MEKETA
INVESTMENT GROUP

Worcester Retirement System

Meeting Materials
April 16, 2020

Fund Evaluation Report

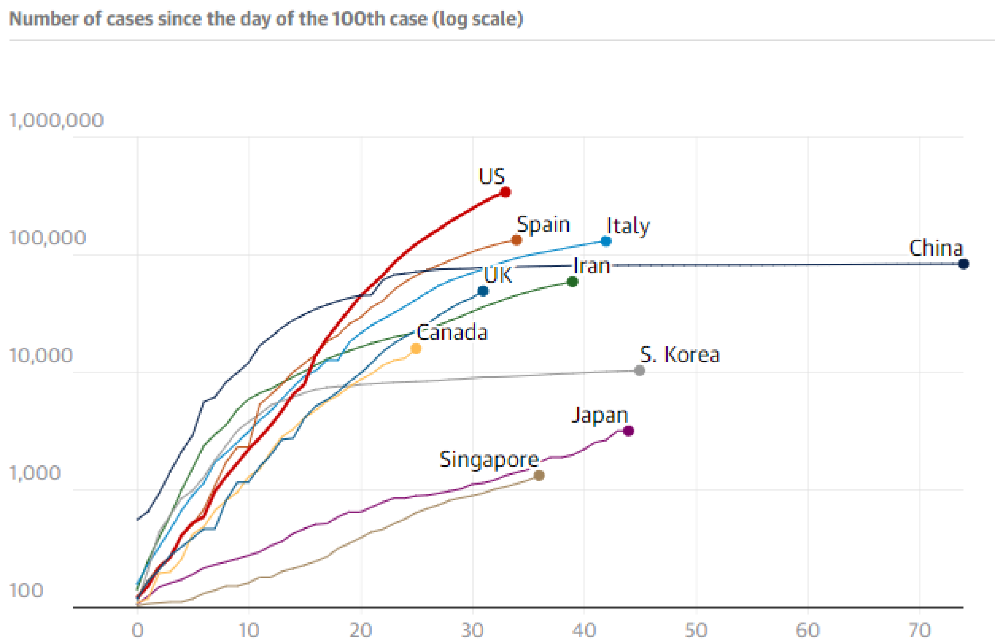
Agenda

1. Economy and Market Update
2. Estimated Retirement System Performance as of March 31, 2020
3. Interim Update as of February 29, 2020
4. Emerging Markets Debt RFP Respondent Review
5. Disclaimer, Glossary and Notes

Economy and Market Update

Data as of April 3, 2020

Case Count by Select Country: Flattening the Curve[1]



- There are now close to 1.4 million cases globally across 184 countries with the death toll well over 75,000.
- What was originally a China-focused issue is now a global issue with the fastest spread of the virus in the US and Europe.
- Cases have leveled off in China and South Korea, with Europe and the United States experiencing the fastest growth rate of new cases.

[1] Source: Johns Hopkins CSSE via the Guardian UK. Virus data is as of April 5 2020. Non virus data throughout the rest of the document is through April 3, 2020.

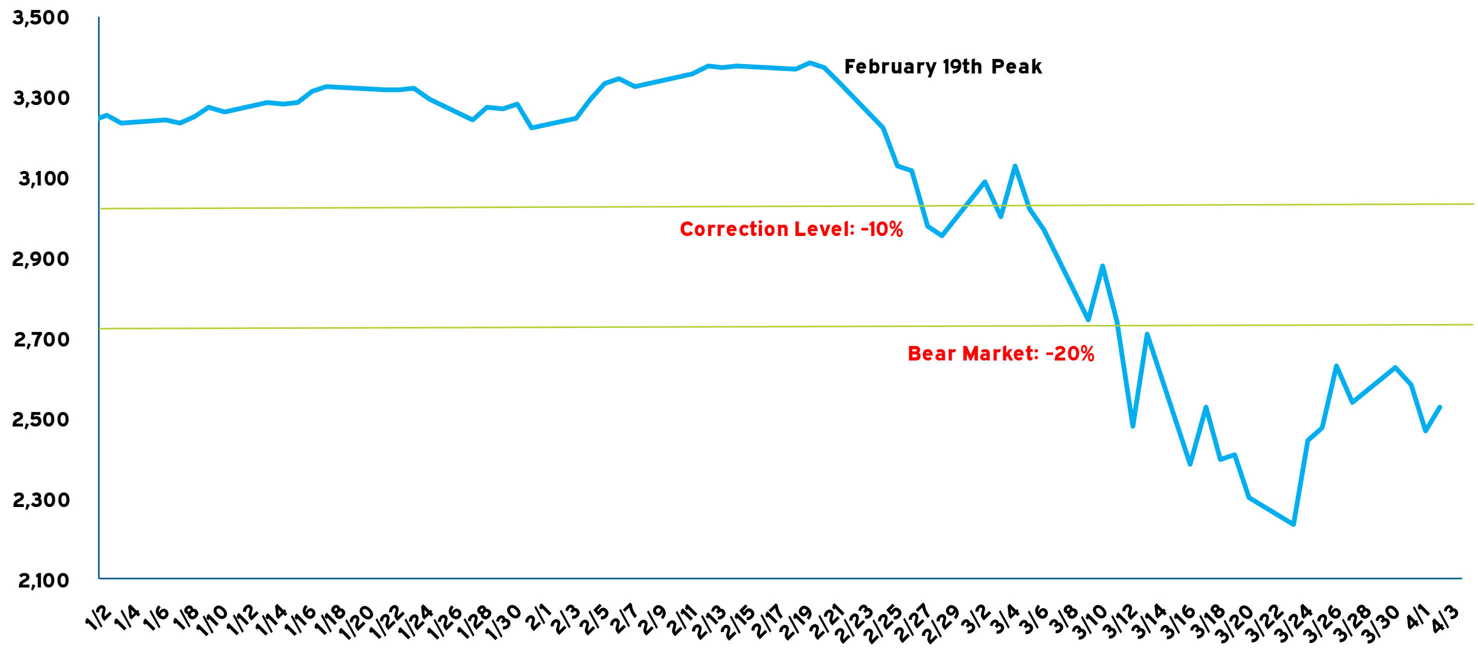
2020 Market Returns[1]

Indices	YTD
S&P 500	-22.6%
MSCI EAFE	-26.4%
MSCI Emerging Markets	-25.1%
MSCI China	-13.7%
KOSPI Index (South Korea)	-25.8%
MSCI Italy	-33.9%
Bloomberg Barclays Aggregate	3.4%
Bloomberg Barclays TIPS	3.8%
Bloomberg Barclays High Yield	-14.5%
10-year US Treasury	12.8%
30-year US Treasury	28.9%

- Given uncertainty related to the ultimate impact of the virus on economic growth, company profitability, and societal norms, investors have sought perceived safe haven assets like US Treasuries.
- Stocks have experienced large declines globally, particularly in areas like Europe where the virus is actively spreading, but fiscal and monetary authorities across the globe are deploying emergency measures to offset huge economic losses.

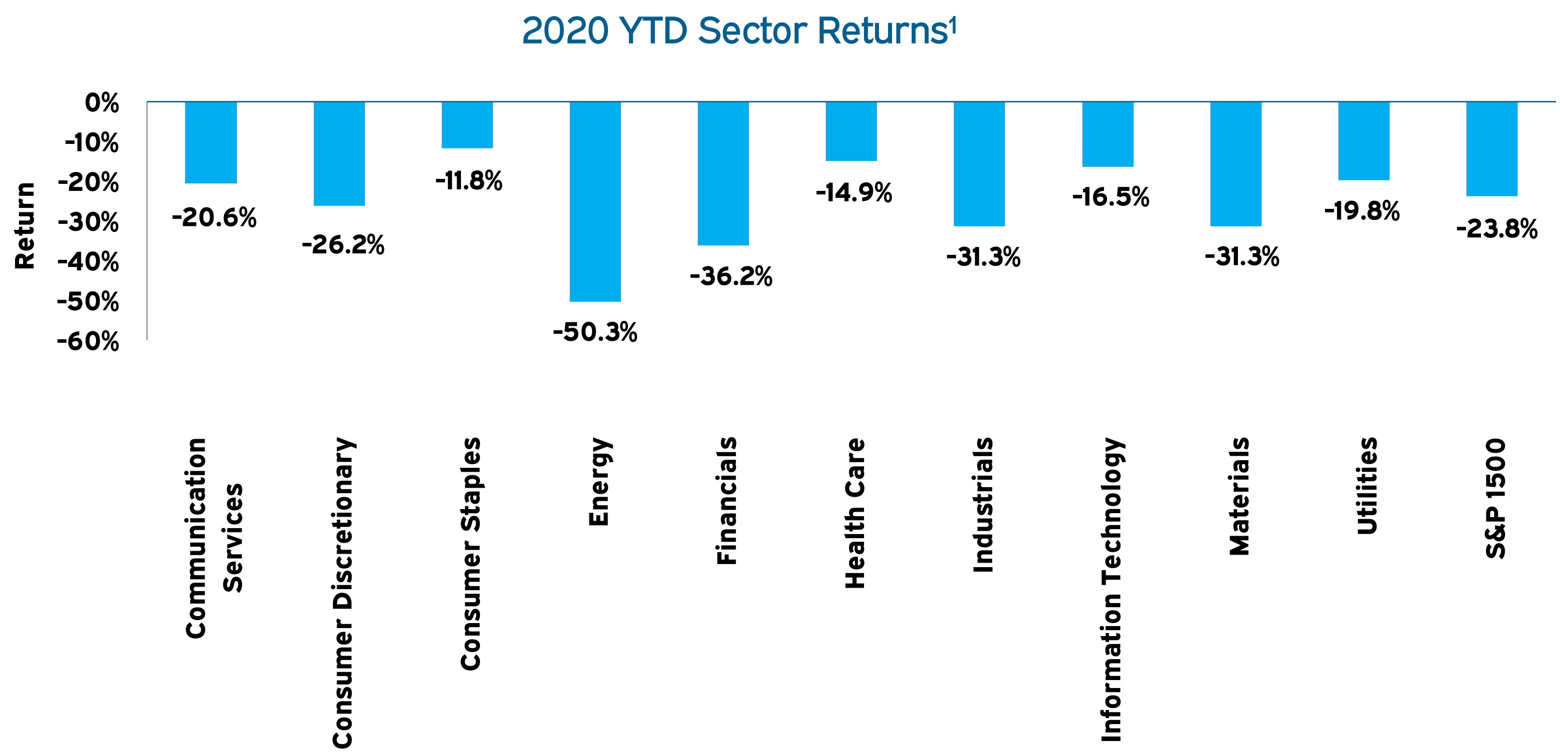
[1] Source: InvestorForce and Bloomberg. Data is as of April 3, 2020.

S&P 500 Reaches Bear Market Levels[1]



- Given all the uncertainty, US stocks declined from their recent peak into bear market (-20%) territory at the fastest pace in history.
- From the February 19 peak, the S&P 500 declined 34%, or 1,149 points, in a matter of 24 trading days.
- The index has recovered recently from its lows likely due to the unprecedented monetary and fiscal stimulus announced in the US.

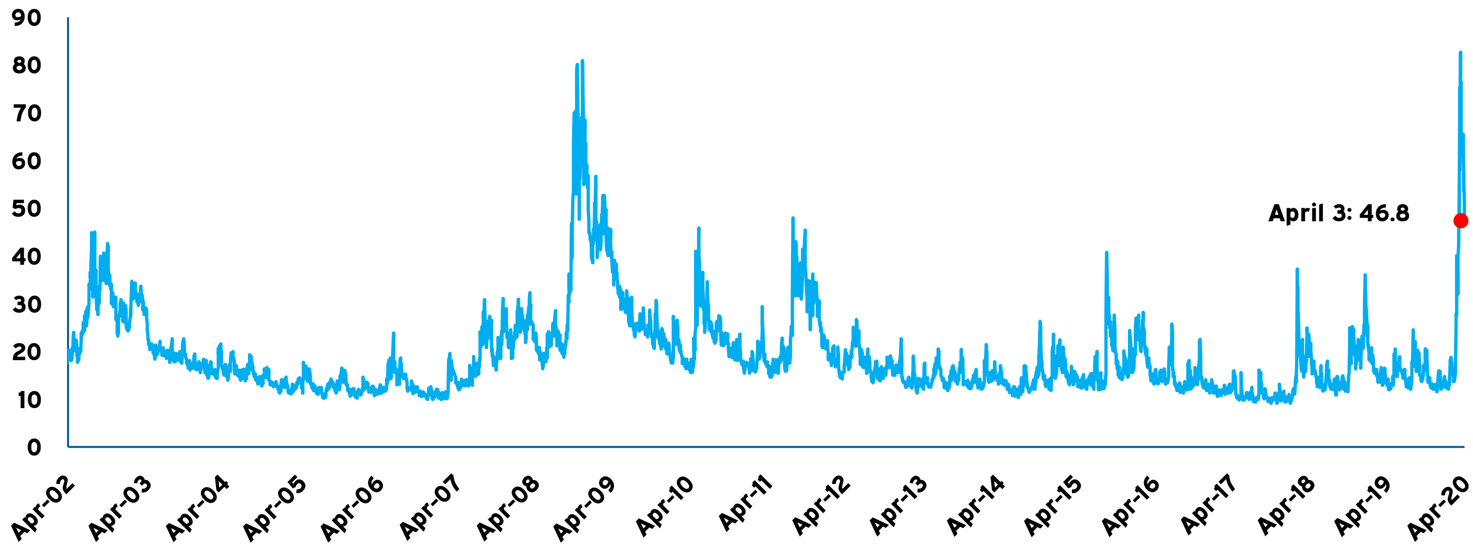
[1] Source: Bloomberg. Data is as of April 3, 2020.



- The energy sector has experienced the largest declines given the fall in oil prices.
- Financials (-36.2%), materials (-31.3%), and industrials (-31.3%) experienced the next largest declines, while defensive sectors like consumer staples and health care experienced the smallest declines.

[1] Source: Bloomberg. Data is as of April 3, 2020.

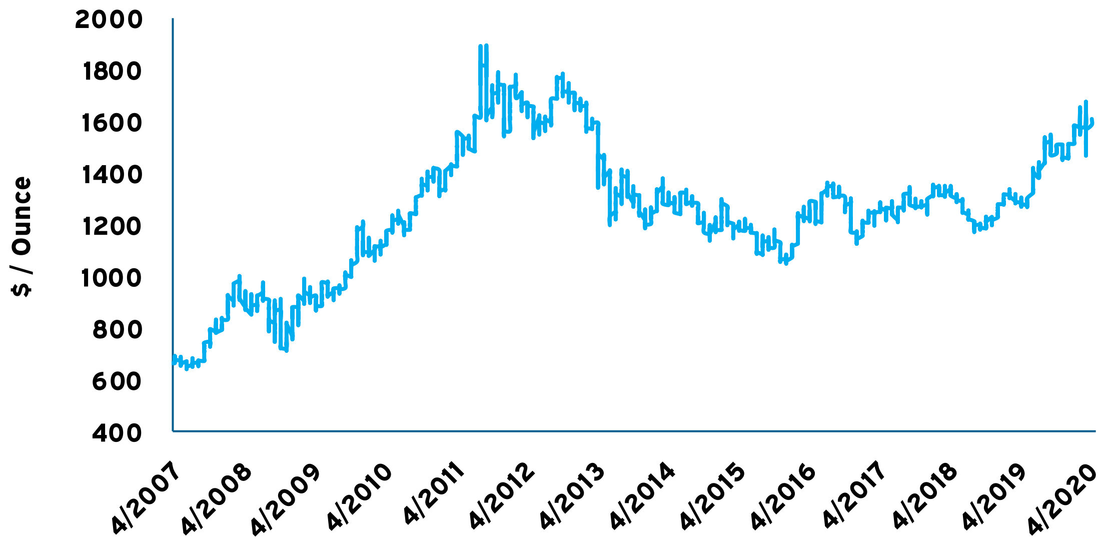
VIX Index[1]



- Given the recent fiscal and monetary support and cooresponding modest improvement in investor risk sentiment, expectations of short-term volatility, as measured by the VIX index, declined from record levels but still remains elevated.
- At the recent height, the VIX index reached 82.7, a level surpassing the pinnacle of volatility during the GFC, showing the magnitude of investor fear.
- As investors continue to process the impacts of COVID-19 and the effectiveness of the policy response, it is likely that volatility will remain high.

