

VIAIV

Q4

Quarterly Market Review

Fourth Quarter 2021

# Quarterly Market Review

Fourth Quarter 2021

This report features world capital market performance and a timeline of events for the past quarter. It begins with a global overview, then features the returns of stock and bond asset classes in the US and international markets.

The report also illustrates the impact of globally diversified portfolios and features a quarterly topic.

## Overview:

Market Summary

World Stock Market Performance

US Stocks

International Developed Stocks

Emerging Markets Stocks

Country Returns

Real Estate Investment Trusts (REITs)

Commodities

Fixed Income

Global Fixed Income

Impact of Diversification

Quarterly Topic: All-Time-High Anxiety

Appendix

# Quarterly Market Summary

## Index Returns

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
<b>4Q 2021</b>	<b>STOCKS</b>				<b>BONDS</b>	
	<b>9.28%</b> 	<b>3.14%</b> 	<b>-1.31%</b> 	<b>12.35%</b> 	<b>0.01%</b> 	<b>0.07%</b> 
<b>Since Jan. 2001</b>						
Average Quarterly Return	2.5%	1.7%	2.9%	2.7%	1.1%	1.1%
Best Quarter	22.0%	25.9%	34.7%	32.3%	4.6%	4.6%
	<b>2020 Q2</b>	<b>2009 Q2</b>	<b>2009 Q2</b>	<b>2009 Q3</b>	<b>2001 Q3</b>	<b>2008 Q4</b>
Worst Quarter	-22.8%	-23.3%	-27.6%	-36.1%	-3.4%	-2.7%
	<b>2008 Q4</b>	<b>2020 Q1</b>	<b>2008 Q4</b>	<b>2008 Q4</b>	<b>2021 Q1</b>	<b>2015 Q2</b>

