pfm asset management

Are You Smarter than a Portfolio Manager?

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PFM Asset Management LLC

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Agenda

I. Fundamentals

II. Asset Class Overview

III. Tenants of Portfolio Construction

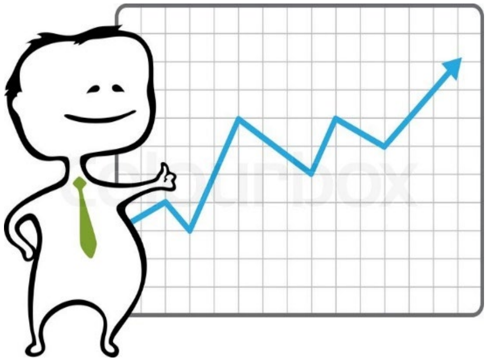
IV. Are you Smarter than a Portfolio Manager?

V. Conclusion

I. Fundamentals

What is a Stock

- A stock is a share in the ownership of a company
- Stock represents a claim on the company's assets and earnings
- As you acquire more stock, your ownership stake in the company becomes greater. STOCK = EQUITY
- Stocks are traditionally more volatile then fixed income



What is a Bond

- A bond represents a loan made by an investor to a borrower (typically corporate or governmental)
- A bond could be thought of as an I.O.U. between the lender and borrower that includes the details of the loan and its payments

Types of Investment Vehicles

Exchange Traded Funds	Mutual Funds	Collective Investment Trusts	Separately Managed Accounts
Basket of securities that you can buy or sell through a brokerage firm on a stock exchange	SEC registered investment vehicle that can pool together monies from various sources for the purpose of investing in stocks, bonds and/or other assets	Unregistered investment vehicle where an institution pools together monies from eligible tax-qualified retirement plans	An investment vehicle comprised of stocks, bonds or other individual securities, where the investor directly owns securities

II. Asset Class Overview

Domestic Equity

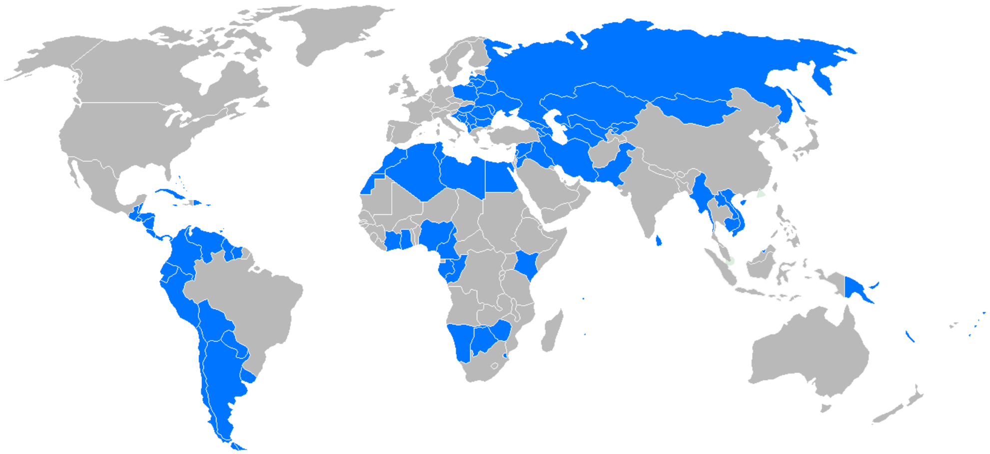
- Domestic equity securities are considered shares of a company that trade on a U.S. stock exchange – i.e. New York Stock Exchange, NASDAQ, etc.
- These securities are often thought of through the lens of their market capitalization

Lower Return **Higher Return**

Large Cap	Mid Cap	Small Cap
Companies with market capitalizations **at $10 billion or above**	Companies with market capitalizations **between $2 billion and $10 billion**	Companies with market capitalizations **less than $2 billion**

Lower Risk **Higher Risk**

International/Emerging Market Equity



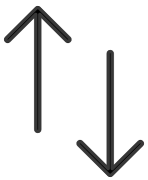
- A developed market refers countries that reflect the following characteristics:
  - Stable growth rate
  - Greater economic security
  - Mature industries
  - Robust infrastructure
- Examples include:
  - United Kingdom, France, Germany and Japan
- An emerging market refers to countries that reflect the following characteristics:
  - Rapid economic growth and development
  - Lower per capita income
  - Less mature financial markets and other infrastructure
- Examples include:
  - Brazil, Russia, India and China

Fixed Income

- As an asset class, fixed income securities are widely considered a “safer” and less volatile investment as compared to stocks
- Although this may be the case, there are inherent risks to consider when allocating to such securities

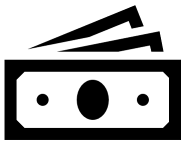
Interest Rate Risk

- Changes in interest rates and the price of a fixed income security exhibit an **inverse** relationship
- Duration is a measure of the **sensitivity** of the price of a bond to a change in interest rates



Inflation Rate Risk

- If the cost of living rises and inflation increases significantly, yields will increase, and investor can see the **purchasing power** of their investment erode
- If market value losses exceed the income rate of return, bondholders could earn a **negative total return**



Alternatives

- Alternatives are thought of as any asset class that may not be considered traditional equity, fixed income, or cash
- Alternatives are typically characterized by:
  - Illiquidity compared to their public market counterpart
  - Use of leverage
  - Low correlation to traditional public market investments
  - Potential for a higher return on investment

Private Equity	Private Debt	Real Assets	Hedge Funds
Direct investment in private companies or buyouts of public companies where managers look to add value through improved operations	Illiquid or non-core credit that offers a yield pick-up over traditional investment grade credit due to illiquidity, credit worthiness, or complexity of deal structure	Physical assets that have value derived from their substance and properties—examples include real estate and infrastructure	Strategies often utilizing complex trading, portfolio construction and risk management techniques aiming to lower portfolio risk and/or improve risk-adjusted performance