[1] Source: Chicago Board of Exchange. Data is as of April 3, 2020.

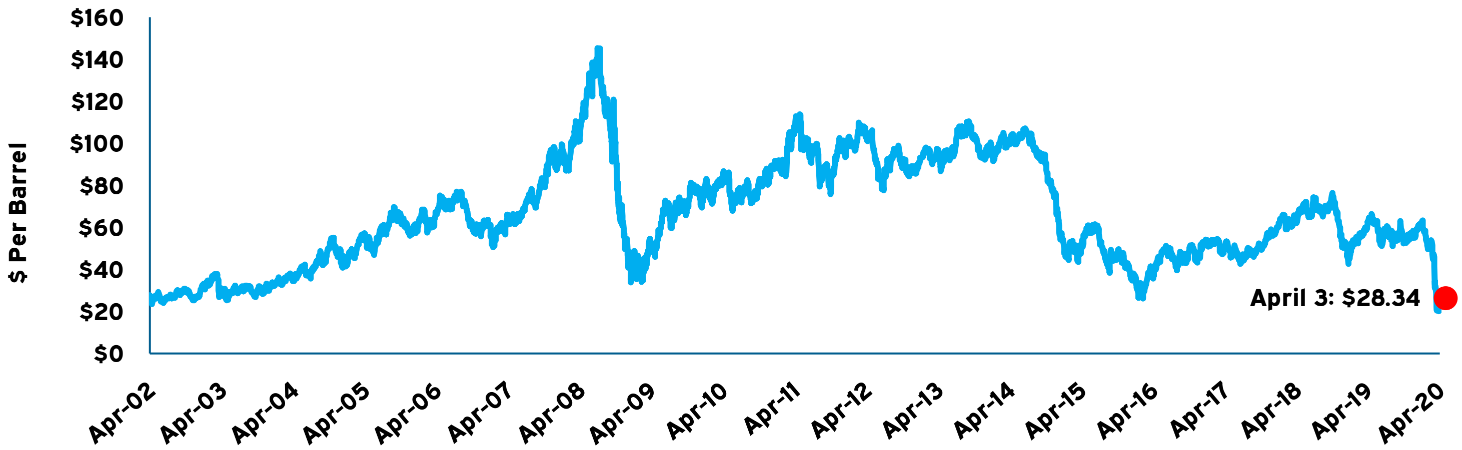
Gold Spot Price[1]



- The price of gold over the last few years has been heavily influenced by central bank demand, particularly from Russia, amidst heighted geopolitical and economic uncertainty; other emerging markets (central banks and private investors) have also been actively purchasing gold.
- However, as risk assets and oil markets declined over the last two months, and liquidity broadly deteriorated, demand for gold declined with its apparently increasing use as a source of funds, and then recovered modestly as markets stabilized.

[1] Source: Bloomberg. Data is as of April 3, 2020.

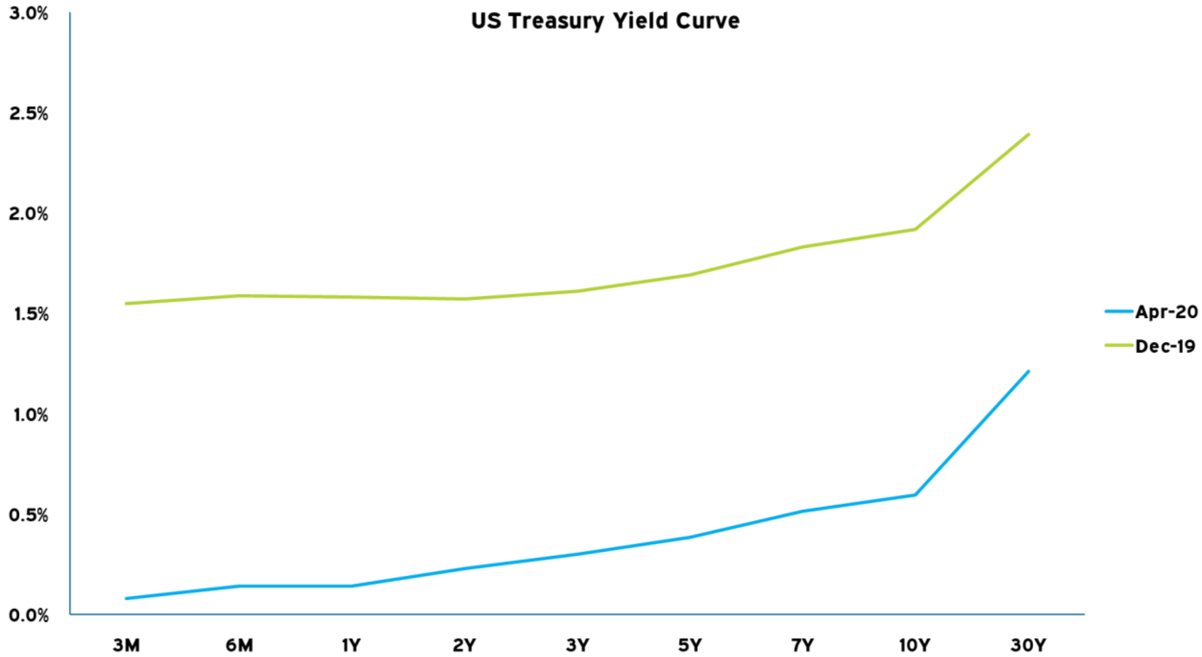
Oil Prices[1]



- Oil markets came under pressure as the virus started to lower global growth expectations, but prices deteriorated further when Saudi Arabia initiated a price war due to Russia's decision to not participate in the proposed OPEC+ supply cuts.
- President Trump announced that he intends to build US oil reserves in an attempt to support the domestic industry and capitalize on lower oil prices.
- During the volatility and aggressive supplier actions, oil prices (as measured by West Texas Intermediate) traded below $21 per barrel. This represented a decline of over 55% since February 19, to reach levels not seen since 2001. Subsequently, we have seen a modest recovery given the potential for a coordinated supply cut between Saudi Arabia and Russia.

[1] Source: Bloomberg. Represents first available futures contract. Data is as of April 3, 2020.

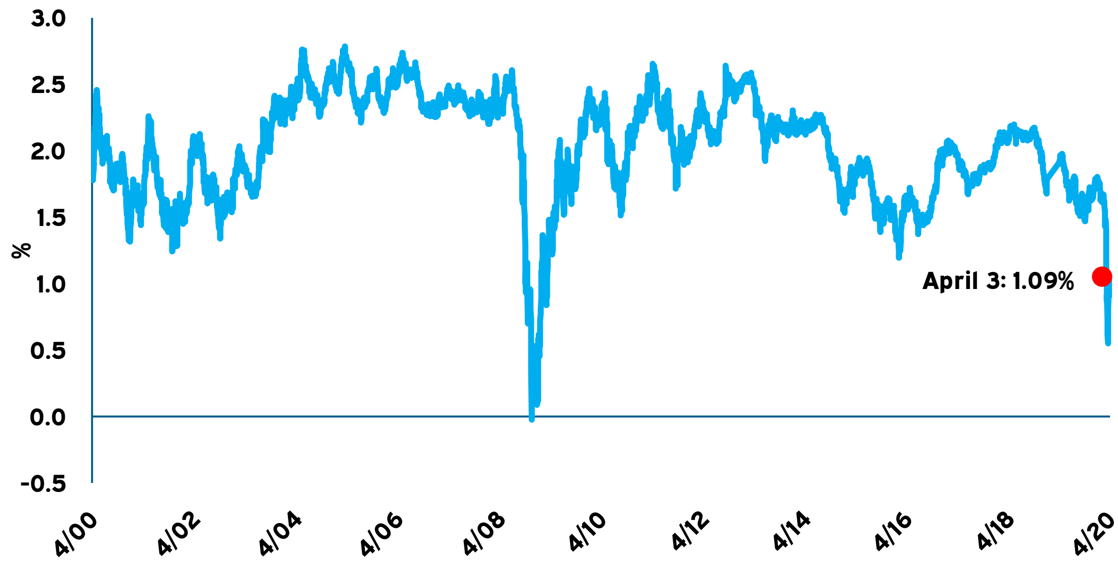
US Yield Curve Declines[1]



- The US Treasury yield curve has declined materially since last year, driven by notable cuts in monetary policy rates impacting the shorter-dated maturities, and flight-to-quality flows, low inflation, and declining growth expectations driving longer-dated maturities.

[1] Source: Bloomberg. Data is as of April 3, 2020.

10-Year Breakeven Inflation[1]

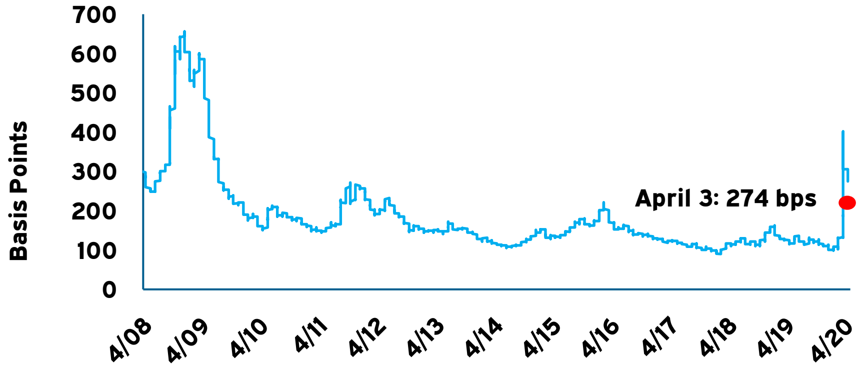


- Inflation breakeven rates declined sharply over the last two months, due to a combination of declines in inflation expectations and liquidity dynamics in TIPS during the height of rate volatility.
- Breakeven rates have not traded near these levels since the GFC, and when they did, the Federal Reserve responded with large-scale asset purchases; this is consistent with recent policy actions.
- Inflation expectation levels have come off of their recent lows as liquidity improved and given the potential inflationary impacts of the unprecedented US fiscal and monetary responses.

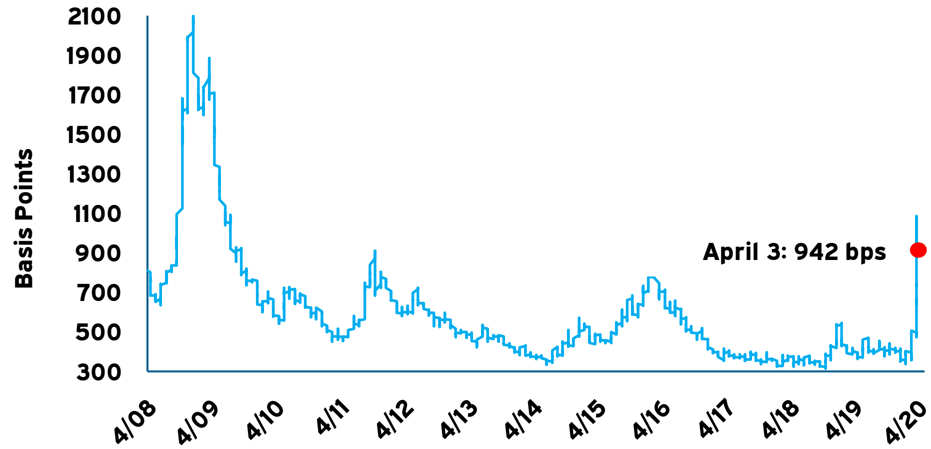
[1] Source: Bloomberg. Data is as of April 3, 2020.

Credit Spreads (High Yield & Investment Grade)[1]

Investment Grade OAS



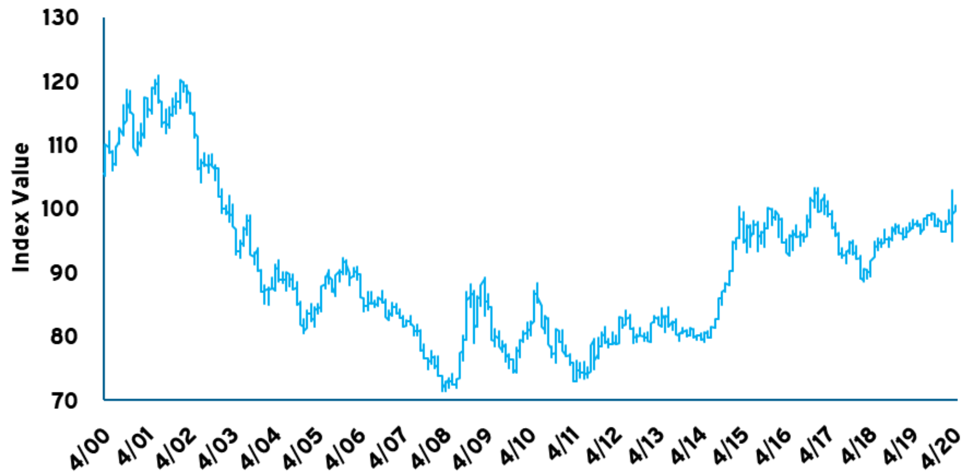
High Yield OAS



- Credit spreads (the spread between a comparable Treasury bond) for investment grade and high yield corporate debt expanded sharply as investors preferred perceived safe-haven bonds.
- Investment grade bonds have held up much better than high yield bonds, which have a far greater risk of default in this environment. The Federal Reserve's recently announced corporate debt purchase program for investment grade securities has also provided support.
- Corporate debt issuance has more than doubled since 2008, which magnifies the impact of deterioration in the corporate debt market. This is particularly true for the energy sector, which represents a large portion of the high yield bond market.

[1] Source: Federal Reserve Bank of St. Louis Economic Research. Data is as of April 3, 2020.

US Dollar versus Broad Currencies[1]

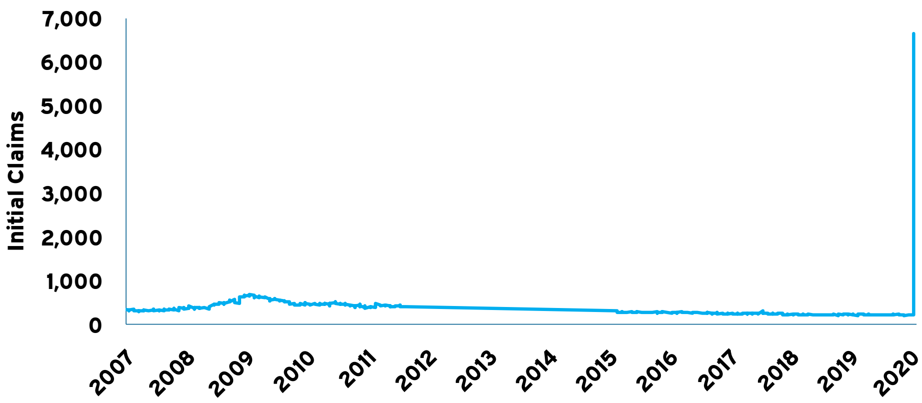


- When financial markets began aggressively reacting to COVID-19 developments, the US dollar came under selling pressure as investors sought safe-haven exposure in currencies like the Japanese yen.
- As the crisis grew into a pandemic, investors' preferences shifted to holding US dollars and highly liquid, short-term securities like US Treasury bills. This global demand for US dollars has resulted in an appreciation against most major currencies.
- A relatively strong US dollar makes US goods more expensive for overseas consumers and causes commodity prices outside the US to rise, negatively impacting foreign countries, and particularly emerging markets.
- To help ease global demand for US dollars, the Federal Reserve, working with a number of global central banks, re-established the US dollar swap program, providing some recent relief to other currencies.