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# Long-Term Market Summary

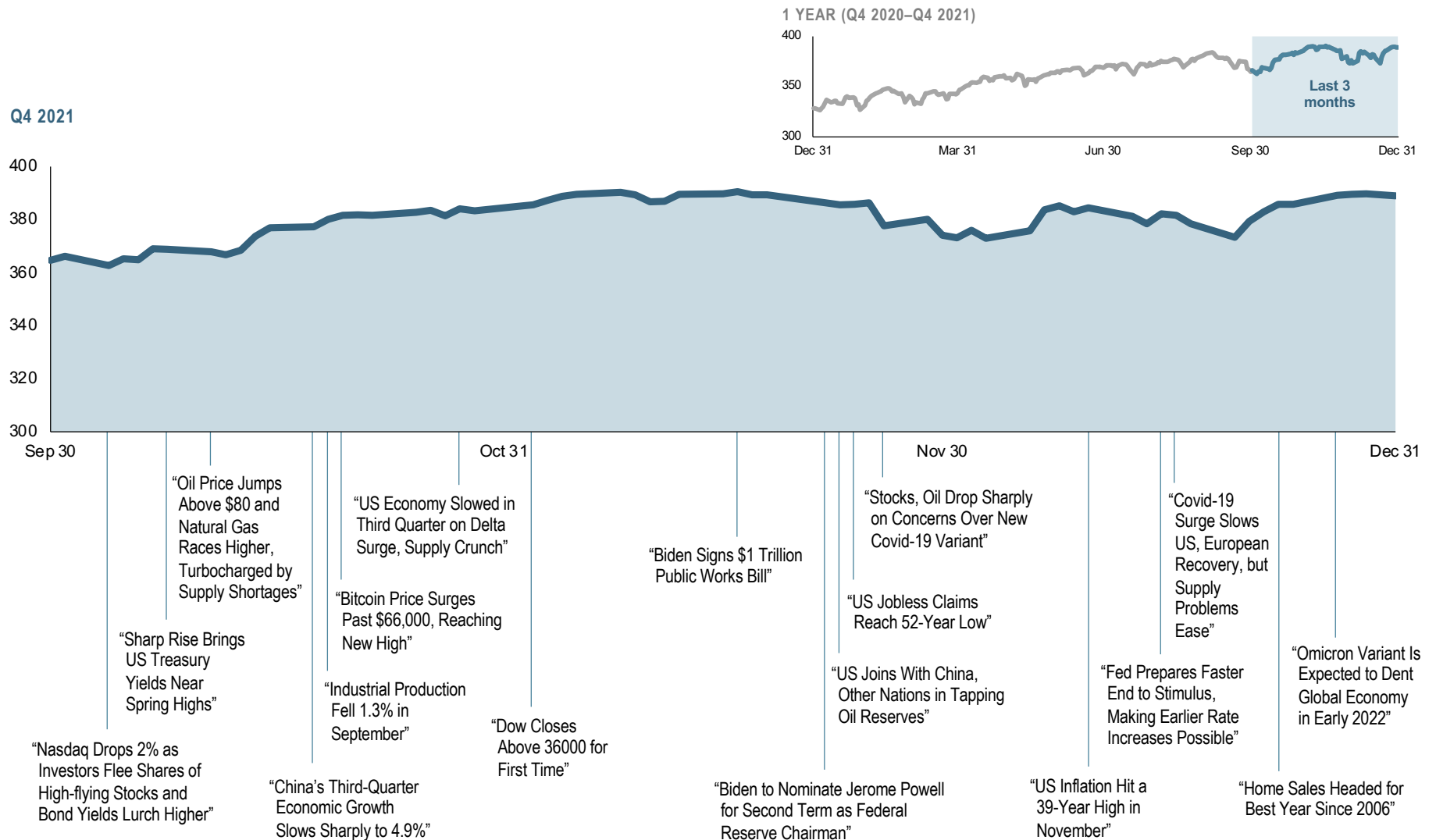
Index Returns as of December 31, 2021

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
1 Year	STOCKS				BONDS	
	25.66% 	12.62% 	-2.54% 	31.38% 	-1.54% 	-1.40% 
5 Years	17.97% 	9.63% 	9.87% 	8.25% 	3.57% 	3.11% 
10 Years	16.30% 	7.84% 	5.49% 	9.01% 	2.90% 	3.80% 

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# World Stock Market Performance

MSCI All Country World Index with selected headlines from Q4 2021



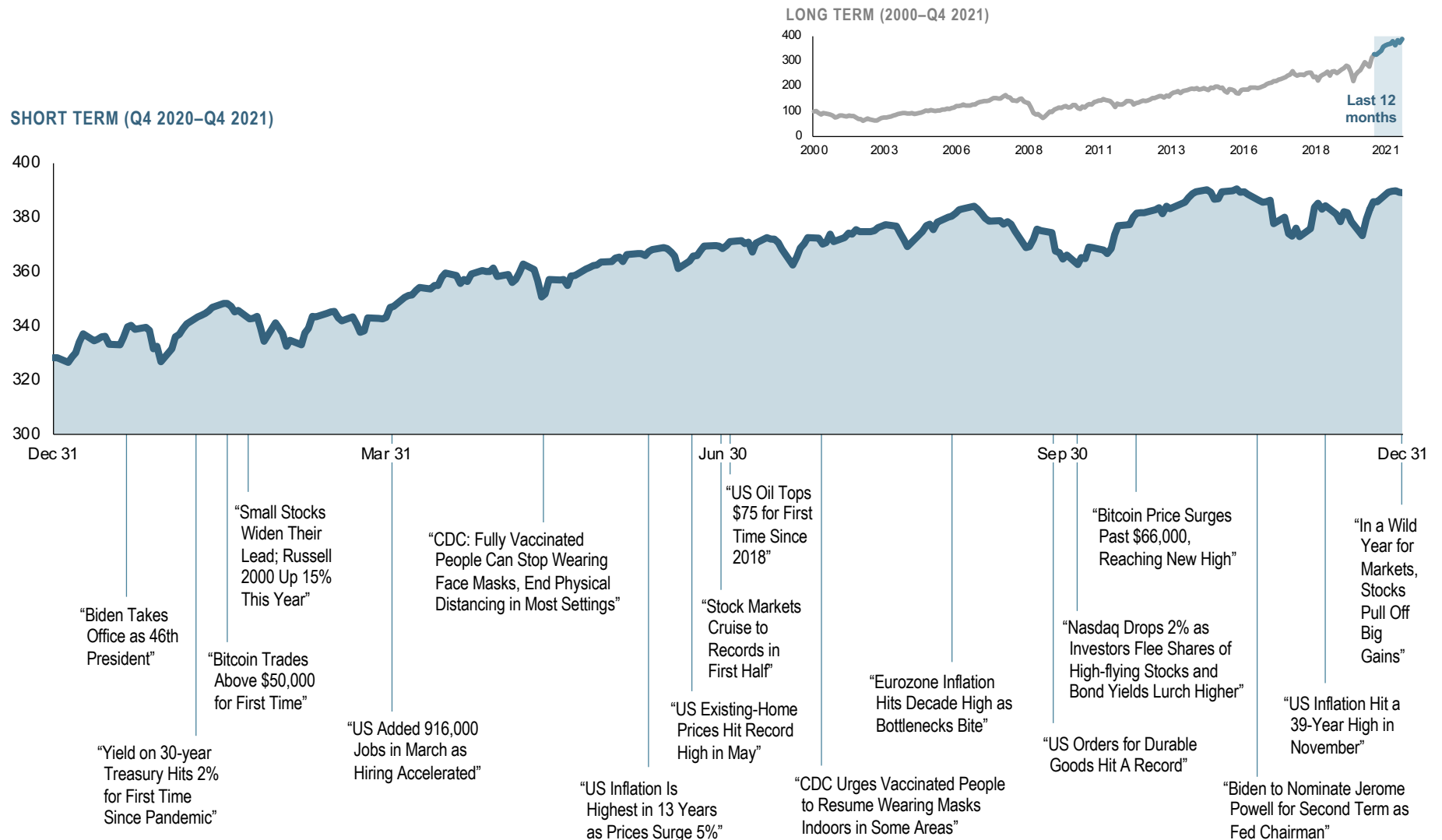
*These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.*