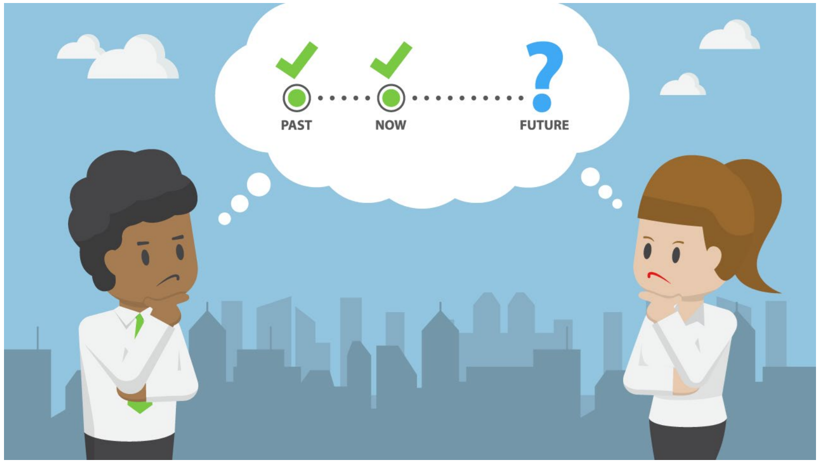
III. Tenants of Portfolio Construction

Roles of an Investment Advisor

- Act as a **fiduciary**
- Develop and articulate **capital market assumptions**
- Evaluate and set the **asset allocation**
- Ongoing **selection and monitoring of investment managers**
- Overseeing **portfolio risk management**
- Help to **select investment managers**

Decision Framework

1. What is our portfolio's current strategic asset allocation?
2. What are my organization's objectives and capacity to take on risk?
3. What are the intermediate- and long-term assumptions for capital market returns?
4. What is our portfolio's expected return and how much risk are we taking on to achieve these results?
5. Should we modify our strategic targets?



Steps of the Investment Process

1. Identify asset classes for inclusion in the portfolio
2. Derive intermediate- and long-term capital market assumptions for each asset class
3. Construct an efficient portfolio, by which the potential return is maximized for a given level of risk
4. Continuously monitor asset allocation and investment manager performance—adjusting as necessary

What Are Capital Market Assumptions?

Capital Market Assumptions: Expected (future) return, risk and correlation for various asset classes over a specific period of time

Return: Expected average annual growth rate of the asset class for the period

- 5% annualized over the next 30 years

Risk (Standard Deviation): Expected range of annual returns based on a normal distribution

- 5% expected return with 10% standard deviation has a 68% certainty of a return between -5% and +15% in a given year

Correlation: Estimate of how asset classes will behave relative to one another, with a range of -1 (perfectly negatively correlated) to +1 (perfectly correlated)

- Correlation of 0.5 means that if one asset class returns 10% the other asset class is likely to return 5%

2022 Capital Market Assumptions

	Intermediate: Next 5 Years		Long Term Projections	
	Expected Return	Expected Risk	Expected Return	Expected Risk
US Equity	7.2%	16%	7.6%	16%
U.S. Small-Cap	8.8%	19%	8.0%	19%
Int'l Developed Equity	7.5%	17%	7.3%	17%
EM Equity	7.5%	20%	7.7%	20%
Non-US Small-Cap	8.1%	20%	7.6%	20%
Short-Term Bonds	-0.1%	3%	3.0%	3%
Core Bonds	-0.9%	5%	3.9%	5%
Global Core	-1.8%	5%	3.2%	5%
Int. IG Corp	0.1%	7%	3.9%	7%
Long IG Corp	-4.2%	8%	4.4%	8%
EM Debt	2.5%	10%	4.9%	10%
High Yield	2.4%	9%	5.0%	9%
Bank Loans	4.2%	6%	4.7%	6%
Private Debt	6.7%	13%	6.8%	13%
REITs	6.3%	12%	6.6%	12%
Private Real Estate	7.0%	15%	7.9%	15%
Infrastructure	7.1%	18%	8.0%	18%
Commodities	2.8%	16%	4.2%	16%
Hedge Funds	5.8%	15%	6.3%	15%
Private Equity	10.1%	25%	9.2%	25%
Cash	0.8%	1%	2.2%	1%

For the intermediate term (up to 5 years), our capital market assumptions derive from our assessment of current economic conditions, including corporate profits, balance sheets, etc., and current valuations for various asset classes. Our long-term assumptions are derived using an economic building block approach that projects economic and corporate profit growth and takes into consideration the fundamental factors driving long-term real economic growth, our expectation for inflation, productivity and labor force growth.

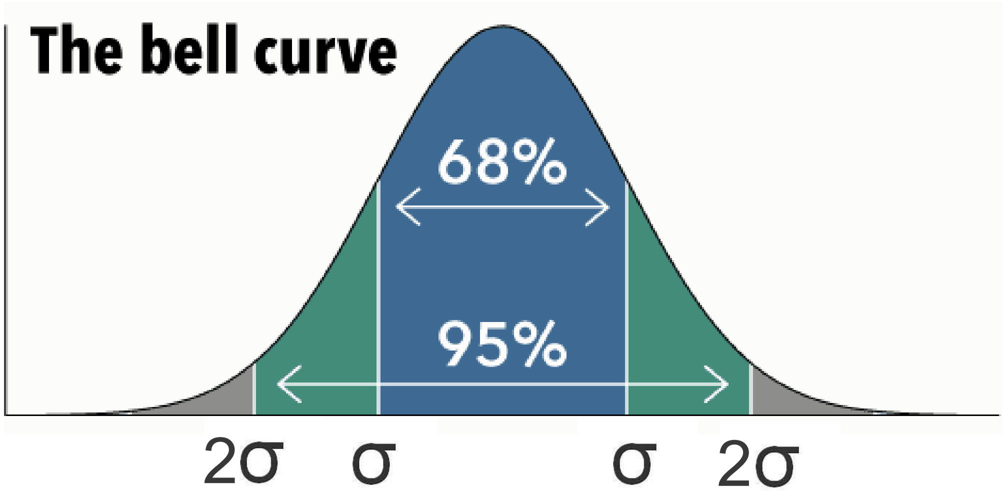
2022 Capital Market Assumptions, Correlations