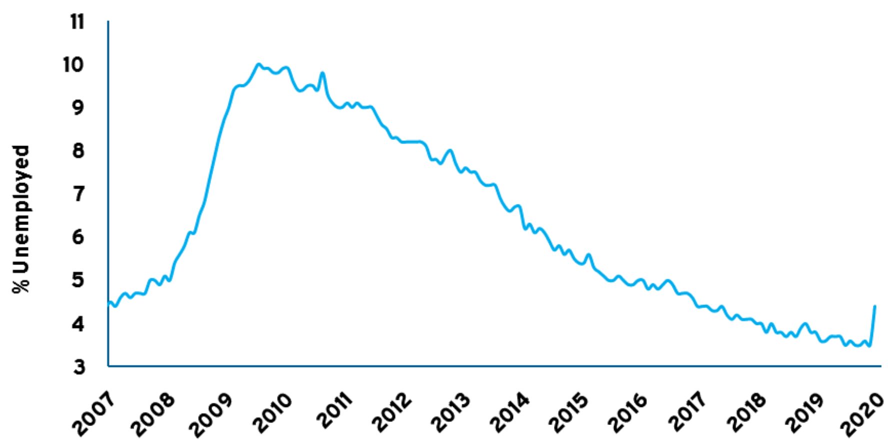
[1] Source: Bloomberg. Represents the DXY Index. Data is as of April 3, 2020.

US Jobs Data

US Initial Jobless Claims[1]



US Unemployment Rate[2]



- Layoffs have risen dramatically as businesses have been forced to close in an effort to stop the spread of the disease.
- In addition to the 3.3 million claims last week, an additional 6.6 million people filed claims for initial unemployment benefits, showing just how immediate and unprecedented the impact of the virus is.
- Last week data released showed over 700,000 jobs lost in March and an increase in the unemployment rate to 4.4% from 3.5%.

[1] Source: Bloomberg. First reading of seasonally adjusted initial jobless claims. Data is as of March 28, 2020.

[2] Source: Bloomberg. U-3 US Employment Rate, total in labor force, seasonally adjusted. Data is as of March 31, 2020.

Historic $2T US Fiscal Stimulus

Destination	Amount ($ Billion)
Individuals	$560
Large Corporations	$500
Small Business	$377
State & Local Governments	$340
Public Health	$154
Student Loans	$44
Safety Net	$26

- Recently, a historic $2 trillion fiscal package was approved in the US, representing close to 10% of GDP and including support across the economy.
- Individuals will receive a package of cash payments of up to $1,200 per adult and $500 per child, and extended and higher weekly unemployment benefits (+$600/week).
- The package also includes a $500 billion lending program for distressed industries, like airlines, and $377 billion in loans to small businesses.
- Other parts of the package include allocations to state and local governments, support for public health, student loan relief, and a safety net.
- The next round of fiscal stimulus is already under discussion in the US and could include money for infrastructure, healthcare equipment, and expanded paid leave.

Policy Responses

	Fiscal	Monetary
United States	$50 billion to states for virus related support, interest waived on student loans, flexibility on tax payments and filings, expanded COVID-19 testing, paid sick leave for hourly workers, $2 trillion package for individuals, businesses, and state/local governments.	Cut policy rates to zero, unlimited QE4, offering trillions in repo market funding, restarted CPFF, PDCF, MMMF programs to support lending and financing market, expanded US dollar swap lines with foreign central banks, announced IG corporate debt buying program, Main Street Lending program, repo facility with foreign central banks, and easing of some financial regulations for lenders.
Euro Area	Germany: Launched 750 billion euro stimulus package. France: 45 billion euro for workers, guaranteed up to 300 billion euro in corporate borrowing. Italy: 25 billion euro emergency decree, suspending mortgage payments for impacted workers. Spain: 200 billion euro and 700 million euro loan and aid package, respectively.	Targeted longer-term refinancing operations aimed at small and medium sized businesses, under more favorable pricing, and announced the 750 billion euro Pandemic Emergency Purchase Program.
Japan	$20 billion in small business loans, direct funding program to stop virus spread among nursing homes and those affected by school closures, discussion of additional relief in the coming months.	Increase in QE purchases (ETFs, corporate bonds, and CP), and 0% interest loans to businesses hurt by virus.
China	Tax cuts, low-interest business loans, extra payments to gov't benefit recipients.	Expanded repo facility, policy rate cuts, lowered reserve requirements.
Canada	$7.1 billion in loans to businesses to help with virus damage.	Cut policy rates, expanded bond-buying and repos, lowered bank reserve requirements.
UK (BOE)	Tax cut for retailers, small business cash grants, benefits for those infected with virus, expanded access to gov't benefits for self and un-employed.	Lowered policy rates and capital requirements for UK banks, restarts QE program.
Australia	$11.4 billion, subsidies for impacted industries like tourism, one-time payment to gov't benefit recipients.	Policy rate cut, started QE.

Coronavirus Comparison

	Flu in US[1]	SARS (Global)	Coronavirus (Global)[2]
Confirmed Cases	~32,000,000	8,098	1,407,123
Deaths	~18,000	774	79,091
Mortality Ratio	<0.1%	9.6%	5.6%
Infectivity Ratio[3]	1.3	3.0	2.2

- While confirmed cases are notably lower than reported cases of the flu, the number of reported COVID-19 infections continues to rise and infectious disease experts do not see that stopping over the near-term.
- The mortality rate of the COVID-19 virus is a focal point in assessing the severity of the illness versus other viruses, and while higher than the flu, it is expected that as nationwide testing becomes more readily available, the measured ratio should decline.

[1] Source: CDC. Reflects medians of estimates for flu season October 2019 – February 2020.
[2] Source: Johns Hopkins CSSE. As of April 7, 2020. Infectivity Ratio from WHO.
[3] Ratio represents the amount of people infected on average from one patient.

Potential Economic Impacts

Supply Chain Disruptions:

- Factories closing, increased cost of stagnant inventory, and disrupted supply agreements.
- Reduced travel, tourism, and separation policies including closed borders: Significant impact on service based economies.

Labor Force Impacts:

- Huge layoffs are extremely likely, across both service and manufacturing economies.
- Increased strains as workforce productivity declines throughout increased societal responsibilities (e.g., home schooling of children) and decreased functionality working from home.
- Illnesses from the disease will also reduce portions of the labor force temporarily.

Declines in Business and Consumer Sentiment:

- Sentiment drives investment and consumption, which leads to increased recessionary pressures if sentiment slips.

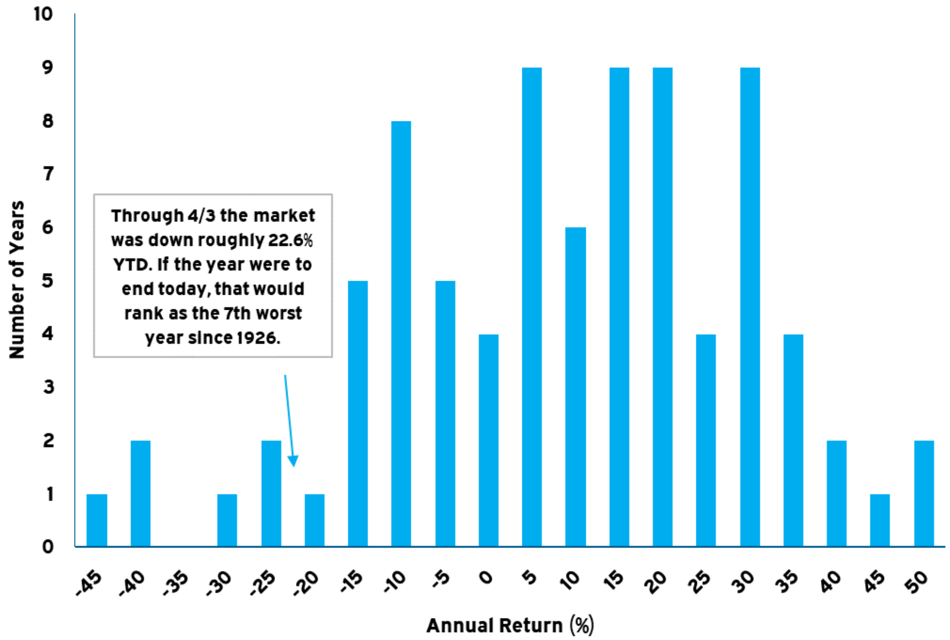
Wealth Effect:

- As financial markets decline and wealth deteriorates, consumer spending will be impacted.

Looking Forward…

- There will definitely be economic impacts, and likely a recession.
  - How deep it will be and how long it will last depend on a number of factors (below) that are unknowable at this time.
- The length of the virus and country responses will be key considerations.
  - As of now, it is not clear the end is in sight; however, impacted countries are attempting to lay the groundwork to support a recovery.
- Central banks and governments are pledging support, but will it be enough?
  - Based on initial market reactions to announced policies, the answer is no, until the virus gets better contained.
- Expect heightened market volatility given the virus and previous high valuations.
  - This has been a consistent theme over the last few weeks, and volatility is likely to remain elevated for some time.
- It is important to continue to have a long-term focus.
  - History supports the argument that maintaining a long-term focus will ultimately prove positive for diversified portfolios.

Distribution of Annual S&P 500 Returns[1]
(1926-2020)



- The 22.6% year-to-date decline (through 4/3) in the S&P 500 would be the seventh largest in history if it ended the year at this level.
- With around nine months remaining in 2020, and trillions of dollars in fiscal and monetary stimulus being deployed, we expect asset prices to experience notable volatility over the near term.

[1] Source: Bloomberg. Data is as of April 3, 2020.

Prior Drawdowns and Recoveries from 1929-2020[1]

Period	Peak-to-Trough Decline of the S&P 500	Approximate Time to Recovery
Sept 1929 to June 1932	-85%	266 months
February 1937 to April 1942	-57%	48 months
May 1946 to February 1948	-25%	27 months
August 1956 to October 1957	-22%	11 months
December 1961 to June 1962	-28%	14 months
February 1966 to October 1966	-22%	7 months
November 1968 to May 1970	-36%	21 months
January 1973 to October 1974	-48%	69 months
September 1976 to March 1978	-19%	17 months
November 1980 to August 1982	-27%	3 months
August 1987 to December 1987	-32%	19 months
July 1990 to October 1990	-20%	4 months
July 1998 to August 1998	-19%	3 months
March 2000 to October 2002	-49%	56 months
October 2007 to March 2009	-57%	49 months
February 2020 to April 2020	-27%	TBD
Average	**-36%**	**41 months**
Average ex. Great Depression	**-33%**	**25 months**

- Markets are continuing to reprice amidst the uncertain impact of the virus on markets and the global economy, which means this drawdown is still being defined in the context of history.
- That said, financial markets have experienced material declines with some frequency, and while certain declines took a meaningful time to recover, in all cases they eventually did.
- The current decline is severe, and it is still too early to tell how long a full recovery might take.

[1] Source: Goldman Sachs. Recent peak to trough declines are through April 3, 2020.

Implications for Clients

- Be prepared to rebalance and take advantage of the age-old wisdom "buy low, sell high".
  - Before rebalancing, consider changes in liquidity needs given the potential for inflows to decline in some cases.
  - Also, consider the cost of rebalancing as investment liquidity declines.
- Diversification works. The latest decline was an example of a flight to quality.

Performance YTD
(through April 3, 2020)

S&P 500	ACWI (ex. US)	Aggregate Bond Index	Balanced Portfolio[1]
- 22.6%	- 26.3%	3.4%	-14.9%

- Meketa will continue to monitor the situation and communicate frequently.
  - The situation is fluid and the economic impact is uncertain at this stage.
- Please feel free to reach out with any questions.
  - We would be glad to assist with performance estimates, memorandums, or phone calls.

[1] Source: InvestorForce. Balanced Portfolio represents 60% MSCI ACWI and 40% Bloomberg Barclays Global Aggregate.

Estimated Retirement System Performance

Estimated Aggregate Performance

	March Estimate (%)	QTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Total Retirement System	-6.5	-10.4	-1.9	3.9	4.2	6.2
60% MSCI ACWI/40% Barclays Global Aggregate	*-9.0*	*-13.0*	*-5.1*	*2.3*	*2.8*	*4.5*

Benchmark Returns

	March Estimate (%)	QTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Russell 3000	*-13.8*	*-20.9*	*-9.1*	*4.0*	*5.8*	*10.2*
MSCI EAFE	*-13.4*	*-22.8*	*-14.4*	*-1.8*	*-0.6*	*2.7*
MSCI Emerging Markets	*-15.4*	*-23.6*	*-17.7*	*-1.6*	*-0.4*	*0.7*
Barclays Aggregate	*-0.6*	*3.2*	*8.9*	*4.8*	*3.4*	*3.9*
Barclays TIPS	*-1.8*	*1.7*	*6.9*	*3.5*	*2.7*	*3.5*
Barclays High Yield	*-11.5*	*-12.7*	*-6.9*	*0.8*	*2.8*	*5.6*
JPM GBI-EM Global Diversified	*-11.1*	*-15.2*	*-6.5*	*-0.8*	*0.3*	*0.5*
S&P Global Natural Resources	*-18.1*	*-32.9*	*-30.0*	*-6.4*	*-2.7*	*-2.2*

Interim Update

As of February 29, 2020

PRIT Look Through Analysis – Aggregate Assets | As of February 29, 2020

	Actual Asset[1,2] Allocation	PRIT Actual Asset Allocation[1]
Total Retirement System		
Global Equity Assets	40	41
Domestic Equity Assets	*18*	*21*
International Developed Market Equity Assets	*11*	*14*
International Emerging Market Equity Assets	*11*	*6*
Fixed Income Assets	25	24
Core Fixed Income Assets[3]	*16*	*17*
Value-Added Fixed Income Assets[4]	*9*	*7*
Real Estate Assets	11	10
Private Equity Assets	12	11
Portfolio Completion Strategies / Hedge Funds / GTAA	3	9
Real Assets (Natural Resources, Timber, Infrastructure)	7	4
Cash	1	1

[1] Numbers may not sum to 100% due to rounding.

