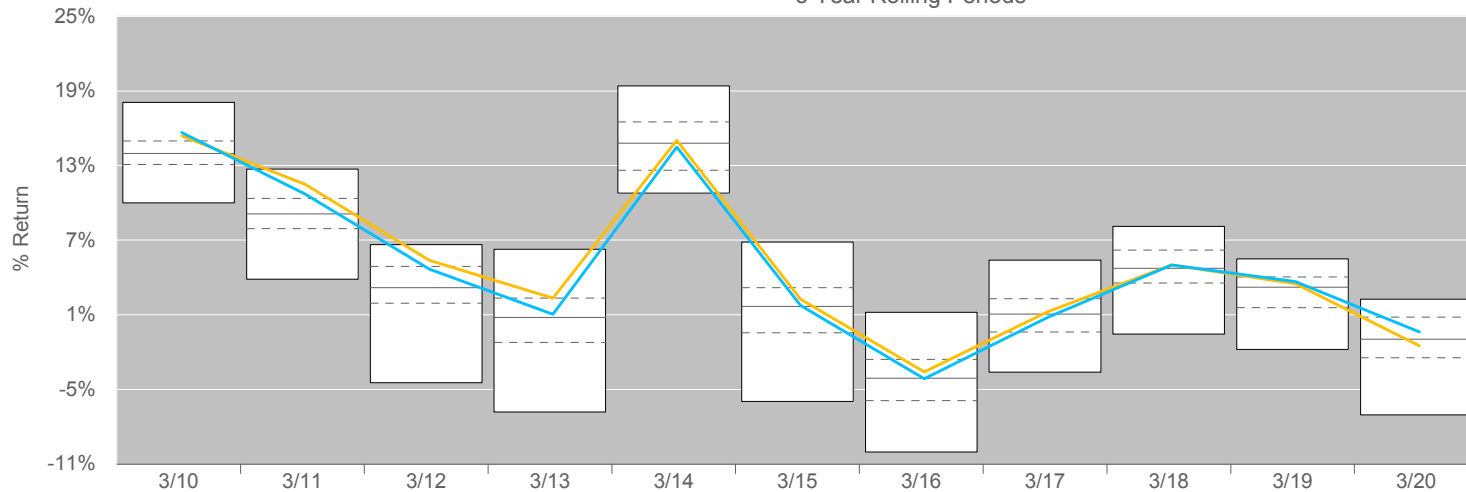
DFA Emerging Markets Fund

Emerging Markets Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Dodge & Cox Income Fund

Summary of Performance and Statistics
Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Dodge & Cox Income Fund	-0.7%	2.2%	5.1%	3.9%	3.3%	3.3%	4.1%	4.6%	1/05
Bloomberg Barclays IG Credit Index	-0.5	3.2	7.5	4.8	3.7	3.8	5.0	4.7	
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	3.9	4.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Dodge & Cox Income Fund	0.61	0.6%	0.84	3.1%	2.1%	-0.2
Bloomberg Barclays IG Credit Index	1.00	0.0	1.00	4.6	0.0	--
Bloomberg Barclays US Aggregate Index	0.61	0.7	0.78	3.2	2.2	0.0

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
Dodge & Cox Income Fund	4.2yrs	8.1yrs	A	2.9%	49.0%
Bloomberg Barclays IG Credit Index	8.0	11.3	A-	2.8	--
Bloomberg Barclays US Aggregate Index	5.7	7.8	AA	1.6	--

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

Dodge & Cox Income Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.4%	No
Beta < 1.20	Beta = 0.61	Yes
Alpha > 0.0%	Alpha = 0.6%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

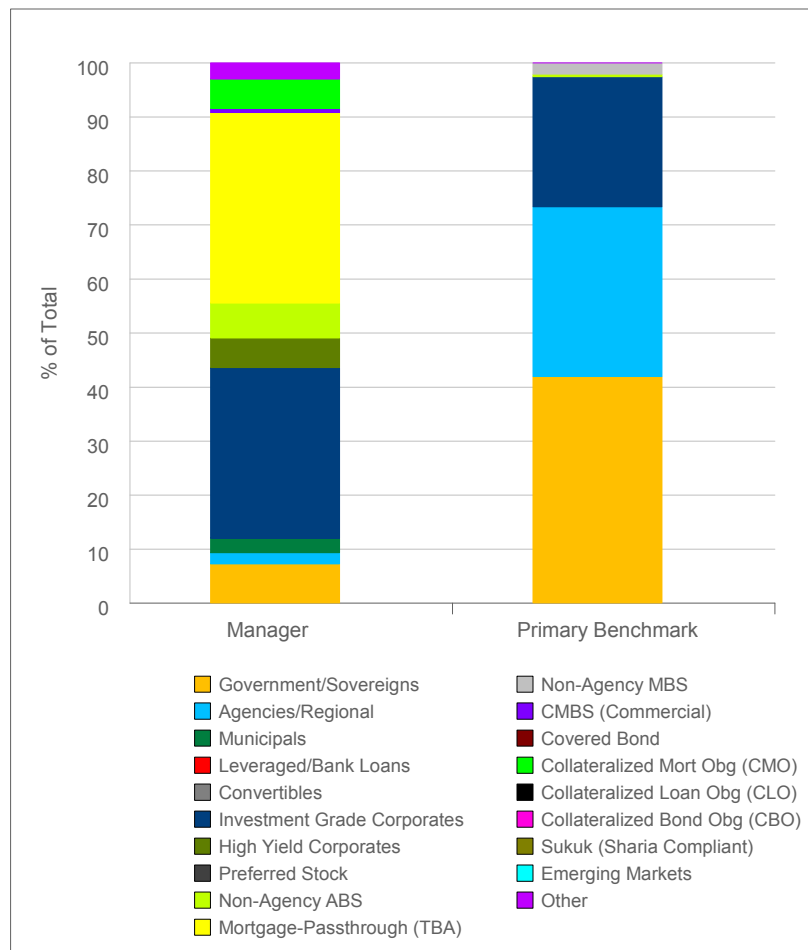
City of Grosse Pointe Woods Employees Retirement System

Dodge & Cox Income Fund

Fixed Income Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	3.1%	8.9%
Government/Sovereigns	7	42	8.1	13.1
Agencies/Regional	2	31	4.1	8.3
Municipals	3	0	-0.6	3.9
Leveraged/Bank Loans	0	0	0.5	4.8
Convertibles	0	0	-13.6	-3.5
Investment Grade Corporates	32	24	-3.6	5.0
High Yield Corporates	5	0	-12.7	-6.9
Preferred Stock	0	0	-14.9	-7.3
Non-Agency ABS	6	0	-0.2	2.8
Mortgage-Passthrough (TBA)	35	0	-5.4	1.3
Non-Agency MBS	0	2	2.8	7.0
CMBS (Commercial)	1	0	0.5	5.4
Covered Bond	0	0	0.6	3.5
Collateralized Mort Obg (CMO)	5	0	2.8	7.0
Collateralized Loan Obg (CLO)	0	0	0.5	4.8
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-13.4	-6.8
Other	3	0	0.0	0.0

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

*Benchmark weightings are for the Bloomberg Barclays US Aggregate Index.

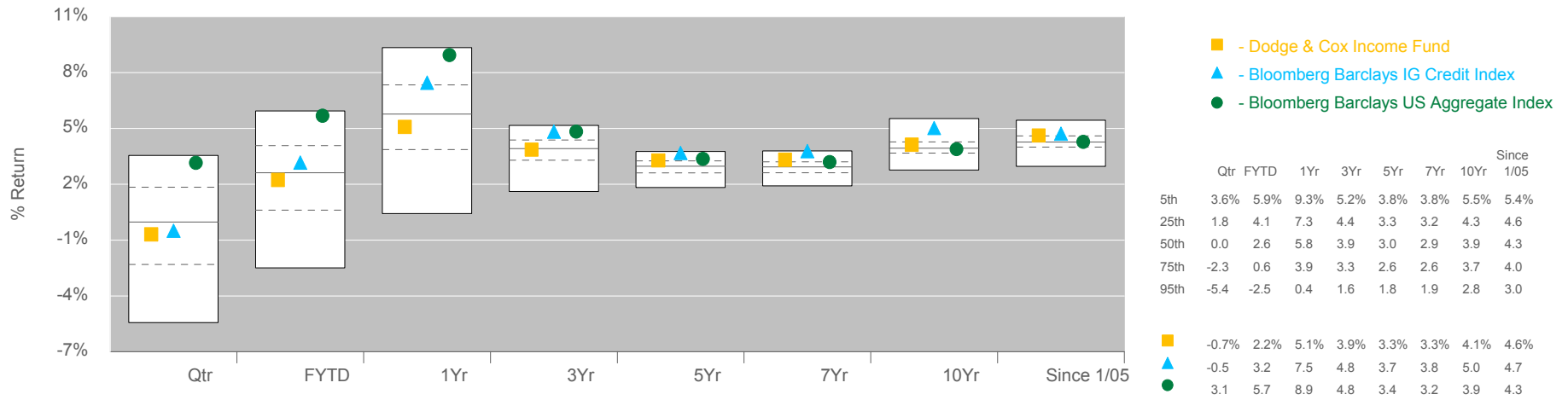
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

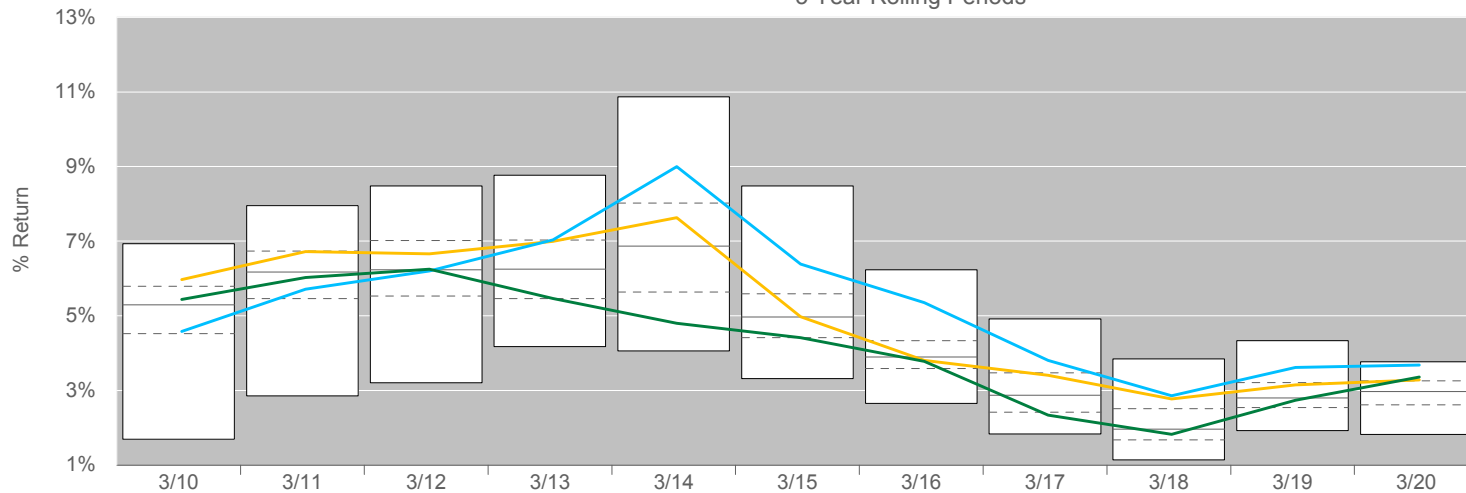
Dodge & Cox Income Fund

Core Fixed Income Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

DoubleLine Total Return Bond Fund

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
DoubleLine Total Return Bond Fund	-0.8%	0.6%	3.0%	3.2%	2.7%	2.9%	5.3%	4/10
Bloomberg Barclays US MBS Index	2.8	5.0	7.0	4.0	2.9	2.9	3.2	
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	3.8	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
DoubleLine Total Return Bond Fund	0.78	0.1%	0.33	3.0%	2.4%	-0.1
Bloomberg Barclays US MBS Index	1.00	0.0	1.00	2.2	0.0	--
Bloomberg Barclays US Aggregate Index	1.26	-0.1	0.76	3.2	1.9	-0.4

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
DoubleLine Total Return Bond Fund	3.5yrs	4.9yrs	A-	3.6%	22.0%
Bloomberg Barclays US MBS Index	1.7	3.3	AAA	1.3	--
Bloomberg Barclays US Aggregate Index	5.7	7.8	AA	1.6	--

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

DoubleLine Total Return Bond Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = -0.3%	No
Beta < 1.20	Beta = 0.78	Yes
Alpha > 0.0%	Alpha = 0.1%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No

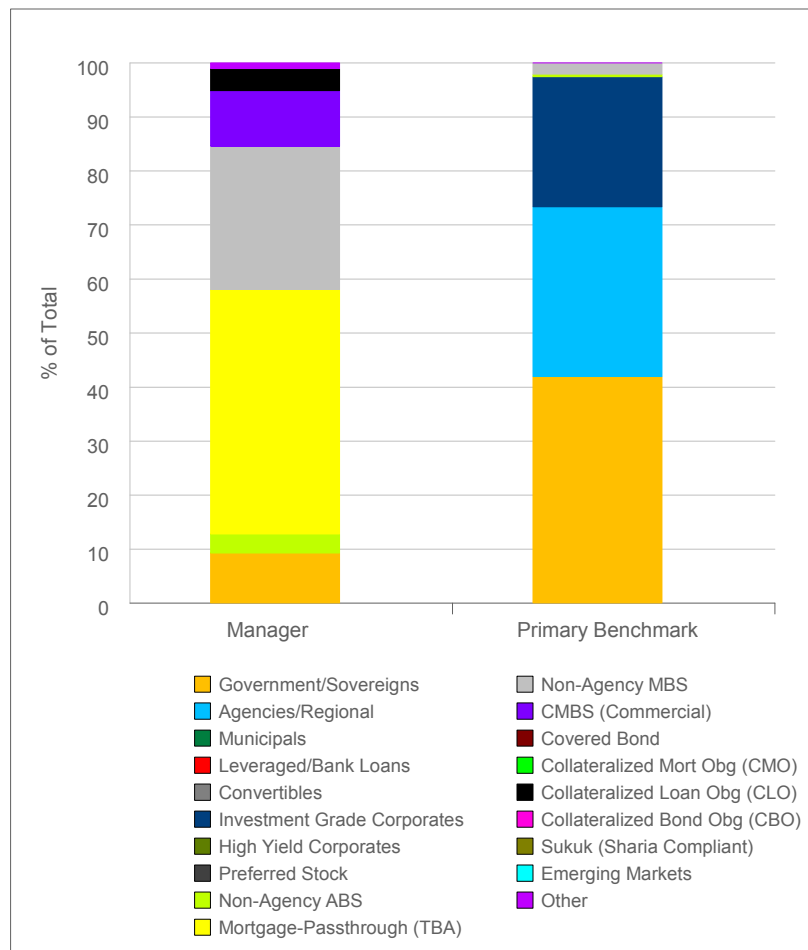
City of Grosse Pointe Woods Employees Retirement System

DoubleLine Total Return Bond Fund

Fixed Income Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Benchmark	3 Months	12 Months
Total Weighting	100%	100%	3.1%	8.9%
Government/Sovereigns	9	42	8.1	13.1
Agencies/Regional	0	31	4.1	8.3
Municipals	0	0	-0.6	3.9
Leveraged/Bank Loans	0	0	0.5	4.8
Convertibles	0	0	-13.6	-3.5
Investment Grade Corporates	0	24	-3.6	5.0
High Yield Corporates	0	0	-12.7	-6.9
Preferred Stock	0	0	-14.9	-7.3
Non-Agency ABS	4	0	-0.2	2.8
Mortgage-Passthrough (TBA)	45	0	-5.4	1.3
Non-Agency MBS	27	2	2.8	7.0
CMBS (Commercial)	10	0	0.5	5.4
Covered Bond	0	0	0.6	3.5
Collateralized Mort Obg (CMO)	0	0	2.8	7.0
Collateralized Loan Obg (CLO)	4	0	0.5	4.8
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-13.4	-6.8
Other	1	0	0.0	0.0

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

*Benchmark weightings are for the Bloomberg Barclays US Aggregate Index.

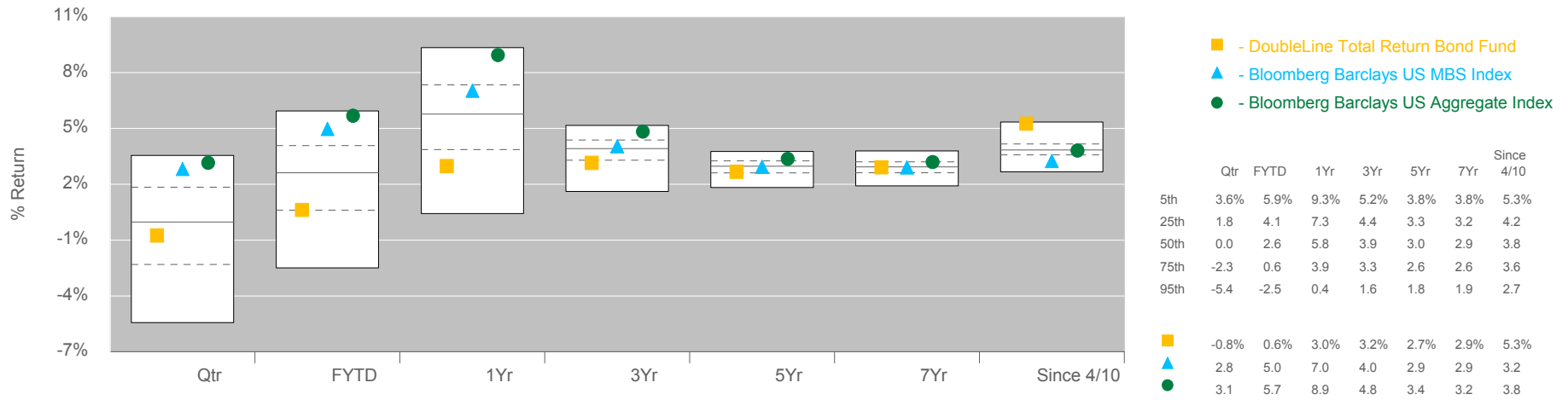
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

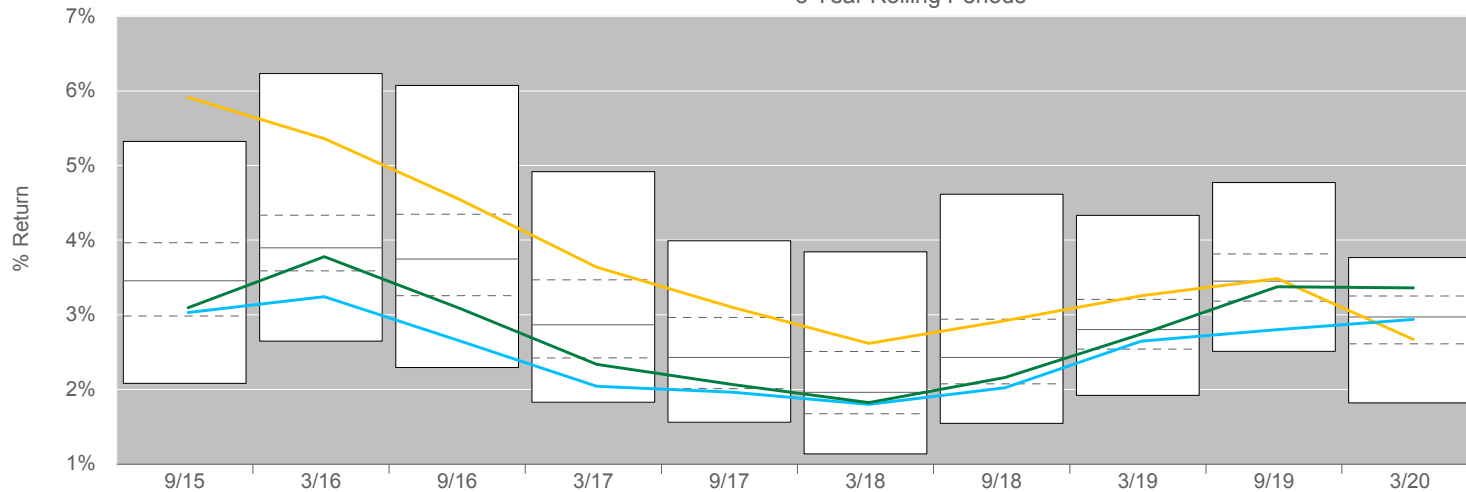
DoubleLine Total Return Bond Fund

Core Fixed Income Universe

For Report Periods Ending March 31, 2020



Report From September 30, 2010 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Vanguard Total Bond Fund

Summary of Performance and Statistics
Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Vanguard Total Bond Fund	3.3%	5.8%	9.1%	4.8%	3.3%	3.1%	3.8%	4.2%	1/05
Bloomberg Barclays US Aggregate Index	3.1	5.7	8.9	4.8	3.4	3.2	3.9	4.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Vanguard Total Bond Fund	1.03	-0.1%	0.99	3.3%	0.3%	-0.1
Bloomberg Barclays US Aggregate Index	1.00	0.0	1.00	3.2	0.0	--

Portfolio Statistics	Effective Duration	Wtd Avg Maturity	Wtd Avg Credit	Yield to Worst	FI Annl Turnover
Vanguard Total Bond Fund	5.7 yrs	7.8 yrs	AA	1.6%	--%
Bloomberg Barclays US Aggregate Index	5.7	7.8	AA	1.6	--

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

Vanguard Total Bond Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.0%	No
Beta < 1.20	Beta = 1.03	Yes
Alpha > 0.0%	Alpha = -0.1%	No
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

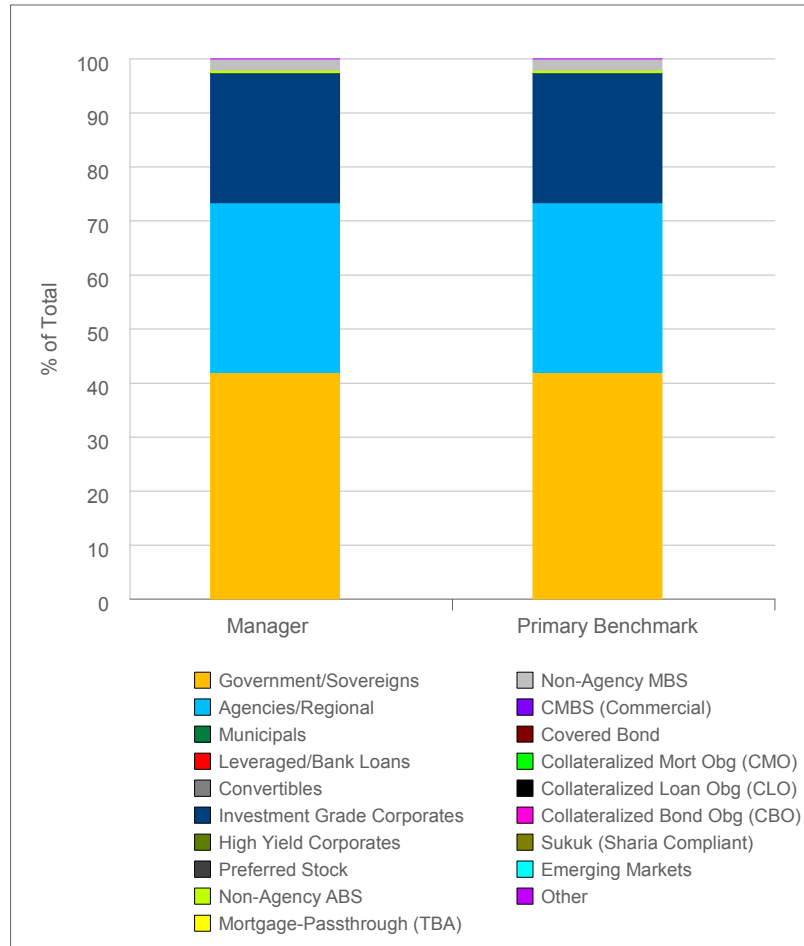
City of Grosse Pointe Woods Employees Retirement System

Vanguard Total Bond Fund

Fixed Income Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Total Weighting	100%	100%	3.1%	8.9%
Government/Sovereigns	42	42	8.1	13.1
Agencies/Regional	31	31	4.1	8.3
Municipals	0	0	-0.6	3.9
Leveraged/Bank Loans	0	0	0.5	4.8
Convertibles	0	0	-13.6	-3.5
Investment Grade Corporates	24	24	-3.6	5.0
High Yield Corporates	0	0	-12.7	-6.9
Preferred Stock	0	0	-14.9	-7.3
Non-Agency ABS	0	0	-0.2	2.8
Mortgage-Passthrough (TBA)	0	0	-5.4	1.3
Non-Agency MBS	2	2	2.8	7.0
CMBS (Commercial)	0	0	0.5	5.4
Covered Bond	0	0	0.6	3.5
Collateralized Mort Obg (CMO)	0	0	2.8	7.0
Collateralized Loan Obg (CLO)	0	0	0.5	4.8
Collateralized Bond Obg (CBO)	0	0	0.0	0.0
Sukuk (Sharia Compliant)	0	0	0.0	0.0
Emerging Markets	0	0	-13.4	-6.8
Other	0	0	0.0	0.0

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

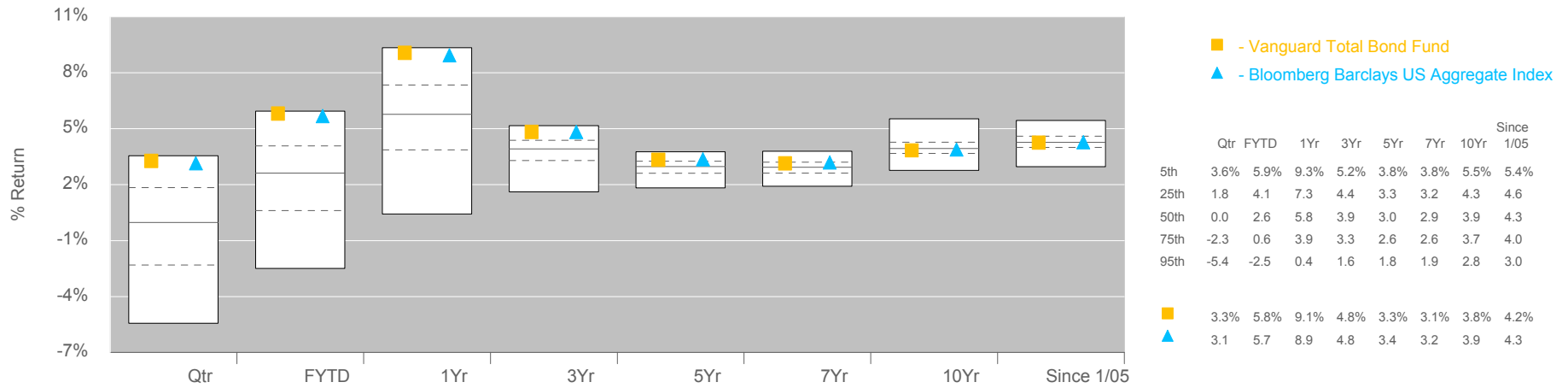
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

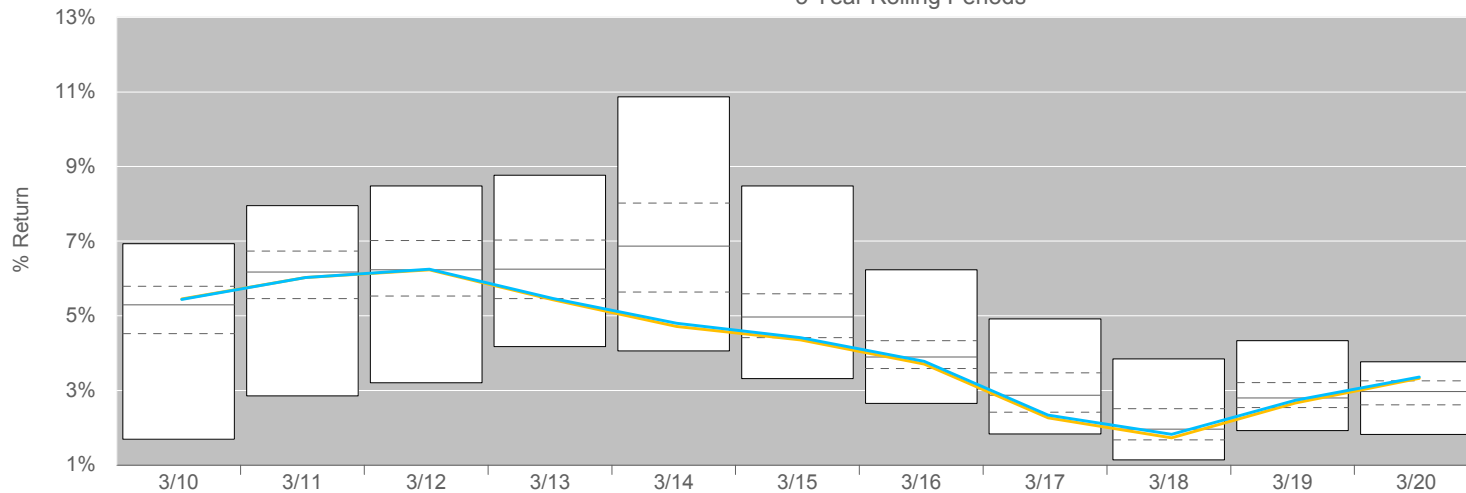
Vanguard Total Bond Fund

Core Fixed Income Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Principal Real Estate Securities Fund