Graph Source: MSCI ACWI Index [net dividends]. MSCI data © MSCI 2022, all rights reserved.

It is not possible to invest directly in an index. Performance does not reflect the expenses associated with management of an actual portfolio. **Past performance is not a guarantee of future results.**

# World Stock Market Performance

MSCI All Country World Index with selected headlines from past 12 months



*These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.*

Graph Source: MSCI ACWI Index [net dividends]. MSCI data © MSCI 2022, all rights reserved.

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# US Stocks

## Fourth Quarter 2021 Index Returns

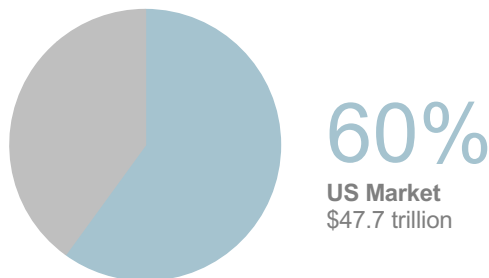
The US equity market posted positive returns for the year and outperformed non-US developed and emerging markets.

Value underperformed growth in large cap stocks but outperformed growth in small cap stocks.

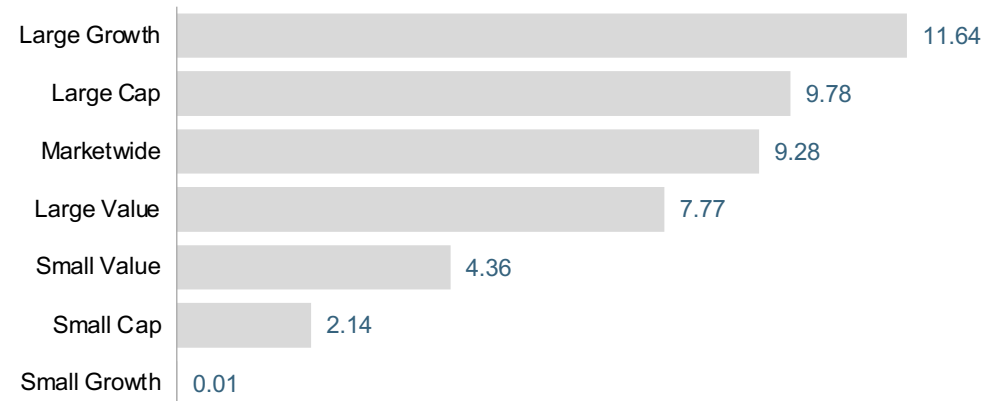
Small caps underperformed large caps.

REIT indices outperformed equity market indices.

### World Market Capitalization—US



### Ranked Returns (%)



### Period Returns (%)

Asset Class	QTR	1 Year	* Annualized		
			3 Years*	5 Years*	10 Years*
Large Growth	11.64	27.60	34.08	25.32	19.79
Large Cap	9.78	26.45	26.21	18.43	16.54
Marketwide	9.28	25.66	25.79	17.97	16.30
Large Value	7.77	25.16	17.64	11.16	12.97
Small Value	4.36	28.27	17.99	9.07	12.03
Small Cap	2.14	14.82	20.02	12.02	13.23
Small Growth	0.01	2.83	21.17	14.53	14.14

Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Market segment (index representation) as follows: Marketwide (Russell 3000 Index), Large Cap (Russell 1000 Index), Large Value (Russell 1000 Value Index), Large Growth (Russell 1000 Growth Index), Small Cap (Russell 2000 Index), Small Value (Russell 2000 Value Index), and Small Growth (Russell 2000 Growth Index). World Market Cap represented by Russell 3000 Index, MSCI World ex USA IMI Index, and MSCI Emerging Markets IMI Index. Russell 3000 Index is used as the proxy for the US market. Dow Jones US Select REIT Index used as proxy for the US REIT market. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. MSCI data © MSCI 2022, all rights reserved.

# International Developed Stocks

## Fourth Quarter 2021 Index Returns

Developed markets outside the US posted positive returns for the year, underperforming US equities but outperforming emerging markets equities.