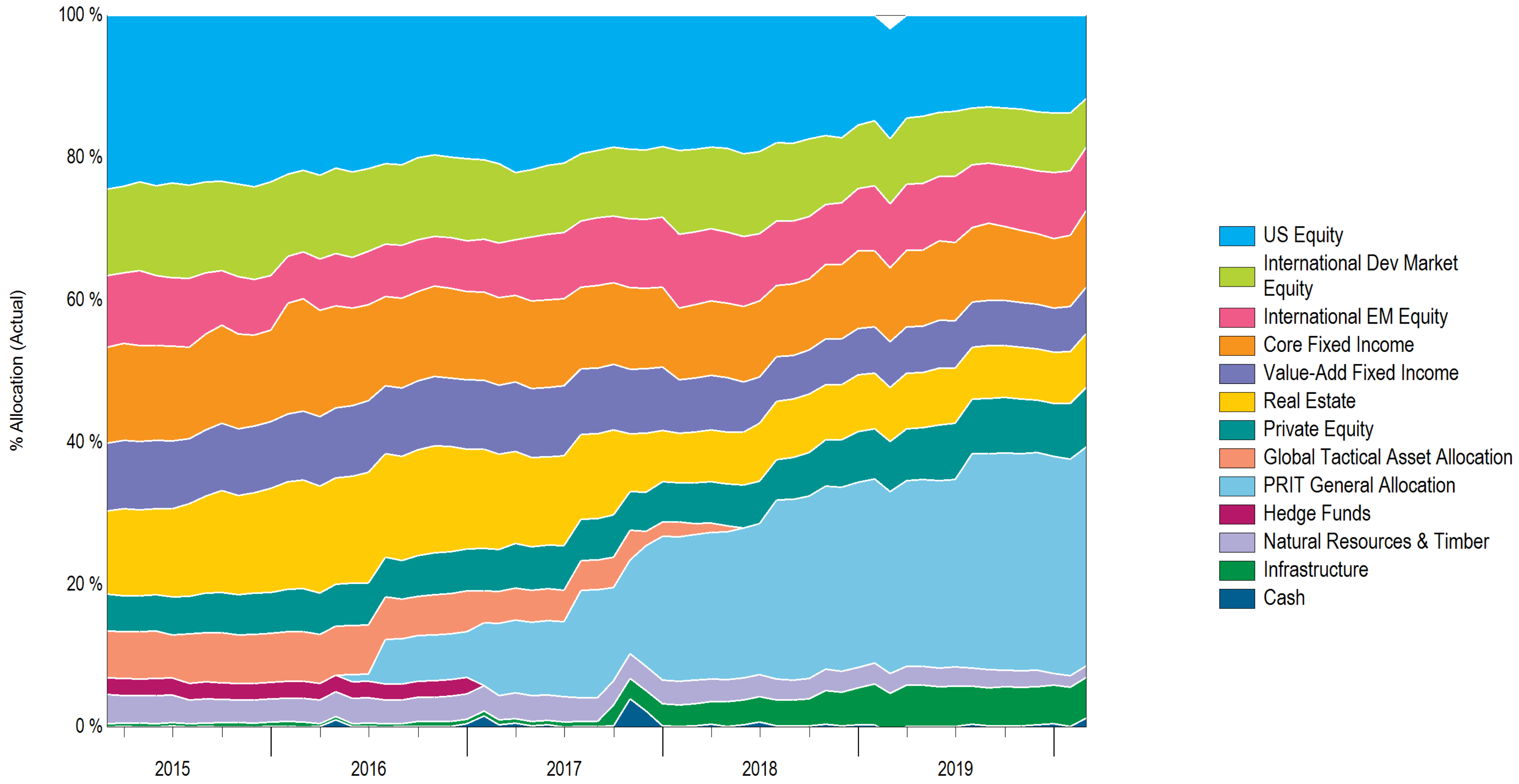
[2] Asset classes include a pro-rata allocation of the System's 31% holding of the PRIT Core Fund.

[3] Retirement System figures include investment grade bonds and TIPS.

[4] Retirement System figures include high yield fixed income and emerging market debt.

Allocation vs. Targets and Policy					
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	$114,607,691	12%	14%	9% - 19%	Yes
International Dev Market Equity	$66,513,883	7%	8%	4% - 12%	Yes
International EM Equity	$87,129,526	9%	8%	4% - 12%	Yes
Core Fixed Income	$104,927,535	11%	10%	5% - 15%	Yes
Value-Add Fixed Income	$63,598,413	7%	4%	2% - 6%	No
Real Estate	$74,292,740	8%	6%	4% - 8%	Yes
Private Equity	$81,349,423	8%	7%	4% - 10%	Yes
PRIT General Allocation	$301,087,535	31%	35%	0% - 50%	Yes
Natural Resources & Timber	$15,537,441	2%	3%	1% - 5%	Yes
Infrastructure	$56,460,093	6%	5%	2% - 8%	Yes
Cash	$11,665,310	1%	0%	0% - 5%	Yes
Total	**$977,169,590**	**100%**	**100%**		

Asset Allocation History
5 Years Ending February 29, 2020



Asset Class Performance Summary

	Market Value ($)	% of Portfolio	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	**977,169,590**	**100.0**	**-3.6**	**-4.1**	**5.9**	**6.9**	**5.6**	**7.4**	**7.3**	**Oct-95**
Total Retirement System (Net of Fees)			**-3.6**	**-4.1**	**5.8**	**6.8**	**5.5**	**7.3**	**7.1**	
Custom Benchmark - Target Allocation			*-4.0*	*-4.4*	*5.3*	*6.4*	*5.6*	*7.7*	*--*	*Oct-95*
60% MSCI ACWI / 40% Barclays Global Aggregate			*-4.6*	*-4.7*	*5.8*	*6.1*	*4.7*	*6.1*	*6.0*	*Oct-95*
Domestic Equity Assets	**114,607,691**	**11.7**	**-8.4**	**-9.0**	**5.8**	**8.6**	**8.5**	**12.4**	**6.3**	**Aug-00**
Russell 3000			*-8.2*	*-8.3*	*6.9*	*9.3*	*8.7*	*12.5*	*6.1*	*Aug-00*
International Developed Market Equity	**66,513,883**	**6.8**	**-9.3**	**-11.2**	**-0.4**	**4.4**	**3.0**	**5.9**	**4.7**	**Aug-00**
MSCI EAFE			*-9.0*	*-10.9*	*-0.6*	*3.9*	*2.0*	*4.8*	*3.2*	*Aug-00*
International Emerging Market Equity	**87,129,526**	**8.9**	**-6.2**	**-9.8**	**0.5**	**6.0**	**4.1**	**4.8**	**6.3**	**Aug-06**
MSCI Emerging Markets			*-5.3*	*-9.7*	*-1.9*	*4.9*	*2.7*	*3.2*	*4.5*	*Aug-06*
Core Fixed Income	**104,927,535**	**10.7**	**1.5**	**3.3**	**10.6**	**4.5**	**3.3**	**3.8**	**4.5**	**May-05**
Custom Benchmark - Fixed Income			*1.5*	*3.3*	*10.5*	*4.5*	*3.2*	*3.6*	*4.1*	*May-05*
Value Added Fixed Income	**63,598,413**	**6.5**	**-1.9**	**-1.8**	**5.7**	**4.9**	**4.8**	**5.6**	**7.0**	**May-05**
Custom High Yield Benchmark			*-1.6*	*-1.4*	*5.4*	*4.6*	*4.5*	*--*	*--*	*May-05*
Real Estate	**74,292,740**	**7.6**	**-1.5**	**-1.2**	**6.8**	**7.9**	**9.0**	**10.6**	**7.7**	**Oct-00**
NCREIF ODCE			*0.0*	*0.0*	*5.3*	*7.1*	*9.0*	*11.4*	*7.9*	*Oct-00*
Private Equity	**81,349,423**	**8.3**	**-0.1**	**-0.4**	**12.5**	**14.5**	**8.8**	**9.5**	**9.5**	**Oct-00**
Cambridge Associates FoF Composite 1Q Lag			*0.0*	*0.0*	*7.8*	*12.9*	*11.0*	*12.2*	*6.5*	*Oct-00*
PRIT General Allocation	**301,087,535**	**30.8**	**-3.3**	**-3.4**	**6.4**	**7.6**	**--**	**--**	**8.3**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate			*-4.6*	*-4.7*	*5.8*	*6.1*	*4.7*	*6.1*	*6.6*	*Jun-16*
Real Assets	**71,997,533**	**7.4**	**-1.6**	**-2.5**	**2.9**	**8.1**	**4.6**	**4.5**	**3.9**	**Oct-06**
CPI + 3%			*0.3*	*0.7*	*5.3*	*5.0*	*5.0*	*4.8*	*4.8*	*Oct-06*
Cash	**11,665,310**	**1.2**								

Custom Benchmark - Fixed Income is comprised of 70% Barclays US Aggregate Index and 30% Barclays 1-10 Year TIPS Index.

Custom High Yield Benchmark is comprised of one third Barclays High Yield Index, one third Credit Suisse Leveraged Loans Index, and the final third being split evenly between JPMorgan's Emerging Market Bond Index and Emerging Markets Government Bond Index.

Trailing Performance

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	**977,169,590**	**100.0**	**100.0**	**-3.6**	**-4.1**	**5.9**	**6.9**	**5.6**	**7.4**	**7.3**	**Oct-95**
Total Retirement System (Net of Fees)				**-3.6**	**-4.1**	**5.8**	**6.8**	**5.5**	**7.3**	**7.1**	
Custom Benchmark - Target Allocation				*-4.0*	*-4.4*	*5.3*	*6.4*	*5.6*	*7.7*	*--*	*Oct-95*
60% MSCI ACWI / 40% Barclays Global Aggregate				*-4.6*	*-4.7*	*5.8*	*6.1*	*4.7*	*6.1*	*6.0*	*Oct-95*
Domestic Equity Assets	**114,607,691**	**11.7**	**11.7**	**-8.4**	**-9.0**	**5.8**	**8.6**	**8.5**	**12.4**	**6.3**	**Aug-00**
Russell 3000				*-8.2*	*-8.3*	*6.9*	*9.3*	*8.7*	*12.5*	*6.1*	*Aug-00*
SSgA S&P 500 Index (Net of Fees)	24,304,650	2.5	21.2	-8.3	-8.3	8.1	9.8	9.2	12.7	6.6	Aug-98
S&P 500				*-8.2*	*-8.3*	*8.2*	*9.9*	*9.2*	*12.7*	*6.6*	*Aug-98*
SSgA Russell 1000 Growth Index (Net of Fees)	37,199,876	3.8	32.5	-6.8	-4.7	15.1	15.6	12.4	14.8	15.1	Nov-09
Russell 1000 Growth				*-6.8*	*-4.7*	*15.1*	*15.7*	*12.4*	*14.8*	*15.2*	*Nov-09*
SSgA Russell 1000 Value Index (Net of Fees)	32,902,982	3.4	28.7	-9.7	-11.6	0.6	3.8	5.6	10.4	6.8	Jul-05
Russell 1000 Value				*-9.7*	*-11.6*	*0.5*	*3.8*	*5.5*	*10.4*	*6.8*	*Jul-05*
SSgA S&P Midcap 400 Index (Net of Fees)	8,988,249	0.9	7.8	-9.5	-11.8	-3.3	3.3	5.5	11.1	8.4	Sep-06
S&P 400 MidCap				*-9.5*	*-11.9*	*-3.4*	*3.3*	*5.5*	*11.1*	*8.4*	*Sep-06*
Lee Munder Small Cap Value (Net of Fees)	11,211,935	1.1	9.8	-9.8	-14.2	-6.4	-0.7	4.6	9.0	9.9	Nov-09
Russell 2000 Value				*-9.7*	*-14.6*	*-9.3*	*-0.8*	*3.6*	*8.7*	*9.6*	*Nov-09*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
International Developed Market Equity	**66,513,883**	**6.8**	**6.8**	**-9.3**	**-11.2**	**-0.4**	**4.4**	**3.0**	**5.9**	**4.7**	**Aug-00**
MSCI EAFE				*-9.0*	*-10.9*	*-0.6*	*3.9*	*2.0*	*4.8*	*3.2*	*Aug-00*
SSgA MSCI EAFE Index	43,878,331	4.5	66.0	-9.0	-10.9	-0.1	4.3	2.3	5.2	5.3	Sep-04
MSCI EAFE				*-9.0*	*-10.9*	*-0.6*	*3.9*	*2.0*	*4.8*	*5.0*	*Sep-04*
Acadian Non-U.S. Small Cap Equity (Net of Fees)	22,635,552	2.3	34.0	-10.0	-12.1	-2.0	3.9	5.6	8.6	7.1	Feb-05
MSCI EAFE Small Cap				*-9.8*	*-12.4*	*-0.9*	*4.1*	*4.6*	*7.6*	*5.9*	*Feb-05*
International Emerging Market Equity	**87,129,526**	**8.9**	**8.9**	**-6.2**	**-9.8**	**0.5**	**6.0**	**4.1**	**4.8**	**6.3**	**Aug-06**
MSCI Emerging Markets				*-5.3*	*-9.7*	*-1.9*	*4.9*	*2.7*	*3.2*	*4.5*	*Aug-06*
PRIT Emerging Markets (Net of Fees)	87,129,526	8.9	100.0	-6.2	-9.8	0.5	5.9	--	--	7.0	Sep-16
MSCI Emerging Markets				*-5.3*	*-9.7*	*-1.9*	*4.9*	*2.7*	*3.2*	*5.8*	*Sep-16*
Core Fixed Income	**104,927,535**	**10.7**	**10.7**	**1.5**	**3.3**	**10.6**	**4.5**	**3.3**	**3.8**	**4.5**	**May-05**
Custom Benchmark - Fixed Income				*1.5*	*3.3*	*10.5*	*4.5*	*3.2*	*3.6*	*4.1*	*May-05*
IR&M Aggregate Bond	66,447,484	6.8	63.3	1.8	3.9	12.1	5.2	3.8	--	4.2	Feb-14
BBgBarc US Aggregate TR				*1.8*	*3.8*	*11.7*	*5.0*	*3.6*	*3.9*	*3.9*	*Feb-14*
IR&M Intermediate TIPS	38,480,051	3.9	36.7	0.9	2.2	7.9	3.2	2.5	--	2.3	Feb-14
BBgBarc US TIPS 1-10 Yr TR				*0.9*	*2.2*	*7.9*	*3.2*	*2.5*	*2.7*	*2.2*	*Feb-14*
Value Added Fixed Income	**63,598,413**	**6.5**	**6.5**	**-1.9**	**-1.8**	**5.7**	**4.9**	**4.8**	**5.6**	**7.0**	**May-05**
Custom High Yield Benchmark				*-1.6*	*-1.4*	*5.4*	*4.6*	*4.5*	*--*	*--*	*May-05*
High Yield Bonds	**24,911,885**	**2.5**	**39.2**	**-1.6**	**-1.4**	**3.8**	**3.9**	**4.0**	**5.6**	**5.8**	**Jun-08**
50% BBgBarc US High Yield/ 50% Credit Suisse Leveraged Loans				*-1.4*	*-1.1*	*4.7*	*4.3*	*4.6*	*6.1*	*6.4*	*Jun-08*

Custom Benchmark - Fixed Income is comprised of 70% Barclays US Aggregate Index and 30% Barclays 1-10 Year TIPS Index.

Custom High Yield Benchmark is comprised of one third Barclays High Yield Index, one third Credit Suisse Leveraged Loans Index, and the final third being split evenly between JPMorgan's Emerging Market Bond Index and Emerging Markets Government Bond Index.

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Loomis Sayles High Yield (Net of Fees)	13,384,388	1.4	53.7	-1.8	-1.8	3.8	3.8	--	--	--	Jan-96
BBgBarc US High Yield TR				*-1.4*	*-1.4*	*6.1*	*4.9*	*5.2*	*7.3*	*7.0*	*Jan-96*
Loomis Sayles Bank Loans (Net of Fees)	11,527,497	1.2	46.3	-1.5	-1.1	2.7	3.0	--	--	--	Oct-05
Credit Suisse Leveraged Loans				*-1.4*	*-0.8*	*3.2*	*3.8*	*4.0*	*4.9*	*4.5*	*Oct-05*
Total Emerging Markets Debt	**31,184,199**	**3.2**	**49.0**	**-2.5**	**-2.5**	**6.2**	**4.4**	**3.3**	**--**	**1.7**	**Aug-13**
50% JPM EMBI GD / 50% JPM GBI-EM				*-2.2*	*-2.1*	*6.7*	*4.9*	*4.1*	*4.5*	*3.2*	*Aug-13*
Lazard Emerging Market Debt Blend	31,184,199	3.2	100.0	-2.5	-2.5	6.2	4.4	3.3	--	2.2	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM				*-2.2*	*-2.1*	*6.7*	*4.9*	*4.1*	*4.5*	*3.2*	*Aug-13*
Mezzanine Debt	**7,502,329**	**0.8**	**11.8**	**0.0**	**0.0**	**9.8**	**10.9**	**12.9**	**10.5**	**--**	**Oct-02**
Northstar Mezzanine Partners VI	5,286,855	0.5	70.5								
Newstone Capital Partners II	656,634	0.1	8.8								
Northstar Mezzanine Partners V	1,503,657	0.2	20.0								
Northstar Mezzanine Partners IV	40,086	0.0	0.5								
Newstone Capital Partners	0	0.0	0.0								
Northstar Mezzanine Partners III	15,097	0.0	0.2								

Custom Benchmark comprised of 80% NCREIF ODCE, 10% NAREIT Equity, and 10% FTSE NAREIT Developed ex US.