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Principal Real Estate Securities Fund	-22.7%	-16.3%	-13.7%	1.3%	2.1%	6.0%	8.9%	7.9%	1/05
FTSE NAREIT Equity REIT Index	-27.3	-22.2	-21.3	-3.1	-0.3	3.5	7.4	6.2	
FTSE NAREIT All Equity Index	-23.4	-17.4	-15.9	0.1	2.0	4.9	8.6	7.0	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Principal Real Estate Securities Fund	0.91	2.3%	0.98	16.2%	3.0%	0.8
FTSE NAREIT Equity REIT Index	1.00	0.0	1.00	17.4	0.0	--
FTSE NAREIT All Equity Index	0.92	2.2	0.99	16.4	2.2	0.1

Portfolio Statistics	Current P/FFO	Growth in FFO	Wtd Avg Mkt Cap	Current Yield	Equity Annual Turnover
Principal Real Estate Securities Fund	18.5	5.5%	21,973.1 M	3.1%	24.1%
FTSE NAREIT Equity REIT Index	21.6	3.5	4,710.3	5.4	--
FTSE NAREIT All Equity Index	21.6	3.5	5,713.5	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

Principal Real Estate Securities Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 2.4%	Yes
Beta < 1.20	Beta = 0.91	Yes
Alpha > 0.0%	Alpha = 2.3%	Yes
Peer Group Rank > 50th Percentile	Ranks in Top 25th Percentile	Yes

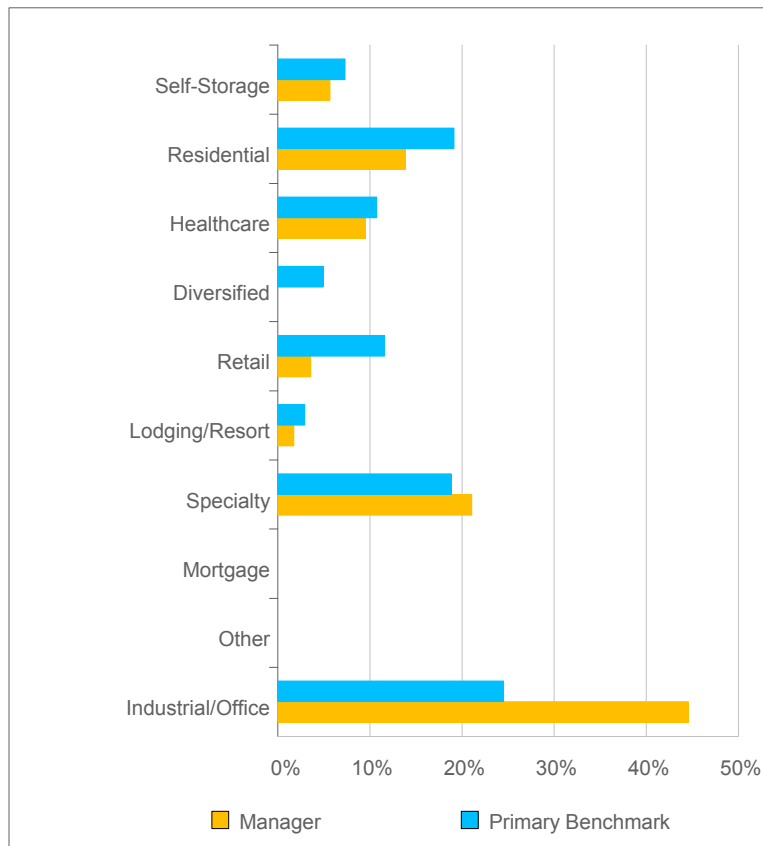
City of Grosse Pointe Woods Employees Retirement System

Principal Real Estate Securities Fund

Real Estate Sector

Report For Periods Ending March 31, 2020

Sector Allocation



Sector	Sector Weightings		Market Total Returns	
	Manager	Primary Benchmark	3 Months	12 Months
Self-Storage	6%	7%	-8.0%	-4.7%
Residential	14	19	-24.5	-15.2
Healthcare	10	11	-36.8	-32.2
Diversified	0	5	-39.1	-35.2
Retail	4	12	-48.7	-50.4
Lodging/Resort	2	3	-51.3	-51.4
Specialty	21	19	-	-
Mortgage	0	0	-	-
Other	0	0	-	-
Industrial/Office	45	25	-	-

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

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

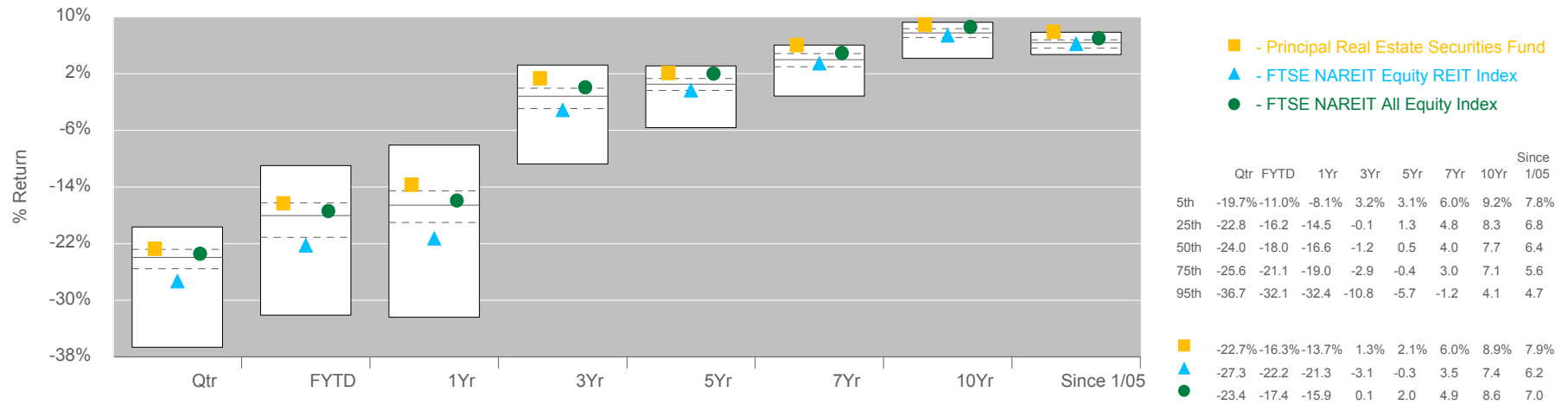
* Manager data represents the most current available at the time of report publication.

City of Grosse Pointe Woods Employees Retirement System

Principal Real Estate Securities Fund

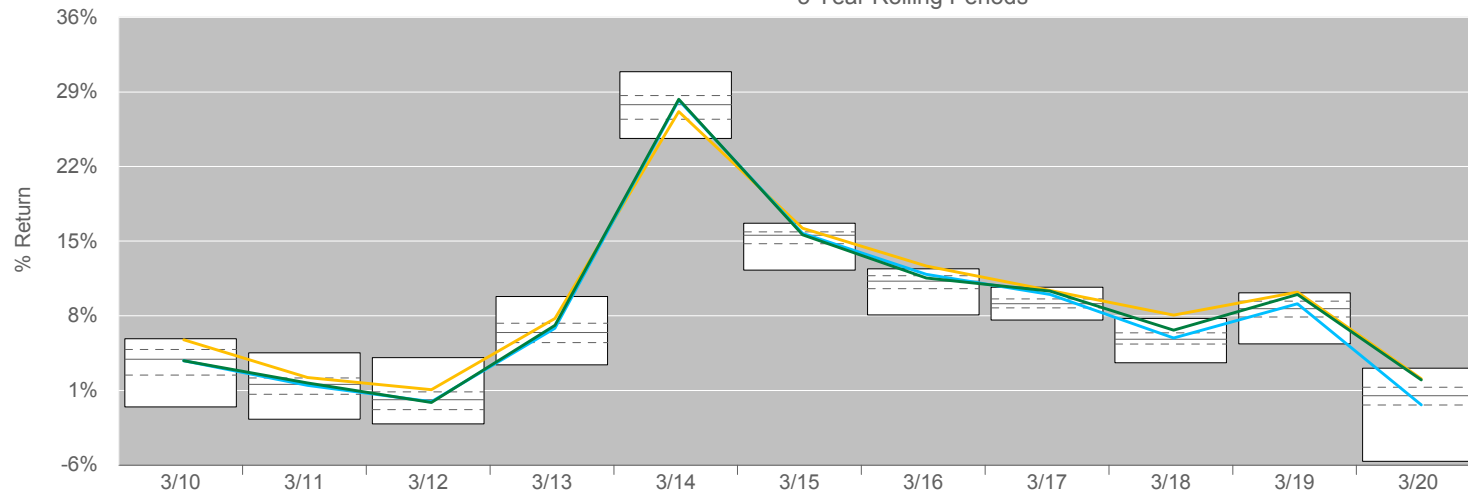
REIT Manager Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020

5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Credit Suisse Commodity Return Fund

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	10Yr	Since Inception	Inception Date
Credit Suisse Commodity Return Fund	-22.1%	-20.4%	-21.6%	-8.6%	-7.6%	-9.9%	-6.7%	-4.3%	1/05
Bloomberg Commodity Index	-23.3	-21.4	-22.3	-8.6	-7.8	-10.0	-6.7	-4.3	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Credit Suisse Commodity Return Fund	0.97	-0.2%	1.00	11.8%	0.9%	0.2
Bloomberg Commodity Index	1.00	0.0	1.00	12.1	0.0	--

* 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

Credit Suisse Commodity Return Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

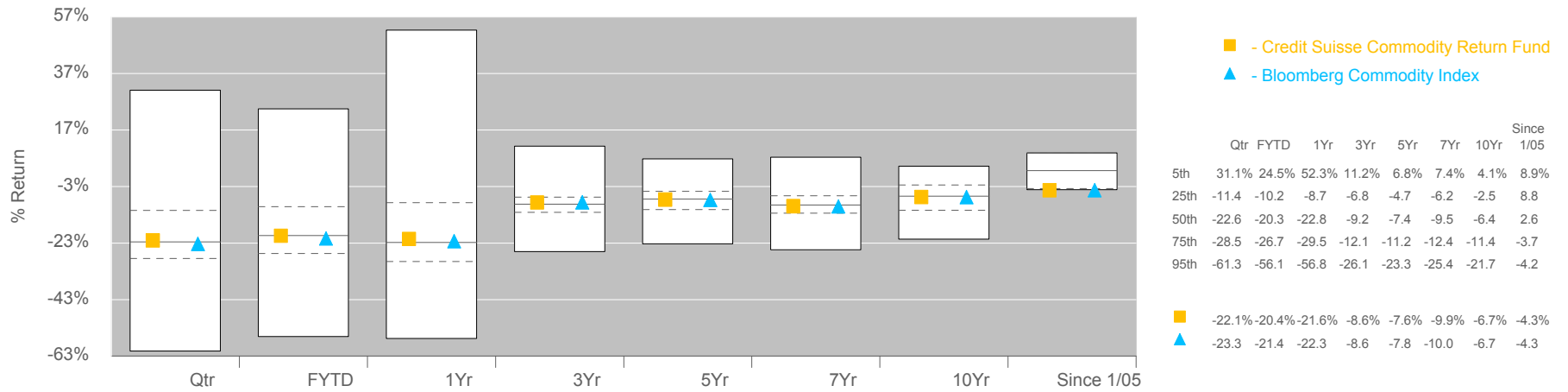
Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 0.1%	Yes
Beta < 1.20	Beta = 0.97	Yes
Alpha > 0.0%	Alpha = -0.2%	No
Peer Group Rank > 50th Percentile	Ranks in Bottom 50th Percentile	No

City of Grosse Pointe Woods Employees Retirement System

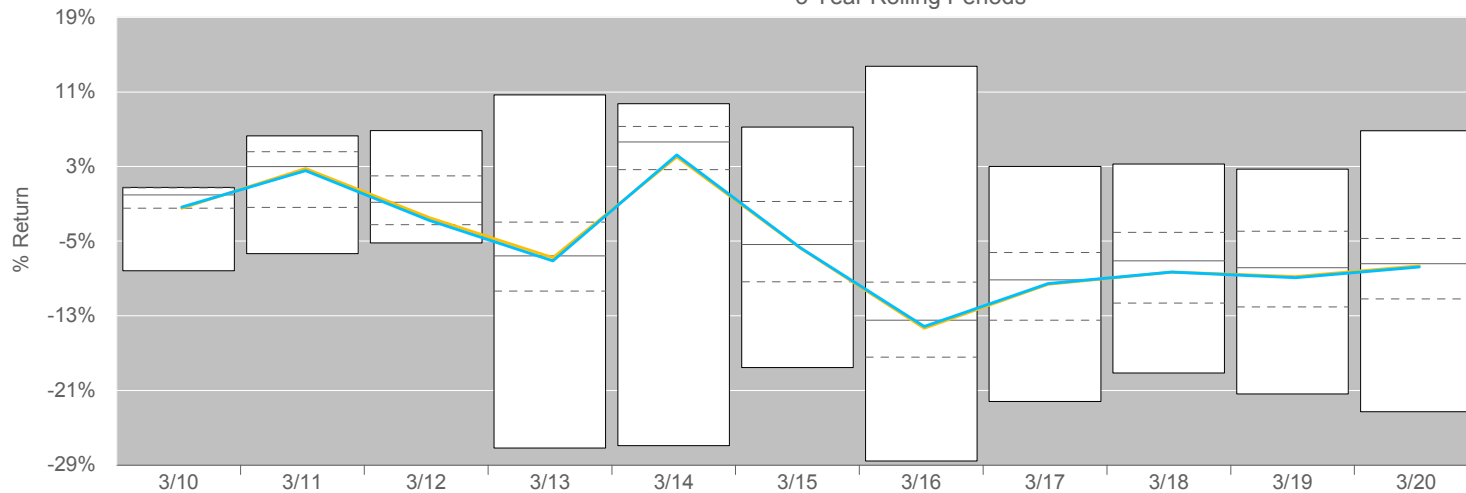
Credit Suisse Commodity Return Fund

Commodity Universe

For Report Periods Ending March 31, 2020



Report From March 31, 2005 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Tortoise MLP & Pipeline Fund

Summary of Performance and Statistics

Report For Periods Ending March 31, 2020

Performance Results	Qtr	FYTD	1Yr	3Yr	5Yr	7Yr	Since Inception	Inception Date
Tortoise MLP & Pipeline Fund	-49.3%	-50.3%	-50.5%	-21.0%	-14.2%	-7.7%	-2.0%	5/11
Alerian MLP Index	-57.2	-61.0	-60.9	-28.9	-20.7	-14.6	-8.5	
Tortoise North American Pipeline Index	-41.0	-40.6	-39.9	-13.2	-7.9	-3.0	--	

Risk Statistics (5 years)	Beta	Alpha	R ²	Standard Deviation	Tracking Error	Information Ratio
Tortoise MLP & Pipeline Fund	0.88	3.8%	0.92	24.7%	8.5%	0.8
Alerian MLP Index	1.00	0.0	1.00	25.4	0.0	--
Tortoise North American Pipeline Index	0.72	6.7	0.90	21.5	5.7	-1.1

* Risk Statistics are based on monthly data.

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

City of Grosse Pointe Woods Employees Retirement System

Tortoise MLP & Pipeline Fund

Summary of Performance Relative to Investment Policy Statement Objectives

Report For Periods Ending March 31, 2020

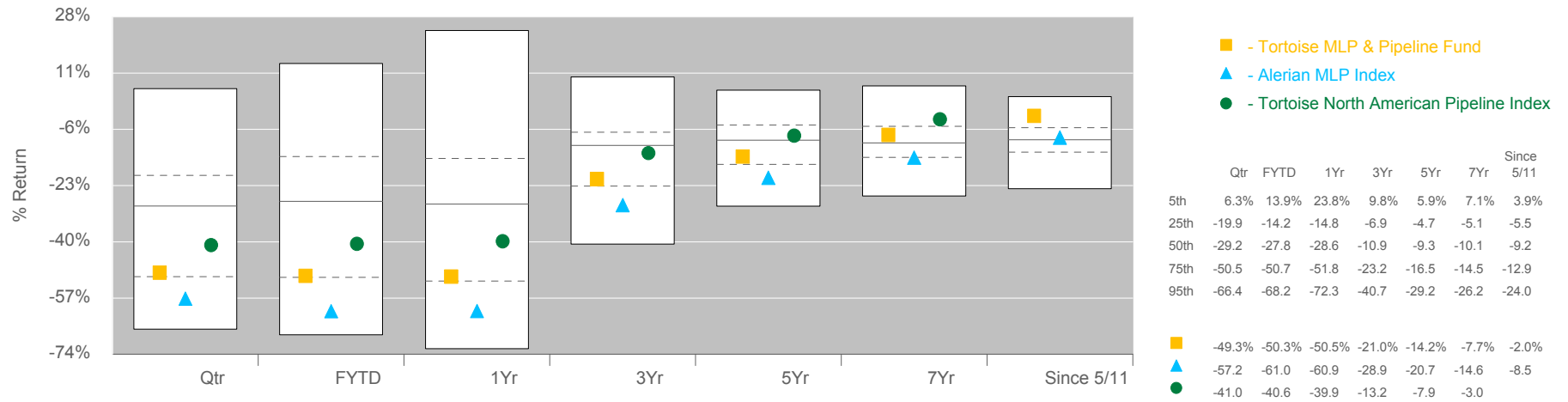
Performance Objectives	Result	Objective Achieved
Measurement Period: Moving 5 Year		
Return > Benchmark	Return over benchmark = 6.4%	Yes
Beta < 1.20	Beta = 0.88	Yes
Alpha > 0.0%	Alpha = 3.8%	Yes
Peer Group Rank > 50th Percentile	Ranks in Bottom 33rd Percentile	No

City of Grosse Pointe Woods Employees Retirement System

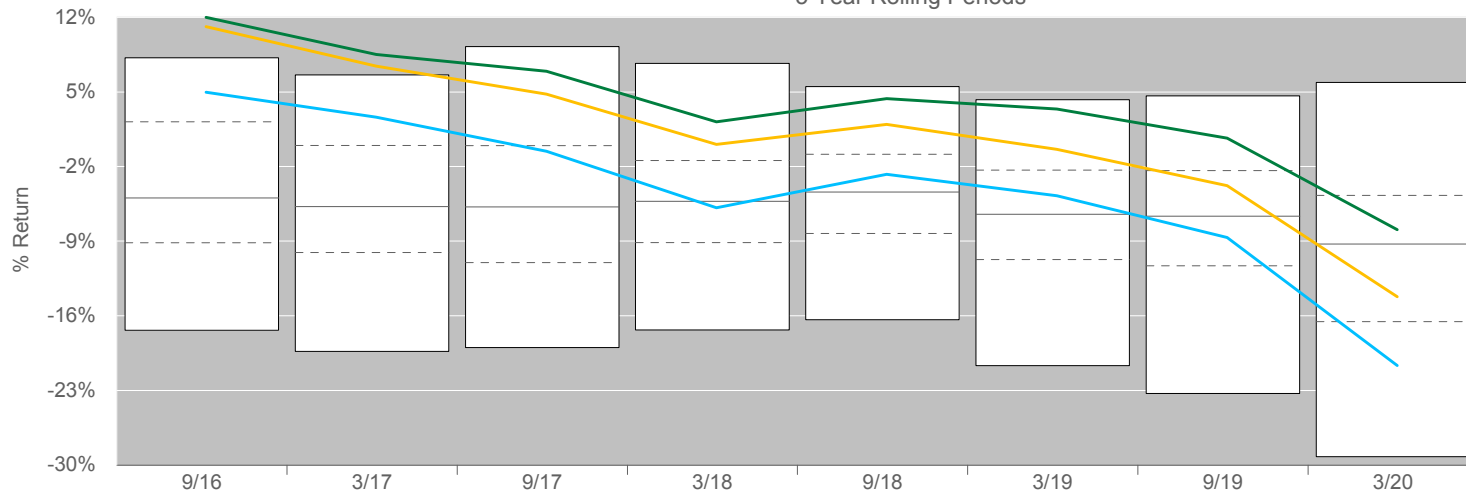
Tortoise MLP & Pipeline Fund

Natural Resources Universe

For Report Periods Ending March 31, 2020



Report From September 30, 2011 to March 31, 2020
5 Year Rolling Periods



City of Grosse Pointe Woods Employees Retirement System

Breakdown of Fees

Report For Periods Ending March 31, 2020

	Annual Fee/ Expense Ratio	Market Value	Percent Allocation	Weighted Average Fee	Annualized Fee
iShares S&P 500 Index	0.04%	\$7,640,113	23.5%	0.01%	\$3,056
iShares Russell Midcap Index	0.20%	\$1,713,547	5.3%	0.01%	\$3,427
Vanguard S&P Small Cap 600 Index	0.15%	\$2,341,361	7.2%	0.01%	\$3,512
EuroPacific Growth Fund	0.60%	\$3,334,368	10.3%	0.06%	\$20,006
Templeton Inst'l Foreign Smaller Co.	0.99%	\$1,632,404	5.0%	0.05%	\$16,161
RWC Global Emerging Equity Fund	1.33%	\$1,057,332	3.3%	0.04%	\$14,063
DFA Emerging Markets Fund	0.48%	\$2,193,889	6.8%	0.03%	\$10,531
Dodge & Cox Income Fund	0.43%	\$2,208,229	6.8%	0.03%	\$9,495
DoubleLine Total Return Bond Fund	0.47%	\$2,060,590	6.3%	0.03%	\$9,685
Vanguard Total Bond Fund	0.05%	\$2,197,364	6.8%	0.00%	\$1,099
Gateway Fund	0.70%	\$1,523,372	4.7%	0.03%	\$10,664
PIMCO All Asset Fund	1.01%	\$1,613,048	5.0%	0.05%	\$16,292
Principal Real Estate Securities Fund	0.85%	\$1,009,633	3.1%	0.03%	\$8,582
Credit Suisse Commodity Return Fund	0.78%	\$856,941	2.6%	0.02%	\$6,684
Tortoise MLP & Pipeline Fund	0.97%	\$579,760	1.8%	0.02%	\$5,624
Schwab Government Money Fund	0.23%	\$534,552	1.6%	0.00%	\$1,229
Total Investment Management Fees		\$32,496,503	100.0%	0.43%	\$140,109

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

* Annualized fee is an estimate based on market values as of March 31, 2020.

Index Summary Sheet for Periods Ending March 31, 2020

Global Equity	Qtr	YTD	1 Yr	Annualized		
				3 Yr	5 Yr	10 Yr
MSCI AC World Index	-21.4%	-21.4%	-11.3%	1.5%	2.8%	5.9%
MSCI World Index	-21.1	-21.1	-10.4	1.9	3.2	6.6
S&P 500 Index	-19.6	-19.6	-7.0	5.1	6.7	10.5
Russell 3000 Index	-20.9	-20.9	-9.1	4.0	5.8	10.1
Russell 1000 Index	-20.2	-20.2	-8.0	4.6	6.2	10.4
Russell 1000 Growth Index	-14.1	-14.1	0.9	11.3	10.4	13.0
Russell 1000 Value Index	-26.7	-26.7	-17.2	-2.2	1.9	7.7
Russell Midcap Index	-27.1	-27.1	-18.3	-0.8	1.8	8.8
Russell Midcap Growth Index	-20.0	-20.0	-9.4	6.5	5.6	10.9
Russell Midcap Value Index	-31.7	-31.7	-24.1	-6.0	-0.8	7.2
Russell 2000 Index	-30.6	-30.6	-24.0	-4.6	-0.2	6.9
Russell 2000 Growth Index	-25.8	-25.8	-18.6	0.1	1.7	8.9
Russell 2000 Value Index	-35.7	-35.7	-29.6	-9.5	-2.4	4.8
Russell Microcap Index	-32.0	-32.0	-26.4	-6.6	-1.9	6.0
MSCI AC World Index ex-U.S.	-23.4	-23.4	-15.6	-2.0	-0.6	2.1
MSCI EAFE Index	-22.8	-22.8	-14.4	-1.8	-0.6	2.7
MSCI EAFE Growth Index	-17.5	-17.5	-5.8	3.0	2.5	4.7
MSCI EAFE Value Index	-28.2	-28.2	-22.8	-6.6	-3.8	0.6
MSCI Small Cap EAFE Index	-27.5	-27.5	-18.1	-2.9	1.0	4.8
MSCI Emerging Markets Index	-23.6	-23.6	-17.7	-1.6	-0.4	0.7
MSCI Emerging Markets Small Cap Index	-31.4	-31.4	-29.0	-9.6	-5.2	-1.3
MSCI Frontier Markets Index	-26.6	-26.6	-19.0	-4.3	-2.9	1.0
HFRI Equity Hedge Index	-12.9	-12.9	-8.0	0.1	1.3	3.0
HFRI Emerging Markets	-13.9	-13.9	-10.4	-1.3	1.0	1.1
HFRI FOF: Strategic Index	-11.9	-11.9	-8.3	-0.9	-0.4	1.7
Thomson One All Private Capital Index	0.0	0.0	4.2	10.3	9.8	11.7
Thomson One Buyout Index	0.0	0.0	12.4	14.9	14.1	14.4
Thomson One Fund of Funds Index	0.0	0.0	4.7	10.4	9.2	10.9
Thomson One Venture Capital Index	0.0	0.0	12.4	16.3	12.7	16.4
Global Fixed Income						
Bloomberg Barclays US Aggregate Index	3.1	3.1	8.9	4.8	3.4	3.9
Bloomberg Barclays U.S. TIPS Index	1.7	1.7	6.9	3.5	2.7	3.5
Bloomberg Barclays Government Bond Index	8.1	8.1	13.1	5.8	3.6	3.7
Bloomberg Barclays Municipals Index	-0.6	-0.6	3.8	4.0	3.2	4.1
Bloomberg Barclays Asset Backed Index	-0.2	-0.2	2.8	2.4	2.0	2.5

Index Summary Sheet for Periods Ending March 31, 2020

				Annualized		
	Qtr	YTD	1 Yr	3 Yr	5 Yr	10 Yr
Global Fixed Income (continued)						
Bloomberg Barclays US MBS Index	2.8%	2.8%	7.0%	4.0%	2.9%	3.3%
Bloomberg Barclays IG CMBS Index	0.5	0.5	5.4	4.1	3.1	4.9
Bloomberg Barclays U.S. Credit Index	-3.1	-3.1	5.1	4.2	3.3	4.7
Bloomberg Barclays US Corporate HY Index	-12.7	-12.7	-6.9	0.8	2.8	5.6
Bloomberg Barclays Interm. US G/C Index	2.4	2.4	6.9	3.8	2.8	3.1
ICE BofA 1-3 Yr. Govt. Bond Index	2.8	2.8	5.4	2.7	1.8	1.4
U.S. 91-Day Treasury Bills	0.3	0.3	1.8	1.7	1.1	0.6
CS Leveraged Loan Index	-13.2	-13.2	-9.5	-0.7	1.2	3.3
JPMorgan Non-U.S. GBI Hedged Index	3.0	3.0	7.2	4.9	3.8	4.5
JPMorgan Non-U.S. GBI Index	-1.2	-1.2	2.4	3.3	2.6	1.6
JPMorgan EMBI Plus Index	-8.7	-8.7	-3.1	0.5	2.9	4.8
JPMorgan EMBI Global Index	-11.8	-11.8	-5.3	0.4	2.8	4.8
HFRI RV: Fixed Income - Corporate Index	-8.3	-8.3	-4.5	1.1	2.6	4.0
HFRI ED: Distressed/Restructuring Index	-12.2	-12.2	-12.4	-2.7	-0.2	2.6
Thomson One Distressed Index	0.0	0.0	4.7	6.2	7.0	9.0
Real Assets						
FTSE NAREIT All Equity Index	-23.4	-23.4	-15.9	0.1	2.0	8.6
S&P Developed BMI Property Index	-27.3	-27.3	-22.5	-3.5	-1.6	4.9
S&P Developed ex-U.S. Property Index	-27.2	-27.2	-21.8	-1.8	-0.6	4.7
NCREIF Property Index	0.0	0.0	4.5	6.2	7.5	10.1
Bloomberg Commodity Index	-23.3	-23.3	-22.3	-8.6	-7.8	-6.7
Alerian MLP Index	-57.2	-57.2	-60.9	-28.9	-20.7	-5.0
NCREIF Timberland Index	0.0	0.0	1.2	2.4	2.8	4.5
Thomson One Private Real Estate Index	0.0	0.0	7.5	8.8	9.0	10.2
S&P Real Assets Equity Total Return Index	-27.9	-27.9	-22.6	-4.2	-2.0	4.4
Diversifying Strategies						
HFRI Fund of Funds Index	-7.3	-7.3	-3.9	0.5	0.3	1.9
HFRI Fund Weighted Composite Index	-9.4	-9.4	-5.1	0.3	1.1	2.8
HFRI FOF: Conservative Index	-4.9	-4.9	-2.0	1.0	0.9	2.1
HFRI Event Driven	-15.3	-15.3	-12.6	-2.2	0.1	2.7
HFRI Relative Value Total Index	-7.0	-7.0	-3.8	0.8	2.0	4.1
HFRI Macro Index	0.1	0.1	4.2	1.5	0.2	1.3
Other						
Consumer Price Index - U.S.	-0.2	-0.2	1.6	2.1	1.9	1.8
U.S. Dollar Index	2.8	2.8	1.8	-0.6	0.0	2.0

* 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>
Russell 1000 Index	15.00%
Russell Midcap Index	4.00%
Russell 2000 Index	6.00%
MSCI EAFE Index	10.00%
MSCI Small Cap EAFE Index	5.00%
MSCI Emerging Markets Index	12.00%
Bloomberg Barclays US Aggregate Index	20.00%
HFRI Equity Hedge Index	5.00%
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%
MSCI Frontier Markets Index	3.00%
S&P 500 Energy Sector Index	3.00%

<u>November 30, 2018</u>	<u>Weight</u>
Russell 1000 Index	23.00%
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 Barclays US 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

This one on one report was prepared by FEG (also known as Fund Evaluation Group, LLC), a federally registered investment adviser under the Investment Advisers Act of 1940, as amended, providing non-discretionary and discretionary investment advice to its clients on an individual basis. Registration as an investment adviser does not imply a certain level of skill or training. The oral and written communications of an adviser provide you with information about which you determine to hire or retain an adviser. Fund Evaluation Group, LLC, Form ADV can be obtained by written request directed to: Fund Evaluation Group, LLC, 201 East Fifth Street, Suite 1600, Cincinnati, OH 45202 Attention: Compliance Department.