	U.S. Equity	U.S. Small-Cap	Int'l Developed Equity	EM Equity	Non-US Small-Cap	Short Bonds	Core Bonds	Global Core	Intermediate IG Corp	Long IG Corp	EM Debt	High Yield	Bank Loans	Private Debt	REITs	PE RE	Infrastructure	Commodities	Hedge Funds	Private Equity	Cash
U.S. Equity	1.0																				
U.S. Small- Cap	0.9	1.0																			
Int'l Developed Equity	0.8	0.8	1.0																		
EM Equity	0.7	0.7	0.7	1.0																	
Non-US Small-Cap	0.8	0.8	0.9	0.8	1.0																
Short Bonds	0.2	0.2	0.1	0.1	0.1	1.0															
Core Bonds	**0.3**	0.3	0.2	0.2	0.2	0.5	1.0														
Global Core	0.2	0.2	0.2	0.2	0.2	0.4	0.4	1.0													
Intermediate IG Corp	0.3	0.3	0.2	0.2	0.2	0.7	0.9	0.9	1.0												
Long IG Corp	0.3	0.3	0.2	0.2	0.2	0.7	0.9	0.9	0.9	1.0											
EM Debt	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.4	1.0										
High Yield	**0.7**	0.7	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	1.0									
Bank Loans	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.7	0.7	1.0								
Private Debt	0.6	0.6	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.8	0.7	1.0							
REITs	0.5	0.5	0.4	0.4	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.0						
PE RE	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.2	0.4	0.8	1.0					
Infrastructure	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.4	0.5	1.0				
Commodities	0.1	0.1	0.1	0.2	0.1	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	1.0			
Hedge Funds	0.6	0.6	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	1.0		
Private Equity	0.7	0.7	0.6	0.6	0.6	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.2	0.5	0.4	0.4	0.4	0.1	0.5	1.0	
Cash	0.1	0.1	0.1	0.1	0.1	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0

Please refer to PFMAM's 2022 Capital Market Assumptions for a complete description of the methodology used to develop these assumptions and important disclosures. A copy of PFMAM's 2022 CMA is available upon request

Interpreting Capital Market Assumptions

- How do we interpret expected return and standard deviation (risk)?



Intermediate: Next 5 Years	Expected Return	Expected Risk
U.S. Equity	7.2%	16%
Core Bonds	-0.9%	5%

Long Term Projections: Next 30 Years	Expected Return	Expected Risk
U.S Equity	7.6%	16%
Core Bonds	3.9%	5%

For the intermediate term (up to 5 years), our capital market assumptions derive from our assessment of current economic conditions, including corporate profits, balance sheets, etc., and current valuations for various asset classes. Our long-term assumptions are derived using an economic building block approach that projects economic and corporate profit growth and takes into consideration the fundamental factors driving long-term real economic growth, our expectation for inflation, productivity and labor force growth.

IV. Are you Smarter than a Portfolio Manager?

Overview of the Investment Game

- The Investment Game will provide perspective on how sector allocation can impact investment performance through different market cycles.
- The game incorporates Bloomberg scenario analysis based on several historical and hypothetical market events to estimate asset class returns.
  - In the game we utilize 12 Passive “proxy” ETF’s representative of 12 different asset class subsectors
  - The scenario analysis incorporates market factors, 40 industry factors based on Bloomberg Industry Classification System (BICS), and 10 style factors including momentum, value, dividend yield, size, trading activity, earnings variability, profitability, volatility, growth, and leverage.

Style

Factors related to securities’ industry exposures

Market

Dominant source of underlying risk to market conditions

Industry

Factors that are related to securities’ fundamental characteristics

How to Play the Investment Game?

How to Play

1. Each team and our “Portfolio Manager” will build a multi-asset class allocation as a discretionary investment advisor. Your portfolio’s total allocation must add to 100%.
2. Each team’s sample portfolio will be put through a series of 4 market event “stress tests”. Some good, some bad.
3. The team with the highest blended average total return with the lowest standard deviation at the end of the scenarios will be declared the winner!