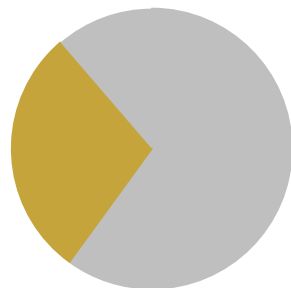
Value outperformed growth.

Small caps underperformed large caps.

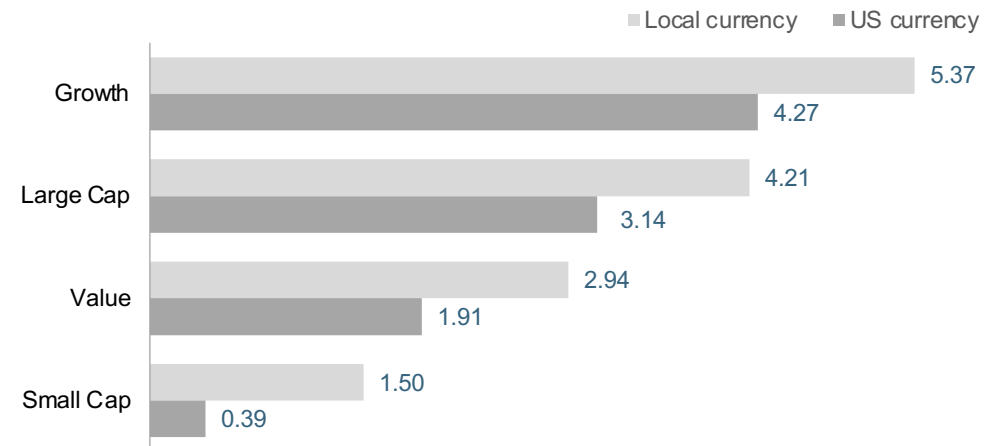
### World Market Capitalization—International Developed

29%

International  
Developed Market  
\$22.8 trillion



### Ranked Returns (%)



### Period Returns (%)

Asset Class	QTR	1 Year	* Annualized		
			3 Years*	5 Years*	10 Years*
Growth	4.27	11.57	19.11	13.37	9.66
Large Cap	3.14	12.62	14.07	9.63	7.84
Value	1.91	13.26	8.66	5.69	5.83
Small Cap	0.39	11.14	16.27	11.03	9.99

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Market segment (index representation) as follows: Large Cap (MSCI World ex USA Index), Small Cap (MSCI World ex USA Small Cap Index), Value (MSCI World ex USA Value Index), and Growth (MSCI World ex USA Growth Index). All index returns are net of withholding tax on dividends. World Market Cap represented by Russell 3000 Index, MSCI World ex USA IMI Index, and MSCI Emerging Markets IMI Index. MSCI World ex USA IMI Index is used as the proxy for the International Developed market. MSCI data © MSCI 2022, all rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.



# Emerging Markets Stocks

## Fourth Quarter 2021 Index Returns

Emerging markets fell 2.5% for the year, underperforming both US and non-US developed equity markets.

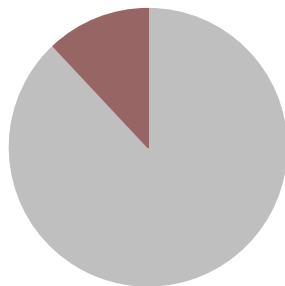
Value outperformed growth.

Small caps outperformed large caps.

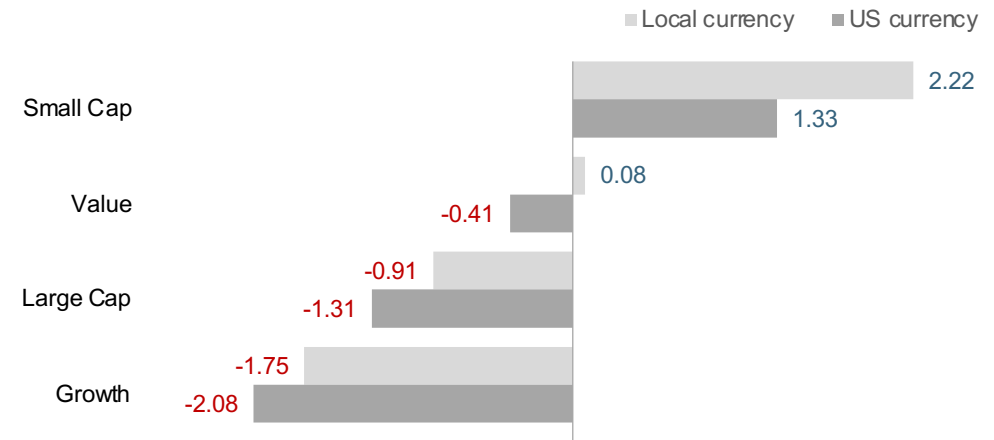
### World Market Capitalization—Emerging Markets