The information herein was obtained from various sources. FEG does not guarantee the accuracy or completeness of such information provided by third parties. The information in this report is given as of the date indicated and believed to be reliable. FEG assumes no obligation to update this information, or to advise on further developments relating to it. FEG, its affiliates, directors, officers, employees, employee benefit programs and client accounts may have a long position in any securities of issuers discussed in this report.

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

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

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

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

Mutual funds are bound by their prospectus, limiting potential deviation from the stated investment strategy.

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

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

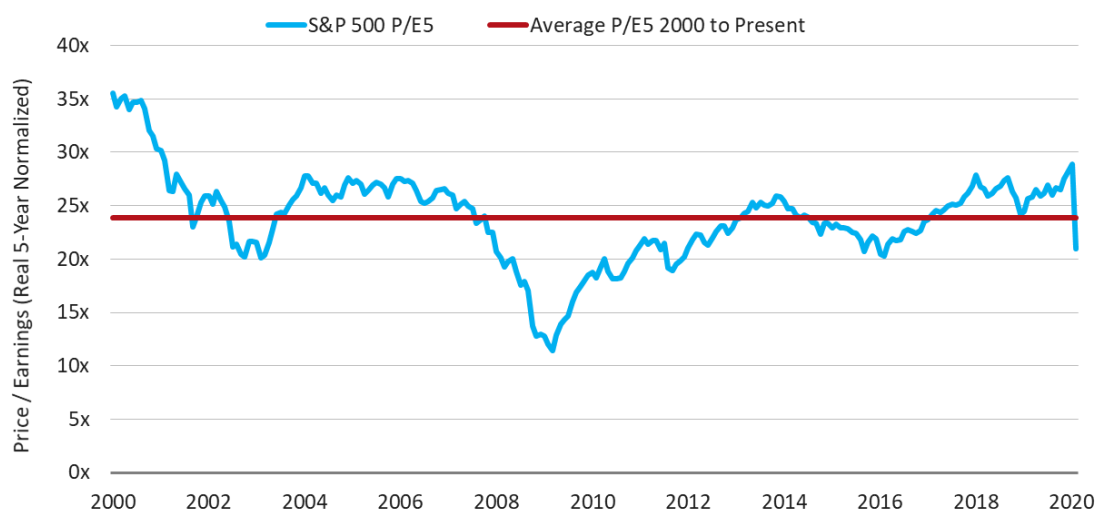
This report is prepared for informational purposes only. Past performance is not indicative of future results.

TO: City of Grosse Pointe Woods Pension Board
FROM: FEG
SUBJECT: Increasing Domestic Large Cap Equity Exposure
DATE: May 7, 2020

Increasing Domestic Large Cap Equity Exposure:

Rationale:

The bear market following the spread of COVID-19 in February and March has been swift and severe. The market sell-off has brought the extended valuations from the domestic equity market peak on February 19th of 2020 to levels that are more attractive compared to historical averages. Equities are likely to garner higher valuations due to the low interest rate environment that was present before the pandemic and even more so now:



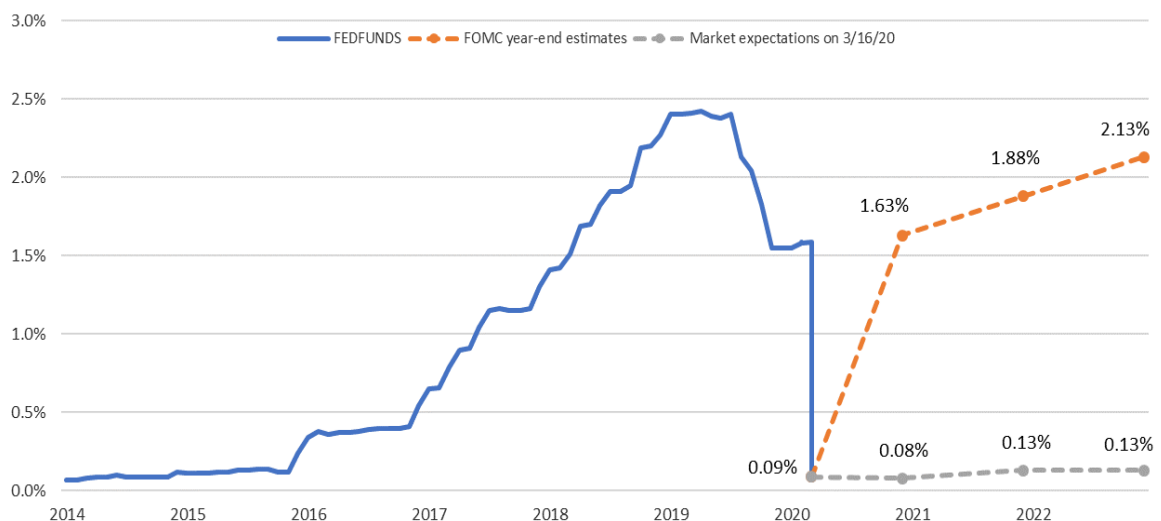
A recession in the 2nd Quarter of 2020 is likely (if not a certainty) and near-term risks for continued equity volatility remain elevated. In order to mitigate these risks; it is FEG's

recommendation to dollar cost average into an increased large cap domestic equity posture over the next three fiscal quarters.

The proposed funding sources will be eliminating the commodities futures position managed by the Credit Suisse and reducing exposure to the diversifying strategies portfolio by 3%. Commodities futures are utilized to provide inflation protection within a diversified portfolio as they are linked to economic activity. Unlike stocks, commodities do not have earnings or pay dividends. Recessionary pressures lead to subdued expectations for economic growth in the short term. In the longer-term, Central Banks have taken short term interest rates to 0% with expectations for rates to hold in this pattern for the foreseeable future.

THE MARKET EXPECTS RATES TO STAY NEAR ZERO FOR YEARS

FOMC and Market Expectations for the Federal Funds Rate



Zero interest rate policies significantly impact one of the primary components of commodity returns, collateral yield. FEG's long-term expectation for the asset class is 3.5%. The Investment Policy allowable range for commodities is 0 – 10% with a target of 3%.

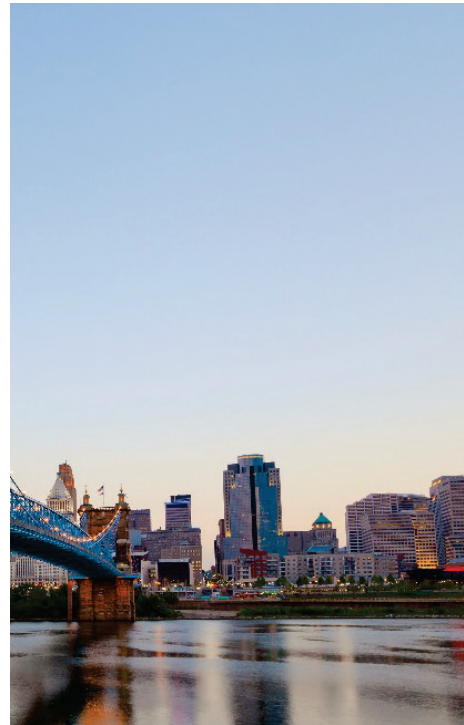
Zero interest rate policies also create a headwind for diversifying strategies. FEG's expectations are for these strategies to earn a 3 to 4% premium to cash over the long-term with return expectations over the next 10 years at 4.0%. The Investment Policy allowable range for diversifying strategies is 0 – 20% with a target of 10%.

A schedule of proposed transactions is provided below:

Schedule of Proposed Transactions						
Based on City of Grosse Pointe Woods Employee Retirement System Values as of 3/31/2020						
Transaction Date:	Fund/ETF:	Ticker:	Sell:	Fund/ETF:	Ticker:	Buy:
May 2020	Credit Suisse Commodity Return Fund	CRSOX	2.6% - \$856,941	iShares S&P 500 Index	IVV	2.6% - \$856,941
August 2020	Gateway Fund	GTEYX	0.85% - \$276,000	iShares S&P 500 Index	IVV	1.7% - \$552,000
	PIMCO All Asset Fund	PAAIX	0.85% - \$276,000			
November 2020	Gateway Fund	GTEYX	0.85% - \$276,000	iShares S&P 500 Index	IVV	1.7% - \$552,000
	PIMCO All Asset Fund	PAAIX	0.85% - \$276,000			
		Total:	6.0% - \$1,960,941		Total:	6.0% - \$1,960,941

Manager Fee Implications:

The proposed portfolio rebalancing would reduce management fees by .05% (\$16K) on the portfolio level.



Jeffrey A. Davis, CAIA
Vice President/Consultant

Michael Vitori
Consulting Analyst

May 7, 2020

ASSET ALLOCATION STUDY FOR CITY OF GROSSE POINTE WOODS EMPLOYEES RETIREMENT SYSTEM

CLIENT OBJECTIVES: RETURN GOAL

The estimated long-term target rate (primary objective) for The City of Grosse Pointe is 7.75%.

Target Actuarial Rate of Return = 7.75%

2020 CAPITAL MARKET ASSUMPTIONS – PRE-COVID-19

	Expected Return	Expected Standard Deviation		Expected Return	Expected Standard Deviation
GLOBAL EQUITY			REAL ASSETS		
<i>Long-Only Strategies</i>	6.1%	19.8%	<i>Real Estate</i>		
<i>U.S. Equity</i>	5.2%	16.4%	Public Real Estate	5.0%	20.0%
Large Cap	5.0%	15.0%	Private Real Estate	7.5%	18.0%
Mid Cap	5.5%	18.0%	<i>Natural Resources</i>		
Small Cap	6.0%	23.0%	Commodities	4.0%	19.0%
			Private Energy	8.5%	18.0%
<i>International Equity</i>	7.1%	23.7%	<i>Infrastructure</i>		
Large Cap Developed	6.5%	20.0%	Energy Infrastructure	7.5%	22.0%
Small Cap Developed	6.5%	24.0%			
Emerging Markets	9.0%	33.0%			
Frontier Markets	9.0%	35.0%			
Global Hedged Equity	5.0%	13.0%			
Private Equity	8.5%	17.0%			
GLOBAL FIXED INCOME & CREDIT			DIVERSIFYING STRATEGIES		
<i>Interest Rate Sensitive Strategies</i>	2.4%	6.3%	<i>Semi-liquid Hedged Strategies</i>	5.3%	8.4%
Core (Investment Grade)	2.5%	6.0%	Event Driven	5.5%	9.5%
Inflation Protected (TIPS)	2.1%	7.0%	Macro	5.5%	7.0%
Long Duration Corporate Debt	3.8%	8.5%	Relative Value	5.0%	8.0%
Emerging Market Debt	4.4%	13.0%	Illiquid Diversifying Strategies	7.0%	10.0%
			Liquid Diversifying Strategies	4.0%	10.0%
<i>Credit Sensitive Strategies</i>	5.3%	14.0%			
High Yield	4.5%	16.0%	<i>Money Markets</i>		
Bank Loans	4.5%	11.0%	U.S. Inflation	2.0%	
Private Debt	7.0%	15.0%	U.S. Cash	2.0%	

Capital Market Assumption are FEG's 7-10 Year outlook as of December 2019.

2020 CAPITAL MARKET ASSUMPTIONS – EXPECTATIONS TODAY

	Expected Return	Expected Standard Deviation		Expected Return	Expected Standard Deviation
GLOBAL EQUITY			REAL ASSETS		
Long-Only Strategies	7.0%	19.8%	Real Estate		
U.S. Equity	6.2%	16.5%	Public Real Estate	6.0%	20.0%
Large Cap	6.0%	15.0%	Private Real Estate	8.0%	18.0%
Mid Cap	6.5%	18.0%	Natural Resources		
Small Cap	7.5%	24.0%	Commodities	3.5%	19.0%
			Private Energy	9.0%	18.0%
International Equity	8.0%	23.7%	Infrastructure		
Large Cap Developed	7.5%	20.0%	Energy Infrastructure	8.0%	23.0%
Small Cap Developed	7.5%	24.0%			
Emerging Markets	9.5%	33.0%			
Frontier Markets	10.0%	35.0%			
Global Hedged Equity	6.0%	13.0%			
Private Equity	9.5%	17.0%			
GLOBAL FIXED INCOME & CREDIT			DIVERSIFYING STRATEGIES		
Interest Rate Sensitive Strategies	1.7%	6.3%	Semi-liquid Hedged Strategies	5.3%	8.4%
Core (Investment Grade)	1.4%	6.0%	Event Driven	5.5%	9.5%
Inflation Protected (TIPS)	1.5%	7.0%	Macro	5.5%	7.0%
Long Duration Corporate Debt	3.0%	8.5%	Relative Value	5.0%	8.0%
Emerging Market Debt	4.5%	13.0%	Illiquid Diversifying Strategies	8.0%	10.0%
			Liquid Diversifying Strategies	4.0%	10.0%
Credit Sensitive Strategies	6.3%	14.0%			
High Yield	6.0%	16.0%	Money Markets		
Bank Loans	4.5%	11.0%	U.S. Inflation	2.0%	
Private Debt	8.5%	15.0%	U.S. Cash	0.5%	

FEG's current Capital Market Assumptions given the current market environment as of mid-April. They are subject to change.

SHIFT IN CAPITAL MARKET ASSUMPTIONS OVER LAST 12 MONTHS

Global Equity

Long-Only Strategies

	2019 Expected Return	2020 Expected Return	2020 Updated Return
U.S. Equity	5.3%	5.2%	6.2%
Large Cap	5.0%	5.0%	6.0%
Mid Cap	6.0%	5.5%	6.5%
Small Cap	6.0%	6.0%	7.5%

International Equity

Large Cap Developed	6.5%	6.5%	7.5%
Small Cap Developed	6.5%	6.5%	7.5%
Emerging Markets	9.0%	9.0%	9.5%
Frontier Markets	9.0%	9.0%	10.0%

Global Hedged Equity

Private Equity	9.0%	8.5%	9.5%
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Global Fixed Income/Credit

Rate Sensitive Strategies

Core (Investment Grade)	3.5%	2.5%	1.4%
Inflation Protected (TIPS)	3.2%	2.1%	1.5%
Long Duration Corporate Debt	4.5%	3.8%	3.0%
Emerging Market Debt	5.5%	4.4%	4.5%

Credit Sensitive Strategies

High Yield	5.0%	4.5%	6.0%
Bank Loans	5.0%	4.5%	4.5%
Private Debt	7.5%	7.0%	8.5%

Real Assets

Real Estate

Public Real Estate	5.0%	5.0%	6.0%
Private Real Estate	7.5%	7.5%	8.0%

Natural Resources

Commodities	4.0%	4.0%	3.5%
Private Energy	9.0%	8.5%	9.0%

Infrastructure

Energy Infrastructure/MLPs	8.0%	7.5%	8.0%
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Diversifying Strategies

Semi-liquid Hedged Strategies

Event Driven	5.5%	5.5%	5.5%
Macro	5.5%	5.5%	5.5%
Relative Value	5.0%	5.0%	5.0%
Illiquid Diversifying Strategies	7.0%	7.0%	8.0%
Liquid Diversifying Strategies	4.0%	4.0%	4.0%

Money Markets

U.S. Inflation	2.2%	2.0%	2.0%
U.S. Cash	2.2%	2.0%	0.5%

UNPREDICTABLE IMPACTS

The unknowns surrounding the COVID-19 outbreak are many:

- The length and severity of the outbreak
- The speed and effectiveness of the CARES Act in tempering economic weakness
- The rate of economic recovery as the outbreak subsides and whether that recovery is U-shaped, V-shaped, or even W-shaped (a double-dip recession)
- Inflationary and deflationary pressures of monetary and fiscal stimulus around the globe
- Impacts on the U.S. 2020 elections
- Further changes on the degree of globalization and whether China's brand is diminished
- Whether quantitative easing will have the same detrimental impact on active management that it had following the financial crisis
- Long-term secular impacts on how we work and live

ASSET ALLOCATION – BROAD

2020 Updated Expected Returns

	Current	IPS	Proposed
Broad Allocation			
Global Equity	61.3%	60.0%	67.0%
Global Fixed Income	19.9	20.0	20.0
Real Assets	7.5	9.0	6.0
Diversifying Strategies	9.7	10.0	7.0
Cash	1.6	-	-
Risk			
Standard Deviation	12.2%	13.1%	13.4%
100-Year Flood	-22.1	-23.4	-24.1
1-Year Monte Carlo Simulation			
Expected Return (50th Percentile)	7.1%	7.7%	7.9%
10-Year Monte Carlo Simulation			
95th Percentile	12.9%	13.9%	14.2%
Expected Return (50th Percentile)	6.4	7.0	7.1
5th Percentile	0.4	0.5	0.5
Probability of Achieving Returns of:			
Target 5%	53.8%	55.8%	55.7%
Target 6%	50.7	52.4	52.8
Target 7%	47.2	49.5	49.9
Target 8%	44.1	46.8	47.0

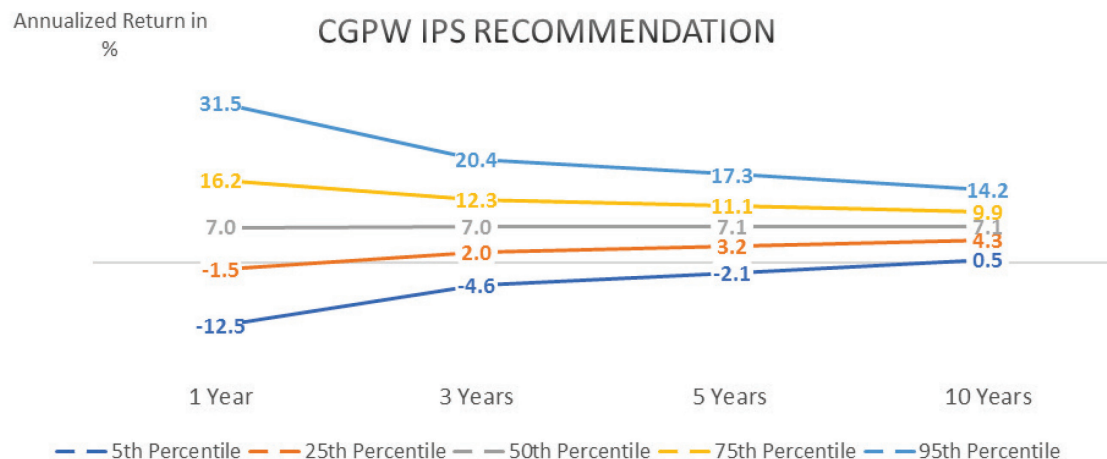
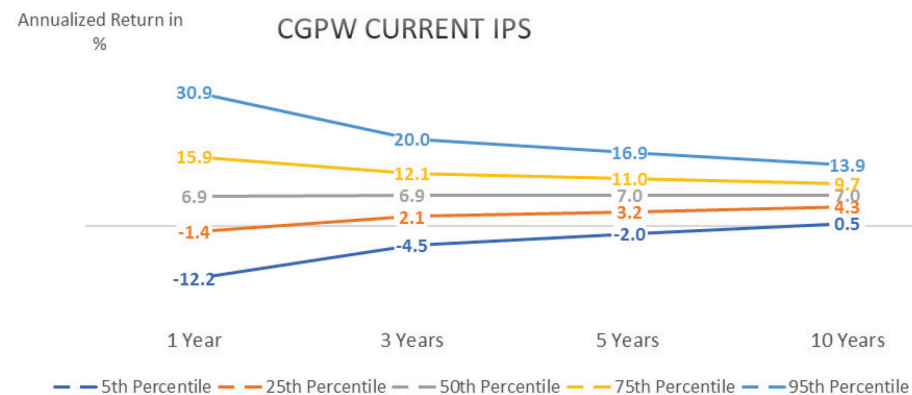
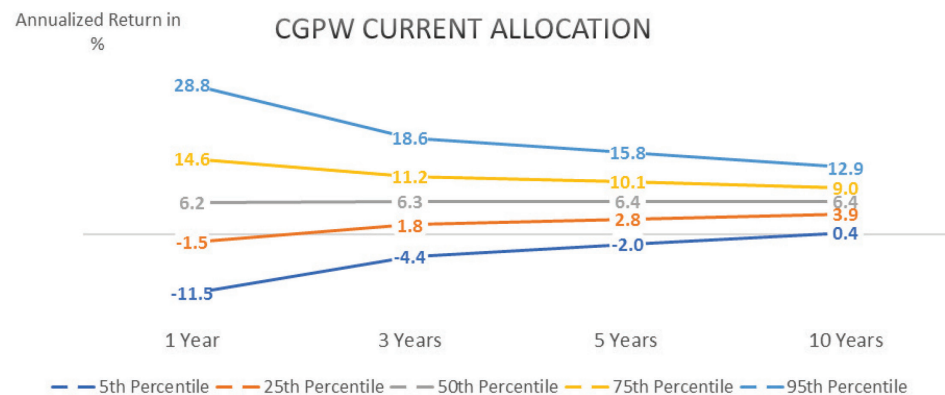
*100-Year Flood = annual return expected to occur 1% of the time, or a -2.326 standard deviation event for the statically inclined.

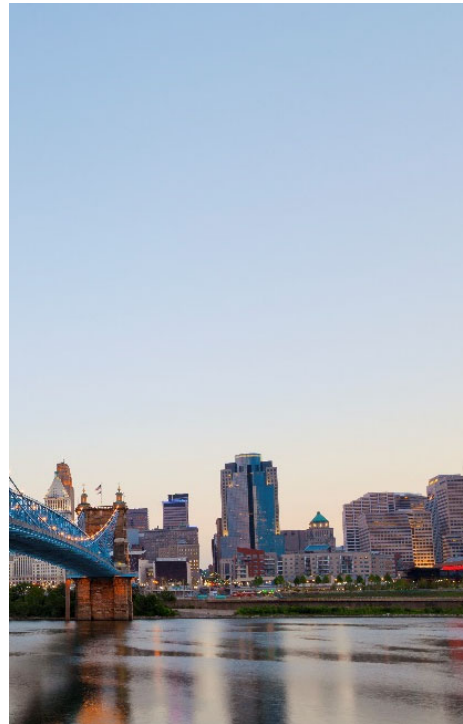
ASSET ALLOCATION - DETAILED

	Current Allocation	IPS Targets	Proposed Allocation
Cash	1.6	0.0	0.0
US Large Cap	23.5	23.0	30.0
US Mid Cap	5.3	5.0	5.0
US Small Cap	7.2	7.0	7.0
International Developed Equity	10.3	10.0	10.0
International Small Cap	5.0	5.0	5.0
Emerging Markets Equity	10.0	10.0	10.0
Core Bonds	6.5	10.0	10.0
Credit Oriented/Mortgage Backed	13.4	10.0	10.0
Public Real Estate	3.1	3.3	3.0
Commodities	2.6	3.3	0.0
Energy Infrastructure	1.8	3.3	3.0
Liquid Diversifying Strategies	9.7	10.0	7.0

Data Sources: FEG, CGPW. Expected returns are in U.S. dollars net of fees.
Changes are noted relative to the Strategic Target
Please refer to Appendix for full disclosures.

2020 UPDATED RANGE OF EXPECTED RETURNS





CAPITAL MARKET ASSUMPTIONS

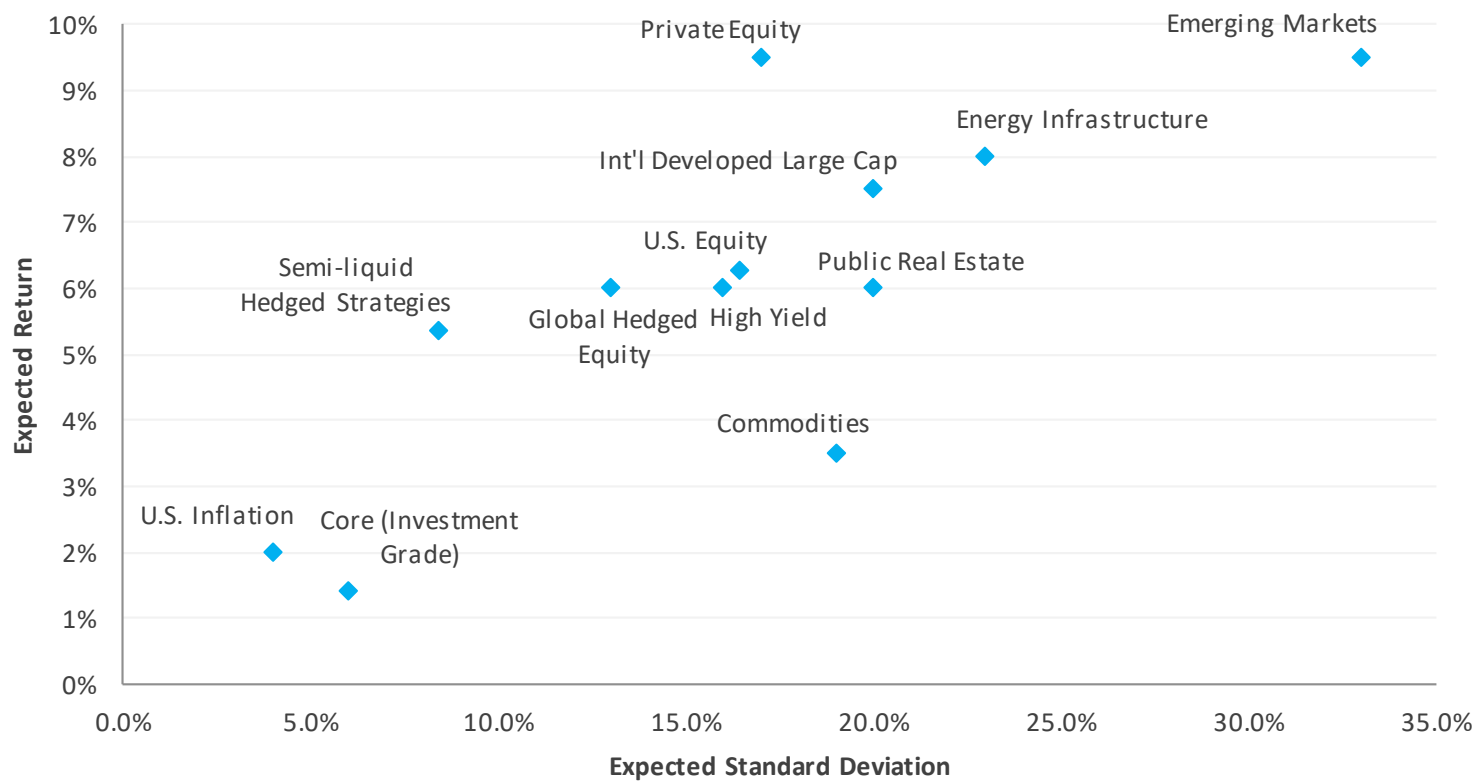
2020

ASSET CLASSES

	Expected Return	Expected Standard Deviation		Expected Return	Expected Standard Deviation
GLOBAL EQUITY			REAL ASSETS		
Long-Only Strategies	7.0%	19.8%	Real Estate		
U.S. Equity	6.2%	16.5%	Public Real Estate	6.0%	20.0%
Large Cap	6.0%	15.0%	Private Real Estate	8.0%	18.0%
Mid Cap	6.5%	18.0%	Natural Resources		
Small Cap	7.5%	24.0%	Commodities	3.5%	19.0%
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International Equity	8.0%	23.7%	Infrastructure		
Large Cap Developed	7.5%	20.0%	Energy Infrastructure	8.0%	23.0%
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Emerging Markets	9.5%	33.0%			
Frontier Markets	10.0%	35.0%			
Global Hedged Equity	6.0%	13.0%			
Private Equity	9.5%	17.0%			
GLOBAL FIXED INCOME & CREDIT			DIVERSIFYING STRATEGIES		
Interest Rate Sensitive Strategies	1.7%	6.3%	Semi-liquid Hedged Strategies	5.3%	8.4%
Core (Investment Grade)	1.4%	6.0%	Event Driven	5.5%	9.5%
Inflation Protected (TIPS)	1.5%	7.0%	Macro	5.5%	7.0%
Long Duration Corporate Debt	3.0%	8.5%	Relative Value	5.0%	8.0%
Emerging Market Debt	4.5%	13.0%	Illiquid Diversifying Strategies	8.0%	10.0%
			Liquid Diversifying Strategies	4.0%	10.0%
Credit Sensitive Strategies	6.3%	14.0%			
High Yield	6.0%	16.0%	Money Markets		
Bank Loans	4.5%	11.0%	U.S. Inflation	2.0%	
Private Debt	8.5%	15.0%	U.S. Cash	0.5%	

ASSET CLASSES

FEG 7-10 Year Capital Market Assumptions



Source: FEG

METHODOLOGY

Introduction

FEG's construction of capital market assumptions varies by asset class and takes into account long-term drivers of return and the macroeconomic environment. Our assumptions are forward-looking and do not assume that recent history will persist.