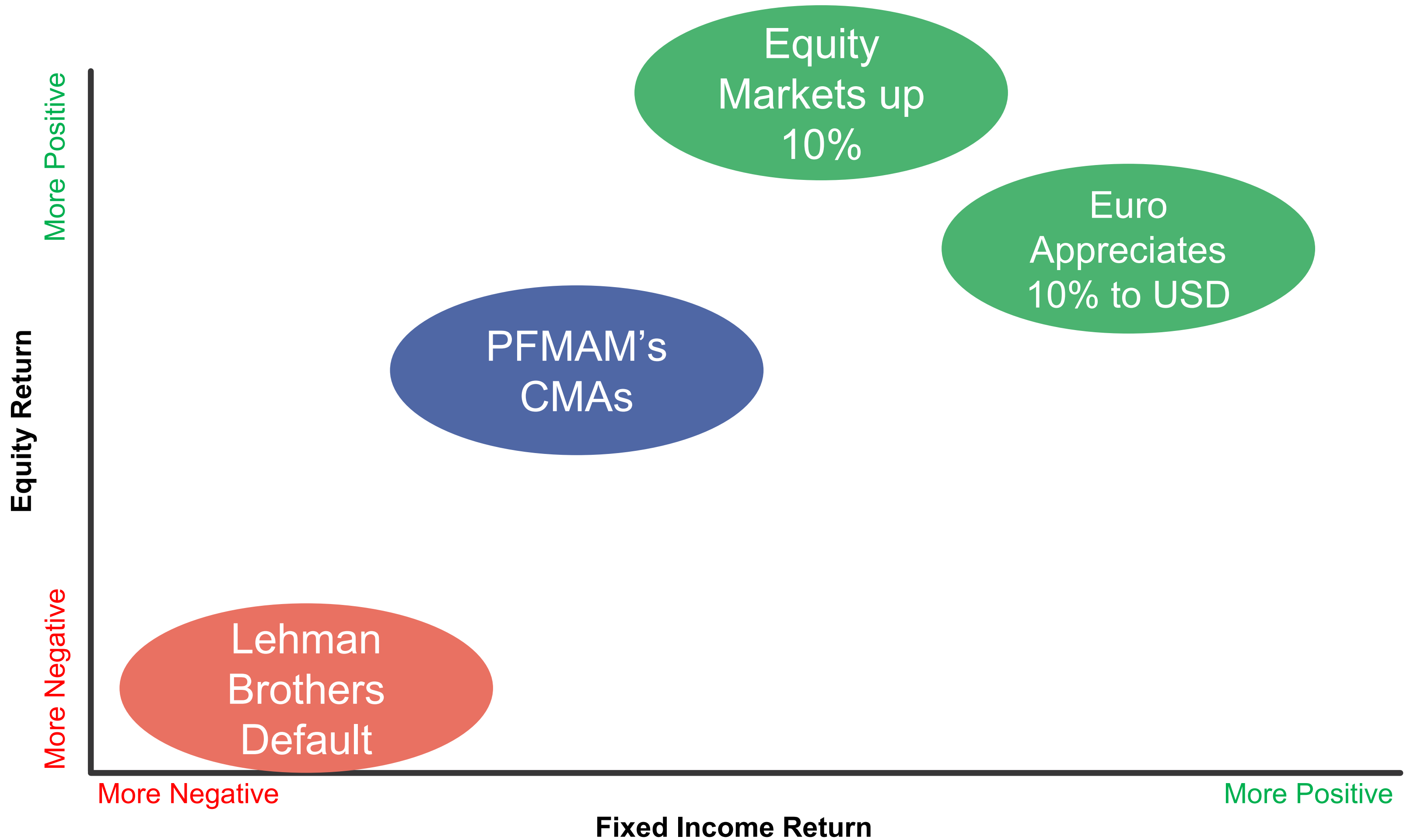
Investment Scenario

- Mature Property and Casualty Pool hires a new investment advisor (You!)
- Investable assets of $100 million
- No expected immediate cash flow needs
- Board has asked whether a 6% long-term investment goal is sustainable?
- Board has concerns about market volatility
- What should be the portfolio's strategic asset allocation?

List of Sectors and Proxy Index Funds to Choose From

Asset Class	Subsector	Proxy Fund
Domestic Equity	U.S. Equity	Vanguard Total Stock Market ETF
	U.S. Small-Cap	iShares Small Cap S&P 600 ETF
International Equity	International Developed Equity	iShares MSCI EAFE ETF
	Emerging Market Equity	iShares MSCI Emerging Markets ETF
	Non-US Small-Cap	iShares MSCI EAFE Small-Cap ETF
Fixed Income	Core Fixed	iShares Core U.S. AGG Bond ETF
	Investment Grade Corp	iShares iBoxx Investment Grade Corporate Bond ETF
	Emerging Market Debt	iShares Emerging Markets Bond ETF
	High Yield	iShares iBoxx High Yield Corporate Bond ETF
	Short Term Fixed	Vanguard Short-Term Bond ETF
Alternatives	REITS	iShares Global REIT ETF
	Commodities	Invesco DB Commodity Index Tracking Fund

Overview of Today's Scenarios



Investment Allocation Portfolio Template

Welcome to the MACM Investment Game!	
Sector Selection	**Team**
Domestic Equity	**XX%**
U.S. Equity All Cap	**XX%**
U.S. Small-Cap	**XX%**
International Equity	**XX%**
Int'l Developed Equity	**XX%**
EM Equity	**XX%**
Non-US Small-Cap	**XX%**
Fixed Income	**XX%**
Core Fixed	**XX%**
Inv. Grade Corp	**XX%**
EM Debt	**XX%**
High Yield	**XX%**
Short Term Fixed	**XX%**
Alternatives	**XX%**
REITS	**XX%**
Commodities	**XX%**

- Fill out the blue sample cells. Allocations must add up to 100%.