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Estate	**74,292,740**	**7.6**	**7.6**	**-1.5**	**-1.2**	**6.8**	**7.9**	**9.0**	**10.6**	**7.7**	**Oct-00**
NCREIF ODCE				*0.0*	*0.0*	*5.3*	*7.1*	*9.0*	*11.4*	*7.9*	*Oct-00*
Open-End Real Estate	**70,306,970**	**7.2**	**94.6**	**-1.6**	**-1.3**	**5.9**	**7.3**	**8.4**	**10.3**	**7.2**	**Jan-99**
PRIT Real Estate	70,306,970	7.2	100.0	-1.6	-1.3	5.9	7.0	8.1	--	10.6	Apr-10
NCREIF ODCE				*0.0*	*0.0*	*5.3*	*7.1*	*9.0*	*11.4*	*11.4*	*Apr-10*
NCREIF ODCE Equal Weighted				*0.0*	*0.0*	*6.1*	*7.4*	*9.3*	*11.5*	*11.5*	*Apr-10*
Custom Benchmark				*-1.6*	*-1.4*	*5.0*	*6.9*	*8.2*	*11.2*	*11.1*	*Apr-10*
Non-Core Real Estate	**3,985,770**	**0.4**	**5.4**	**0.0**	**0.0**	**16.7**	**13.5**	**15.8**	**15.2**	**12.7**	**Oct-05**
AEW Partners VII	3,985,770	0.4	100.0								
Private Equity	**81,349,423**	**8.3**	**8.3**	**-0.1**	**-0.4**	**12.5**	**14.5**	**8.8**	**9.5**	**9.5**	**Oct-00**
Cambridge Associates FoF Composite 1Q Lag				*0.0*	*0.0*	*7.8*	*12.9*	*11.0*	*12.2*	*6.5*	*Oct-00*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Buyouts	**41,694,947**	**4.3**	**51.3**	**0.0**	**0.0**	**17.1**	**19.3**	**12.3**	**10.9**	**12.6**	**Oct-05**
American Securities Partners VI	3,728,561	0.4	8.9								
Riverside Capital Appreciation Fund VI	4,656,622	0.5	11.2								
Vitruvian Investment Partnership I	314,503	0.0	0.8								
Riverside Micro Cap Fund III	7,050,913	0.7	16.9								
Ridgemont II	11,451,291	1.2	27.5								
Capital International Private Equity Fund VI	4,901,153	0.5	11.8								
Harvest Partners V	9,337	0.0	0.0								
TA XII	8,571,449	0.9	20.6								
Riverside Capital Fund V	604,066	0.1	1.4								
Riverside Europe III	183,893	0.0	0.4								
Charlesbank Equity Fund VI	223,160	0.0	0.5								
Fund of Funds	**29,773,924**	**3.0**	**36.6**	**-0.4**	**-1.2**	**13.5**	**5.7**	**-3.6**	**2.1**	**6.9**	**Oct-05**
PRIT Vintage Year 2016	5,554,476	0.6	18.7								
PRIT Vintage Year 2017	14,278,519	1.5	48.0								
European Strategic Partners	73,604	0.0	0.2								
INVESCO Private Capital II	40,740	0.0	0.1								
PRIT Vintage Year 2018	6,734,073	0.7	22.6								
PRIT Vintage Year 2019	3,092,511	0.3	10.4								

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Venture Capital Funds	**9,880,552**	**1.0**	**12.1**	**0.0**	**0.0**	**-6.5**	**-0.7**	**-1.5**	**4.8**	**5.4**	**Oct-05**
Ascent Venture Partners V	4,447,304	0.5	45.0								
Asecent Venture Partners VI	4,307,657	0.4	43.6								
Boston Millennia Partners III	458,444	0.0	4.6								
Boston Millennia Partners II	427,535	0.0	4.3								
Ascent Venture Partners II	623	0.0	0.0								
Ascent Venture Partners IV	47,605	0.0	0.5								
Ascent Venture Partners III	191,384	0.0	1.9								
PRIT General Allocation	**301,087,535**	**30.8**	**30.8**	**-3.3**	**-3.4**	**6.4**	**7.6**	**--**	**--**	**8.3**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate				*-4.6*	*-4.7*	*5.8*	*6.1*	*4.7*	*6.1*	*6.6*	*Jun-16*
PRIT General Allocation Fund (Net of Fees)	301,087,535	30.8	100.0	-3.3	-3.4	6.4	7.6	--	--	8.3	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate				*-4.6*	*-4.7*	*5.8*	*6.1*	*4.7*	*6.1*	*6.6*	*Jun-16*
Real Assets	**71,997,533**	**7.4**	**7.4**	**-1.6**	**-2.5**	**2.9**	**8.1**	**4.6**	**4.5**	**3.9**	**Oct-06**
CPI + 3%				*0.3*	*0.7*	*5.3*	*5.0*	*5.0*	*4.8*	*4.8*	*Oct-06*
Natural Resources Assets	**12,609,758**	**1.3**	**17.5**	**-6.7**	**-10.9**	**-21.5**	**-1.2**	**-6.2**	**--**	**--**	
S&P Global Natural Resources Index TR USD				*-11.3*	*-18.0*	*-13.6*	*0.0*	*-0.1*	*0.4*	*--*	
Natural Resources (Public)	**7,344,699**	**0.8**	**58.2**	**-11.0**	**-17.4**	**-13.6**	**0.5**	**-0.8**	**--**	**-3.5**	**May-11**
SSgA Global Natural Resources Stock Index (Net of Fees)	7,344,699	0.8	100.0	-11.0	-17.4	-13.7	0.4	--	--	--	May-11
S&P Global LargeMidCap Commodity and Resources NR USD				*-11.2*	*-17.6*	*-14.1*	*0.0*	*-1.3*	*-0.2*	*-3.7*	*May-11*

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Natural Resources (Private)	**5,265,059**	**0.5**	**41.8**	**0.0**	**0.0**	**-29.9**	**-3.0**	**-13.1**	**--**	**3.0**	**Jul-10**
White Deer Energy II	4,929,712	0.5	93.6								
White Deer Energy	335,347	0.0	6.4								
Timber	**2,927,683**	**0.3**	**4.1**	**0.0**	**0.0**	**-7.3**	**-3.9**	**-2.5**	**-0.8**	**0.8**	**Oct-05**
NCREIF Timberland (1-Quarter Lag)				*0.0*	*0.0*	*2.1*	*3.1*	*4.4*	*4.0*	*6.4*	*Oct-05*
RMK Select Timberland Investment Fund I	665,295	0.1	22.7								
Hancock Timberland VII	1,522,388	0.2	52.0								
RMK Select Timberland Investment Fund II	740,000	0.1	25.3								
RMK Balanced Timberland B	0	0.0	0.0								
Infrastructure	**56,460,093**	**5.8**	**78.4**	**-0.4**	**-0.5**	**13.1**	**17.3**	**24.6**	**21.1**	**15.7**	**Jun-08**
CPI+5%				*0.5*	*1.0*	*7.3*	*7.0*	*7.0*	*6.8*	*6.6*	*Jun-08*
IFM Global Infrastructure (Net of Fees)	43,241,751	4.4	76.6	-0.6	-0.7	14.1	--	--	--	14.9	Sep-17
Global Infrastructure Partners	730,657	0.1	1.3								
Global Infrastructure Partners III	12,276,849	1.3	21.7								
Global Infrastructure Partners IV, L.P.	210,836	0.0	0.4								
Cash	**11,665,310**	**1.2**	**1.2**								
Cash	11,665,310	1.2	100.0								

Emerging Markets Debt
RFP Respondent Review

Introduction

Selecting strong and appropriate investment managers is a key determinant of the overall success of the System. Investment managers are expected to operate within a client's investment guidelines and are given a large degree of latitude to achieve the investment objectives.

Manager selection is a nuanced process and requires extensive due diligence. When selecting prospective active managers, Meketa Investment Group evaluates the following areas:

- Organization
- Investment team
- Investment philosophy
- Investment process
- Investment performance
- Management fees

In addition, all managers are evaluated within the context of the System's overall investment policy.

Background

- In March 2020, Meketa Investment Group issued a $32 million emerging market debt RFP on behalf of the Worcester Retirement System.
- Meketa Investment Group received 23 responses from emerging market debt managers.
- The results of our review of responses are listed on the following pages.
- All statistics in this review are as of December 31, 2019, unless otherwise noted.

RFP Respondents

Manager	Headquarters	Strategy	Overall Rating
Payden & Rygel	Los Angeles, California	Emerging Market Debt	Highly Advantageous
MetLife Investment Management	Whippany, New Jersey	Emerging Markets Debt Blend	Highly Advantageous
Aberdeen Standard Investments Inc.	Philadelphia, Pennsylvania	Emerging Markets Debt Plus	Highly Advantageous
Wellington Management	Boston, Massachusetts	Blended Opportunistic Emerging Markets Debt	Highly Advantageous
Eaton Vance Management	Boston, Massachusetts	Emerging Markets Debt Opportunities	Highly Advantageous
Ashmore Investment Advisors Limited	London, United Kingdom	Emerging Markets Blended Debt Total Return	Advantageous
Neuberger Berman	New York, New York	Emerging Market Debt Blend	Advantageous
Nuveen	New York, New York	TIAA-CREF Emerging Markets Debt	Advantageous
Ninety One (Investec)	London, United Kingdom	Emerging Market Blended Debt	Advantageous
Marathon Asset Management	New York, New York	Marathon Emerging Markets Bond	Advantageous
GAM International Management	New York, New York	GAM Emerging Markets Opportunities Bond	Advantageous
Pacific Investment Management Company (PIMCO)	Newport Beach, California	PIMCO Emerging Markets Full Spectrum Bond Fund	Advantageous
Manulife Investment Management	Toronto, Ontario, Canada	Emerging Markets Debt	Advantageous
TCW Investment Management Company	Los Angeles, California	TCW Emerging Markets Fixed Income Total Return	Advantageous
Lazard Asset Management	New York, New York	Lazard Emerging Markets Debt Blend	Advantageous
Stone Harbor Investment Partners LP	New York, New York	Emerging Markets Debt Global Allocation 50/50 Core strategy	Advantageous
Stone Harbor Investment Partners LP	New York, New York	Emerging Markets Debt	Advantageous

RFP Respondents (continued)

Manager	Headquarters	Strategy	Overall Rating
Invesco Advisers	Atlanta, Georgia	Invesco Oppenheimer Emerging Local Debt	Advantageous
Candriam	Strassen, Luxembourg	Emerging Markets Debt	Advantageous
State Street Global Advisors	Boston, Massachusetts	Emerging Markets Hard Currency Bond Sovereign/Corporate Blend	Advantageous
Grantham, Mayo, Van Otterloo & Co. (GMO)	Boston, Massachusetts	GMO Emerging Country Debt Fund	Advantageous
Emso Asset Management	London, United Kingdom	Unconstrained Long Only strategy	Not Advantageous
Bosera Asset Management	China Mainland	*strategy proposed not applicable	Not Advantageous

Payden & Rygel

Rating Criteria	Rating	Rationale
Overall	Highly Advantageous	
Organization	Highly Advantageous	• Payden & Rygel was founded in 1983 in Los Angeles, California, and it has expanded to have other offices around the world. The firm is 100% employee-owned with ownership distributed among 30 active members of senior management, and it is majority women-owned. • Payden had $119.1 billion in assets under management as of December 2019, of which $12.7 billion are in Emerging Markets Debt strategies and $3.5 billion are in this strategy.
Team	Highly Advantageous	• Portfolio manager Kristin Ceva is a Managing Director and Head of Global Fixed Income for the firm. Ms. Ceva joined Payden & Rygel in 1998 to expand the firm's emerging markets debt footprint. She is supported by four emerging markets strategists and two country analysts, a portfolio analyst, and a dedicated emerging markets trader. In addition, the emerging markets debt team draws on the expertise of the firm's 14-person global staff of analysts, economists, and traders.
Investment Philosophy	Advantageous	• The key tenet of Payden & Rygel's approach is that risk management should be the primary focus of active fixed income management. The team assesses sovereign, corporate, and local currency bonds together rather than separately. Given the significant variability across emerging market countries from an economic standpoint, the investment team feels that this holistic analysis improves their understanding of relative value
Investment Process	Highly Advantageous	• The team generates risk-adjusted return forecasts used in the asset allocation process. Sovereign credit investment decisions are based on fair value estimates and yield spread relationships within and between countries. Corporate credits are selected based on relative spread analysis, an assessment of comparable firms globally, and the team's country-specific economic outlook. • The team has tight risk controls and aims to have a higher quality and lower volatility portfolio than peers. Corporate exposure is limited to 35%, local currency exposure is limited to 40%, and the team rarely invests in securities rated CCC or below. The team emphasizes liquidity and quality, and will not invest in distressed corporates, equities, structured products, or credit derivatives.
Performance	Highly Advantageous	• Payden outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, five-, and ten-year trailing period, with excess returns of 2.7%, 0.1%, 1.8% and 1.9% respectively.
Fees	Advantageous	• Collective Investment Trust (Meketa Class) effective fee of 0.53% • Mutual Fund (PYEIX) effective fee of 0.69% • Separate Account effective fee of 0.45%

MetLife Investment Management

Rating Criteria	Rating	Rationale
Overall	Highly Advantageous	
Organization	Advantageous	• MetLife Investment Management is a wholly owned affiliate of MetLife, Inc., a publicly traded company listed in the New York Stock Exchange. On July 1, 2019 Logan Circle Partners, L.P. merged with and into its affiliate MetLife Investment Advisors, LLC and was renamed MetLife Investment Management, LLC. • MetLife Investment Management was established as an investment advisor in 2006 and has over $600.0 billion in assets under management, of which $3.1 billion is managed in the Emerging Market Debt strategy that incepted in 2006.
Team	Highly Advantageous	• Scott Moses and Todd Howard have been managing the strategy since inception. • The Emerging Markets Debt Team is comprised of six investment professionals, including two portfolio managers, three traders and one sovereign research analyst. The team also leverages regional based sovereign analysts, not dedicated to the firm, for fundamental sovereign research. The additional resources include two sovereign analysts in Santiago, three in London and one in Japan.
Investment Philosophy	Highly Advantageous	• MetLife believes that fixed income markets regularly misprice securities that are exposed to credit, country, and currency risk. In seeking to exploit inefficiencies and provide clients with consistent returns, the team uses proprietary, in depth fundamental research, and focuses on relative value across the credit spectrum. • The objective of emerging markets debt team is to produce predictable and consistent excess returns. The strategy is opportunistic and can invest in both U.S. dollar and local currency sovereign debt, as well as global credits across the ratings spectrum.
Investment Process	Highly Advantageous	• MetLife's investment process blends bottom-up credit selection with top-down macroeconomic research. The team's analysts assess credits with a focus on asset quality, management, and capital structure. This fundamental work is paired with top-down research, which focuses on country and currency relative value. The team also monitors currency valuation with in-house regression models and tracks currency volatility as a leading indicator of risk. • Portfolio construction is driven by the team's blended top-down/bottom-up global relative value process, with a focus on maintaining geographic diversity. Todd focuses on the non-dollar side of the portfolio and on macro-based idea generation and workflow. While Scott focuses his time on the higher risk hard currency exposures and overall risk positioning. Scott Moses has final say on portfolio construction.
Performance	Advantageous	• MetLife outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the five-, and ten-year trailing periods, with excess returns of 1.2% and 2.6% respectively. However, they underperformed the one- and three-year trailing period by -0.1% and -0.4% respectively.
Fees	Advantageous	• Collective Investment Trust effective fee of 0.55% • Limited Partnership stated fee of 0.60% and other operating expense of 0.05% • Separate Account effective fee of 0.55%

Aberdeen Standard Investments Inc.