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. We review several methods of developing assumptions to "reality check" the 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		

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.

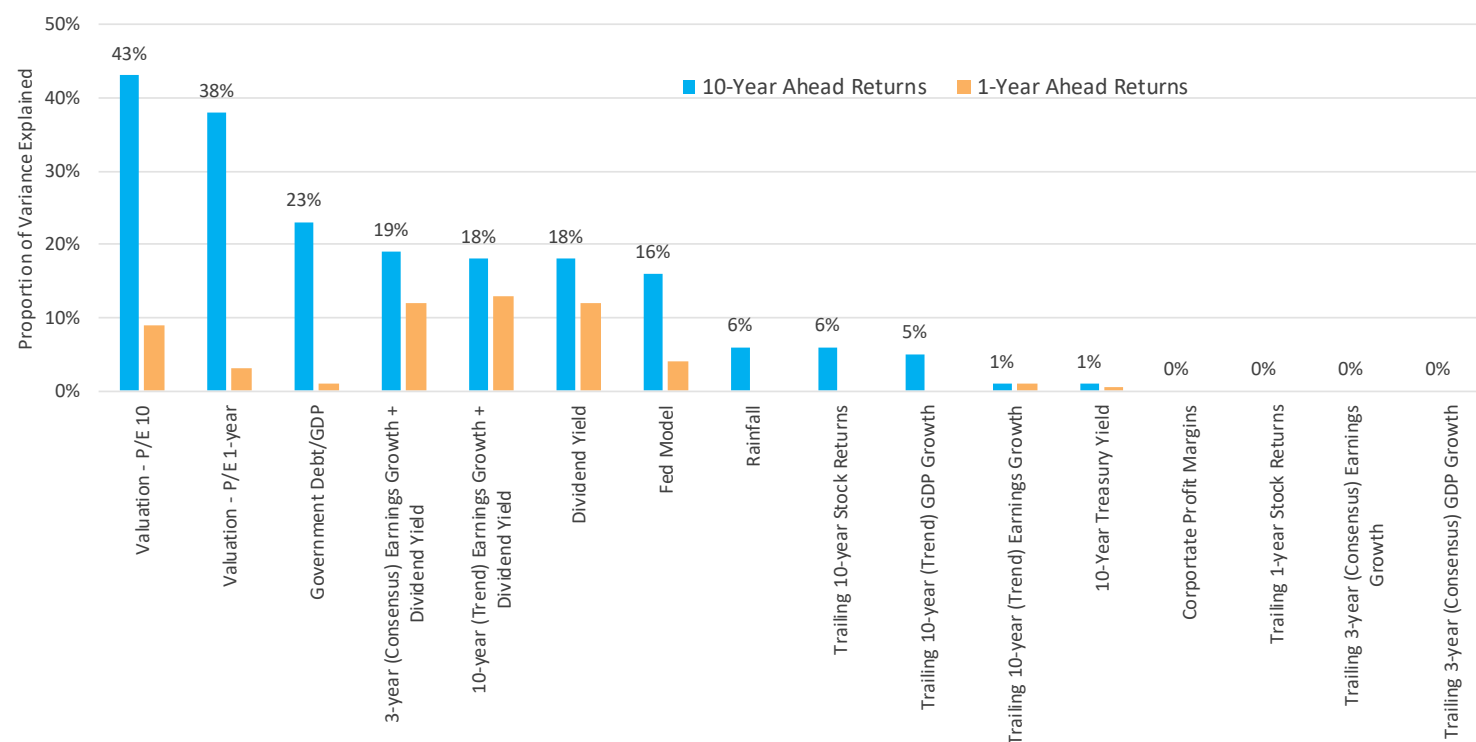
METHODOLOGY

Equities

- 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.
- Returns are essentially unpredictable over the short term.

Valuation Matters

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, 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

- 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, and therefore, performance may be overstated in comparison to passively managed public market benchmarks.
- 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.

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. These measures provide consistent estimates by applying the full data set to all covariance calculations using imputation techniques.
- 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 is able to adjust for the artificial smoothing of private capital returns to reduce bias in asset class volatility.

METHODOLOGY

FEG 7-10 Year Money Assumptions Expected Rate

U.S. Inflation	2.0%
U.S. Cash	0.5%

Inflation

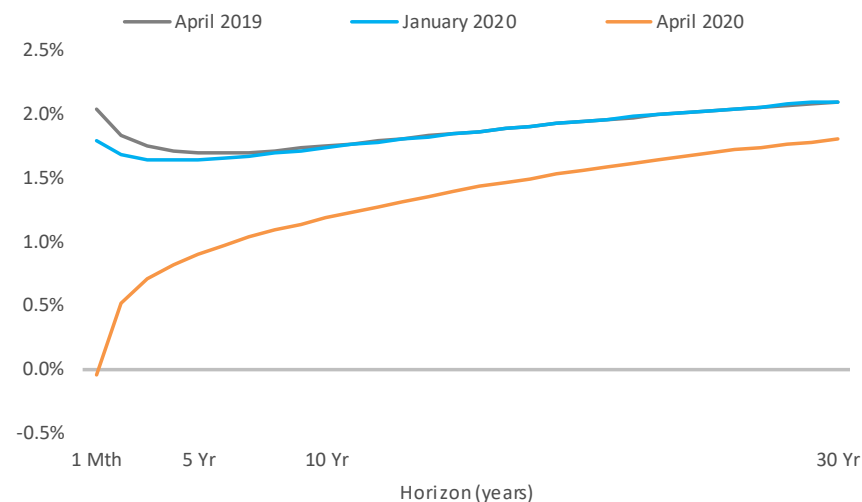
- Inflation had been hovering at 2% levels and slightly lower before the COVID-19 pandemic's halt to economic activity that applied deflationary pressures of declining consumer demand and rising unemployment, among others, to the market. The dual responses of Federal Reserve (Fed) support and fiscal stimulus provide countering inflationary pressures.
- The sharp decline in consumer demand and rise in unemployment is expected to be temporary, but the pace and length of recovery remains unknown. Stimulus following the financial crisis was broadly anticipated to trigger inflation, but little inflation materialized.
- Inflation is notoriously hard to forecast and survey-based as well as market-based measures often reflect current inflation measures more than expectations. Model-based approaches developed by branches of the Federal Reserve Bank 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 are holding steady as the decline in consumer demand and unemployment has been matched with tremendous amounts of liquidity and fiscal stimulus.

Cash

- Cash historically provides returns near the inflation rate as these investments are meant to protect principal.
- Cash yields are low due to accommodative monetary policy and short-term rates are not expected to rise in the near term.

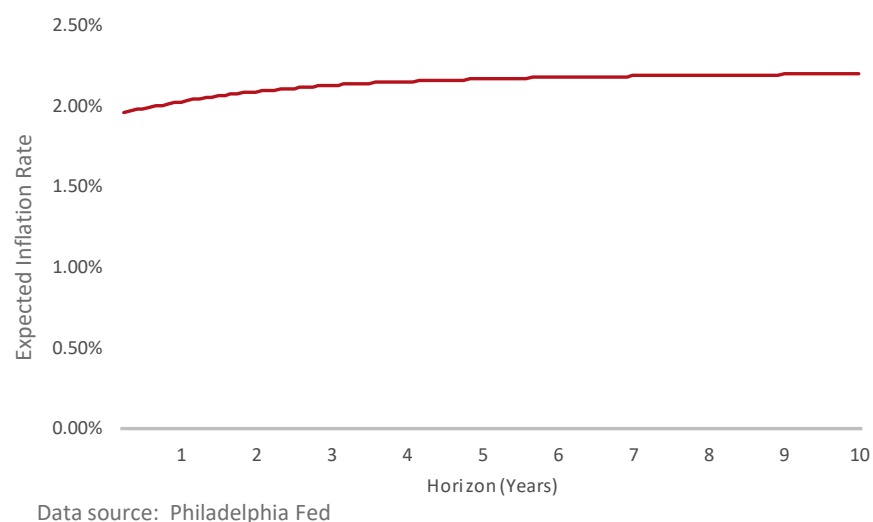
Expected Inflation Term Structure

Federal Reserve Bank of Cleveland



Expected Inflation Term Structure

Federal Reserve Bank of Philadelphia



METHODOLOGY

U.S. EQUITY

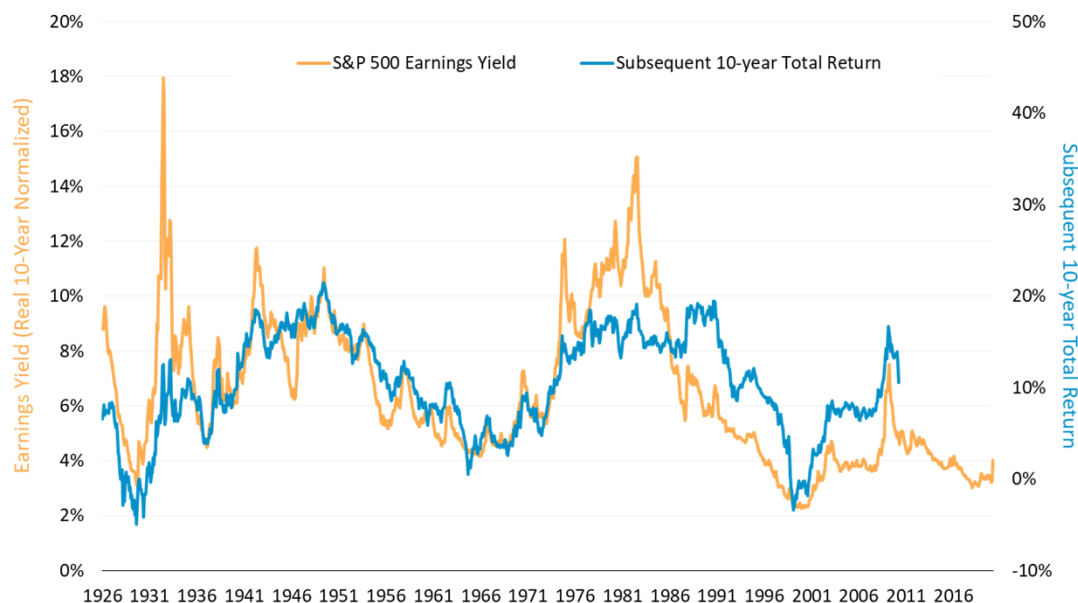
- Stocks are a distinct asset class, but small and mid cap are really subsectors. A stock with a \$10 billion market capitalization does not have different characteristics and properties than when it had a \$1 billion market capitalization. Small cap stocks do become mid cap stocks and mid cap stocks become large cap stocks. Unfortunately, large cap stocks sometimes become small cap stocks.
- According to MSCI data, the U.S. stock market is comprised of approximately 85% large/mid 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 fairly consistent.
- The building blocks methodology of dividend yield (including share buybacks), earnings growth, inflation, and change in valuation is FEG's preferred approach.
- Earnings growth grew just under 2% in real terms since 1926, and only slightly above 2% since 1950. Total earnings growth cannot persist above the overall gross domestic product growth for the long term.
- We expect earnings to suffer in the near-term, but resume a constrained growth rate over the longer 7-10 year cyclical horizon.
- The earnings yield on stocks, which is the inverse of the P/E ratio, can also set expectations for real returns.
- The current normalized P/E ratio is approximately 25x. Using the inverse of the P/E ratio, today's valuation of large cap stocks would imply a 4% real return, or a 6% nominal return.

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

S&P 500, 1926 – March 2020



Data source: Robert Shiller and Standard & Poor's

METHODOLOGY

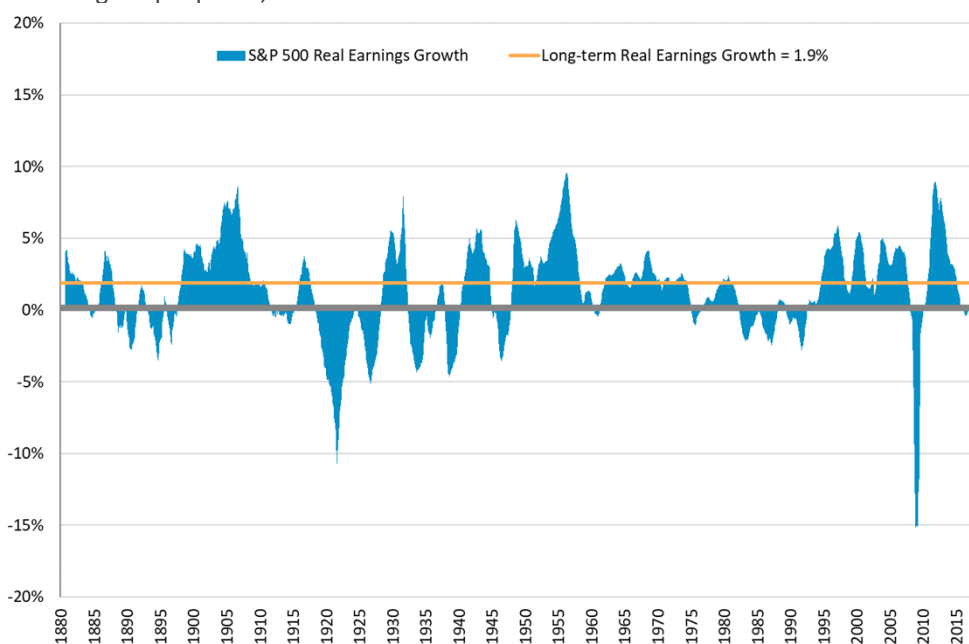
LARGE CAP STOCKS, continued

- Dividend yields have declined since the 1950s to a stable 2%, while share buybacks have increased as a way to return cash to shareholders.
- Ratios of price to earnings (trailing and normalized), book value, sales, and cash flow are near their long-term averages. The long-term average normalized P/E ratio range is in the high teens, but low and stable inflation can support higher valuations. We expect current muted inflationary conditions to persist, thus we consider valuations near equilibrium in our assumptions and no longer assume a negative contribution from a return to equilibrium.

Large Cap Equity	Contribution to Expected Return
P/E contraction	0.0%
Dividends and Share Buybacks	2.2%
Earnings Growth	1.8%
Inflation	2.0%
Total	6.5%

10-YEAR REAL EARNINGS GROWTH ANNUALIZED

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



Data source: Robert Shiller

MID CAP STOCKS

- P/E multiples indicate mid cap stocks are similarly valued near equilibrium as large cap stocks, but have room for some contribution from the expansion of price multiples. Dividend yields are only slightly below large cap stocks and real earnings growth expectations are comparable, yet more volatile, than that of large cap stocks' earnings growth.
- Historically, since 1926, mid cap stocks returned on average approximately a 1 percentage point premium over large cap stocks.
- Our return expectations are for a slight contribution from increasing valuation multiples in mid cap, which helps offset the lower dividend yield offered by mid cap stocks.

METHODOLOGY

SMALL CAP STOCKS

- Valuation multiples for small cap stocks have suffered more dramatically than larger stocks amid the COVID-19 pandemic and have also not participated to the same degree amid the market's initial rebound. Thus, we see greater opportunity for a slight long-term P/E expansion in small cap stocks.
- The robust fundraising environment in private equity witnessed in recent years could lead to increased acquisitions of smaller companies, supporting stronger returns above large cap stocks.
- Historically, since 1926, small cap stocks returned a 2 percentage point premium above large company stocks.
- Our return expectations are for the expansion of price multiples to offset the lower dividend yield, providing a small cap risk premium above large cap returns.

INTERNATIONAL DEVELOPED STOCKS

- In developed world markets, there is no fundamental reason to expect foreign stocks to significantly outperform U.S. stocks over the long term, assuming equilibrium in starting valuations and economic growth prospects. Currently, however, valuations and economic fundamentals differ considerably between the U.S. and international markets.
- Currency will add to the volatility of 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 lower than historical averages due to economic and fiscal conditions. We conservatively assume a small benefit from the expansion of P/E multiples. Higher international dividend yields over U.S. yields may not be sustainable, thus we reduced our expectation of the dividend contribution for international stocks. Further, we expect more heavily constrained earnings growth and lower inflation due to economic structural headwinds.
- International small cap stocks have demonstrated similar return premiums as U.S. small caps, and trade at discounts to historical averages. Therefore, we forecast an expansion of P/E multiples for international small cap equities that offsets the lower dividend yield versus large cap international stocks.

EMERGING MARKET STOCKS

- Emerging market equity valuations have fallen to depths last witnessed in 2016 and below that of the financial crisis. Earnings growth, which has been historically volatile, could suffer material headwinds amid a global economic slowdown, although China is resuming economic activity and is on pace to return to normal levels. With emerging markets trade at attractive valuations we conservatively forecast a constrained return contribution from price multiple expansion that approaches long-run equilibrium. Further, we limit our return assumption by forecasting earnings growth consistent with a period of economic weakness.

METHODOLOGY

FRONTIER MARKET STOCKS

- Frontier markets are traded less frequently than emerging markets and carry more systematic risk. Similar to emerging markets, frontier markets are poor nations with expectations for improved economic conditions and growth, and these markets should provide returns in excess of the developed markets.

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

FEG Summary of Expected Public Equity Returns

Asset Category	Dividend Yield and Share Buybacks	Return from P/E Change	Nominal Earnings Growth	Currency / Buyout Premium	Expected Return
U.S.					
Large Cap	2.2%	0.0%	3.8%	0.0%	6.0%
Mid Cap	2.1%	0.6%	3.8%	0.0%	6.5%
Small Cap	1.5%	2.2%	3.8%	0.5%	7.5%
Broad International					
International Developed	3.6%	1.9%	2.0%	0.0%	7.5%
International Small Cap	2.5%	2.5%	2.5%	0.0%	7.5%
Emerging Markets	3.0%	2.5%	3.5%	0.5%	9.5%
Frontier Markets	4.0%	2.5%	3.5%	0.0%	10.0%

Source: FEG Data

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 with lower volatility.

Hedge Funds	Expected Return	Expected Standard Deviation
Hedged Equity	6.5%	13.0%

METHODOLOGY

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 valued frequently 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. Historical data show that institutional quality funds returned a premium above global equity markets. 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 4-5 percentage point premium over the return of the S&P 500 Index. Venture Capital results were more dependent on the time 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 as 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 2.5 percentage points above public equity markets, as weighted by global equity weights, due to the high level of fundraising in the private markets and the opportunities this period of distress may provide to private investors. We do not include an alpha estimate for top performing strategies in our assumptions for any private strategies.

	Expected Return
Global Public Equity	7.0%
Private Equity Risk Premium	2.5%
Private Equity	9.5%

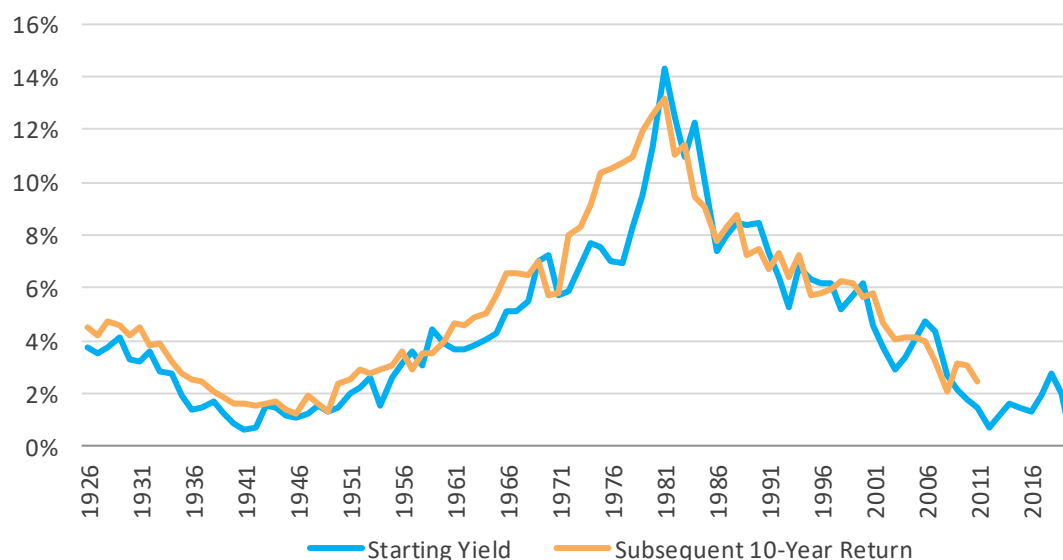
METHODOLOGY

BONDS

- **Investment grade bond** total returns are driven primarily 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 Barclays U.S. Aggregate Bond Index.
- **TIPS** have different properties and behave differently than traditional bonds, and therefore, are modeled separately. The expected returns, however, should not differ from Treasuries, assuming inflation expectations are not remarkably divergent from the markets. 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 -0.5%. This yield, added to our 2.0% inflation expectation, is used to determine the expected return.
- **Long duration corporate debt** is similar to investment grade bonds in that yield, currently 3.25%, 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 3.0% to account for this risk.
- **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)	1.4%
Inflation Protected (TIPS)	1.5%
Long Duration Corporate	3.0%
Emerging Market Debt	4.5%

INTERMEDIATE GOVERNMENT BOND STARTING YIELD (1926-2020) VS. SUBSEQUENT 10-YEAR RETURN (1936-2020)



Data source: Ibbotson Associates

METHODOLOGY

Credit

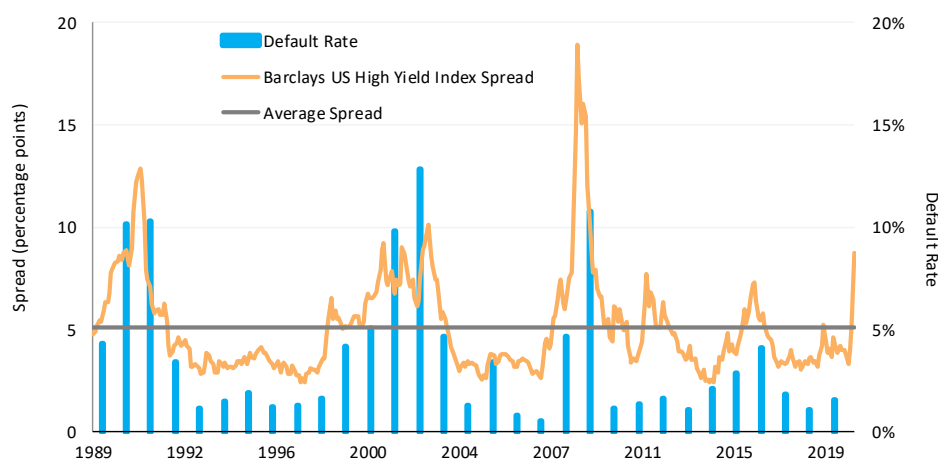
- The yield of a fixed income security provides an effective estimate for total return, assuming no defaults. The yield for high yield bonds is approximately 8.0%, resulting in an option-adjusted spread of approximately 7.5%.
- According to Altman data, the cumulative 10-year default rate since 1971 for high yield bonds was approximately 30% and the average recovery rate was approximately 45%. Using conservative assumptions of a 40% cumulative default rate and applying a tempered 40% recovery rate, due to credit concerns following the COVID-19 pandemic, we conservatively assume a return of 6.0%.
- 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, but low yields alter that historical paradigm. We assume a return of 4.5%, which accounts for spreads in the high yield market and elevated yields in the bank loan market.
- 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 yields 300-400 basis points above high yield. We assume a blend of senior and mezzanine debt and conservatively account for the risk of loss in distressed issues.

Credit Sensitive Strategies

Expected Return

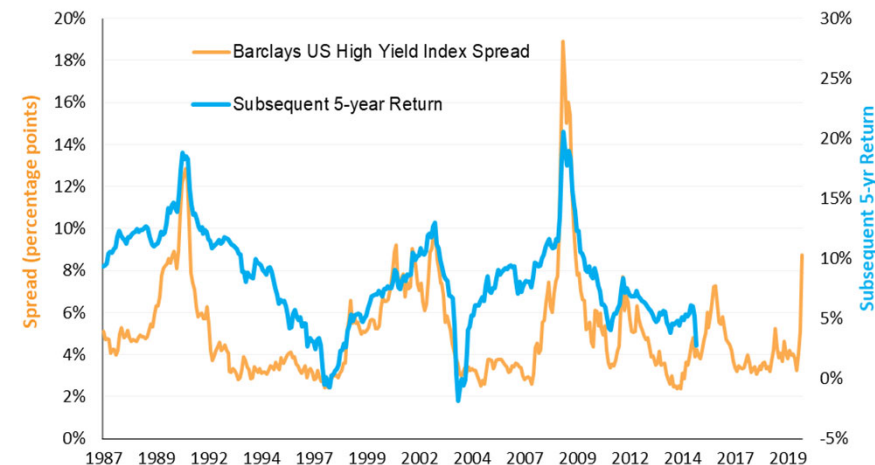
High Yield	6.0%
Bank Loans	4.5%
Private Debt	8.5%

U.S. HIGH YIELD BOND SPREADS OVER TREASURY YIELDS



Data sources: Barclays Capital and Altman

U.S. HIGH YIELD BOND SPREADS VS. RETURNS



Data source: Barclays Capital

METHODOLOGY

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 caused shorter-term return characteristics to differ greatly.
- Real Estate Investment Trusts (REITs) trade at 18x price-to-funds from operations, above the historical average, and with a yield spread above Treasuries of approximately 3.0%, which is well above the level witnessed during periods of normal market conditions.
- 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 are one method to evaluate the total return expectation for public core real estate. Dividend yields are averaging approximately 4.5%. When added to our inflation expectation, the total return expectation would be 6.5%. Current market conditions make evaluations of funds from operations futile. We note that REITs generally perform well following periods of yield spreads well above Treasuries, yet given market turmoil we maintain a conservative view, leading to an expected return of 6.0%.
- 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, which are defined as net operating income/asset price, account for the income portion of return. Cap rates on core private real estate prior to the COVID-19 pandemic were approximately 4.5% to 7.0%. 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, the total return expectation is 8.0%.

Real Estate	Expected Return
Public Real Estate	6.0%
Private Real Estate	8.0%

METHODOLOGY

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 are also meaningful to commodities futures returns and are driven by interest rates, but 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.
- We estimate commodity returns at 3.5% due to expected collateral yield near 0%, severe contango in the commodity markets hampering returns in the near-term and unlikely to provide benefits in the long-term, and limited price contribution to returns.

Natural Resources	Expected Return
Commodities	3.5%

METHODOLOGY

PRIVATE ENERGY

- Private energy is focused on investments in the oil and gas sector, and like private equity, is not easily modeled. Further, the demand shock of the COVID-19 pandemic, the supply issues resulting from the Saudi Arabian/Russian price war, and full storage conditions greatly disrupt the normal means of evaluating the energy markets.
- There are a variety of investments across the risk continuum, including exploration, production, services, refining, and development.
- Exploration investments are more similar to early stage venture, whereas development investments are more 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.
- We assume diversification by strategy, but the majority of private energy investments will be associated with more established production, with a smaller allocation to exploration and more risky types of investments.
- We expect private energy to be impacted by the high levels of fundraising in the private markets, production costs in excess of the market price of oil, and ongoing bankruptcies. Further, strategies pursued by private energy funds may involve longer holding periods and fewer “quick” realizations.

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 also 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, but the current market turmoil brings the stability of future distributions into question.
- Yield is a primary component of return in energy infrastructure. MLPs yield approximately 18% and C-corporations approximately 9% following a period of substantial market turbulence that may reduce these yields as distributions are cut. The ability to grow distributions is a second component of returns and is driven by the ability to increase cash distributions through acquisitions, expansion projects, or enhancements of assets. We conservatively use an 8.0% return assumption that considers depressed pricing and yields that are expected to decline with reduced distributions.

Natural Resources	Expected Return
Private Energy	9.0%
Energy Infrastructure	8.0%

METHODOLOGY

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.