11%

Emerging Markets  
\$9.0 trillion



### Ranked Returns (%)



### Period Returns (%)

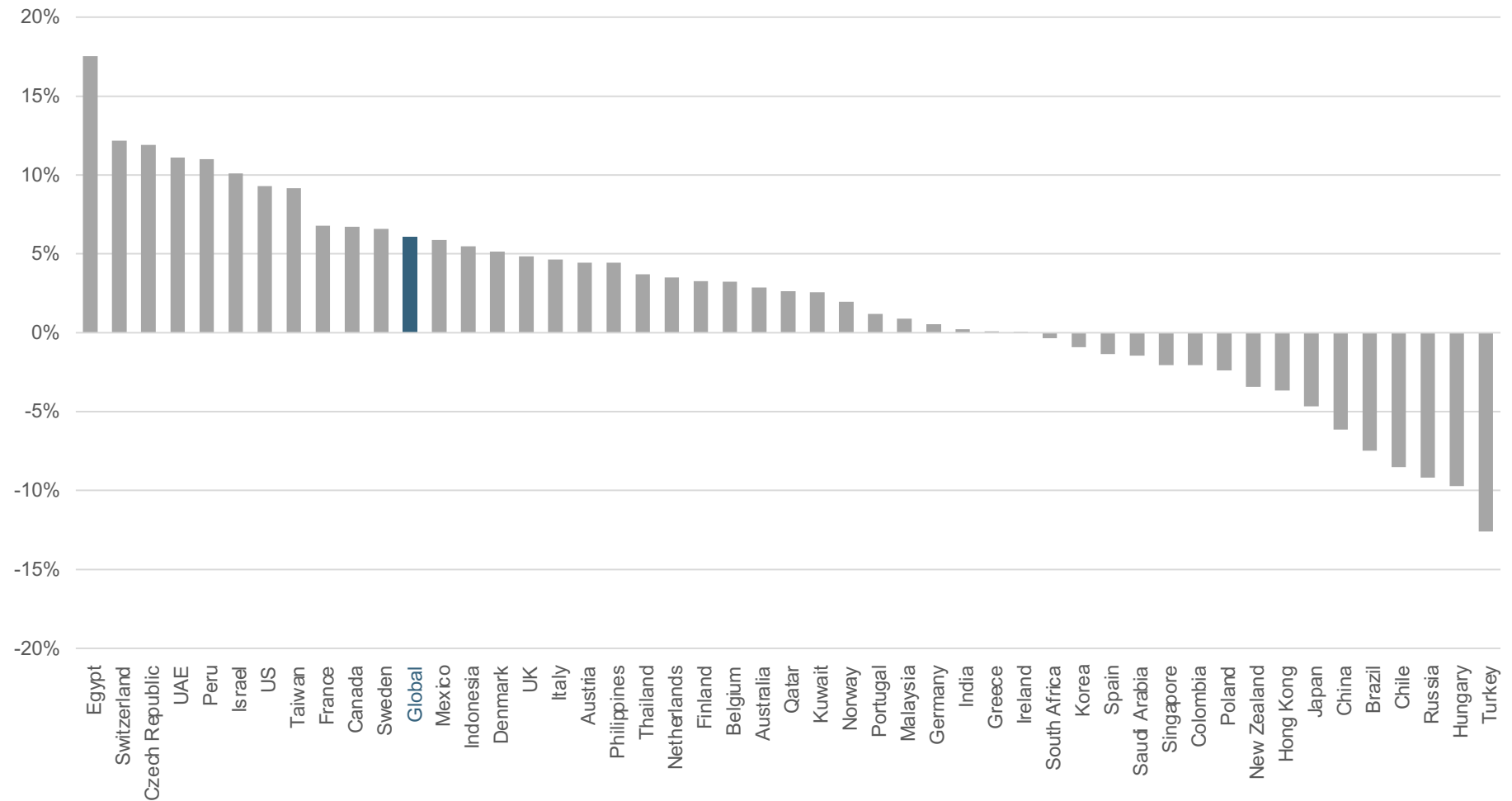
\* Annualized

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Small Cap	1.33	18.75	16.46	11.47	7.42
Value	-0.41	4.00	7.08	7.02	3.31
Large Cap	-1.31	-2.54	10.94	9.87	5.49
Growth	-2.08	-8.41	14.60	12.55	7.52