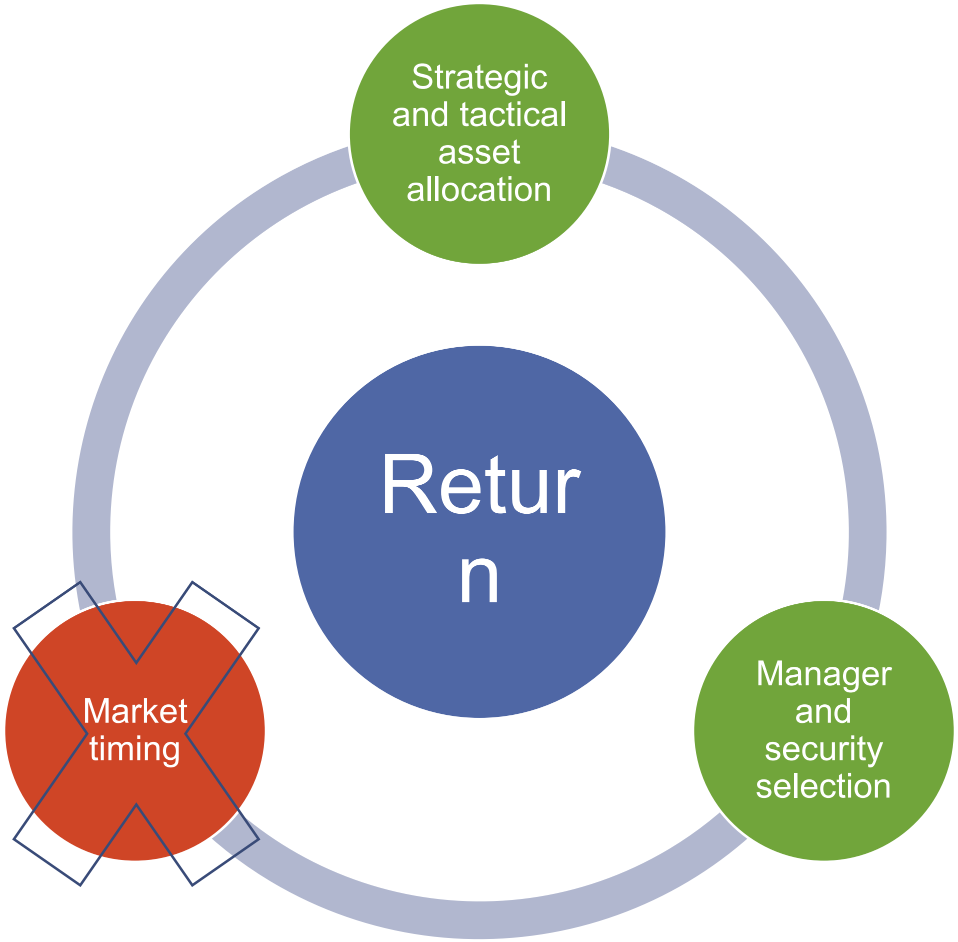
Scoreboard

Game Scoreboard			
Scenario	Team 1	Team 2	Portfolio Manager
Equities Up 10%			
EUR up 10% vs USD			
Lehman Default (2008)			
PFM CMA's			
Geometric Return			
Standard Deviation			

Champion: Team X

V. Conclusion

Sources of Investment Return



Asset Allocation / Diversification is Key

															2007 - 2021	
2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Ann.**	**Vol.**
EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Small Cap 20.0%	REITs 41.3%	Large Cap 10.6%	REITs 23.2%
Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	REITs 28.7%	EM Equity 18.7%	Large Cap 28.7%	Small Cap 8.7%	EM Equity 22.9%
DM Equity 11.6%	Asset Alloc. 25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	REITs -4.0%	Small Cap 25.5%	Large Cap 18.4%	Comdty. 27.1%	REITs 7.5%	Small Cap 22.5%
Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	Asset Alloc. 10.6%	Small Cap 14.8%	High Yield 6.6%	Comdty. 19.1%
Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	DM Equity 8.3%	Asset Alloc. 13.4%	Asset Alloc. 5.7%	DM Equity 18.9%
Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Fixed Income 7.5%	DM Equity 11.8%	EM Equity 4.8%	Large Cap 16.9%
Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Small Cap -11.0%	High Yield 12.6%	High Yield 7.0%	High Yield 1.0%	DM Equity 4.1%	High Yield 12.2%
High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Cash 0.5%	Cash 0.0%	Fixed Income 4.1%	Asset Alloc. 11.7%
Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Comdty. -3.1%	Fixed Income -1.5%	Cash 0.8%	Fixed Income 3.3%
REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	REITs -5.1%	EM Equity -2.2%	Comdty. -2.6%	Cash 0.7%

Source: JP Morgan Guide to the Markets 1Q22

Thank You

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The returns presented in this simulation are not actual returns experienced by a real investor, but rather simulated returns that we believe could have been achieved under controlled circumstances using a number of assumptions. No representation or warranty is made to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered.

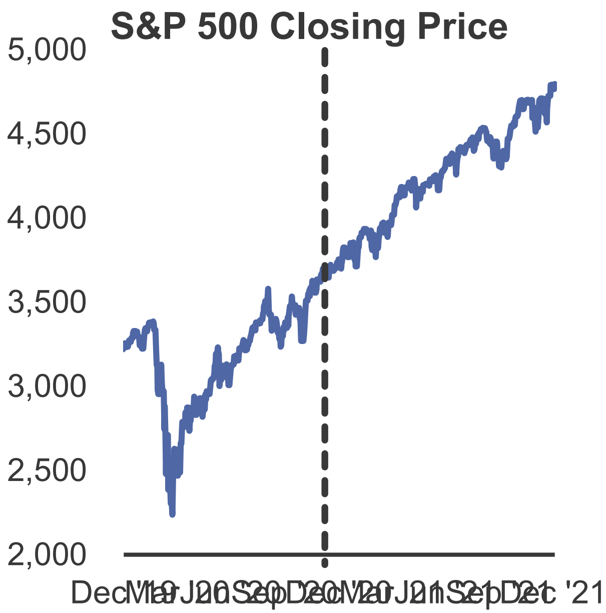
No assurance can be given as to whether the information and/or assumptions upon which this hypothetical performance is based reflect present market conditions or future market performance. Actual performance results may differ from this hypothetical performance presented. Changes in the assumptions may have a material impact on the hypothetical performance presented. Past performance is no guarantee of future results.

The material is provided to you on the understanding that, as a sophisticated investor, you will understand and accept its inherent limitations.

More Detailed Info On The Scenarios

Scenario 1: Equities Markets Rise 10%

- **<u>Description</u>:** Global, US, Europe, Asia, and Japan market factors up 10% and propagate a positive shock to global markets.
- In 2021 accommodative monetary and fiscal pandemic response induced bullish market sentiment and catapulted equity markets in similar fashion.



26.7%
2021 Total Return

Source: Bloomberg, as of 12/31/2021.