METHODOLOGY

DIVERSIFYING STRATEGIES, continued

- We have included data on “absolute return” strategies, which are those that attempt to generate a modest premium over cash. These investments seek to have volatility that is more bond-like than stock-like 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 characteristic of macro strategies, specifically their positive skew and low correlation, help reduce overall portfolio risk.
- 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 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 add an 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 three to four 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	4.0%

CORRELATION MATRIX

	Cash	US Large Cap	US Mid Cap	US Small Cap	Int'l Dev Equity	Int'l Small Cap	Emerging Markets Equity	Frontier Markets Equity	Hedged Equity	Private Equity	Core Bonds	TIPS	Long Corporate Bonds	Emerging Markets Debt	Bank Loans	Long Corp Bonds	Private Debt	Public Real Estate	Private Real Estate	Commodities	Private Energy	Energy Infrastructure	Event Driven	Macro	Relative Value	Illiquid Div Strat	Liquid Div Strat
Cash	1	0.05	0.01	0.07	-0.05	-0.05	-0.01	-0.01	0.18	0	0.01	0.1	-0.05	0.09	0.06	-0.02	-0.09	-0.02	0.17	0.04	0.15	0.04	0.12	-0.08	0.04	0.05	0.17
US Large Cap	0.05	1	0.77	0.86	0.62	0.59	0.38	0.65	0.7	0.68	0.11	0.07	0.34	0.37	0.48	0.37	0.4	0.63	0.36	0.16	0.15	0.17	0.67	0.19	0.37	0.46	0.5
US Mid Cap	0.01	0.77	1	0.8	0.6	0.74	0.62	0.77	0.69	0.62	0.16	0.01	0.43	0.44	0.73	0.59	0.66	0.58	0.36	0.31	0.19	0.52	0.73	0.19	0.54	0.71	0.66
US Small Cap	0.07	0.86	0.8	1	0.58	0.63	0.38	0.63	0.74	0.59	0.05	0.05	0.33	0.28	0.5	0.37	0.54	0.62	0.3	0.19	0.13	0.2	0.72	0.18	0.35	0.58	0.5
International Developed Equity	-0.05	0.62	0.6	0.58	1	0.89	0.43	0.69	0.69	0.74	0.04	0.05	0.17	0.28	0.54	0.25	0.49	0.42	0.25	0.25	0.2	0.21	0.76	0.13	0.37	0.41	0.63
International Small Cap	-0.05	0.59	0.74	0.63	0.89	1	0.45	0.67	0.68	0.68	0.03	0.07	0.27	0.26	0.58	0.28	0.52	0.42	0.24	0.28	0.18	0.25	0.78	0.1	0.38	0.55	0.72
Emerging Markets Equity	-0.01	0.38	0.62	0.38	0.43	0.45	1	0.71	0.59	0.38	0.03	0	0.21	0.41	0.56	0.2	0.53	0.25	0.16	0.31	0.21	0.21	0.4	0.15	0.25	0.4	0.6
Frontier Markets Equity	-0.01	0.65	0.77	0.63	0.69	0.67	0.71	1	0.74	0.6	0.26	0.19	0.48	0.53	0.57	0.47	0.6	0.59	0.19	0.62	0.41	0.47	0.69	0.47	0.59	0.61	0.8
Hedged Equity	0.18	0.7	0.69	0.74	0.69	0.68	0.59	0.74	1	0.68	0.06	0.01	0.29	0.37	0.49	0.24	0.4	0.44	0.3	0.23	0.18	0.2	0.78	0.27	0.43	0.43	0.78
Private Equity	0	0.68	0.62	0.59	0.74	0.68	0.38	0.6	0.68	1	0.08	0.06	0.03	0.3	0.4	0.25	0.28	0.49	0.41	0.18	0.14	0.18	0.69	0.1	0.38	0.43	0.55
Core Bonds	0.01	0.11	0.16	0.05	0.04	0.03	0.03	0.26	0.06	0.08	1	0.52	0.63	0.42	0.04	0.49	0.05	0.37	0.18	-0.01	-0.3	0.15	0.1	0.21	0.38	0	0.01
TIPS	0.1	0.07	0.01	0.05	0.05	0.07	0	0.19	0.01	0.06	0.52	1	0.49	0.33	0.25	0.25	0.12	0.34	0.11	0.19	-0.11	0.07	0.08	0.13	0.16	0.21	0.11
Long Corporate Bonds	-0.05	0.34	0.43	0.33	0.17	0.27	0.21	0.48	0.29	0.03	0.63	0.49	1	0.33	0.32	0.5	0.46	0.43	-0.15	0.13	-0.05	0.47	0.33	0.36	0.4	0.39	0.26
Emerging Markets Debt	0.09	0.37	0.44	0.28	0.28	0.26	0.41	0.53	0.37	0.3	0.42	0.33	0.33	1	0.4	0.52	0.4	0.37	0.09	0.14	0.1	0.32	0.41	0.28	0.53	0.49	0.45
Bank Loans	0.06	0.48	0.73	0.5	0.54	0.58	0.56	0.57	0.49	0.4	0.04	0.25	0.32	0.4	1	0.66	0.74	0.45	0.33	0.3	0.18	0.59	0.58	-0.09	0.59	0.69	0.57
High Yield Bonds	-0.02	0.37	0.59	0.37	0.25	0.28	0.2	0.47	0.24	0.25	0.49	0.25	0.5	0.52	0.66	1	0.64	0.56	0.17	0.14	-0.03	0.59	0.43	0.2	0.75	0.52	0.34
Private Debt	-0.09	0.4	0.66	0.54	0.49	0.52	0.53	0.6	0.4	0.28	0.05	0.12	0.46	0.4	0.74	0.64	1	0.37	-0.24	0.29	0.16	0.54	0.53	0.05	0.48	0.71	0.45
Public Real Estate	-0.02	0.63	0.58	0.62	0.42	0.42	0.25	0.59	0.44	0.49	0.37	0.34	0.43	0.37	0.45	0.56	0.37	1	0.47	0.15	-0.05	0.28	0.48	0.16	0.49	0.62	0.32
Private Real Estate	0.17	0.36	0.36	0.3	0.25	0.24	0.16	0.19	0.3	0.41	0.18	0.11	-0.15	0.09	0.33	0.17	-0.24	0.47	1	-0.01	-0.05	0.06	0.27	-0.07	0.17	0.09	0.18
Commodities	0.04	0.16	0.31	0.19	0.25	0.28	0.31	0.62	0.23	0.18	-0.01	0.19	0.13	0.14	0.3	0.14	0.29	0.15	-0.01	1	0.61	0.35	0.23	0.19	0.29	0.41	0.48
Private Energy	0.15	0.15	0.19	0.13	0.2	0.18	0.21	0.41	0.18	0.14	-0.3	-0.11	-0.05	0.1	0.18	-0.03	0.16	-0.05	-0.05	0.61	1	0.41	0.25	0.08	0.18	0.35	0.49
Energy Infrastructure	0.04	0.17	0.52	0.2	0.21	0.25	0.21	0.47	0.2	0.18	0.15	0.07	0.47	0.32	0.59	0.59	0.54	0.28	0.06	0.35	0.41	1	0.37	0.16	0.64	0.64	0.41
Event Driven	0.12	0.67	0.73	0.72	0.76	0.78	0.4	0.69	0.78	0.69	0.1	0.08	0.33	0.41	0.58	0.43	0.53	0.48	0.27	0.23	0.25	0.37	1	0.21	0.55	0.62	0.71
Macro	-0.08	0.19	0.19	0.18	0.13	0.1	0.15	0.47	0.27	0.1	0.21	0.13	0.36	0.28	-0.09	0.2	0.05	0.16	-0.07	0.19	0.08	0.16	0.21	1	0.22	-0.02	0.34
Relative Value	0.04	0.37	0.54	0.35	0.37	0.38	0.25	0.59	0.43	0.38	0.38	0.16	0.4	0.53	0.59	0.75	0.48	0.49	0.17	0.29	0.18	0.64	0.55	0.22	1	0.58	0.64
Illiquid Div Strat	0.05	0.46	0.71	0.58	0.41	0.55	0.4	0.61	0.43	0.43	0	0.21	0.39	0.49	0.69	0.52	0.71	0.62	0.09	0.41	0.35	0.64	0.62	-0.02	0.58	1	0.55
Liquid Div Strat	0.17	0.5	0.66	0.5	0.63	0.72	0.6	0.8	0.78	0.55	0.01	0.11	0.26	0.45	0.57	0.34	0.45	0.32	0.18	0.48	0.49	0.41	0.71	0.34	0.64	0.55	1

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

ARITHMETIC RETURNS

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 decade. 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, better measure performance over one period. In our asset allocation model, we measure returns and standard deviation over one year, and therefore must incorporate 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 one 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.
- To estimate the arithmetic mean returns, we run a Monte Carlo analysis based on the geometric returns. The one-year arithmetic mean returns utilized in our asset allocation model are as follows:

	Expected Geometric Return	Expected Standard Deviation	Arithmetic Return
FEG 7-10 Year Capital Market Assumptions			
Global Equity			
Large Cap	6.0%	15.0%	7.1%
Mid Cap	6.5%	18.0%	8.2%
Small Cap	7.5%	24.0%	10.1%
Large Cap Developed	7.5%	20.0%	9.3%
Small Cap Developed	7.5%	24.0%	10.2%
Emerging Markets	9.5%	33.0%	14.2%
Frontier Markets	10.0%	35.0%	15.4%
Global Hedged Equity	6.0%	13.0%	6.8%
Private Equity	9.5%	17.0%	10.8%
Global Fixed Income/Credit			
Core (Investment Grade)	1.4%	6.0%	1.6%
Inflation Protected (TIPS)	1.5%	7.0%	1.8%
Long Duration Corporate Debt	3.0%	8.5%	3.4%
Emerging Market Debt	4.5%	13.0%	5.3%
Bank Loans	4.5%	11.0%	5.2%
High Yield	6.0%	16.0%	7.3%
Private Debt	8.5%	15.0%	9.8%
Real Assets			
Public Real Estate	6.0%	20.0%	7.9%
Private Real Estate	8.0%	18.0%	9.9%
Commodities	3.5%	19.0%	5.3%
Private Energy	9.0%	18.0%	10.5%
Energy Infrastructure	8.0%	23.0%	10.2%
Diversifying Strategies			
Event Driven	5.5%	9.5%	5.9%
Macro	5.5%	7.0%	5.8%
Relative Value	5.0%	8.0%	5.3%
Illiquid Diversifying Strategies	8.0%	10.0%	8.6%
Liquid Diversifying Strategies	4.0%	10.0%	4.6%

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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.

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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

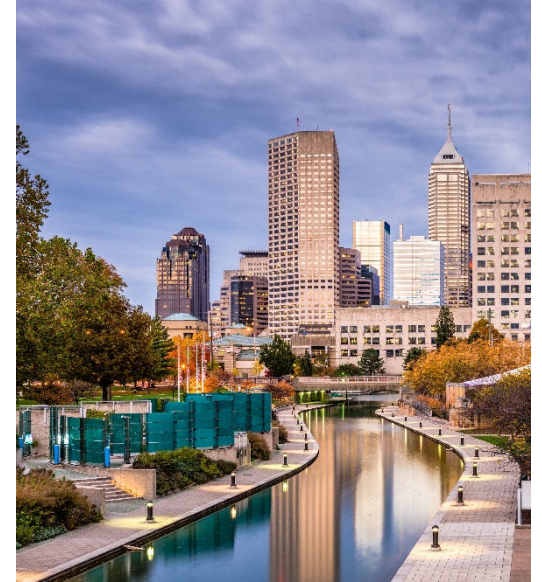
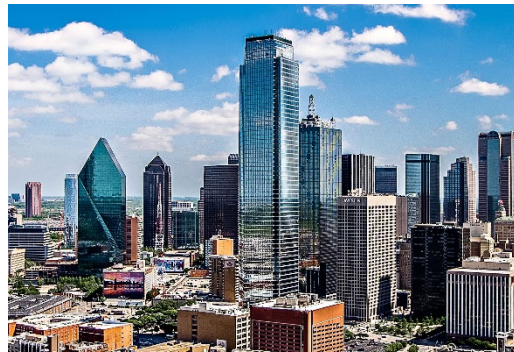
Index performance results do not represent any portfolio returns. An investor cannot invest directly in a presented index, as an investment vehicle replicating an index would be required. An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the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

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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 March 2020 unless otherwise noted.



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Dallas | Indianapolis



DISCLOSURES

This data was obtained from the 2015 NACUBO-Commonfund Study of Endowments (NCSE). The study includes a survey of 812 U.S. colleges and universities. The study divided the data into six categories according to size of endowment, ranging from institutions with endowment assets under \$25 million to those with assets in excess of \$1 billion. Data is for the 2015 fiscal year (July 1, 2014 - June 30, 2015). The National Association of College and University Business Officers (NACUBO) is a membership organization representing more than 25,000 colleges, universities and higher education service providers across the country and around the world. The Commonfund Institute houses the education and research activities of Commonfund and provides the entire community of long-term investors with investment information and professional development programs. NCSE returns are presented net of fees and expenses.

This data was obtained from the 2016 NACUBO-Commonfund Study of Endowments (NCSE). The study includes a survey of 805 U.S. colleges and universities. The study divided the data into six categories according to size of endowment, ranging from institutions with endowment assets under \$25 million to those with assets in excess of \$1 billion. Data is for the 2016 fiscal year (July 1, 2015 - June 30, 2016). The National Association of College and University Business Officers (NACUBO) is a membership organization representing more than 25,000 colleges, universities and higher education service providers across the country and around the world. The Commonfund Institute houses the education and research activities of Commonfund and provides the entire community of long-term investors with investment information and professional development programs. NCSE returns are presented net of fees and expenses.

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This data was obtained from the 2018 NACUBO-TIAA Study of Endowments (NTSE). The study includes a survey of 802 U.S. colleges and universities. The study divided the data into seven categories according to size of endowment, ranging from institutions with endowment assets under \$25 million to those with assets in excess of \$1 billion. Data is for the 2018 fiscal year (July 1, 2017 - June 30, 2018). The National Association of College and University Business Officers (NACUBO) is a membership organization representing more than 25,000 colleges, universities and higher education service providers across the country and around the world. TIAA has \$1 trillion in assets under management (Based on \$1 trillion of assets under management across Nuveen Investments affiliates and TIAA investment management teams as of 9/30/2018) and offers a wide range of financial solutions, including investing, banking, advice and education and retirement services. Data for 2009 through 2017 are from the NACUBO-Commonfund Study of Endowments. NTSE returns are presented net of all management fees and expenses.

This data was obtained from the 2019 NACUBO-TIAA Study of Endowments (NTSE). The study includes a survey of 774 U.S. colleges and universities. The study divided the data into seven categories according to size of endowment, ranging from institutions with endowment assets under \$25 million to those with assets in excess of \$1 billion. Data is for the 2019 fiscal year (July 1, 2018 - June 30, 2019). The National Association of College and University Business Officers (NACUBO) is a membership organization representing more than 25,000 colleges, universities and higher education service providers across the country and around the world. Data for 2009 through 2017 are from the NACUBO-Commonfund Study of Endowments. NTSE returns are presented net of all management fees and expenses.

DISCLOSURES

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

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

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

International is represented by the MSCI EAFE Index which is a Morgan Stanley Capital International index that is designed to measure the performance of the developed stock markets of Europe, Australasia, and the Far East. www.mscibarra.com

Emerging Markets are represented by the MSCI Emerging Markets Index which is a Morgan Stanley Capital International index that is designed to measure the performance of emerging market stock markets. www.mscibarra.com

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

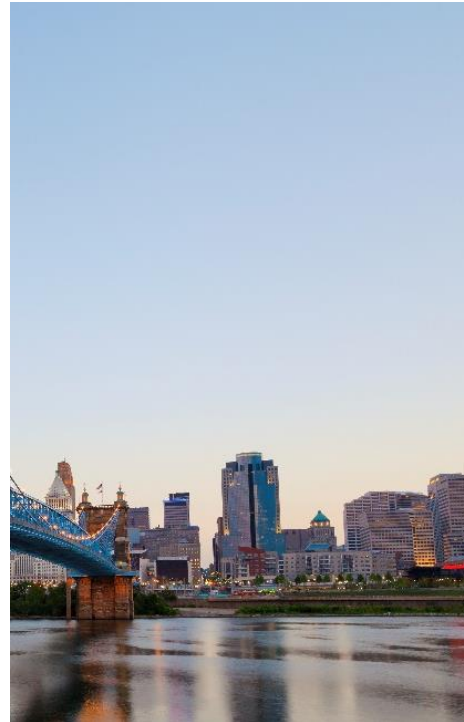
Bonds are represented by the Barclays U.S. Aggregate Bond Index which includes U.S. government, corporate, and mortgage-backed securities with maturities up to 30 years. www.barclays.com

High Yield is represented by the Barclays U.S. Corporate High Yield Index. www.barclays.com

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

MLPs are represented by the Alerian MLP Index. www.alerian.com

Hedge Funds are represented by the Hedge Fund Research, Inc. Fund of Funds Composite Index. www.hfri.com



WALK, DON'T RUN: THE PANDEMIC, BEAR MARKETS, AND OPPORTUNITIES

First Quarter 2020

CONTENTS

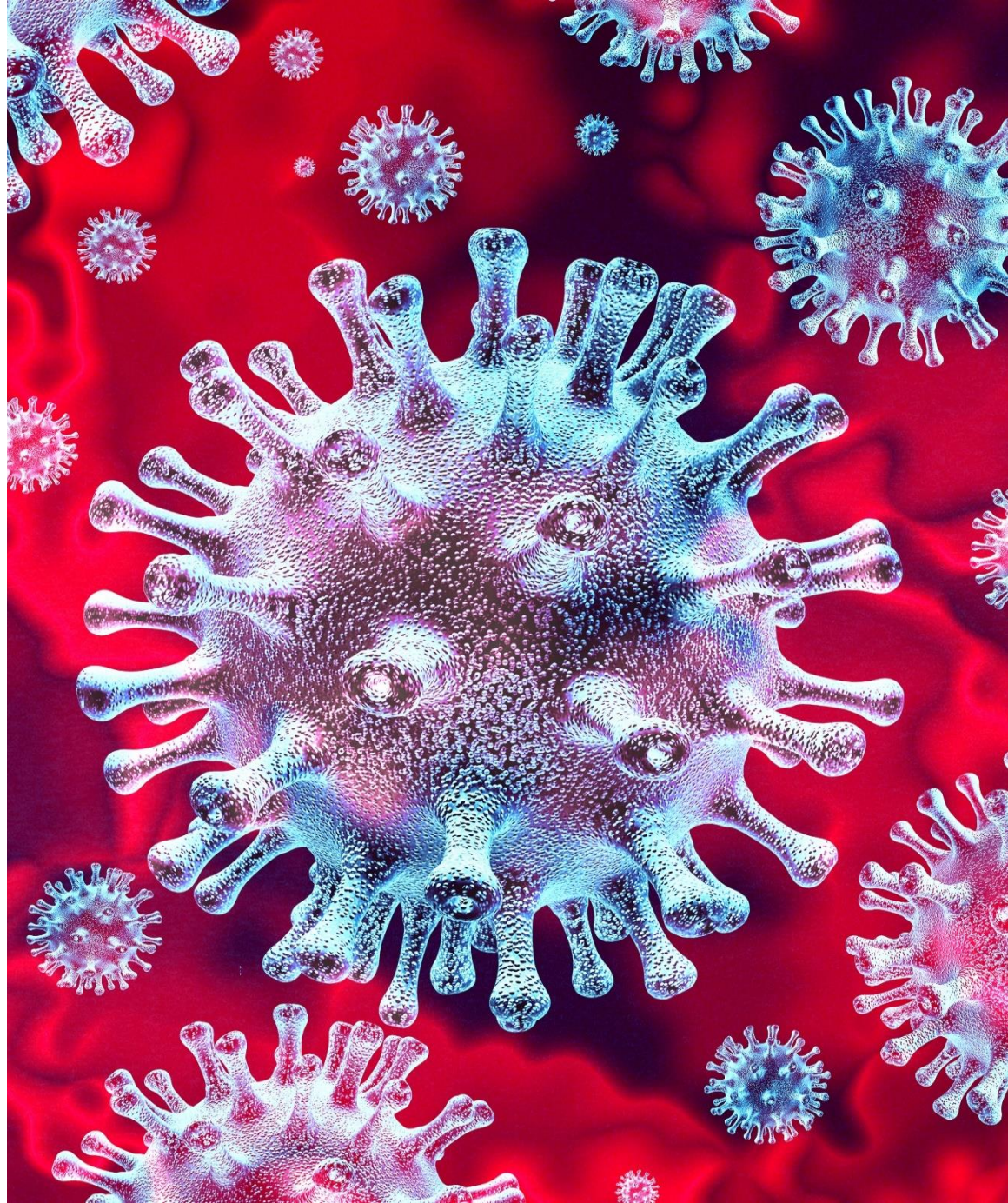
- Market Impacts of the COVID-19 Pandemic
- Economic Developments
- Bear Markets and Recessions
- How to Respond – Walk, Don't Run
- Conclusion



MARKET IMPACTS OF THE COVID-19 PANDEMIC

THE CORONAVIRUS

- The respiratory disease now known as the coronavirus, COVID-19 was first detected in the Wuhan, the capital of central China's Hubei province.
- The disease spread across the globe, infecting more than one million people and stressing healthcare systems.
- Global markets reacted slowly at first, but once normalcy bias dissipated and an understanding of the economic consequences of restraining COVID-19 were realized, market reactions were swift.

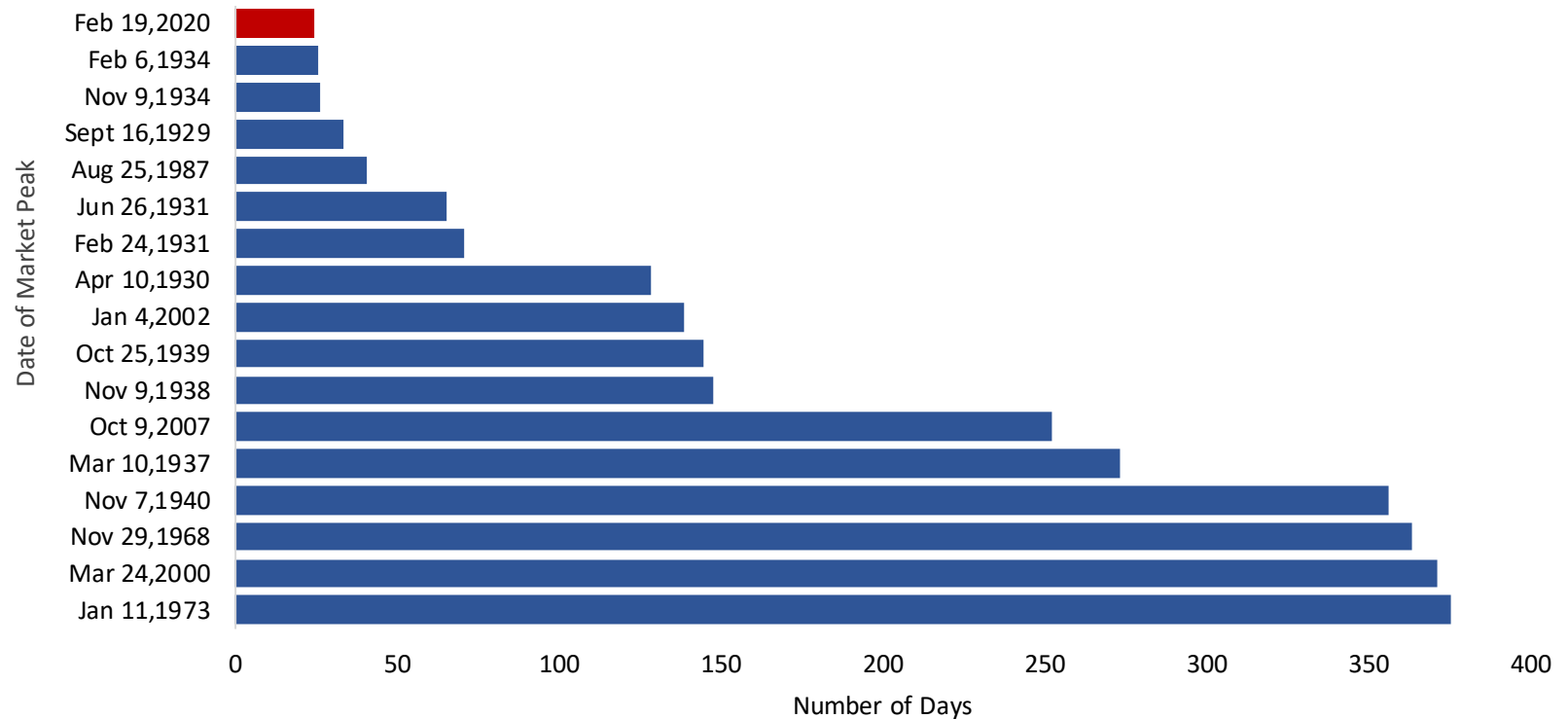


QUICKEST 30% DECLINE AND SHORTEST BEAR MARKET ON RECORD

- Not only was this the fastest decline from a bull to bear market in history, it is now the fastest 30% market decline.
- The market rally in late March also made the bear market the shortest on record.

FASTEST 30% EQUITY MARKET DROP ON RECORD

Number of trading sessions to close down 30% or more from a peak



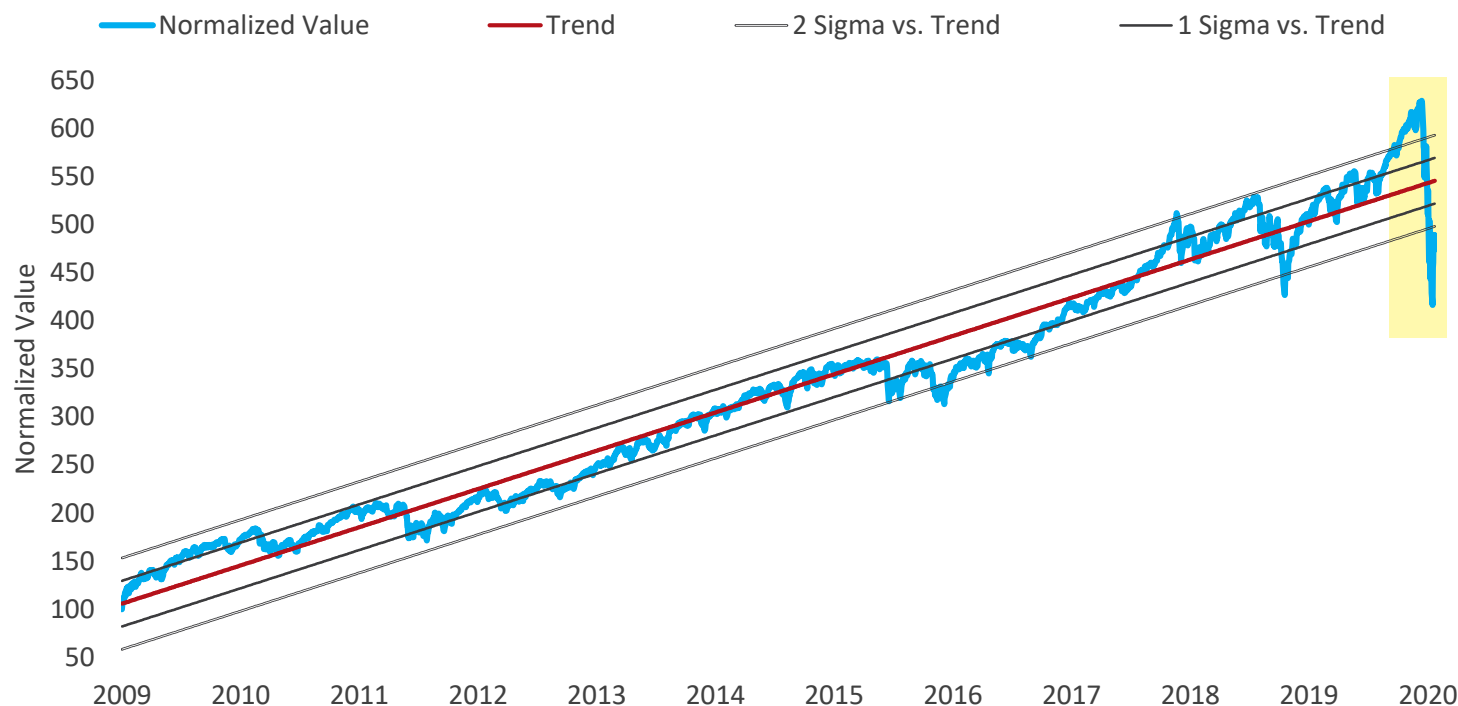
Data source: BofA Global Research

U.S. EQUITIES WERE POISED FOR PERFECTION, NOT CRISIS

- At its peak on February 19, the S&P 500 Index appeared significantly extended versus the current trend—at more than 3.5 standard deviations above the trend.
- The COVID-19 triggered bear market reversed the market's direction, wiping out 2019's market gains, and bringing the U.S. equity market well below the post-2008 recovery trend.