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# Country Returns

## Fourth Quarter 2021 Index Returns



**Past performance is no guarantee of future results.**

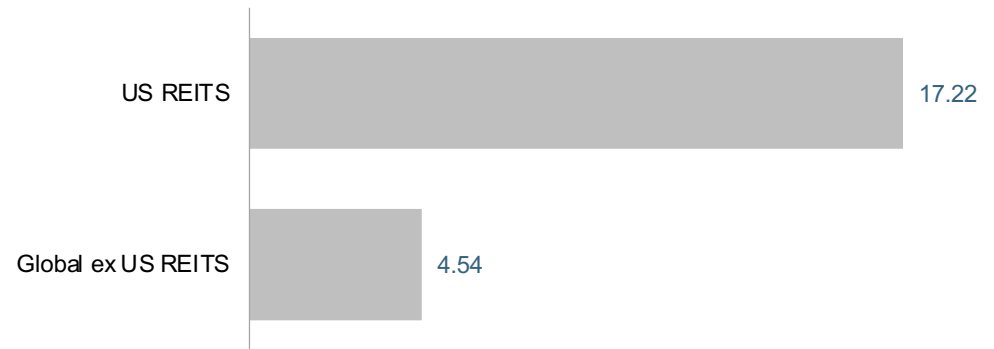
Country returns are the country component indices of the MSCI All Country World IMI Index for all countries except the United States, where the Russell 3000 Index is used instead. Global is the return of the MSCI All Country World IMI Index. MSCI index returns are net dividend. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Frank Russell Company is the source and owner of the trademarks, service marks and copyrights related to the Russell Indexes. MSCI data © MSCI 2022, all rights reserved.

# Real Estate Investment Trusts (REITs)

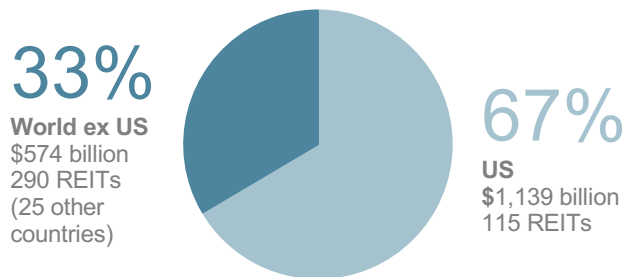
## Fourth Quarter 2021 Index Returns

US real estate investment trusts outperformed non-US REITs during the year.

### Ranked Returns (%)



### Total Value of REIT Stocks



### Period Returns (%)

Asset Class	QTR	1 Year	* Annualized		
			3 Years*	5 Years*	10 Years*
US REITs	17.22	45.91	16.84	9.65	10.70
Global ex US REITs	4.54	12.70	7.79	6.04	7.17

Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Number of REIT stocks and total value based on the two indices. All index returns are net of withholding tax on dividends. Total value of REIT stocks represented by Dow Jones US Select REIT Index and the S&P Global ex US REIT Index. Dow Jones US Select REIT Index used as proxy for the US market, and S&P Global ex US REIT Index used as proxy for the World ex US market. Dow Jones and S&P data © 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.

# Commodities

## Fourth Quarter 2021 Index Returns

The Bloomberg Commodity Index Total Return returned -1.56% for the fourth quarter of 2021.

Soybean Meal and Zinc were the best performers, advancing 20.86% and 19.57%, respectively.