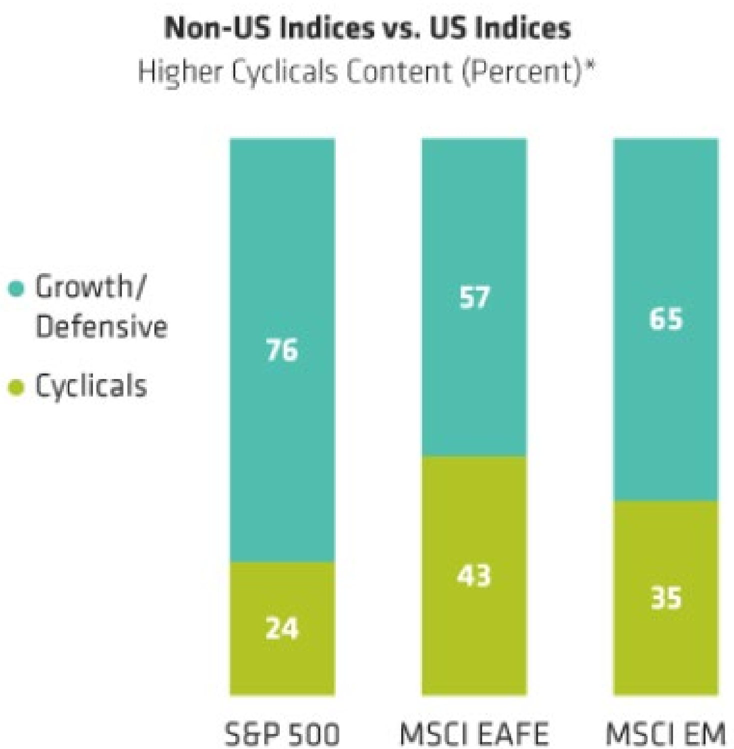
Equities Markets Rise 10%
Performance Recap

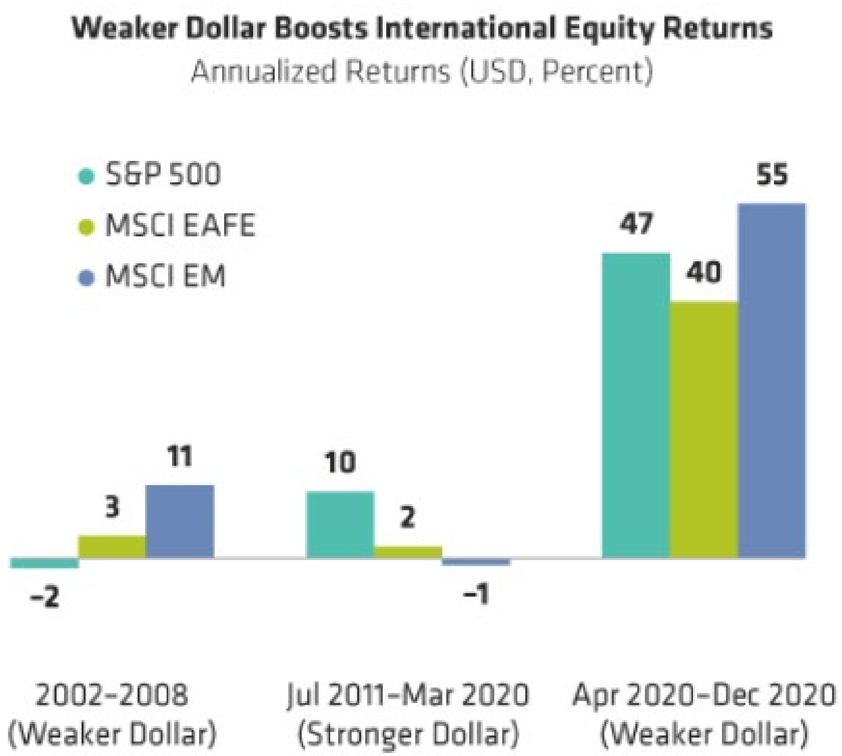
- Small-Caps outperform as investors are rewarded for taking increased risk.
- Real Estate valuations rise on the heels of positive economic up shocks.
- Less correlated fixed income funds as spreads remain subdued.

Subsector	Performance
U.S. Small-Cap	18.84%
REITS	15.80%
U.S. Equity	14.35%
Non-US Small-Cap	12.96%
International Developed Equity	12.78%
Emerging Market Equity	12.00%
Commodities	11.16%
EM Debt	3.01%
High Yield	2.05%
Investment Grade Corp	1.62%
Core Fixed	0.50%
Short Term Fixed	0.13%

Scenario 2: Euro appreciates 10% vs. USD

- **<u>Description</u>:** EUR up 10% vs. USD, propagated to other currencies and equity factors via correlation.
- Historically, a weaker U.S. Dollar has propagated enhanced international equity returns.





Source: Factset, MSCI, S&P, and AllianceBernstein (AB).
Data as of December 31, 2020

Euro appreciates 10% vs. USD Performance Recap

- International stocks outperform domestic as a weakening U.S. Dollar makes international stocks more attractive.
- Fixed income returns remain subdued, however emerging market debt strongly outperforms.

Subsector	Performance
Non-US Small-Cap	11.64%
REITS	11.46%
Int'l Developed Equity	10.41%
EM Equity	9.62%
U.S. Small-Cap	8.21%
Commodities	6.35%
U.S. Equity	5.73%
EM Debt	4.24%
Inv. Grade Corp	3.31%
High Yield	2.13%
Core Fixed	1.73%
Short Term Fixed	0.68%

Scenario 3: 2008 Lehman Brothers Default

- **Description**: The U.S. Financial Crisis from market high on October 9, 2007 to market bottom on March 5, 2009.
- On September 15, 2008 Lehman Brothers, at the time the U.S.'s 4th largest investment bank, filed for bankruptcy as it was unable to raise liquidity through its high-risk exposure to real estate and subprime mortgages.
- Similarly, highly leveraged, short-funded financial firms experienced the same runs on liquidity, leading to the largest financial collapse since the Great Depression.

Image by Google

2008 Lehman Brothers Default Performance Recap

- The real estate bubble bursts and exposure to public real estate and large banks creates significant losses
- High quality fixed income significantly outperform equity exposures.