FROM SIGNIFICANTLY EXTENDED TO WELL BELOW THE TRENDLINE

S&P 500 Index March 9, 2009 – March 31, 2020

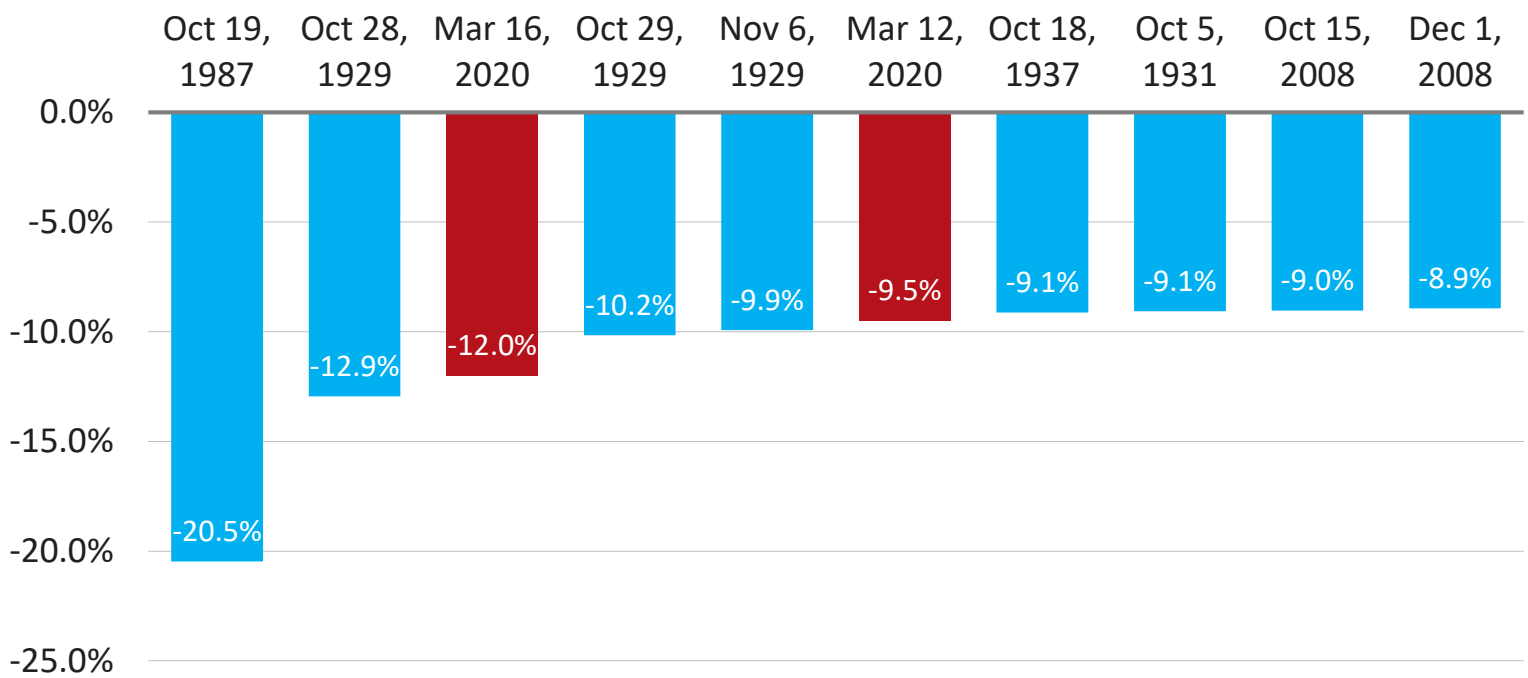


Data source: Bloomberg, L.P.; 3/9/2009 = 100

THE PANDEMIC LED TO SOME OF THE WORST MARKET DAYS IN HISTORY

- As the economy began to shut down, the markets witnessed two of the worst declines ever seen on Wall Street.

WORST 10 DAYS ON WALL STREET

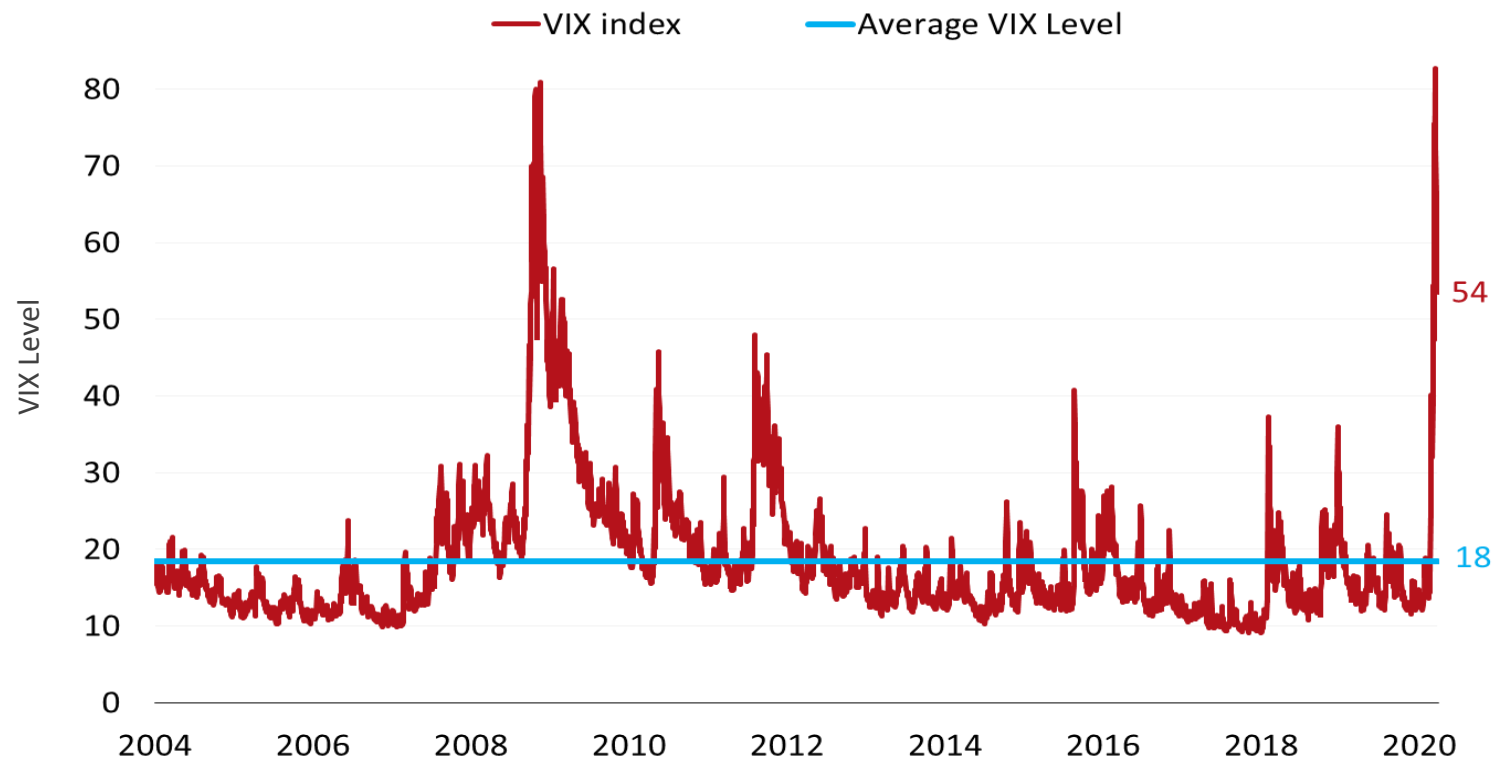


Data source: Bloomberg. Data as of March 16, 2019

VOLATILITY SPIKES

- With the market's realization of the outbreak's severity, volatility spiked to all-time highs.

VOLATILITY SPIKED TO LEVELS ABOVE THE FINANCIAL CRISIS

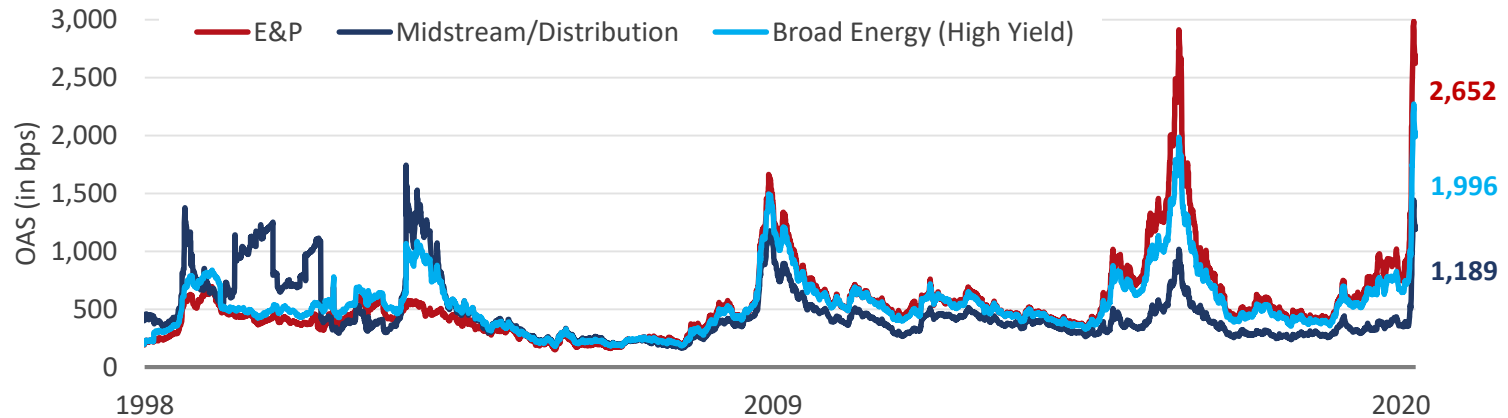


Data source: Chicago Board Options Exchange (CBOE)

PUBLIC CREDIT MARKETS

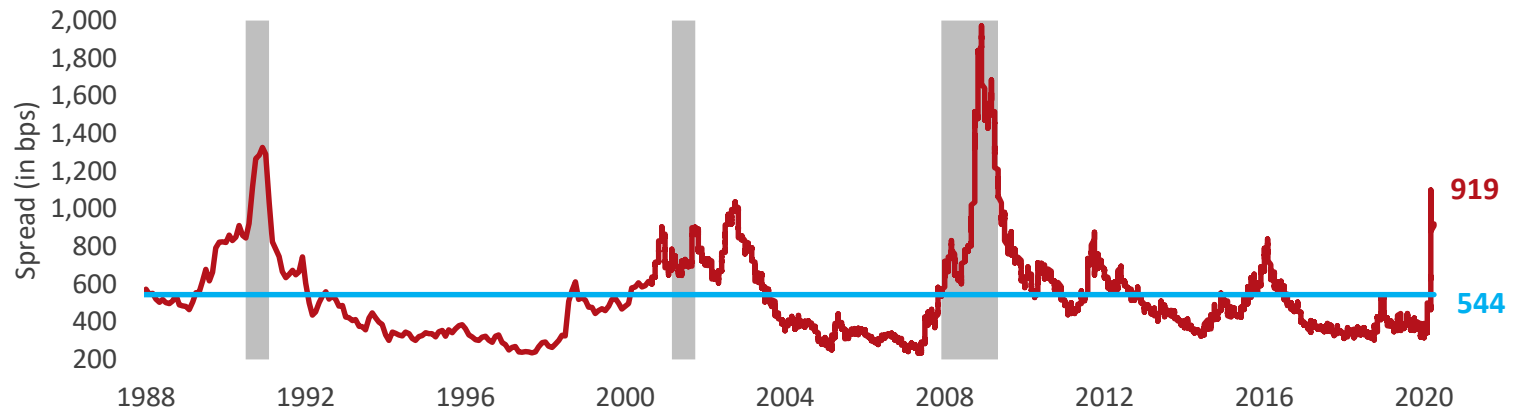
- Option-adjusted spreads widened to ~1000 basis points (bps) for high yield bonds, led by energy and airlines.

U.S. HIGH YIELD ENERGY CREDIT SPREADS



Data sources: ICE BofAML, Bloomberg, L.P.

BARCLAYS HIGH YIELD OAS & BUSINESS CYCLES



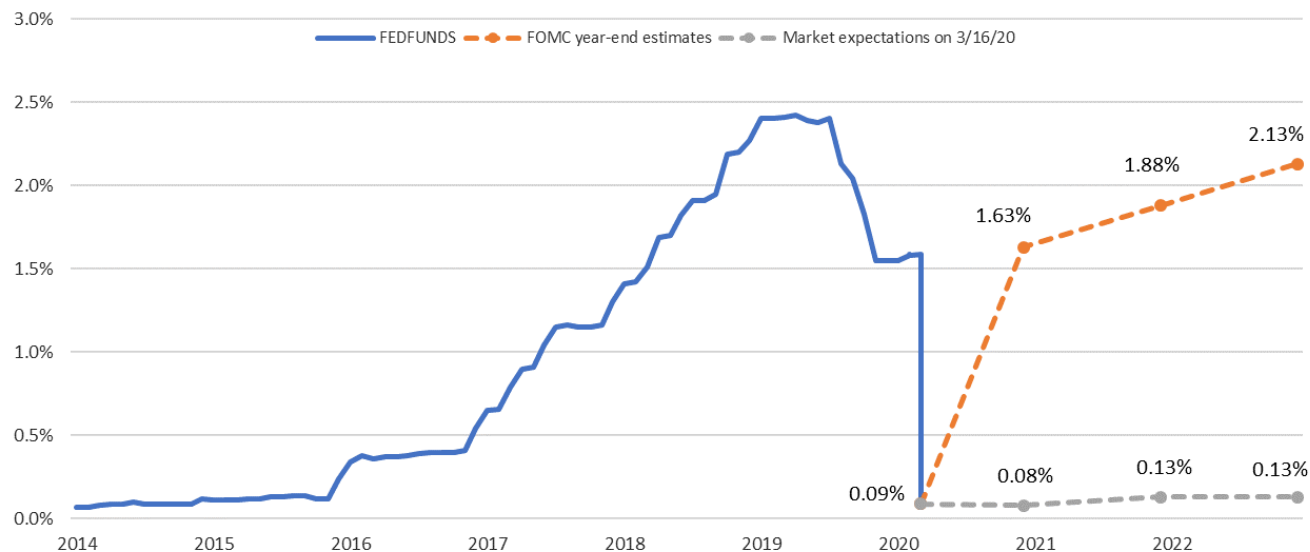
Data sources: Barclays, Bloomberg, L.P., NBER; Note: Monthly yield spread vs. 5 -Year Treasury used for 1/1987 - 9/2000; Daily OAS used thereafter

THE FED'S EMERGENCY RESPONSE

- The Federal Reserve's (Fed) emergency rate reduction to zero is now expected by the markets to remain in place for years, though the FOMC began 2020 with much different expectations for rates.
- The Fed is also purchasing an unlimited amount of government debt, as well as corporate and municipal bonds, in what will be the biggest expansion of its balance sheet in history.

THE MARKET EXPECTS RATES TO STAY NEAR ZERO FOR YEARS

FOMC and Market Expectations for the Federal Funds Rate



Data sources: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management

DEMAND AND SUPPLY SHOCKS – A PERFECT STORM FOR OIL

- Markets expected deeper OPEC production cuts until Saudi Arabia's price war with Russia, starting March 8.
- March 9 saw a 25% single-day decline in the price of oil, which is now down over 60% year-to-date.

THE PRICE OF CRUDE OIL PLUMMETS

Crude Oil Front Month Price

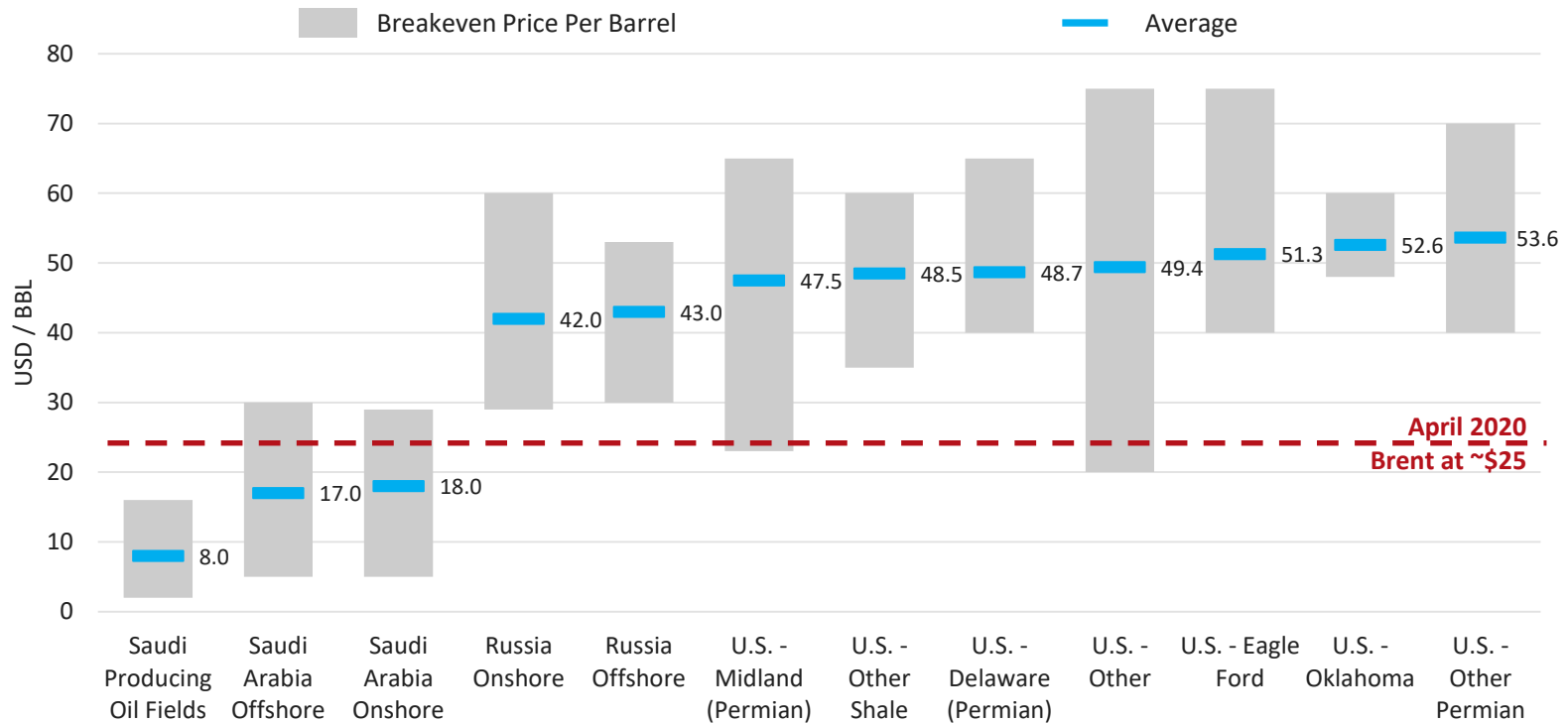


Data source: Energy Information Administration.

CURRENT PRICE LEVELS UNSUSTAINABLE IN THE LONG TERM

- The current price of oil is not sustainable not only for production breakeven, but also for the Saudi Arabia's budgetary breakeven, given their large social expenditures.

PRICE PER BARREL FOR CRUDE PRODUCTION IS BELOW BREAKEVEN



Notes: Saudi Arabian and Russian breakeven rates were calculated by IHS Markit for Brent production in 2018. The results of this analysis was included in the Saudi Aramco prospectus. The calculation considers post-tax price per barrel required to achieve a 10% rate of return through 2030. U.S. breakeven rates consider WTI production and were collected by the Federal Reserve Bank of Dallas through a 2019 survey of 82 exploration and production company executives, responding to the question "In the top two areas in which your firm is active: What WTI oil price does your firm need to profitably drill a new well?"

Data sources: IHS Markit; Federal Reserve of Dallas

MARKET DASHBOARD

	PERFORMANCE/CHANGE TO DATE			TRAILING TOTAL RETURNS/CHANGES		
	MONTH	QTD	YTD	1-Yr	3-Yr	5-Yr
Global Equities						
MSCI AC World	-13.5%	-21.4%	-21.4%	-11.3%	1.5%	2.8%
S&P 500	-12.4%	-19.6%	-19.6%	-7.0%	5.1%	6.7%
Russell 1000	-13.2%	-20.2%	-20.2%	-8.0%	4.6%	6.2%
Russell 1000 Growth	-9.8%	-14.1%	-14.1%	0.9%	11.3%	10.3%
Russell 1000 Value	-17.1%	-26.7%	-26.7%	-17.2%	-2.2%	1.9%
Russell 2000	-21.7%	-30.6%	-30.6%	-24.0%	-4.7%	-0.3%
Russell Microcap	-23.4%	-32.0%	-32.0%	-26.4%	-6.5%	-1.9%
MSCI EAFE	-13.3%	-22.8%	-22.8%	-14.4%	-1.8%	-0.6%
MSCI EAFE Growth	-9.2%	-17.5%	-17.5%	-5.8%	3.0%	2.5%
MSCI EAFE Value	-17.7%	-28.2%	-28.2%	-22.8%	-6.6%	-3.8%
MSCI Emerging Markets	-15.4%	-23.6%	-23.6%	-17.7%	-1.6%	-0.4%
MSCI Emerging Markets Growth	-13.5%	-19.3%	-19.3%	-9.9%	2.4%	2.1%
MSCI Emerging Markets Value	-17.5%	-28.0%	-28.0%	-25.3%	-5.8%	-3.0%
MSCI Frontier Markets	-22.0%	-26.6%	-26.6%	-19.0%	-4.3%	-2.8%
Global Fixed Income						
Barclays U.S. Aggregate Bond	-0.6%	3.1%	3.1%	8.9%	4.8%	3.4%
Barclays U.S. Credit	-6.6%	-3.1%	-3.1%	5.1%	4.2%	3.3%
S&P/LSTA Leveraged Loan	-12.4%	-13.0%	-13.0%	-9.2%	-0.8%	1.1%
Barclays U.S. High Yield Bond	-11.5%	-12.7%	-12.7%	-6.9%	0.8%	2.8%
Real Assets						
FTSE NAREIT Equity	-18.7%	-23.4%	-23.4%	-15.9%	0.1%	2.0%
Powershares DB Commodity	-17.3%	-29.5%	-29.5%	-28.1%	-8.7%	-7.5%
Alerian MLP	-47.2%	-57.2%	-57.2%	-61.0%	-28.9%	-20.6%
Tortoise NA Pipeline	-32.9%	-41.0%	-41.0%	-39.9%	-13.2%	-7.9%
DJ Brookfield Global Infrasatructure	-18.5%	-24.5%	-24.5%	-17.5%	-2.8%	-0.9%

Data source: Bloomberg, L.P.

Data as of: 3/31/2020

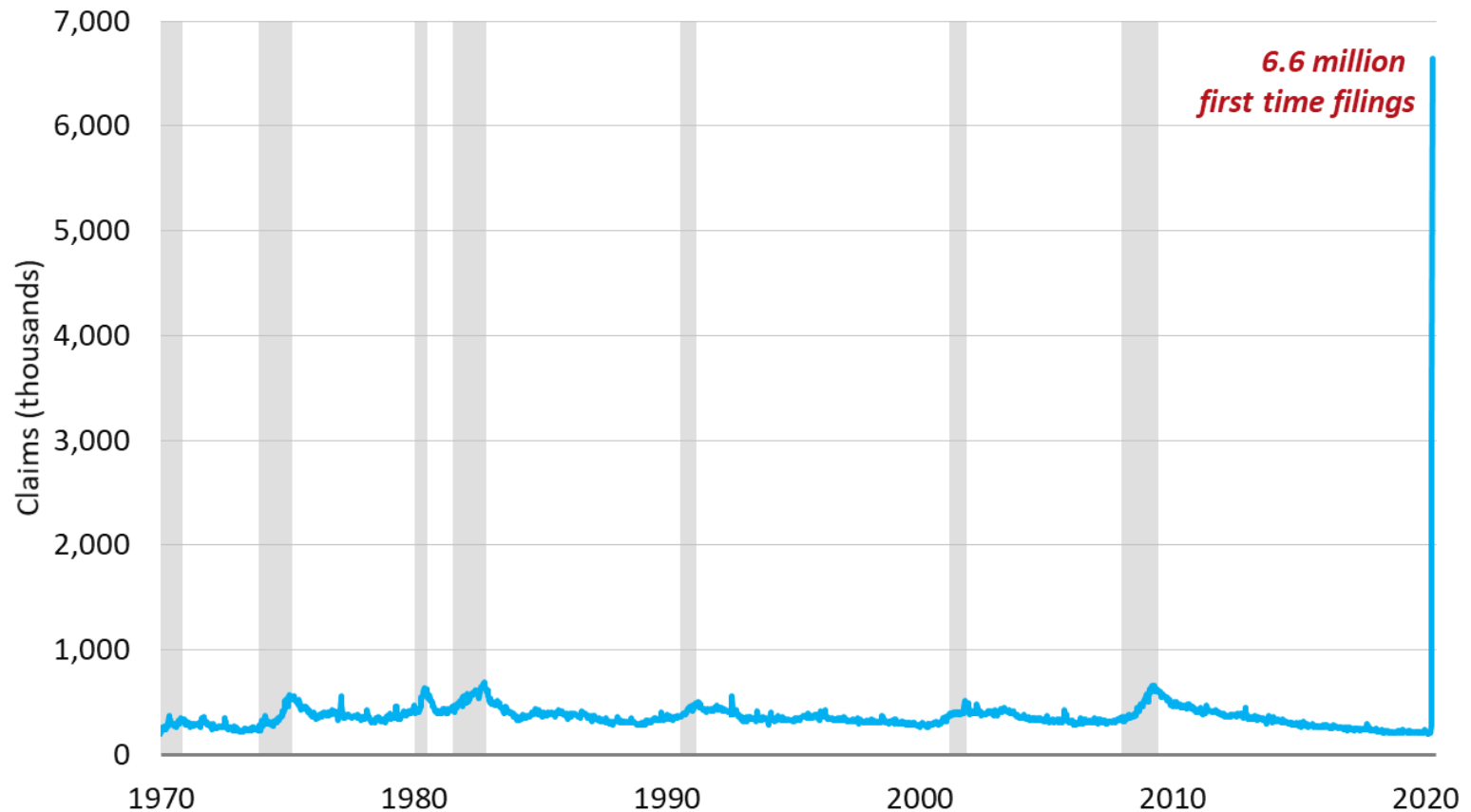


ECONOMIC DEVELOPMENTS

JOBLESS CLAIMS SPIKE

- First time filings for unemployment data surged to historic heights, surpassing peak levels witnessed during the Great Financial Crisis (GFC) in 2008 by a monumental margin, and illustrating the economic consequences of the halt in economic activity.

FIRST TIME FILINGS FOR UNEMPLOYMENT INSURANCE SKYROCKET



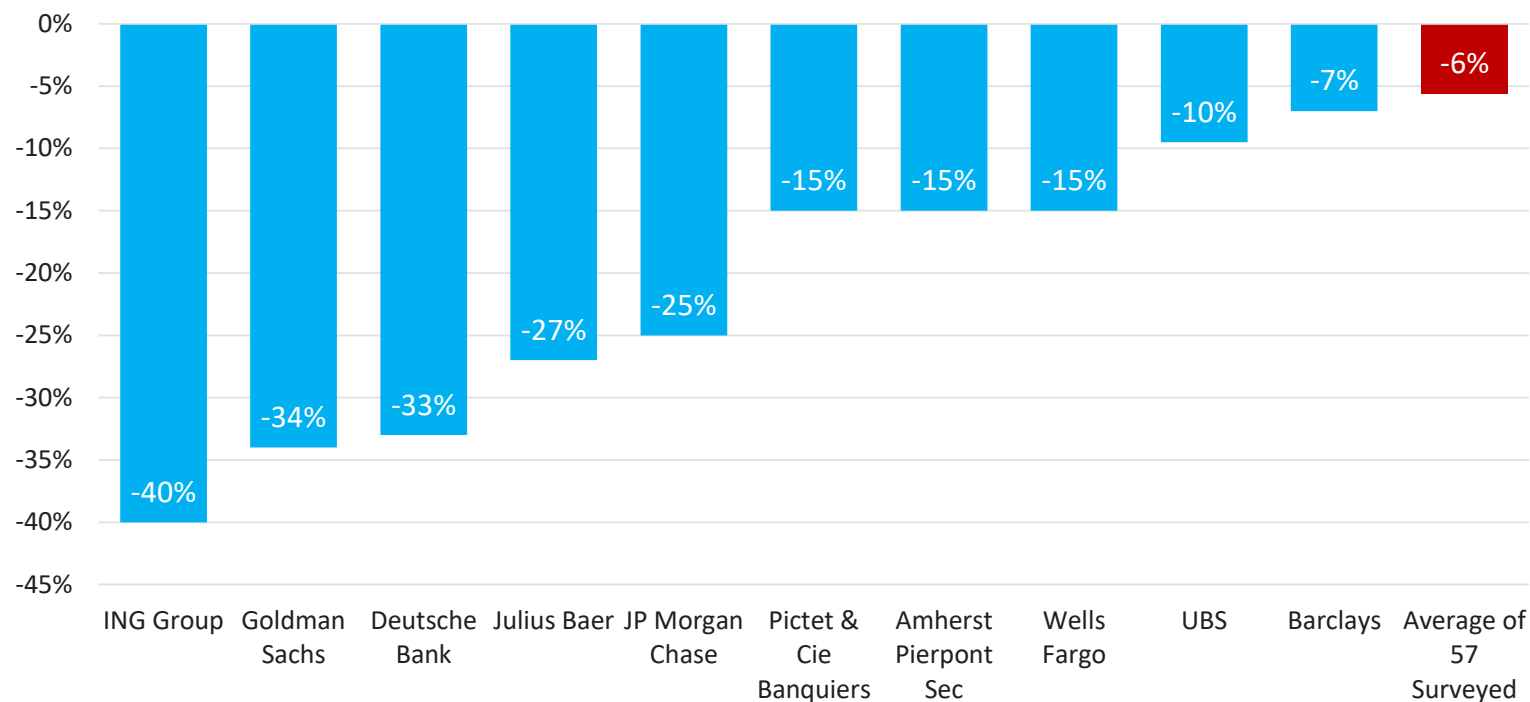
Data sources: DOL, Bloomberg, L.P., NBER; Data as of 3/28/2020

DECLINE IN GDP ESTIMATES

- The dramatic decline in U.S. GDP estimates are both substantial and varied.
- Although the average of all sampled was a decline of 6%, some estimates are far more draconian.