Rating Criteria	Rating	Rationale
Overall	Highly Advantageous	
Organization	Advantageous	• Aberdeen Standard Investments Inc., located in Philadelphia, Pennsylvania, is an asset management subsidiary of Aberdeen PLC. Aberdeen PLC is a wholly owned subsidiary of SLA, a publicly traded company. • The firm manages $669 billion in assets under management across a mix of strategies as of December 2019. The emerging markets debt plus strategy was incepted in 1999 and has approximately $3.9 billion in assets.
Team	Highly Advantageous	• The strategy is managed by the Emerging Markets Debt team, and is led by Brett Diment. • The team is organized by specialization, either sovereign or corporate, and they are primarily based in London and Singapore. Most team members have a dual role of portfolio manager and research analysts.
Investment Philosophy	Highly Advantageous	• Aberdeen's Emerging Markets Debt Plus strategy is centered on a bottom up approach. Fundamental research is a core aspect of the investment philosophy and they are benchmark aware. • The team has a bias towards being overweight frontier countries. They believe that frontier countries have the potential to provide attractive opportunities given that they are less well researched.
Investment Process	Highly Advantageous	• The team begins their investment process by conducting fundamental research on their investment universe, which consist of more than 80 countries. At this time the team puts together a country note, which contains country specific macroeconomic information as well as forward looking credit profile. They also make use of a proprietary local currency scorecard and ESGP framework. The goal of this first stage in the investment process is to understand all associated risks related to a specific country. • The second step in the process is relative value analysis where the team produces return forecasts for each asset type within their respective countries of coverage. Then the team compares across countries for the best relative value opportunities. Portfolio construction then takes place with a view to duration, correlation between assets, beta exposures, volatility and tracking error. All team members are involved in the decision making process but Brett Diment has ultimate decision making authority.
Performance	Advantageous	• Aberdeen outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, five-, and ten-year trailing periods, with excess returns of 0.7%, 1.1% and 1.9% respectively. However, they underperformed the three-year trailing period by -0.6%.
Fees	Advantageous	• Commingled Fund: effective fee of 0.45%, • Mutual Fund (Ticker: AKFIX) effective fee of 0.66%

Wellington Management

Rating Criteria	Rating	Rationale
Overall	Highly Advantageous	
Organization	Highly Advantageous	• Wellington Trust Company was established in 1928 and headquarters are located in Boston, Massachusetts. Wellington Management Group LLP, is owned by 165 partners, all active in the business of the firm. • Total firm asset are $1.2 trillion, of which $5.3 billion are in the Blended Opportunistic Emerging Markets Debt strategy, incepted in 2009. • Wellington has a long track record of investing in emerging markets debt (EMD) since 1990 within multiple strategies and began managing dedicated EMD portfolios on an advisory basis in 1998.
Team	Highly Advantageous	• Lead portfolio manager Jim Valone has been managing the strategy since inception. Kevin Murphy and Evan Ouellette act as backup portfolio managers. Mr. Murphy focuses on macroeconomic and country/sector decisions, while Mr. Ouellette focuses on portfolio construction and security selection. • The team has 5 additional portfolio managers who support actively in broad strategy discussions and are supported by a team of 27 dedicated Emerging Markets professionals.
Investment Philosophy	Highly Advantageous	• The team believes that emerging markets must be approached from a global perspective, recognizing that global market conditions will impact the attractiveness of emerging markets. They take both a quantitative and fundamental approach to assessing rates and currencies in a large universe of emerging markets countries.
Investment Process	Highly Advantageous	• The investment process begins with an assessment of global economic, liquidity, and market conditions. The portfolio managers have final responsibility for setting the total portfolio risk level. . Country research assesses both the ability and willingness of emerging countries to service their external debt, and summarizes this in a country score to quantify the team's sovereign credit outlook and rank countries according to credit strength from high to low. • Portfolios are constructed with the goal of generating attractive total returns while minimizing systemic risk. Mr. Valone has final decision making power and all decisions are made under his guidance and approval.
Performance	Advantageous	• Wellington outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, five-, and ten-year trailing periods, with excess returns of 2.1%, 0.6%, 0.6% and 0.8% respectively.
Fees	Advantageous	• Commingled Fund: Effective fee of 0.55% with other operating expenses capped at 0.20% (currently ~0.045%) • Separate Account effective fee of 0.75%

Eaton Vance Management

Rating Criteria	Rating	Rationale
Overall	Highly Advantageous	
Organization	Advantageous	• Eaton Vance Management is based in Boston, Massachusetts and is a wholly owned subsidiary of Eaton Vance, a publicly traded company. Voting shares are held in a trust and voting trustees are officers of Eaton Vance or its affiliates. Non-voting shares are publicly traded on the New York Stock Exchange (NYSE:EV) • The firm traces its beginning to 1979 and has $213.4 billion in assets under management. The Emerging Markets Debt Opportunities was launched in 2013 and has $288 million in assets.
Team	Highly Advantageous	• Portfolio managers Michael Cirami, Eric Stein and John Baur have been managing the strategy since inception. • Analysts are country specialists, and there are more than one team member covering each country.
Investment Philosophy	Advantageous	• The team relies on, short term factors, intermediate-term fundamentals and long-term structural trends to form views about specific countries. They see themselves as "country pickers" and believe that countries that have improving economic freedom are some of the best places to invest. • Benchmark agnostic, benchmark weights do not play a role in determining position sizing or portfolio construction. It is usually more concentrated than the benchmark and comprises only the best ideas.
Investment Process	Advantageous	• Country analysis and access to markets are the first steps in the investment process. Eaton Vance has worked over the years to build traditional and non-traditional liquidity sources to properly access markets. When conducting country analysis the team's primary goal is to determine a country's direction of change over the intermediate to long term (1-5 years). Once the team has conducted the fundamental work on each country, they evaluate securities through a risk and return framework. Then the team submits investment positions for potential inclusion in the portfolio. • When constructing the portfolio the team uses a tier system that allows countries with strong or improving country fundamentals, high return potential and ample liquidity to have a higher weight within the portfolio. Michael Cirami is the coordinating portfolio for the strategy and has final decision making authority.
Performance	Highly Advantageous	• Eaton Vance outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, and five-year trailing periods, with excess returns of 4.3%, 1.9% and 2.1% respectively.
Fees	Highly Advantageous	• Commingled Fund: Stated fee of 0.30% with other operating expenses capped at 0.15%

Ashmore Investment Advisors Limited

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Ashmore Investment Advisors Limited is a London-based firm owned by Ashmore Group plc, a public company listed in the London Stock exchange. • Ashmore was founded in 1992 and now manages roughly $98.4 billion in assets across all strategies. There is approximately $14 billion in the Ashmore Emerging Markets Blended Debt strategy, whose track record dates back to 2003.
Team	Highly Advantageous	• Ashmore has a team driven approach when managing emerging markets debt portfolios. Investment decisions need to go through the Investment Committee, which includes Mark Coombs, Ricardo Xavier, Jan Dehn, Herbert Saller, Robin Forrest and Fernando Assad. • Portfolio managers are responsible for conducting research, portfolio monitoring and trade execution. Most of their time is spent on research, as they have primary and secondary product and geographical responsibilities.
Investment Philosophy	Advantageous	• Ashmore thinks about emerging markets through a macroeconomic top-down lens. They place strong emphasis on a value driven approach to find diverging market prices and credit risk. Liquidity management also plays a central role as it is embedded into the security selection and portfolio construction methodologies.
Investment Process	Advantageous	• The Investment process begins with the weekly Investment Committee meeting, where members discuss the macroeconomic environment and review individual countries. These meetings determine the theme allocations across all emerging markets fixed income funds in addition to the broader macroeconomic positioning. Then the Investment Committee breaks down into sub-Investment Committees where investment professionals discuss/act on trade ideas for their respective areas of expertise. • The investment Committee is the ultimate decision making body, however the Heads of External, Corporate and Local Currency teams are given a limited amount of autonomy to make trading decisions, which need to be ratified at the following Investment Committee meeting.
Performance	Not Advantageous	• Ashmore underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, and three-year trailing periods, with excess returns of -3.6 and -0.9% respectively. However, they outperformed over the five- and ten-year trailing period by 1.3% and 0.4% respectively.
Fees	Advantageous	• Collective Investment Trust: stated fee of 0.70% with an estimated 0.15% other operating costs • Mutual fund effective fee of 1.02% • UCITS SIVAC stated fee of 0.55% with an estimated 0.12% other operating costs • Limited Partnership stated fee of 0.55% with an estimated 0.08% other operating costs • Separate Account stated fee of 0.55% with an estimated 0.10% other operating costs

Neuberger Berman

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Neuberger Berman was founded in 1939 and is a large, New York-based investment management firm. The firm went through several organizational changes, including an IPO, a merger, and multiple acquisitions, before becoming 100% employee-owned in 2018. Neuberger Berman has a total of $355.8 billion under management as of December 31, 2019. The team manages $7.6 billion in the Emerging Markets Debt strategy.
Team	Advantageous	• Neuberger Berman's emerging market debt platform is headed by Rob Drijkoningen in The Hague and Gorky Urquieta in the firm's Atlanta, GA office. Messrs. Drijkoningen and Urquieta have 30 and 25 years of experience, respectively. • The co-heads are supported by thirteen portfolio managers, ten research analysts, four strategists, two portfolio specialists, and three traders. Sector specialist portfolio managers manage the three segments of the Blend strategy: EM hard currency, local currency, and corporate debt.
Investment Philosophy	Advantageous	• The EMD team believes EM debt is a generally improving asset class that is less efficient than developed debt markets. As such, they believe active management is the best way for investors to access the full potential of the asset class, as fundamental managers can generate alpha by exploiting mispricing. The team believes in investing with a medium-term investment horizon and relatively low turnover.
Investment Process	Advantageous	• The team's investment process combines a bottom-up focus on fundamental value in relatively concentrated exposures in the country, FX, rates, and corporates, with a top-down driven tactical asset allocation among the various risk categories, as well as cash. • The first step of the process is a top-down review of the EMD investment universe to create top-down scores for each of the blended strategy's sub-strategies. The second step of the process involves bottom-up country and corporate issuer, currency, rates or local duration, and instrument level selection.
Performance	Not Advantageous	• Neuberger underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three- and five-year trailing periods, with excess returns of -0.6%, -0.4% and -0.6% respectively.
Fees	Advantageous	• Collective Investment Trust (Class I) effective fee of 0.69% • Mutual Fund (Institutional Class) effective fee of 0.79% • Separate Account effective fee of 0.65% • UCITS stated fee of 0.70% with other operating expenses capped at 0.20% • Private Fund effective fee of 0.65%

Nuveen

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Nuveen is headquartered in New York and is a wholly owned subsidiary of stock life insurance company TIAA, Teachers Insurance and Annuity Association of America. • The firm was founded in 1898, acquired by TIAA in 2014 and now totals $1.0 trillion in assets under management across strategies. The Emerging markets Blend composite was launched in 2004 and has close to $623.5 million in assets under management.
Team	Advantageous	• The emerging markets debt team was formed in 1997 to manage over $1 billion in assets for the TIAA General Account. Katherine Renfrew joined the emerging markets debt team in 1998 and was named the lead portfolio manager of the blend strategy at inception in 2004. Anupam Damani joined the team in 2005 and was named portfolio manager for the blend strategy in 2014. • Katherine is ultimately accountable for asset allocation across sovereign, corporate, and local currency as well as risk budgeting, regional allocations, country exposure and duration/yield curve positioning. • The portfolio managers are supported by research analysts segmented by region and across sovereign and corporate debt
Investment Philosophy	Advantageous	• Nuveen's philosophy centers around protecting on downside risk. The team seeks to generate consistent, incremental alpha over long-term returns without taking concentrated bets in any one region, country, issuer or issue. They believe EM provides greater opportunity given less market coverage and protect the portfolios from lower recovery rates by creating barbells with higher-quality corporates with lower-quality sovereigns.
Investment Process	Advantageous	• The team's investment process begins with an assessment of global markets and this macro assessment at each individual sovereign level drives duration and rate biases of the portfolio. • Duration is typically maintained within +/-30% of the benchmark. Duration is monitored at portfolio level and is determined by the lead portfolio manager. Alpha sourced from duration is primarily at individual country or company level. The majority of alpha is sourced from country and security selection. • The lead portfolio manager is tasked with allocating across sovereigns, corporates and local currency.
Performance	Highly Advantageous	• Nuveen outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, five-, and ten-year trailing period, with excess returns of 3.3%, 1.1%, 2.4% and 2.7% respectively.
Fees	Advantageous	• Mutual Fund effective fee of 0.63% • Separate Account effective fee of 0.54%

Ninety One (Investec)

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Ninety one, formerly Investec Asset Management (IAM), started in South Africa in 1991. IAM was a subsidiary of publicly-traded Investec Group prior to the de-merger and rebranding in March 2020. The firm is currently 55% publicly owned, 25% by Investec and 20% by Forty-Two Point Two. • Ninety One has more than 25 years experience in emerging markets. Total firm AUM at IAM (excluding the parent) is \$148.9 billion, with 28% (\$41 billion) of that being emerging markets debt and \$2.9 billion in this strategy.
Team	Advantageous	• The Emerging Markets Blended Debt strategy is managed by the Global Emerging Markets Debt (Global EMD) team, which is part of the Fixed Income investment capability as overseen by Peter Eerdmans. • Within Global EMD, there are two sub-teams, EM Sovereign & FX and EM Corporate Debt. The Sovereign & FX team is organized by region, typically working in pairs to cover the regions across three asset classes: sovereign local debt, hard currency debt, and currencies. The Corporate Debt team is organized by industry.
Investment Philosophy	Advantageous	• The team believes the best approach to building a blended EMD portfolio is to use 'best ideas' to achieve a combination of top-down allocation and bottom-up, high conviction assets. Once asset allocation targets have been set – for overall portfolio risk and then for the allocation of that risk between local currency sovereign, hard currency sovereign and, hard currency corporate credit – the team achieve those targets by implementing their highest conviction individual ideas.
Investment Process	Advantageous	• Management of the portfolio is holistic by selecting the assets from each country with the highest expected return vs. risk while carefully ensuring that they do not end up with excessive exposure to a single country, currency or economic outcome • The team accesses country exposure through what they believe are the most attractive entry points across FX, sovereign debt, and corporate debt markets. • The team utilizes a structured analytical approach, with the team's insight supplemented by advanced proprietary econometric modeling and valuation tools.
Performance	Advantageous	• Ninety One outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one- and three-year trailing periods by 0.4% and 0.2% respectively. However, they underperformed the five-year trailing period by -0.2%.
Fees	Advantageous	• Commingled Fund: Effective fee of 0.45%