Subsector	Performance
Short Term Fixed	-0.76%
Core Fixed	-5.40%
High Yield	-10.01%
EM Debt	-11.87%
Inv. Grade Corp	-12.22%
Commodities	-15.28%
EM Equity	-17.85%
Int'l Developed Equity	-19.27%
U.S. Equity	-20.77%
Non-US Small-Cap	-21.44%
U.S. Small-Cap	-21.80%
REITS	-24.88%

Scenario 4: PFM’s 2022 Capital Market Assumptions

Description: PFM’s 2022 Capital Market Assumptions and correlations

- For 2022 CMAs, we increased our **US equity** return expectations due to expectations of strong corporate revenue and profit growth
- For **non-U.S. developed-market equities**, we have similarly increased our return expectations as economies continue to recover from the pandemic-induced recession of 2020 and are helped by fiscal and monetary stimulus
- For **emerging-markets equities**, we are more cautious vs investor consensus as we expect global trade growth to moderate
- For the **fixed-income markets**, we have sharply reduced our expectations due to heightened inflationary pressures and hawkish Fed sentiment
- For **REITs**, we assume modest risk/return dynamics as public REITS tend hold high-quality, core real estate property

PFM 2022 Capital Market Assumptions Performance Recap

Subsector	Performance
U.S. Small-Cap	8.80%
Non-US Small-Cap	8.10%
Int'l Developed Equity	7.50%
EM Equity	7.50%
U.S. Equity	7.20%
REITS	6.30%
Commodities	2.80%
EM Debt	2.50%
High Yield	2.40%
Inv. Grade Corp	0.10%
Short Term Fixed	-0.10%
Core Fixed	-0.90%

Important Factors in Portfolio Construction

Tactical Asset Allocation

- Defined as a temporary deviation from the strategic asset allocation
  - Investment opportunities may present themselves to overweight or underweight specific asset classes to capture return and/or manage for uncompensated risk
  - For example, if we believe that equities are temporarily cheap and fixed income is expensive, we may shift some assets from fixed income to equities to take advantage of relative valuations
- An effective implementation of tactical asset allocation decisions must involve
  - An understanding of the economics of the investment
  - Estimating the intrinsic value of the asset under consideration
  - Comparing the intrinsic value with the current price

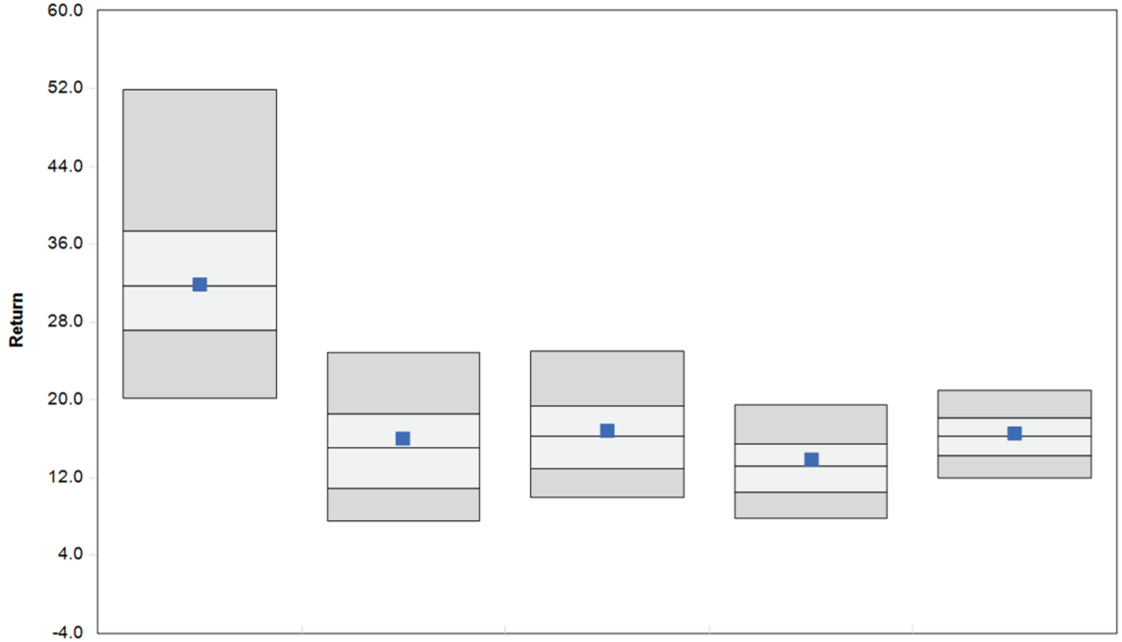
Considering Active vs. Passive Management

- Active management
  - An active manager will buy or overweight securities they believe will outperform the market and sell or underweight securities they believe will underperform the market
  - Active management can follow technical, quantitative, or fundamental analysis
  - Investors should expect higher risk-adjusted returns relative to the market, however, the potential success of an active manager in achieving this goal is correlated with their talent and the efficiency of the asset class
- Passive management
  - A strategy that indexes to a specific benchmark and replicates investments to the same weighting of the underlying
  - In some instances, a sampling approach can be used
  - Investors can expect market returns at a low cost

Domestic Equity – Utilize Passive Management

Peer Group Analysis — **As of September 30, 2021**

IM U.S. All Cap Equity (SA+CF+MF)



	1 Year	3 Years	5 Years	7 Years	10 Years
■ Russell 3000 Index	31.88 (50)	16.00 (44)	16.85 (46)	13.93 (43)	16.60 (45)
Median	31.81	15.08	16.29	13.18	16.25
Population	1,690	1,594	1,437	1,259	1,035