A FORECAST OF DECLINE FOR SECOND QUARTER U.S. GDP

Many Wall Street banks forecast double-digit declines for the U.S. economy, some estimates as low as -40%



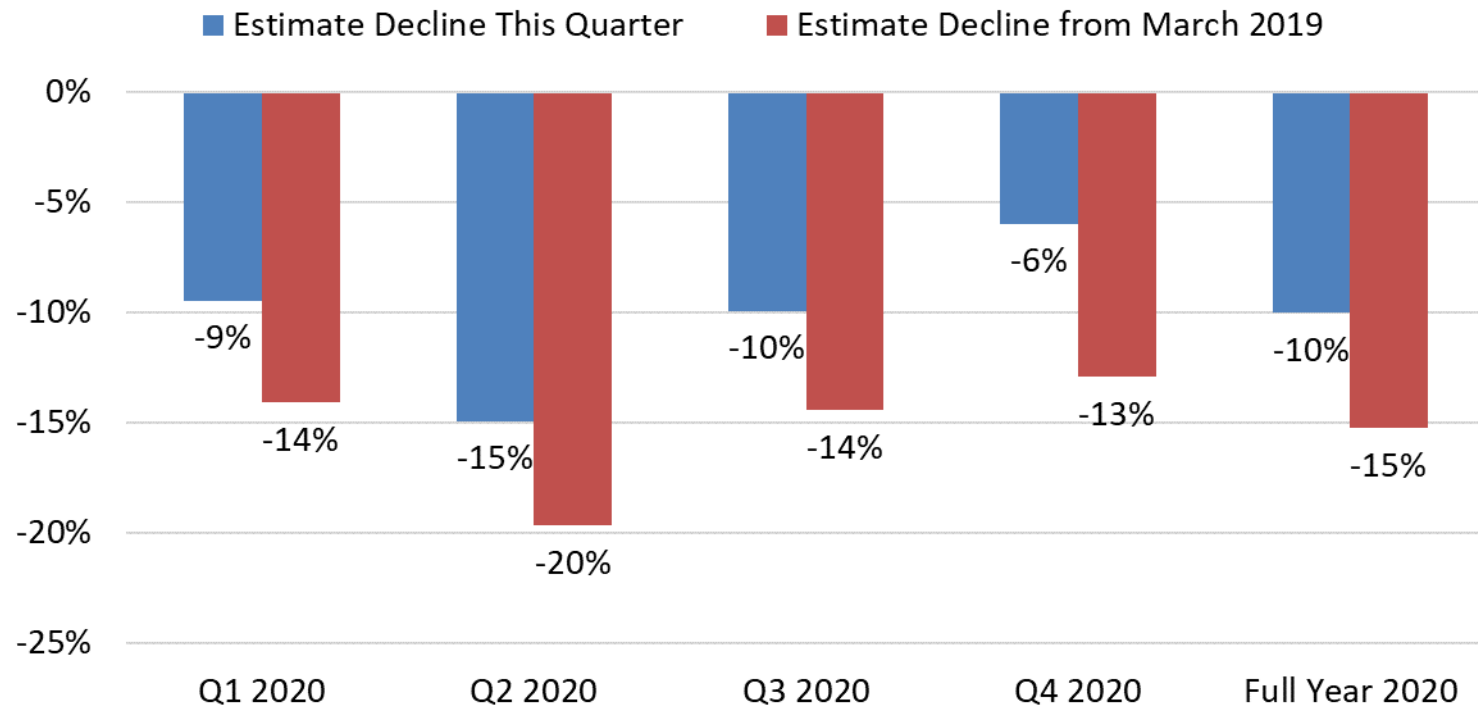
Data source: Bloomberg, L.P.; Data as of 4/2/2020

EARNINGS DECLINES EXPECTED TO BE MOST DRAMATIC IN Q2

- The decline in earnings is only an estimation at this point and the ultimate results will be dependent upon the severity and length of the economic decline from efforts to contain the COVID-19 outbreak, as well as the rate of recovery as the outbreak subsides.

U.S. EQUITY EARNINGS ARE EXPECTED TO FALL DOUBLE DIGITS FROM PRIOR ESTIMATES

S&P 500 Index Estimated Earnings, Decline From Previous Estimates



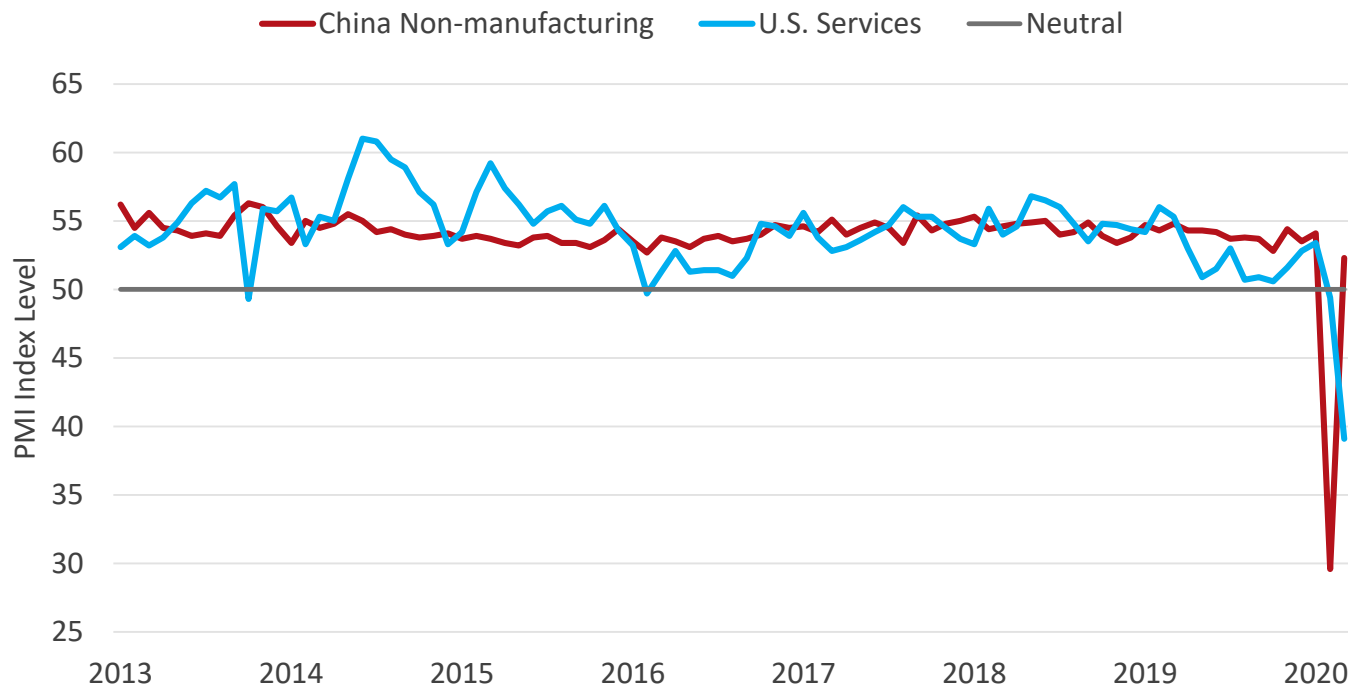
Data source: Standard & Poor's

PMI DATA SHOWED HISTORIC DROP IN THE U.S. AND CHINA

- The Purchasing Manager Index (PMI) data for U.S. services illustrates the collapse across non-manufacturing (i.e., services) sectors to record low levels, following the path of China's services sector.
- Expectations are that with a resumption of economic activity, like that experienced in China, the U.S. and other nations will witness PMI data rebound sharply. Importantly, the rebound of expansion is off of a low base and does not reflect a full recovery.

U.S. SERVICES PMI FOLLOWS CHINA'S FALL

U.S. and China Purchasing Managers Services/Non-manufacturing Indices (PMI)



Data sources: National Bureau of Statistics, Bloomberg, L.P.

FISCAL STIMULUS – CARES ACT

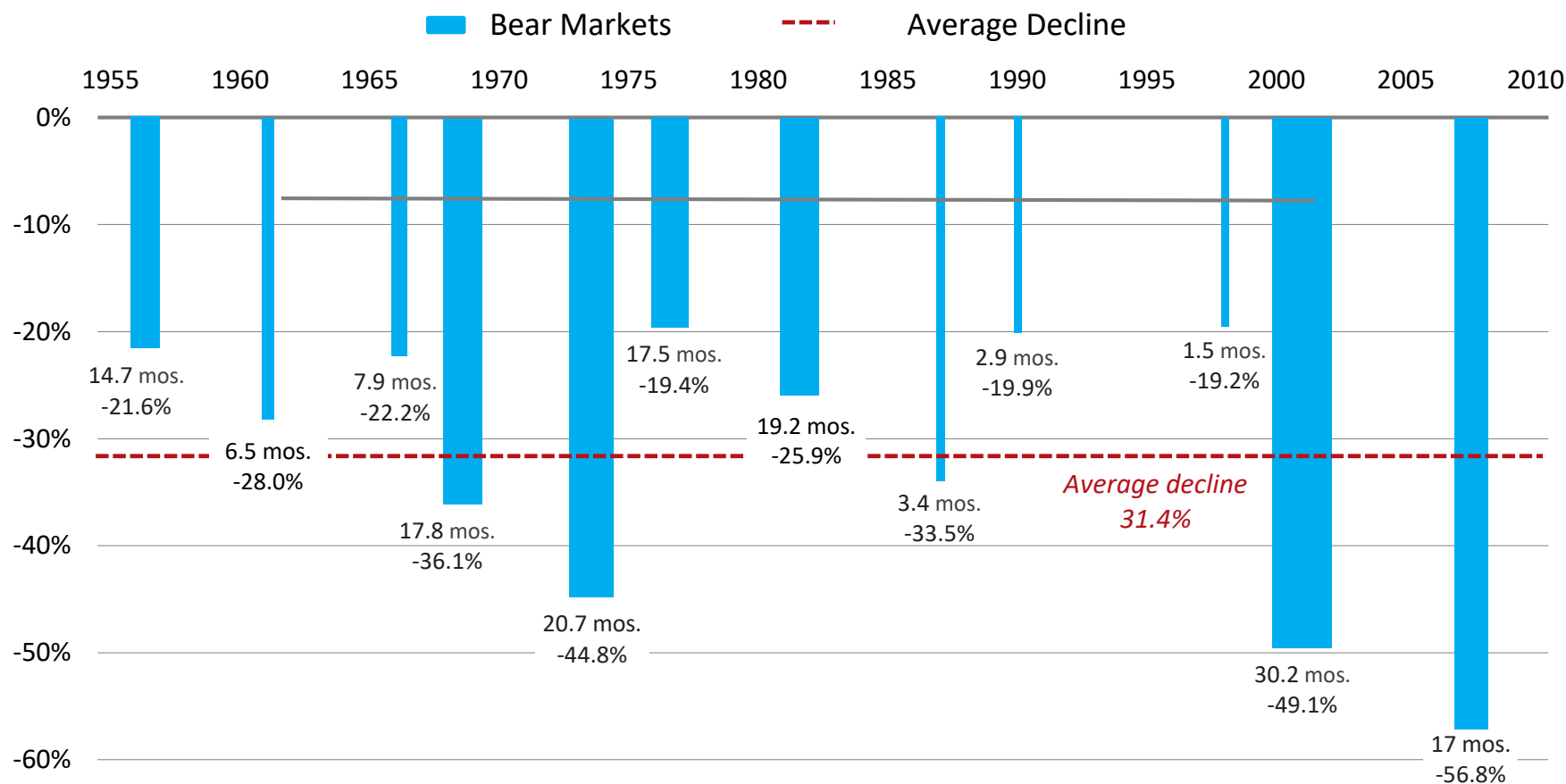
Some highlights, in addition to the direct payments, include:

- Expansion of unemployment benefits for COVID-19 related causes, such as caring for loved ones or the closure of a day care facility
- Elimination of required minimum distributions from retirement accounts, so investors are not compelled to “lock in” losses if funds are not needed
- Allowance of the U.S. Small Business Administration to extend loans under the paycheck protection program, with special considerations for restaurants and hospitality businesses, and with portions of loans used for payroll to be forgiven if certain terms are met
- Loans and guarantees for segments of the economy hardest hit by the outbreak, including passenger airlines, cargo carriers, and the hotel industries
- Support for the healthcare industry, including addressing supply shortages, access to healthcare for COVID-19 patients, and support for the healthcare workforce

BEAR MARKETS AND RECESSIONS

THE TYPICAL BEAR MARKET

- The typical measure of a bear market in stocks is a 20% decline. Since 1950, there have been 12 bear markets, or close calls, occurring approximately every 5.5 years, with an average duration of 13.3 months (mos).

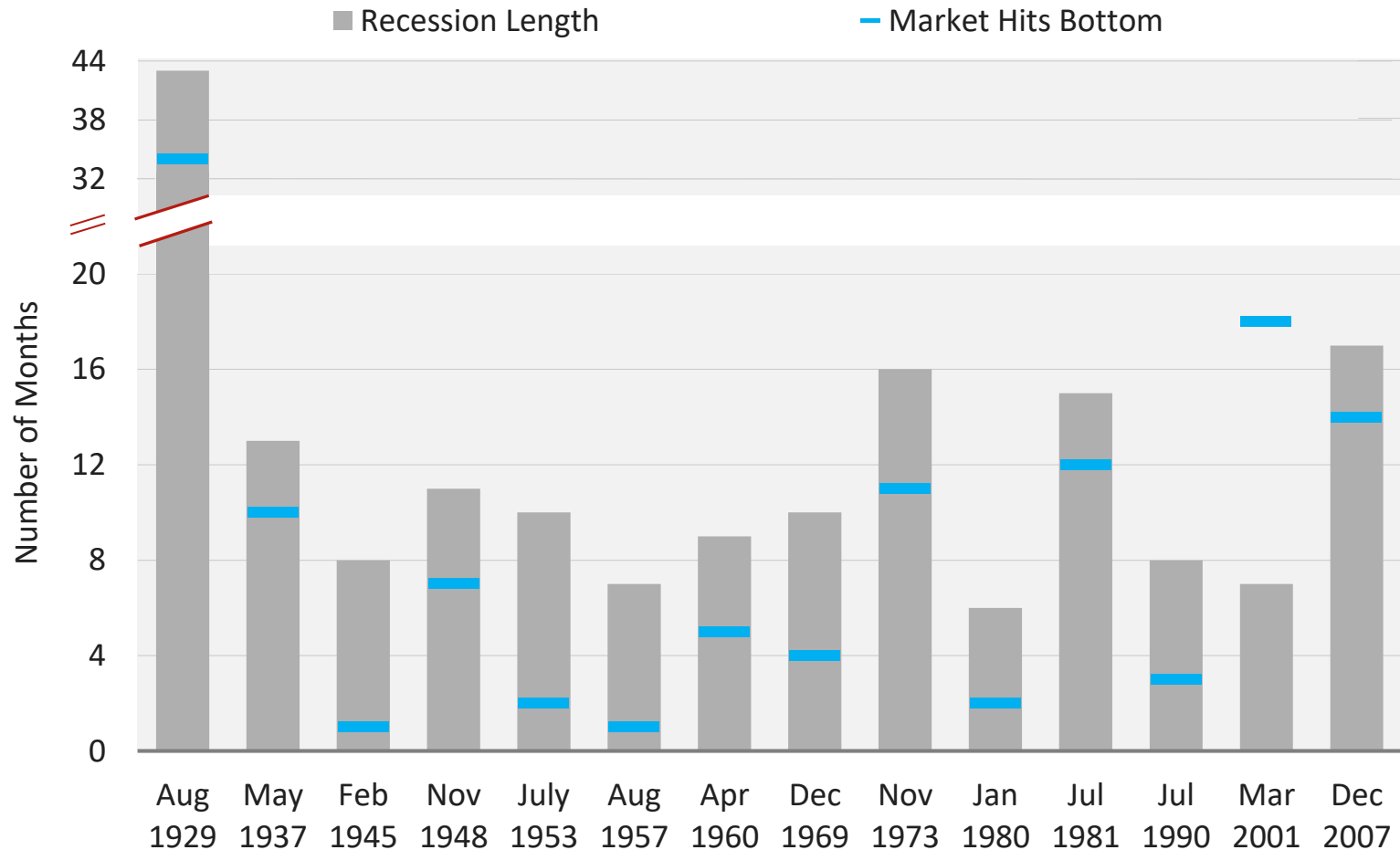


Data source: Standard and Poor's

IN A RECESSION – WHEN DOES THE MARKET BOTTOM?

- Markets tend to bottom when news that triggers a recession becomes “less bad,” as opposed to good.

HISTORICALLY, MARKETS HIT BOTTOM FOUR MONTHS BEFORE A RECESSION ENDS

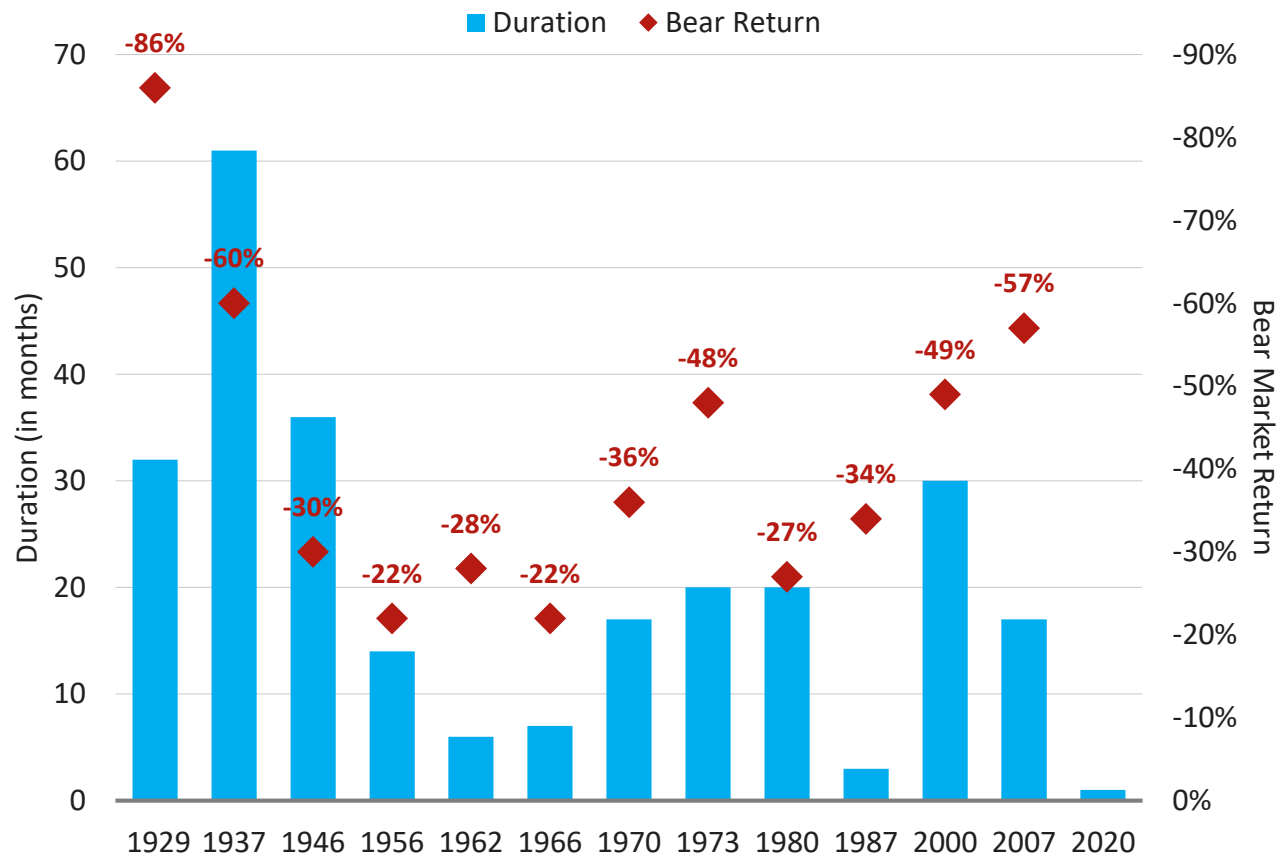


Data source: JPMAM

Note: Bottom hit is shown as months after the recession start

BEAR MARKETS FROM PEAK

U.S. RECESSIONS AND MARKET DECLINES FROM ALL-TIME MARKET HIGHS



Data sources: Factset, NBER, Robert Shiller, Standard & Poor's, J.P. Morgan Asset Management.

Note: A bear market is defined as a 20% or more decline from the previous market high. The related market return is the peak to trough return over the cycle. Periods of "recession" are defined using NBER business cycle dates.

Bear markets from all-time highs have typically lasted more than one-year, none of these were caused by pandemic

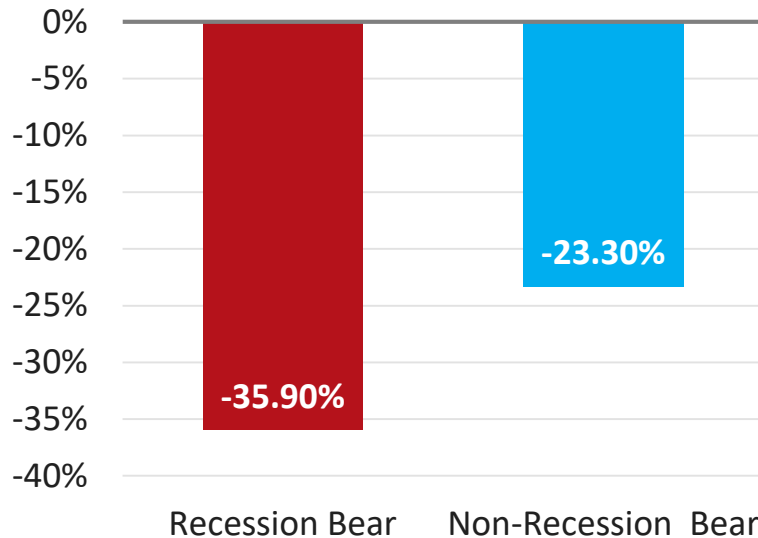
Most declines are worse than -30% at the bottom

A BEAR MARKET WITH, OR WITHOUT, A RECESSION

- Fiscal stimulus may help alleviate recession risk, though such stimulus cannot prevent a recession, the assistance is likely more helpful to supporting a recovery.
- We have already experienced the typical recessionary drawdown.

A RECESSION BEAR IS MORE SEVERE...

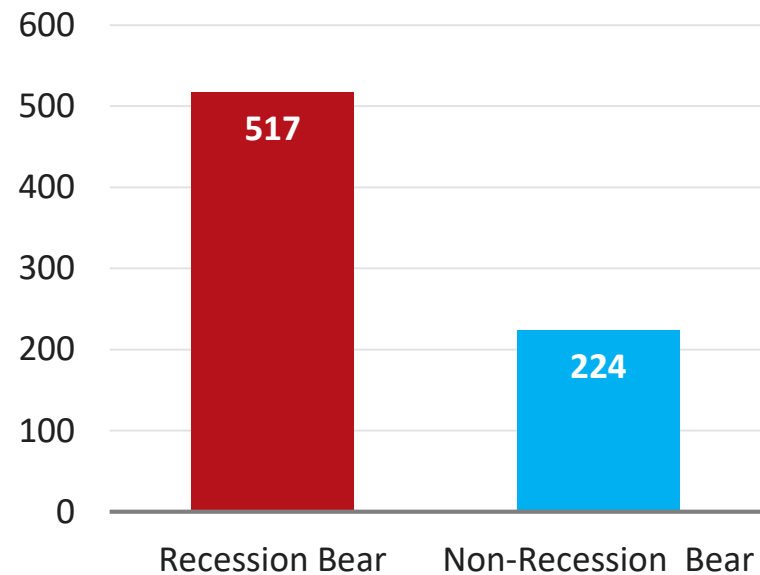
Average S&P 500 Returns



Data source: Strategas

AND LASTS LONGER

Average Days in Recession

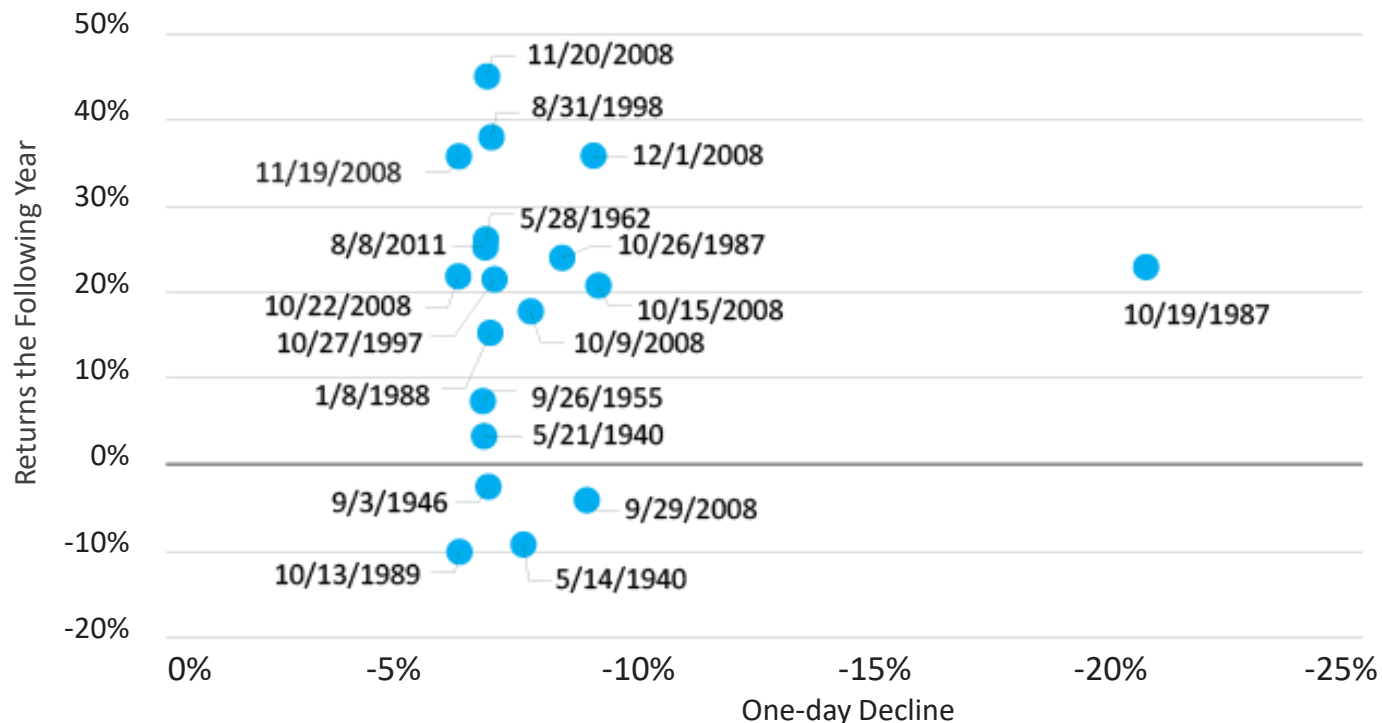


Data source: Strategas

HIGHER RETURNS FOLLOWING A DECLINE

- Since 1940, most returns in the year following the days with the worst market declines have been positive.
- The average return witnessed for the year following a steep market decline was 18%.

RETURNS AFTER WORST ONE-DAY S&P 500 MARKET DECLINES



Data source: Eye on the Market, Bloomberg, J.P. Morgan Asset Management; Data as of 3/12/2020

HOW TO RESPOND: WALK, DON'T RUN

HOW TO RESPOND

Walk, Don't Run

Although the pandemic and the market's reactions developed quickly, the economic decline will not end immediately and market opportunities do not require rash reactions. Investors should:

- Rebalance
- Buy what others are selling
- Avoid selling at the bottom
- Invest in the future

REBALANCE

The simplest opportunity for investors amid the current market stress is to rebalance portfolios back to target.