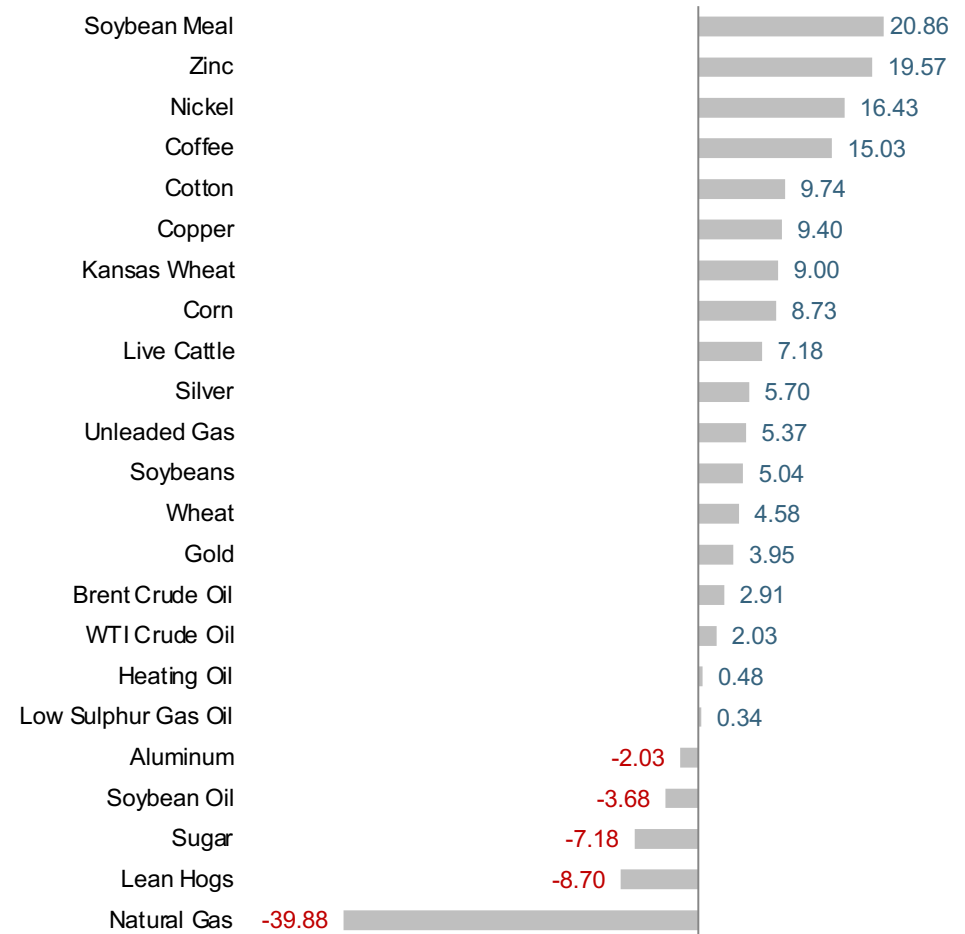
Natural Gas and Lean Hogs were the worst performers, declining 39.88% and 8.70%, respectively.

### Period Returns (%)

\* Annualized

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Commodities	-1.56	27.11	9.86	3.66	-2.85

### Ranked Returns (%)



# Fixed Income

## Fourth Quarter 2021 Index Returns

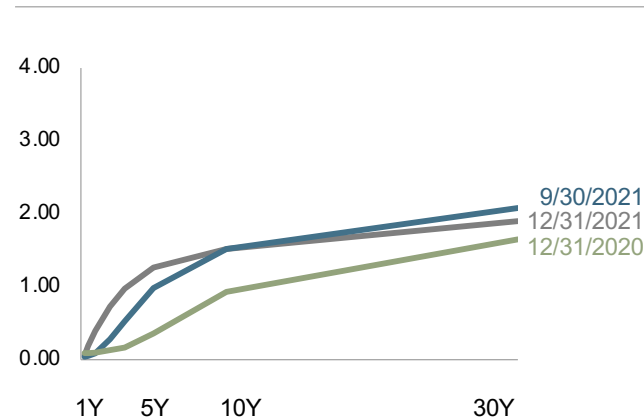
Interest rate movements in the US Treasury fixed income market were mixed during the fourth quarter. The yield on the 5-year US Treasury note increased 28 basis points (bps) to 1.26%. The yield on the 10-year US Treasury note remained unchanged at 1.52%. The 30-year US Treasury bond yield decreased 18 bps to 1.90%.

On the short end of the yield curve, the 1-month US Treasury bill yield decreased 1 basis point, ending at 0.06%, while the 1-year US Treasury bill yield increased 30 bps to 0.39%. The 2-year US Treasury note yield increased 45 bps to 0.73%.

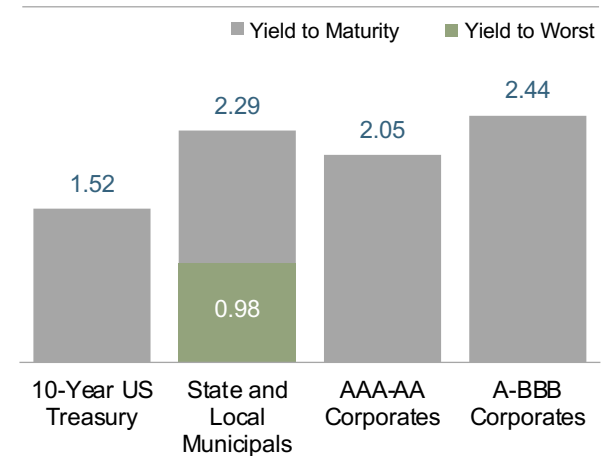
In terms of total returns, short-term corporate bonds lost 0.68%. Intermediate-term corporate bonds declined 0.56%.

The total return for short-term municipal bonds was -0.05%, while intermediate-term municipal bonds gained 0.27%. Revenue bonds performed in line with general obligation bonds.