Marathon Asset Management

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Marathon Asset Management a New York-based asset management firm and is privately owned by 8 partners as well as a passive minority interest by Blackstone Alternative Asset Management. • Marathon was founded in 1998 and now has roughly $18.4 billion assets under management. The Marathon Emerging Markets Bond Fund was launched in January 2015, and it has $328 million in assets.
Team	Advantageous	• Marathon follows a team-based approach. There is a team of 8 dedicated EM investment professionals led by Gabriel Szpigiel, Head of Emerging Markets. Andrew Szmulewicz is portfolio manager on the strategy along with 6 investment analysts. • The research process utilizes professionals from Marathon's broader global credit research platform
Investment Philosophy	Advantageous	• Marathon's investment strategy is founded on rigorous value-based fundamental analysis and a keen understanding of underlying securities, allowing the team to select high conviction long positions, coupled with Index-based exposures that intend to result in a value-added portfolio vis-à-vis the Index.
Investment Process	Advantageous	• Marathon's "Optimal Beta" strategy is built around the concept of benchmark replication which is supported by their knowledge in index architecture led by Andrew Szmulewicz who came over from JPMorgan where he developed key market benchmarks such as the CEMBI and NEXGEM indices and determined rules and instrument level composition for the widely followed EMBI, GBI-EM and ELMI+ index series. • The process involves neutralizing key portfolio variables vs the index and relying on credit selection to drive portfolio returns. If there is uncertainty, the team defaults to mirror index exposures. • Analysts are industry specific as opposed to country specific. The team spends significant time meeting with issuers, resulting in being anchor investors in many new issuances that supports alpha driven from primary deals
Performance	Highly Advantageous	• Manulife outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, and five-year trailing period, with excess returns of 1.2%, 0.6%, and 2.6% respectively.
Fees	Not Advantageous	• Commingled Fund effective fee of 0.75%

GAM International Management

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• GAM was founded in 1983 by Gilbert de Botton. GAM is a wholly-owned subsidiary of GAM Holding AG, listed on the SIX Swiss Stock Exchange. • The firm manages $137 billion in assets under management. The Emerging Market Debt group manages $8.3 billion, of which $73 million is within the Emerging Markets Opportunities Bond strategy, launched in 2014.
Team	Advantageous	• Paul McNamara is the lead manager for the strategy, he is supported by Bogdan Manescu and Alessandro Ghidini who act as co-managers. Allessandro and Bogdan are located in Zurich and the rest of the team is in London. • Enzo Puntillo, previously leading the Fixed Income Team in Zurich, left the company when Paul McNamera assumed responsibility for the group. The two Emerging Markets Debt teams were combined in 2019, in an effort to reduce complexity within their business.
Investment Philosophy	Advantageous	• The Emerging Markets Opportunities Bond focuses on a country by country approach, as they believe this facilitates the best capture of opportunities. • The strategy is unconstrained and benchmark agnostic, with the ability to invest in both hard and local currency. Their investment universe includes sovereigns, corporates, nominal and inflation-linked bonds as well as currencies.
Investment Process	Advantageous	• The team utilizes a three step investment process that includes country selection, market cycle analysis and portfolio construction. During the country selection phase the team analyses the macroeconomic environment and political landscapes to identify countries going into or coming out of crisis. Once the team determines what is priced-in, they are able to set country and debt sector exposures. The market cycle analysis is conducted to calibrate credit and interest rate exposures and to come up with a final credit and interest rate profile. • Portfolio construction and management is the last phase in the process, where the team builds a diversified portfolio of their best ideas. Decisions are made through consensus at weekly and monthly meetings. However when consensus is not found Paul McNamara makes the final decisions
Performance	Not Advantageous	• GAM underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, and five-year trailing periods by -3.0%, -1.4%, and -0.6% respectively.
Fees	Advantageous	• Commingled Fund: Effective fee of 0.45% • Separate Account: Effective Fee of 0.45%

Pacific Investment Management Company (PIMCO)

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• PIMCO is located in Newport Beach and is a majority owned subsidiary of AAM, a subsidiary of Allianz SE, a financial services company based in Germany. • The firm was founded in 1971 and now totals $1.9 trillion in assets under management across strategies. The PIMCO Emerging Markets Full Spectrum Bond Fund was incepted on 2013 and has close to $277.4 million in assets.
Team	Advantageous	• The strategy is managed in a team based approach by the Emerging Markets Portfolio Committee (EMPC). Pramol Dhawan, Head of the Emerging Markets, is the chair of the EMPC and has final decision making authority.
Investment Philosophy	Advantageous	• PIMCO seeks to generate strong risk adjusted returns independently of the market cycle. Their approach is based on three principles to bring discipline and consistency into their process. The first principle involves analyzing from every angle as they believe that no single approach holds the key to unlocking alpha. Secondly, they strive to avoid concentrations in order protect against low probability/ high impact events. Lastly the emerging markets team looks for ways to be different than the crowd.
Investment Process	Advantageous	• The investment process centers on the Emerging Markets Portfolio Committee (EMPC), comprised of nine senior members with Pramol Dhawan as chair. The EMPC meets several times per week and are in charge of building a model portfolio for all emerging markets strategies. PIMCO employs internal ratings that take into account country fundamentals, political landscape, reserve levels, debt profile and contingency measures. The EMPC then blends PIMCO's top-down views, which are developed through various forums, into the emerging markets process. • The investment process is a collaborative effort of the entire team, decisions tend to be made on a consensus basis. However, if no consensus can be reached Pramol Dhawan has final decision making authority.
Performance	Highly Advantageous	• PIMCO outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one- and three-year trailing period, with excess returns of 0.9% and 0.1% respectively. However, they underperformed the five-year trailing period by -0.5%.
Fees	Not Advantageous	• Mutual Fund (PFSIX): Effective fee of 0.98%,

Manulife Investment Management

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Manulife Investment Management, located in Boston, is the global asset management arm of Manulife, a publicly-held corporation trading under the symbol 'MFC' on the NYSE, TSX and PSE, and under '945' on the SEHK. • Manulife IM was founded in 2002 and merged with John Hancock 2014. Manulife now has $409.2 billion in assets under management. The Emerging Market Debt strategy, incepted in 2007, currently has $1.1 billion in assets.
Team	Advantageous	• Lead portfolio managers Roberto Sanchez-Dahl, CFA and Paolo H. Valle, responsible for the Emerging Markets Debt Strategy were solely responsible for the strategy at another firm since 2007 and joined Manulife in 2013. • The team is supported by 16 credit research analysts, 4 traders, 3 macroeconomic advisers and an Asia Team in 10 markets.
Investment Philosophy	Advantageous	• The team invests in Emerging Market economies with a long-term horizon and seek countries with improving sovereign credit stories and great companies • The team believes a successful investment strategy should incorporate a flexible approach with strategic allocation to hard currency sovereign and corporate debt, and tactical allocation to local currency debt.
Investment Process	Advantageous	• The investment process begins with a top-down macro-economic assessment in which the investment team analyzes fiscal and monetary policy, global liquidity, market risk appetite and volatility, geopolitical and regulatory environment, interest rate, yield curve and currency trends. This macroeconomic analysis drives global and local investment themes on a secular (long-term) and cyclical (short-term) basis which focus the entire investment process, from country and security selection to currency and duration • The top-down analysis drives the process and the credit research provides the opportunity set to gain that exposure in the specific countries. If the team does not view the country positively, they will not invest there. • As a general rule, the portfolio maintains a duration +/-20% of benchmark and does not employ aggressive interest rate timing in managing the strategy.
Performance	Advantageous	• Manulife outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, five-, and ten-year trailing period, with excess returns of 0.9%, 0.3%, 1.6%, and 2.2% respectively.
Fees	Advantageous	• Commingled Fund effective fee of 0.49% • Mutual Fund effective fee of 0.88% • Separate Account: Effective fee of 0.60%

TCW Investment Management Company

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• TCW Investment Management Company, located in Los Angeles, California, is a subsidiary of TCW Group, Inc. ("TCW"). TCW is 44% employee owned, 31% owned by Carlyle Global Partners via a private equity fund, and 24.75% owned by Nippon Life, a large Japanese insurance company. • The firm was founded in 1971 and manages \$217.5 billion in assets across strategies. The TCW Emerging Markets Fixed Income Total Return strategy was incepted in 2011 and has \$9.7 billion in assets under management.
Team	Advantageous	• Penny Foley, David Robbins and Alex Stanojevic are the portfolio managers for the strategy. Investment decisions are made collectively by all three portfolio managers, with input from the entire team. • Sovereign analysts are organized by region and corporate analysts are organized by sector.
Investment Philosophy	Advantageous	• The strategy employs a value driven approach, integrating both top-down and bottom up factors to find the best reward-risk opportunities in the space. • The strategy is benchmark aware but it is not tied to the benchmark, as the team will make significant overweight or underweight decisions based on evaluation of risk and reward.
Investment Process	Advantageous	• In the first phase of the investment process the team evaluates all sovereign and corporate credits with the intention to analyze credit strengths, weaknesses, momentum and to develop a standardized way of looking across the universe. The team also conducts scenario analysis before making investment decisions. Currency and local rates forecasting is also a crucial step in the investment process. • The Emerging Markets Fixed Income Team does not imply an investment committee for decision making purposes. Instead final decision making on specific investments is made by portfolio managers in conjunction with sovereign analysts, corporate credit analysts, strategists and traders.
Performance	Highly Advantageous	• TCW outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, three-, five-, and ten-year trailing periods, with excess returns of 1.9%, <0.1%, 2.0% and 2.4% respectively.
Fees	Advantageous	• Collective Investment Trust effective fee of 0.57% • Mutual Fund effective fee of 0.85% • Separate Account effective fee of 0.40%

Lazard Asset Management

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Lazard Asset Management is located in New York, New York and is a wholly-owned subsidiary of Lazard Freres & Co. LLC, a limited liability company with one member, Lazard Group LLC. Interest of Lazard Group LLC are held by Lazard Ltd, a publicly traded company on the New York Stock Exchange. • Lazard traces its history back to the 1840's as a dry goods merchant. Asset management capabilities began in 1953 out of London and now totals $222.9 billion in assets under management across strategies. The Lazard EMD Blend strategy was incepted in 2011 and has close to $4.6 billion in assets.
Team	Advantageous	• The Emerging Markets Debt team is led by Denise Simon and Arif Joshi. They are supported by three sector-specific portfolio managers/analysts including Sergio Valderrama for Sovereign Credit , Felipe Pianetti for local currency debt and Adam Borneleit for corporate debt. • Additionally the team is supported by a team of research analysts, who cover countries from an asset class perspective
Investment Philosophy	Advantageous	• The investment philosophy is based on the belief that there are broad structural inefficiencies in emerging markets that create attractive opportunities. Lazard focuses on fundamental global trends follows a flexible management approach, fostering the ability to adapt to changing market environments. • The strategy is benchmark aware but it is able to invest in out of benchmark securities.
Investment Process	Advantageous	• The Emerging Markets Debt Investment Process begins by developing global macroeconomic themes. Asset allocation is then determined based on expected returns for each asset class and forward volatility expectations. Then the team conducts issuer analysis taking into consideration country-specific economic data, political trends, country visits and ESG factors among many others. Once the team has determined issuer weightings they move into instrument selection and portfolio construction. • Denise Simon and Arif Joshi decide on asset class allocation, overall risk framework and macroeconomic themes. In addition, Mr. Simon makes final security selection decisions for local currency debt, while Mr. Joshi makes final security selection decisions for sovereign hard currency debt. Mr. Borneleit makes final security selection decisions on corporate securities.
Performance	Not Advantageous	• Lazard underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the three- and five-year trailing periods by -0.9% and -1.1% respectively. However, they outperformed the one-year trailing period by 0.7%.
Fees	Advantageous	• Commingled Fund: Stated fee of 0.55% with other operating expenses capped at 0.23% (currently running at 0.10%) • Mutual Fund (R6): Effective fee of 0.90% • Separate Account: Effective fee of 0.80%

Stone Harbor Investment Partners LP

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Stone Harbor is located in New York, New York and is 100% employee owned, with ownership broadly dispersed among firm's employees. • The firm was founded in 2005 and has $20.4 billion assets under management. The team's track records trace back to the early 1990s when they were established at Salomon Brothers, almost all of the original investment team continues to work at Stone Harbor. The Emerging Markets Debt (EMD) strategy, launched in 1990 has $5.9 billion assets under management and the EMD Global Allocation strategy, launched in 2007, has $3.9 billion.
Team	Advantageous	• James Craige, Co-Chief Investment Officer and Head of Emerging Markets is the lead portfolio manager for the strategy. He joined the industry in 1988 and has been with Stone Harbor since it was first founded. A senior portfolio manager covering local currency bonds, Pablo Cisilino, was replaced in 2019. • .All members of the Emerging Markets team are located in the New York and London offices and most have a long tenure at the firm.
Investment Philosophy	Advantageous	• Stone Harbor's philosophy rests on three pillars, investing on improving emerging market debt instruments will result in favorable performance, combining fundamental and political analysis provides the foundation for portfolio construction and the team's long-term experience is a competitive advantage. The team believes that the key to generating excess returns is through a disciplined process of rigorous credit analysis combined with investment people and technology
Investment Process	Advantageous	• The investment process begins with idea generation derived from internal research, almost all ideas are generated this way but the firm also takes into consideration external research from Teneo Intelligence and Global Source Partners. Then the team conducts deeper analysis on the best ideas including sector and security analysis. Country visits are also part of the due diligence process, and they serve as a way to confirm or disprove the team's assumptions on local investors positioning and sentiment. • The team collaborates together to make investment decisions.
Performance	Not Advantageous	• Stone Harbor EMD outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-year trailing periods by 1.5%. and underperformed on a three-year basis by -0.6% • Stone Harbor EMD 50/50 underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one- and three-year trailing periods by -0.1% and -1.1% respectively.
Fees	Advantageous	• EMD Mutual Fund (SHMDX): Effective fee of 0.72% • EMD Collective Investment Trust stated fee of 0.45% with other expenses of 0.10% • Global Allocation Mutual Fund (SHADX): Effective fee of 0.85% • Global Allocation Collective Investment Trust stated fee of 0.50% with other expenses of 0.10%

Invesco Advisers

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• The firm was established in 1985 and is located in Atlanta, Georgia. Invesco is a public firm (NYSE: IVZ) and it is also included in the S&P 500, with 92% owned by the public and 8% owned by employees. As of December 31, 2019, Invesco managed approximately $1.2 trillion in assets across all strategies, of which $7.6 billion is managed across Emerging Markets Debt strategies.
Team	Advantageous	• Hemant Baijal and Wim Vandenhoeck are the co-portfolio managers for the Invesco Oppenheimer Emerging Markets Local Bond strategy. They have served as portfolio managers since March 2015 and September 2016, respectively. • The Global Debt team was created with the launch of the International Bond strategy in 1995. The current team was built by Hemant Baijal who joined the firm in July 2011. The team consists of 12 investment professionals. This team started running the Emerging Market Local debt strategies with a similar approach on January 1 2014.
Investment Philosophy	Advantageous	• The Global Debt team believes macroeconomic base case changes slowly. However, the microeconomic features, such as pricing, change more rapidly, which provides opportunities to take advantage of shifting risk premia. • The team also believes in a robust process based on a risk allocation framework. Given their 9-18 month investment horizon they look through short term noise while still adding value through allocation and selection
Investment Process	Advantageous	• The team employs macroeconomic analysis that results in expressions of risk that the team seeks to take in the global FX and interest rates markets. Through relative value analysis, the team expresses these risk factors through diversified currency and country exposures. This is a local only strategy. • The team seeks to opportunistically manage country, sector, and security exposures, which allows them to potentially enhance yield and total return as well as effectively manage risk.
Performance	Not Advantageous	• Invesco underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one- and five-year trailing periods by -0.1% and -0.2% respectively. However, they outperformed the three-year trailing period by 0.4%.
Fees	Advantageous	• Commingled Fund: Stated fee of 0.45% and 0.05% max other operating expenses • Separate Account: Effective fee of 0.45% • Mutual fund (R6 class) effective fee of 0.85%

Candriam Luxembourg

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• Candriam Luxembourg is a Luxembourg-based firm owned by Candriam Group. Candriam Luxembourg is 91% owned by New York Life Investments, a wholly-owned subsidiary of the New York Life Insurance Company. • Candriam was founded in 1998 and now manages roughly $145.8 billion in assets across all strategies. The EM debt team manages $4.7 billion in assets spread across Hard Currency ($3.3b), Local Currency ($385m), Corporates ($38m), and Total Return Blend ($118m).
Team	Advantageous	• The Blend Strategy will be co-Managed by Diliana Deltcheva and Magda Branet. Diliana Deltcheva is the Head of Emerging Markets Debt Team with Magda as Deputy Head. • The team consists of 6 PMs/Analysts. Portfolio managers act as sovereign or corporate analysts and are tasked with managing funds and identifying investment opportunities.
Investment Philosophy	Advantageous	• Candriam believes market inefficiencies in Emerging Markets resulting from market segmentation, bond sophistication, liquidity premiums and geo-political risks create numerous investment opportunities. They exploit these inefficiencies through uncorrelated investments using analytical tool kits within active management.
Investment Process	Not Advantageous	• All lead managers work together with two to three co-managers per EMD strategy on raising, discussing, reaching and implementing investment decisions. The portfolio managers also act as analysts and have very clear regional sovereign and corporate research focus. They are responsible for tracking and forming investment ideas within their defined areas of expertise. The sovereign and corporate analysts raise investment ideas that are then discussed and challenged within the co-management team of each strategy. • The process is focused on identifying relative value opportunities at a country or instrument basis and is biased towards owning the cheapest bonds on a relative country, issuer, currency, or curve basis. • The strategy employs interest and credit derivatives to adjust overall interest and spread duration. Their top-down approach has a goal of delivering alpha on successful market timing of adjustments of overall bets.
Performance	Advantageous	• Candriam outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, five-, and ten-year trailing periods, with excess returns of 0.4%, 1.9% and 2.7% respectively. However, they underperformed the three-year trailing period by -0.1%.
Fees	Highly Advantageous	• Commingled Fund: Effective fee of 0.35% • Proposed fee represents of 30% discount for early investors in an effort to build out US business.