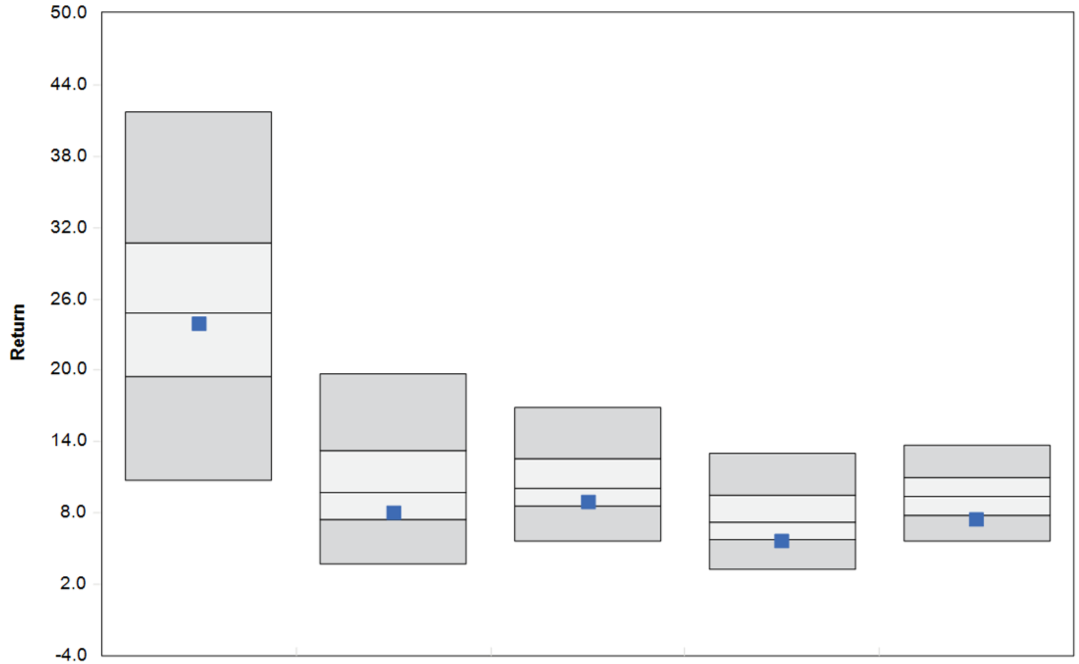
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.
Returns are and are expressed as percentages.

Source: Investment Metrics. As of 9-30-2021; returns are gross of manager fees; index is net of fees.

Int’l Equity – Utilize Active & Passive Management

Peer Group Analysis **As of September 30, 2021**

IM International Equity (SA+CF+MF)



	1 Year	3 Years	5 Years	7 Years	10 Years
■ MSCI AC World ex USA (Net)	23.92 (54)	8.03 (69)	8.94 (69)	5.68 (77)	7.48 (79)
Median	24.78	9.77	10.07	7.25	9.33
Population	3,842	3,510	3,071	2,601	2,051

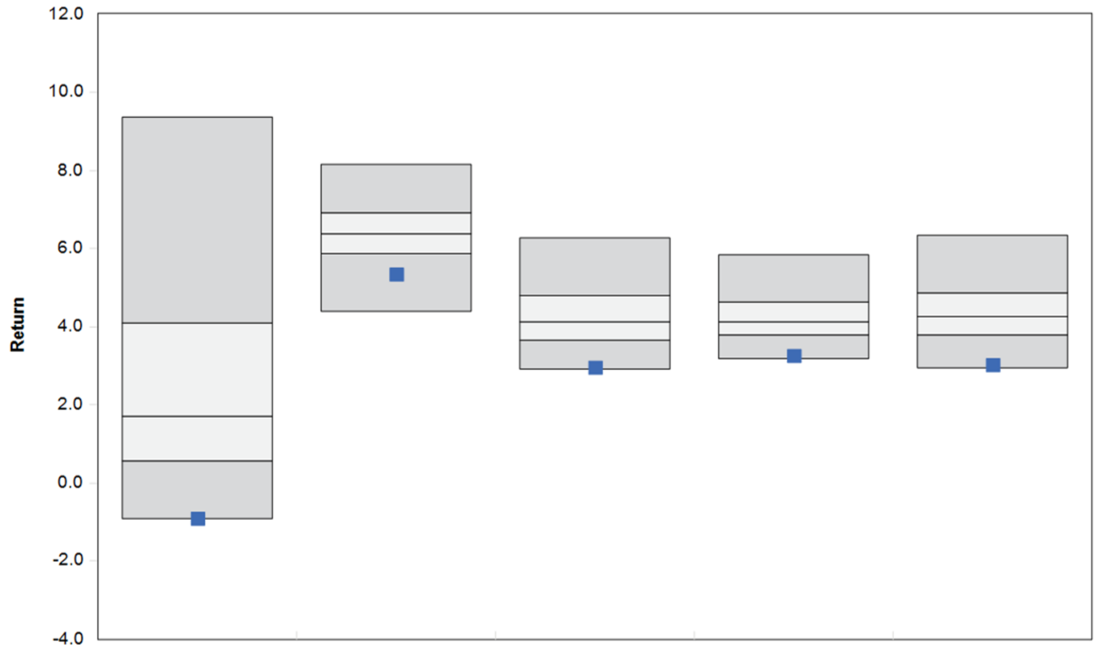
Parentheses contain percentile rankings.
Calculation based on monthly periodicity.
Returns are and are expressed as percentages.

Source: Investment Metrics. As of 9-30-2021; returns are gross of manager fees; index is net of fees.

Fixed Income – Utilize Active Management

Peer Group Analysis | **As of September 30, 2021**

IM U.S. Broad Market Fixed Income (SA+CF+MF)



	1 Year	3 Years	5 Years	7 Years	10 Years
■ Blmbg. U.S. Aggregate	-0.90 (95)	5.35 (88)	2.94 (95)	3.26 (94)	3.01 (95)
Median	1.73	6.40	4.13	4.13	4.26
Population	1,517	1,363	1,211	1,046	870

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.
Returns are and are expressed as percentages.

Source: Investment Metrics. As of 9-30-2021; returns are gross of manager fees; index is net of fees.