Rebalancing a portfolio may be the easiest way to implement portfolio action

- The allocations were determined in a period of market calm and aligned with long-term goals
- This helps provide liquidity where liquidity is scarce, which is often a recipe for investing success

Benefits

- Provides discipline and requires less fortitude than opportunistic allocations
- Maintains the desired exposure to systematic risk factors
- Secures gains from appreciated assets and a margin of safety from depreciated assets

Costs

- The market conditions in which a trade is made can affect the amount of transaction costs due to market impact (implicit cost)
- Opportunity costs (implicit cost)
- Possible tax implications (explicit cost)

BUY WHAT OTHERS ARE SELLING

U.S. CREDIT MARKETS

- Spreads on high yield bonds reached ~1100 bps over Treasuries, and bond and bank loan prices plummeted, historically indicative of compelling opportunities and in line with OAS spikes from prior recessionary periods.
- The high yield distressed ratio, which measures corporate bonds trading at spreads of 1000 bps or more, reached 37% at the end of March, also indicative of opportunities in both the public and private credit markets.

U.S. HIGH YIELD DISTRESSED RATIO HIGHLIGHTS STRESS AND OPPORTUNITY



Data source: BofA Merrill Lynch as of March 27, 2020. The distressed ratio is the percentage of U.S. domiciled bonds in the ICE Bank of America Merrill Lynch U.S. High Yield Index with option adjusted spreads (OAS) greater than 1,000 bps.

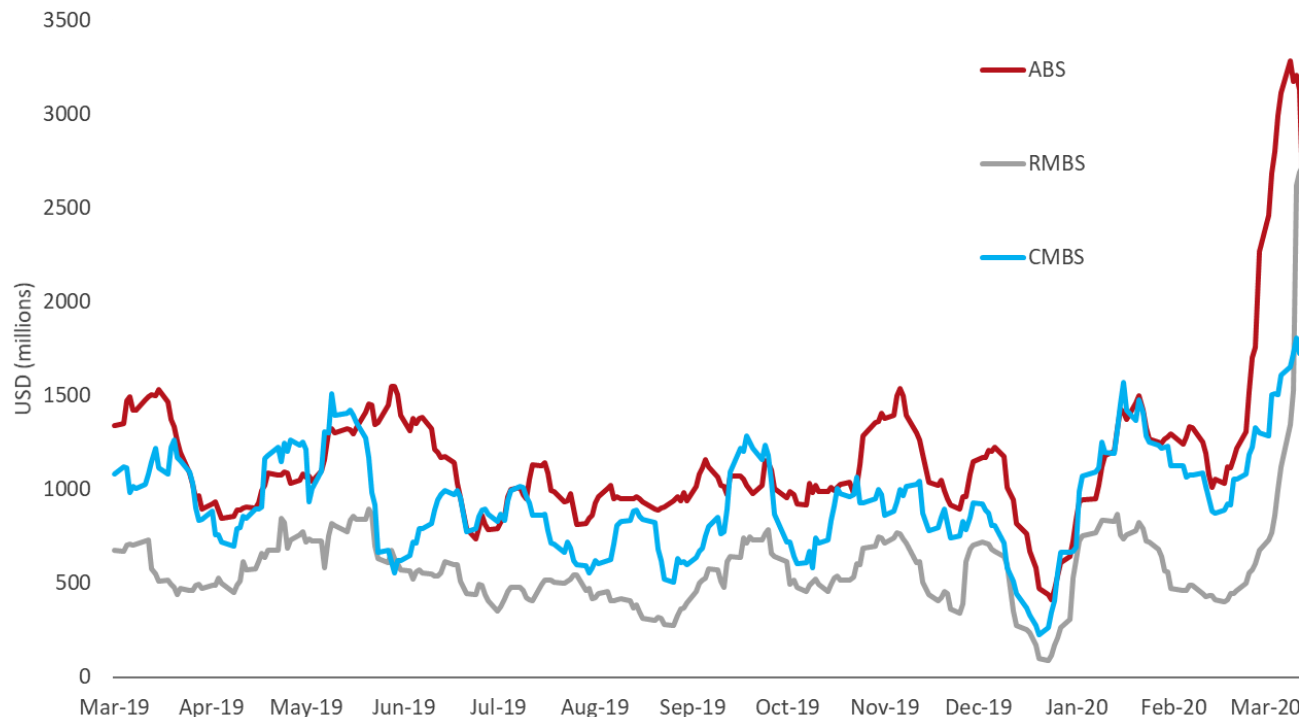
BUY WHAT OTHERS ARE SELLING

STRUCTURED PRODUCTS

- A broad range of structured products have witnessed rising spreads and lower prices, as investors re-evaluated the underlying collateral in the face of a potential U.S. recession.
- The Fed has moved to stabilize some parts of the structured products markets, though not all, leaving room for re-evaluation of the underlying collateral by experienced investors.

TRADING IN ASSET-BACKED AND MORTGAGE-BACKED SECURITIES SPIKES

Ten Day Moving Average Trading Activity



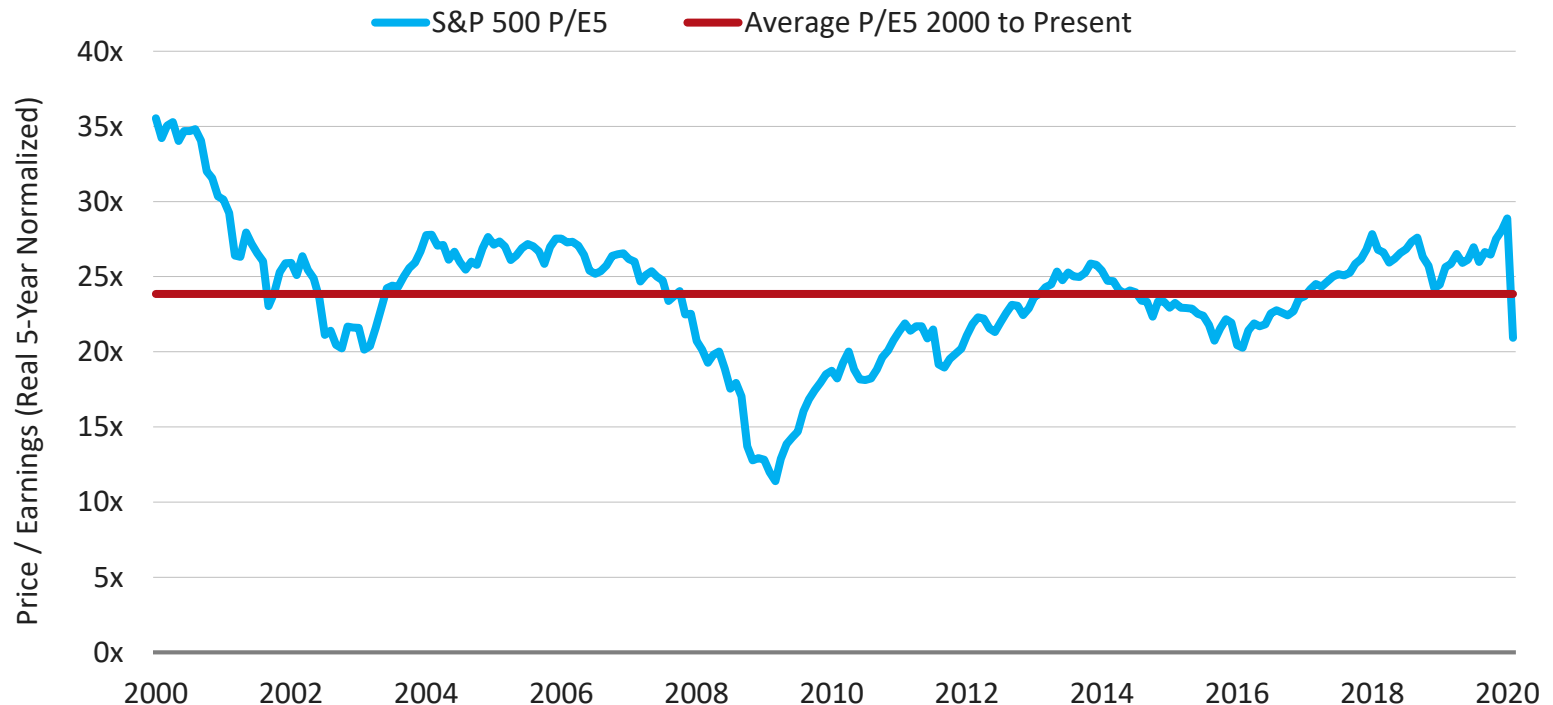
Data source: Bank of America Merrill Lynch; Data as of 3/30/2020

BUY WHAT OTHERS ARE SELLING

U.S. EQUITIES

- Markets have fallen to more attractive levels relative to historical averages.
- Equities are likely to garner higher valuations due to the low interest rate environment that was present before the pandemic, and even more so now.

VALUATIONS DROP BELOW 20-YEAR AVERAGE



Data source: Robert Shiller and Standard & Poor's

BUY WHAT OTHERS ARE SELLING

SMALL AND MICRO CAP

- Small and micro cap have traditionally outperformed other asset classes following bear markets.

SMALLER CAPS LEAD THE RUN FROM BEAR MARKETS

Russell Indices Absolute Forward Return, One-Year After Month-End Bear Market Troughs

Dec-18	Feb-16	Sep-11	Feb-09	Feb-03	Aug-98	Oct-90	Nov-87	Jul-84	Jul-82	Mar-80
LgCp Grw +36.4%	SmCp Val +41.3%	McrCp +36.3%	MdCp Val +74.7%	McrCp +84.4%	MdCp Grw +48.8%	SmCp Grw +66.5%	SmCp Val +33.1%	MdCp +38.8%	SmCp Grw +99.3%	SmCp Grw +81.5%
MdCp Grw +35.5%	SmCp +36.1%	SmCp Val +32.6%	MdCp +71.0%	SmCp Grw +64.9%	LgCp Grw +48.3%	SmCp +58.6%	SmCp +30.0%	LgCp Val +38.1%	SmCp +94.7%	SmCp +72.1%
LgCp +31.4%	McrCp +35.7%	SmCp +31.9%	SmidCp +68.0%	SmCp +64.4%	SmCp Grw +43.3%	SmidCp +57.8%	MdCp Val +29.9%	SmidCp +34.7%	SmCp Val +89.6%	SmidCp +66.0%
MdCp +30.5%	MdCp Val +31.8%	SmCp Grw +31.2%	MdCp Grw +67.1%	SmCp Val +64.0%	LgCp +39.3%	MdCp Grw +55.1%	SmidCp +28.7%	LgCp +33.8%	SmidCp +87.5%	SmCp Val +62.2%
SmCp Grw +28.5%	SmidCp +31.7%	SmidCp +30.9%	McrCp +66.6%	SmidCp +61.2%	SmidCp +32.4%	MdCp +51.8%	LgCp Val +28.5%	SmCp Val +33.7%	MdCp +73.2%	MdCp +58.5%
SmidCp +27.8%	SmCp Grw +30.9%	LgCp Val +30.9%	SmCp Val +65.9%	MdCp Grw +52.7%	MdCp +31.8%	SmCp Val +51.6%	MdCp +27.0%	SmCp +30.6%	LgCp Grw +62.2%	LgCp Grw +43.4%
MdCp Val +27.1%	LgCp Val +29.1%	LgCp +30.1%	SmCp +64.0%	MdCp +52.3%	LgCp Val +30.1%	MdCp Val +49.5%	SmCp Grw +26.7%	LgCp Grw +29.3%	LgCp +61.8%	LgCp +41.4%
LgCp Val +26.5%	MdCp +26.8%	MdCp Val +29.3%	SmCp Grw +61.9%	MdCp Val +51.9%	SmCp +28.4%	LgCp Grw +40.4%	LgCp +23.4%	SmCp Grw +27.6%	LgCp Val +61.1%	LgCp Val +39.0%
SmCp +25.5%	LgCp +25.5%	LgCp Grw +29.2%	LgCp Val +56.5%	LgCp Val +42.3%	MdCp Val +21.9%	LgCp +36.6%	MdCp Grw +23.0%			
McrCp +22.4%	LgCp Grw +22.2%	MdCp +28.0%	LgCp +55.3%	LgCp +39.7%	SmCp Val +14.1%	LgCp Val +32.8%	LgCp Grw +18.1%			
SmCp Val +22.4%	MdCp Grw +21.5%	MdCp Grw +26.7%	LgCp Grw +54.2%	LgCp Grw +37.2%						

Data source: Furey Research Partners and FactSet

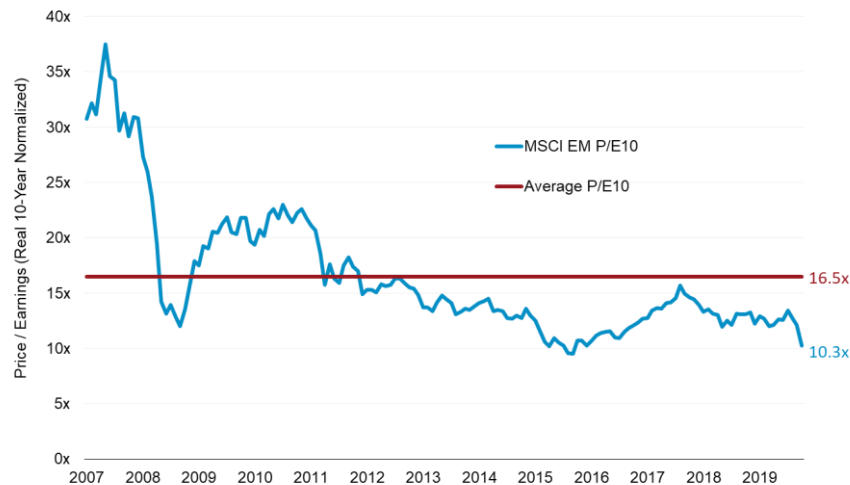
AVOID SELLING AT THE BOTTOM

EMERGING MARKETS AND CHINA

- Emerging market valuations have approached the all time-lows witnessed approximately five-years ago; valuation is an indicator of long-term return potential.
- It is expected that a resumption of economic activity will add clarity for investors and should support equity markets globally.

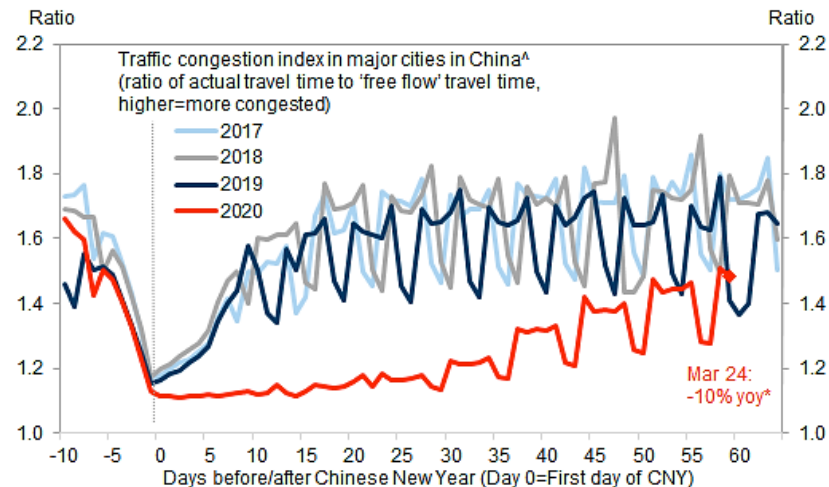
EM VALUATIONS RETURN TO ALL TIME LOWS

EM Price/10-year Normalized Earnings (USD)
MSCI Emerging Markets, 2007 - Present



Data source: Robert Shiller, FactSet, and MSCI

CHINA'S ACTIVITY BEGINNING TO APPROACH NORMAL LEVELS



*Percentage change relative to the same day after CNY in 2017-19

Sources: Wind and Goldman Sachs Investment Research

AVOID SELLING AT THE BOTTOM

ENERGY MARKETS

- Infrastructure remains a critical component of the U.S. energy market and the COVID-19 pandemic has reminded many that dependence on other nations can be disastrous during a crisis.
- MLPs have weathered a period of financial distress in recent years and adjusted their capital structures to improve their resilience.
- Three areas of opportunity exist in private energy: mineral royalties, direct acquisitions funds (both of which are cash flow generating), and managers with expertise in distress and restructuring, as more companies face bankruptcy.

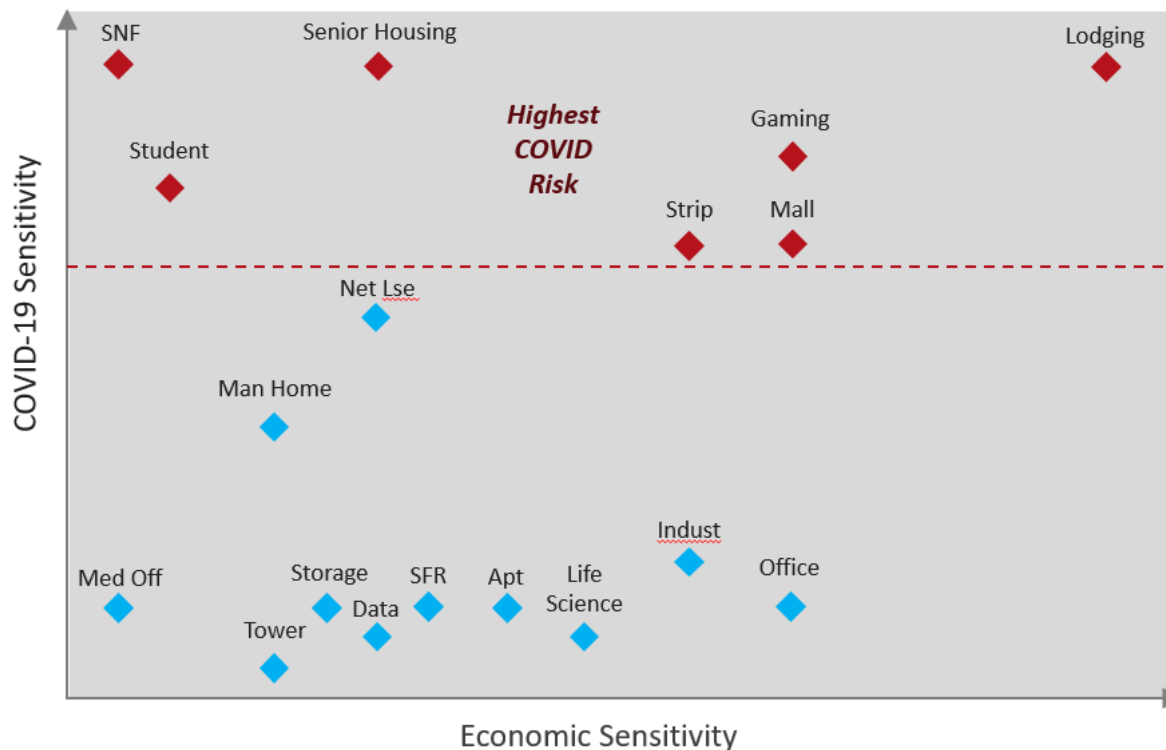


AVOID SELLING AT THE BOTTOM

COVID-19 FALLOUT IN REAL ESTATE

- Tenants are unlikely to pay rents near term and landlords will probably not enforce collection rights. Some real estate subsectors may be pricing in too much cash flow loss, while others may not be discounting cash flows enough.
- Active management in public real estate (i.e., REITs) should benefit in the current environment.
- In private real estate, managers with capital to deploy can take advantage of distressed opportunities. Near-term recommendations are likely to focus on defensive sectors (i.e. data centers, self-storage, etc.)

REAL ESTATE SECTOR RISK IN A COVID RECESSION



Data source: Green Street Advisors

CONCLUSION

WE HAVE NEVER BEEN HERE BEFORE

- Although we have dealt with outbreaks in the past, no epidemics have compared in scale to the size and economic impact of the COVID-19 outbreak.

Epidemic	Month Virus First Appeared	S&P 500 Performance +1 Months	S&P 500 Performance +3 Months	S&P 500 Performance +6 Months
West Africa Ebola Virus	Mar 2014	0.0%	5.6%	6.5%
Avian Flu China	Mar 2013	1.9%	2.9%	8.3%
MERS Coronavirus	Jun 2012	3.3%	11.7%	9.2%
Swine Flu	Apr 2009	3.8%	10.1%	30.1%
SARS Coronavirus	Nov 2002	0.2%	-7.8%	4.8%
West Nile NYC	Aug 1999	-5.8%	3.6%	0.6%
Avian Flu Hong Kong	May 1997	7.4%	11.2%	11.0%

Data source: Strategas

UNPREDICTABLE IMPACTS

The unknowns surrounding the COVID-19 outbreak are many:

- The length and severity of the outbreak
- The speed and effectiveness of the CARES Act in tempering economic weakness
- The rate of economic recovery as the outbreak subsides and whether that recovery is U-shaped, V-shaped, or even W-shaped (a double-dip recession)
- Inflationary and deflationary pressures of monetary and fiscal stimulus around the globe
- Impacts on the U.S. 2020 elections
- Further changes on the degree of globalization and whether China's brand is diminished
- Whether quantitative easing will have the same detrimental impact on active management that it had following the financial crisis
- Long-term secular impacts on how we work and live

IN CONCLUSION

We are focused on ensuring our clients are informed and as opportunities develop in these trying times, that we help our clients benefit from opportunities suited to each client's unique needs. To that end, remember enterprise needs, that both the pandemic and its economic impacts will pass, and that investors are not best served by waiting for clarity before being opportunistic.

- The first quarter saw the fastest decline into a bear market; however, following the fiscal stimulus, the market rallied in late March to also make this the shortest bear market in history.
- Volatility is likely to remain elevated until more is known about the pandemic and the economic effects.
- The virus impact was compounded by the oil price wars between Saudi Arabia and Russia; however, the current oil prices are not sustainable for oil producing nations.
- Jobless claims are at an all time high of 6.6 million filings and may continue to rise. As we look ahead the question is how high will unemployment go, and will more government stimulus be needed?
- While GDP is estimated to decline significantly for the second quarter, consensus among Wall Street is that it will rebound in the third and fourth quarters, and markets tend to bottom before good news arrives.
- Walk Don't Run
 - Rebalancing – consider rebalancing to align with your long-term goals
 - Buying what others are selling – depending on your risk and return allocations, there are many segments with opportunities to enter
 - Avoid selling at the bottom – value, emerging markets, and energy markets have lagged, but they may be placed for better performance in the future
 - Invest in the future – the pandemic has positioned sectors such as technology and biopharma for future growth

DISCLOSURES

DISCLOSURES

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Standard deviation is a measure of the dispersion of a set of data from its mean.

The S&P 500 Index is capitalization-weighted index of 500 stocks. The S&P 500 Index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.

All data as of March 31, 2020 unless otherwise specified.



Fund Evaluation Group, LLC | 201 East Fifth Street, Suite 1600 Cincinnati, OH 45202 | 513.977.4400 | information@feg.com | www.feg.com
Cincinnati | Dallas | Indianapolis



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MICHAUD &
TIMMONY, P.C.

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FAX: (313) 578-1201
WWW.VMTLAW.COM

February 4, 2020

Board of Trustees City of Grosse Pointe Woods
Employee Retirement System
20025 Mack Plaza
Grosse Pointe Woods, MI 48236

**Re: Statement for legal services rendered for the period
July 1 2019 thru December 31, 2019**

Dear Members of the Board:

The following invoice for legal services rendered to the Board of Trustees.

<u>Description</u>	<u>Amount</u>
Legal Services: 3.20 non litigation hours x \$188/hr.	\$ 601.60

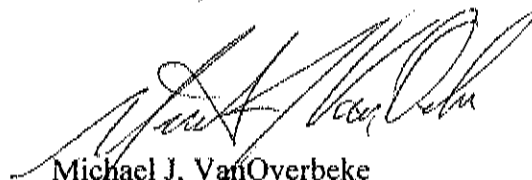
Please see attached itemization.

TOTAL DUE VANOVERBEKE, MICHAUD & TIMMONY, P.C. = \$ 601.60

Thank you for allowing this office to provide the foregoing legal services.

Very truly yours,

VANOVERBEKE, MICHAUD & TIMMONY, P.C.



Michael J. VanOverbeke

VANOVERBEKE
MICHAUD &
TIMMONY, P.C.

MICHAEL J. VANOVERBEKE
THOMAS C. MICHAUD
JACK TIMMONY
FRANCIS E. JUDD
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ATTORNEYS AND COUNSELORS

February 4, 2020

79 ALFRED STREET
DETROIT, MICHIGAN 48201
TEL: (313) 578-1200
FAX: (313) 578-1201
WWW.VMTLAW.COM

Invoice: 10399

Board of Trustees City of Grosse Pointe Woods
Employee Retirement System
20025 Mack Plaza
Grosse Pointe Woods, MI 48236

Statement for Legal Services
07/01/2019 through 12/31/2019

Members of the Board:

The following invoice is for legal services rendered and is itemized as follows:

<u>Fees</u>		Hours	
08/01/2019	Preparation for and attendance at meeting	1.10	
08/07/2019	Email from C. Behrewa, research and response re: EDRO and retirement	0.70	
09/18/2019	Email and response to C. Behrews re: non-spouse beneficiary	0.50	
11/07/2019	Preparation for and attendance at meeting	0.90	
		<u>3.20</u>	
	For Current Services Rendered	3.20	601.60
	Total Current Work		601.60
	Balance Due		<u>\$601.60</u>
	Please Remit		<u>\$601.60</u>

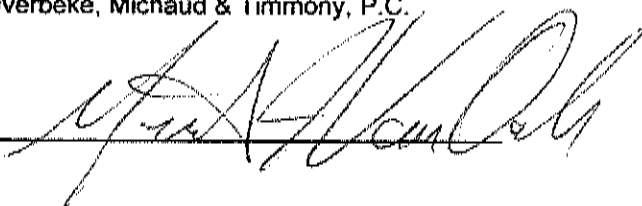
Board of Trustees City of Grosse Pointe Woods

Statement Date: 02/04/2020
Statement No. 10399

Respectfully submitted,

VanOverbeke, Michaud & Timmony, P.C.

By: _____

A handwritten signature in black ink, written over a horizontal line. The signature is stylized and appears to be the name of a representative of the law firm VanOverbeke, Michaud & Timmony, P.C.

INVOICE



201 East Fifth Street, Suite 1600
Cincinnati, Ohio 45202

DATE	INVOICE #
4/30/20	202004156

BILL TO:

City of Grosse Pointe Woods
Employees Retirement System
Cathy Behrens
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 *1/1/20-3/31/20*

						<u>AMOUNT</u>
Based on the market value of	\$	40,609,518	@	12/31/19	=	\$ 14,655.00

Total Amount Due

\$ 14,655.00

Payment due upon receipt of invoice

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

RODWAN CONSULTING COMPANY
2310 E. ELEVEN MILE ROAD
ROYAL OAK, MI 48067

INVOICE

DATE	INVOICE NO.
2/11/2020	2765

BILL TO:

Ms. Cathrene Behrens
Treasurer/Comptroller
City of Grosse Pointe Woods
20025 Mack Avenue
Grosse Pointe Woods, MI 48236

DESCRIPTION	AMOUNT
Re: Grosse Pointe Woods Employees Retirement System Experience Study For actuarial and consulting services rendered in connection of an actuarial experience study relative to the assumptions used for purposes of the annual actuarial valuation of the City of Grosse Pointe Woods Employees Retirement System. The study covered experience during the 4 year period ended June 30, 2018.	7,100.00
We appreciate working for you.	TOTAL \$7,100.00

INSTITUTIONAL TRUST

GROSSE POINTE WOODS EMPLOYEES PENSION

Billing Period: 01/01/2020 - 03/31/2020
Due Date: 05/15/2020
Invoice No: 458608
Account No: 1055009530
Administrator: Saquanda M. Nalls
Phone: (313) 222-8708

TREASURER/CONTROLLER
CITY OF GROSSE POINTE WOODS
20025 MACK AVENUE
GROSSE POINTE WOODS, MI 48236

The following is a statement of transactions pertaining to your account(s). For further information, please review the enclosed detail.

Opening Balance	\$1,500.00
Payment received through 04/08/2020	1,500.00
Current Period Charges	1,500.00
Balance Due	\$1,500.00

Please detach and return this portion of the statement with your check payable as indicated below

Comerica Bank
Attn: Trust Fee Accounting Group
P.O. Box 67600
Detroit, MI 48267

Account No.
1055009530
Invoice No.
458608
Due Date
05/15/2020
Total Balance Due
\$1,500.00

INSTITUTIONAL TRUST

Page 2

GROSSE POINTE WOODS EMPLOYEES PENSION

Billing Period: 01/01/2020 - 03/31/2020
Due Date: 05/15/2020
Invoice No: 458608
Account No: 1055009530

1055009530**Market Value Fees**

Gross Market Value			
206,752.40 @ 0.0005 each annually x 1/4	25.84		
Base Fee	125.00	\$150.84	

Participant Services

Lump Sum Distributions			
1 @ 20.00 each	20.00		
Benefit Payments - Checks			
8 @ 2.00 each	16.00		
Benefit Payments - EFT			
298 @ 2.00 each	596.00		
Postage			
307 @ 0.55 each	168.85	\$800.85	

Other Fees

Account Minimum	548.31	\$548.31	
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Total Services		\$1,500.00	
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Total Current Period		\$1,500.00	
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