State Street Global Advisors (SSGA)

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• State Street Global Advisors Trust Company (SSGA), located in Boston, MA, is a wholly owned subsidiary of State Street Bank and Trust Company which is in turn a wholly-owned subsidiary of State Street Corporation. State Street Corporation is a publicly traded bank holding company traded on the NYSE. • The firm was founded in 1978 as the Asset Management Division of State Street Bank and Trust Company and has \$3.1 trillion assets under management. The firm manages \$27.5 billion in emerging markets debt assets of which \$47.8 million are in the proposed Fund.
Team	Advantageous	• Abhishek Kumar is the lead portfolio manager for EMD and has been managing EMD at SSGA for over 9 years. Abhishek has been the key driver in the development of the Value-Added Indexing Investment Approach and has ultimate responsibility for all EMD portfolios. • Abhishek is supported by four additional portfolio managers in London each of who specializes in a specific segment of the EMD universe. The team in London also collaborates with three portfolio managers in Singapore who focus on Asia Rates and Credit. The specialized EMD Portfolio Management team reports to Stephen Yeats, APAC and EMEA Head of Fixed Income Beta Solutions.
Investment Philosophy	Advantageous	• The Indexed Fixed Income team's over-reaching objective is to generate as closely as possible, through the use of advanced portfolio management techniques and system capabilities, the total return of the benchmark throughout the market cycle.
Investment Process	Advantageous	• SSGA relies on their Value Added Indexing Investment Approach to indexing which constantly aims to strike the right balance between minimizing tracking error and minimizing transaction cost in a risk controlled process. • The team uses stratified sampling, a method dividing an index into manageable risk elements, in indexing which aims to match the benchmark's defining characteristics. • The team relies on efficiency of their investment process to generate alpha through minimizing turnover, pragmatic index rebalancing, harvesting primary market premium, security selection and trade execution.
Performance	Not Advantageous	• SSGA underperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one- and three-year trailing periods by -0.4% and -0.5% respectively.
Fees	Highly Advantageous	• Commingled Trust Fund effective fee of 0.14% for this passive strategy.

Grantham, Mayo, Van Otterloo & Co. (GMO)

Rating Criteria	Rating	Rationale
Overall	Advantageous	
Organization	Advantageous	• GMO is a Boston-based, privately owned firm, founded in 1977. Firm assets under management are $64.2 billion across multi-asset, equities, absolute return and fixed income. • GMO was an early entrant into EMD in 1994 and now has $7.1 billion in AUM including credit exposures. This consists of $5.7bn hard currency benchmarked to the JPM EMBIG and $1.4 billion in local benchmarked to the GBI-EM. There is no blended strategy.
Team	Advantageous	• Tina Vandersteel is sole head of the Emerging Country Debt team following the retirement of Tom Cooper, co-founder of GMO Global Fixed Income, in 2016. Tina is a partner of the firm. She has 30 years of experience analyzing and investing in emerging debt, 16 of which have been with GMO. Her focus is security selection and portfolio construction • GMO's Emerging Country Debt team, all based in Boston, consists of six core members: two portfolio managers and four people in research.
Investment Philosophy	Advantageous	• The team follows an active bottom up value-driven philosophy believing bonds can be undervalued due to relative liquidity, form of issuance, or currency. Given high transaction costs and illiquidity, they believe a long-term buy and hold strategy is most appropriate. Alpha is driven by 2/3 security selection and 1/3 country selection.
Investment Process	Not Advantageous	• The team tends not to take a view on global macro issues, however, they do incorporate global macro considerations into their quantitative model assumptions. The team has a bottom-up orientation to their investment process that focuses on issue selection as opposed to country selection. • Security selection is conducted from the bottom up looking for relatively cheap securities and trying to understand the risks and any needs for hedging. Sovereign risk is assessed according to three quantitative factors (economic structure, fiscal sustainability, external liquidity) and qualitative factors like willingness to pay, quality of policy makers, political regime shifts. These factors contribute to a proprietary risk score. • There is no blended strategy. The proposed strategy rarely takes corporate exposure but does take quasi-sovereign exposure. The strategy is managed with less than 10% exposure to non-USD currencies.
Performance	Advantageous	• GMO outperformed the 50% JPM EMBI Global Diversified / 50% JPM GBI-EM Global Diversified index over the one-, five-, and ten-year trailing periods, with excess returns of <0.1%, 2.0% and 4.6% respectively. However, they underperformed the three-year trailing period by -0.4%.
Fees	Not Advantageous	• Mutual Fund (Class III): Effective fee of 0.54% with a 2.00% purchase and redemption fee • Mutual Fund (Class IV): Effective fee of 0.49% with a 2.00% purchase and redemption fee

Emso Asset Management

Rating Criteria	Rating	Rationale
Overall	Not Advantageous	
Organization	Advantageous	• Emso Asset Management Limited is 100% owned by White Park Limited, which in turn is owned 50.4% by Mark Franklin, with the remaining 49.6% owned by former and current employees. • Emso was initially formed as a business unit within Citigroup and managed assets exclusively for Citigroup-owned entities until 2003. The firm now manages \$5.5 billion, with \$747 million in the commingled blended long only Fund that launched in November 2019.
Team	Advantageous	• Jens Nystedt (portfolio manager) joined Emso in September 2017 as a Long Only Portfolio Manager and has since been responsible for managing Emso's Alternative Long Only strategy. Oliver Faltin-Trager dedicates the majority of his time supporting Jens in an analyst capacity. • Emso employs a team based approach across strategies and includes 25 individuals with an average of 18 years of global emerging market experience. • Mark Franklin, CIO, was previously at Salomon Brothers where he started and ran the emerging markets investment business until the merger with Citigroup. After the merger, he founded the Emso Fund.
Investment Philosophy	Advantageous	• The Emso investment team aims to achieve high quality risk-adjusted returns through a defensive investment strategy, constructing trades with a focus on protection against potential downside risks and liquidity constraints. In addition, the team tends to use macro tail-risk hedge overlays in times of greater anticipated market volatility to reduce fund return volatility.
Investment Process	Advantageous	• In constructing the portfolios for its accounts, Emso focuses on a small number (usually eight to twelve) of high conviction themes. The investment team develops these themes by performing deep fundamental research and analysis on countries and corporates and selects those underlying assets that appear to offer the best investment opportunities, typically regardless of whether they are in a reference benchmark or not. • Emso relies on its considerable experience in assessment of, and operating in, emerging markets that have a significant element of political risk.
Performance	Not Advantageous	• Emso Long Only Blended Commingled Fund incepted in Nov 2019 and does not have a track record against the benchmark >1 year
Fees	Not Advantageous	• Commingled Fund: Stated fee of 0.75%, with a 20% performance fee

Manager Trailing Performance (Net of Fees)
(As of December 31, 2019)

Manager	Inception Date	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Payden & Rygel	Jan-99	17.0	7.0	6.4	6.8
MetLife Investment Management	Nov-06	14.2	6.5	5.8	7.4
Aberdeen Standard Investments Inc.	Aug-99	15.0	6.3	5.6	6.7
Wellington Trust Company	Feb-09	16.4	7.5	5.2	5.7
Eaton Vance Management	Feb-13	18.6	8.8	6.7	-
Ashmore Investment Advisors Limited	Jun-03	10.7	6.0	5.9	5.3
Neuberger Berman	Sep-13	13.6	6.5	4.0	-
Nuveen	Sep-14	17.5	8.1	6.9	7.5
Ninety One (Investec)	Dec-10	14.7	7.1	4.3	-
Marathon Asset Management	Jan-15	15.5	7.5	7.2	-
GAM International Management	Feb-14	11.3	5.6	3.9	-
Pacific Investment Management Company (PIMCO)	Feb-13	15.2	7.0	4.1	-
Manulife Investment Management	Mar-07	15.1	7.3	6.2	7.0
TCW Investment Management Company	Jan-11	16.2	7.0	6.6	7.3
Lazard Asset Management	Oct-11	14.9	6.0	3.5	-
Stone Harbor – Global Alloc. 50/50 Core	May-07	14.2	5.8	-	-
Stone Harbor – EMD	Aug-90	15.8	6.3	-	-
Invesco Advisers	Jun-10	14.2	7.3	4.4	-
Candriam[1]	Apr-99	14.7	6.9	6.5	7.6
State Street Global Advisors Trust Company	Dec-15	13.9	6.5	-	-
Grantham, Mayo, Van Otterloo & Co. (GMO)	Apr-94	14.3	6.5	6.6	9.5
Emso Asset Management	Nov-19	-	-	-	-

[1] Returns presents are based on Total Return Blend strategy composite. Candriam does not currently manage a 50/50 blend and is seeking early investors into a Blend commingled fund.

Proposed Fees

Manager	Proposed Vehicle	Stated Fee (%)[1]	Other Expenses	Minimum Investment
Payden & Rygel	CIT (MIG Class)	0.53	-	$1 million
	Mutual Fund (PYEIX)	0.69	-	$0.1 million
MetLife Investment Management	CIT	0.55	-	NA
	Limited Partnership	0.60	0.05%	$1 million
Aberdeen Standard Investments Inc.	Commingled Fund	0.45	-	$5 million
	Mutual Fund (AKFIX)	0.66	-	$1 million
Wellington Trust Company	Commingled Fund	0.55	0.045% capped at 0.20%	$1 million
Eaton Vance Management	Commingled Fund	0.30	0.15%	$5 million
Ashmore Investment Advisors Limited[2]	CIT (Class A)	0.70	0.15%	$10 million
	Mutual Fund	1.02	-	$1 million
	UCITS SICAV	0.55	0.12%	$1 million
	Limited Partnership	0.55	0.08%	$10 million
	Separate Account	0.55	0.10%	$100 million
Neuberger Berman	CIT (Class I)	0.69	-	$10 million
	Mutual Fund (Inst Class)	0.79	-	$1 million
Nuveen[3]	Mutual Fund	0.63	-	$2 million
Ninety One (Investec)	Commingled Fund	0.45	0.14	$10 million
Marathon Asset Management	Commingled Fund	0.75	-	$5 million
GAM International Management	Commingled Fund	0.45	-	$3 million
Pacific Investment Management Company (PIMCO)	Mutual Fund (PFSIX)	0.98	-	$1 million

[1] Assumes a mandate size of $32 million. In certain cases operating expenses for commingled fund/collective investment trust vehicles were included in the stated fee. Otherwise the other operating expenses are listed separately and not included in the “Stated Fee”

[2] Stated minimum investment for Ashmore’s Collective Investment Trust and Limited Partnership are the standard amounts that they are proposing to waive.

[3] Nuveen is in the process of launching a CIT for which they are seeing investors who are eligible for founders pricing and are willing to discuss in more detail through the search process

Proposed Fees (continued)

Manager	Proposed Vehicle	Stated Fee (%)[1]	Other Expenses	Minimum Investment
Manulife Investment Management	Commingled Fund	0.49	-	$20 million
	Mutual fund (JMKIX)	0.88	-	$0.25 million
TCW Investment Management Company	CIT	0.57	-	$5 million
	Mutual Fund (TGEIX)	0.85	-	$2 thousand
Lazard Asset Management	Commingled Fund	0.55	0.10% capped at 0.23%	$1 million
	Mutual Fund (R6)	0.90	-	$1 million
Stone Harbor – EMD	Mutual Fund (SHMDX)	0.72	-	$1 million
	CIT	0.45	0.10%	$25 million
Stone Harbor – Global Allocation 50/50 Core	Mutual Fund (SHADX)	0.85	-	$1 million
	CIT	0.50	0.10%	$25 million
Invesco Advisers	Commingled Fund	0.45	0.05%	$5 million
	Mutual Fund (R6)	0.85	-	$1 million
Candriam	Commingled Fund	0.35	-	NA[2]
State Street Global Advisors Trust Company	Commingled Trust Fund	0.14	-	$5 million
Grantham, Mayo, Van Otterloo & Co. (GMO)	Trust Fund Class III	0.54	2.0% Purchase & Redemption Fee	$5 million
	Trust Fund Class IV	0.49		$250 million
Emso Asset Management	Commingled Fund	0.75	20% Performance Fee	$0.1 million

[1] Assumes a mandate size of $32 million. In certain cases operating expenses for commingled fund/collective investment trust vehicles were included in the stated fee. Otherwise the other operating expenses are listed separately and not included in the "Stated Fee"

[2] Stated minimum investment for Candriam's commingled fund is negotiable as the firm is looking for early fund investors for the commingled product

Summary

- A total of 22 managers with 23 strategies submitted responses to this search. Based upon our review and evaluation of each respondent, Meketa Investment Group has rated five as "Highly Advantageous." Sixteen strategies were ranked as "Advantageous," and two strategies were ranked as "Not Advantageous."

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Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

Duration: Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\%\text{ (discount)}}{5\text{ (yrs. to maturity)}} = \begin{array}{l}1\%\text{ pro rata, plus}\\5.26\%\text{ (current yield)}\end{array} = 6.26\%\text{ (yield to maturity)}$$

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.

Benchmark Notes

Custom Benchmark

Custom Benchmark is composed of 23% Russell 3000, 22% MSCI ACWI ex US, 6% Cambridge Associates Fund of Funds Composites 1q lagged, 7% Barclays Aggregate, 6% Barclays High Yield, 3% blended benchmark compromised of 50% JPM EMBI GD 50% JPM GBI-EM, 6% Barclays US TIPS, 3% NCREIF Timberland, 10% NCREIF ODCE, 2% DJ Brookfield Global Infrastructure, 7% of a blended benchmark comprising 60% MSCI ACWI and 40% Barclays Global Aggregate Bond indices, 2% S&P North American Natural Resources Sector and 2% HFRI Fund of Funds Composite.

Spliced Benchmark

60% MSCI ACWI and 40% Barclays Global Aggregate Bond indexes since June 2015, Barclay's US Tips 1-10 Year prior.

SSgA MSCI EAFE

SSgA MSCI EAFE index fund performance is based on the aggregate of the daily liquidity fund and the semi-monthly liquidity fund.

PRIT Real Estate

PRIT Real Estate inception date shown is based on the first full quarter invested.

Custom Real Estate Benchmark

Custom Benchmark is composed of 80% NCREIF ODCE, 10% NAREIT Equity and 10% FTSE EPRA NAREIT Developed ex. U.S. REIT.