### US Treasury Yield Curve (%)



### Bond Yield Across Issuers (%)



### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Bloomberg US Government Bond Index Long	3.05	-4.57	8.78	6.53	4.53
Bloomberg US TIPS Index	2.36	5.96	8.44	5.34	3.09
Bloomberg Municipal Bond Index	0.72	1.52	4.73	4.17	3.72
Bloomberg US High Yield Corporate Bond Index	0.71	5.28	8.83	6.30	6.83
Bloomberg US Aggregate Bond Index	0.01	-1.54	4.79	3.57	2.90
ICE BofA US 3-Month Treasury Bill Index	0.01	0.05	0.99	1.14	0.63
ICE BofA 1-Year US Treasury Note Index	-0.18	-0.07	1.55	1.42	0.86
FTSE World Government Bond Index 1-5 Years (hedged to USD)	-0.52	-0.80	2.07	1.89	1.66
FTSE World Government Bond Index 1-5 Years	-1.41	-4.43	1.38	1.79	-0.33

One basis point (bps) equals 0.01%. Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Yield curve data from Federal Reserve. State and local bonds, and the Yield to Worst are from the S&P National AMT-Free Municipal Bond Index. AAA-AA Corporates represent the ICE BofA US Corporates, AA-AAA rated. A-BBB Corporates represent the ICE BofA Corporates, BBB-A rated. Bloomberg data provided by Bloomberg. US long-term bonds, bills, inflation, and fixed income factor data © Stocks, Bonds, Bills, and Inflation (SBBI) Yearbook™, Ibbotson Associates, Chicago (annually updated work by Roger G. Ibbotson and Rex A. Sinquefeld). FTSE fixed income indices © 2022 FTSE Fixed Income LLC, all rights reserved. ICE BofA index data © 2022 ICE Data Indices, LLC. S&P data © 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.

# Global Fixed Income

## Fourth Quarter 2021 Yield Curves

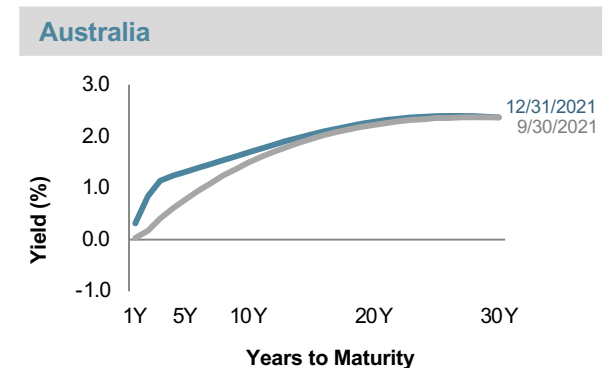
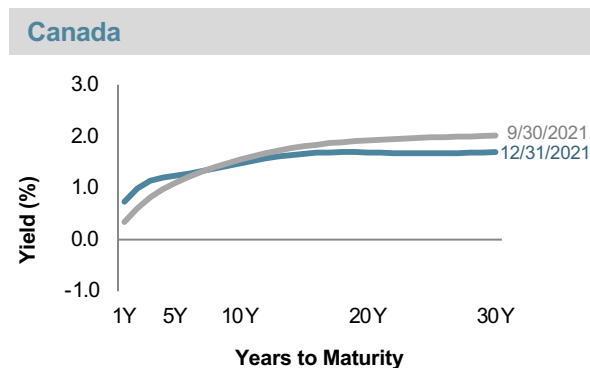
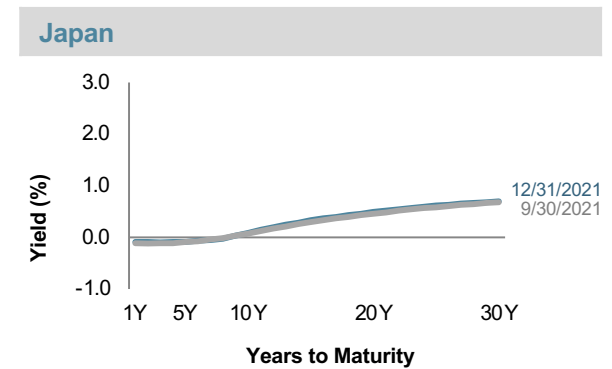
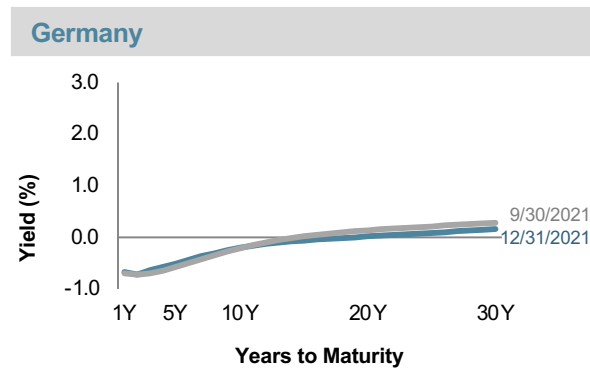
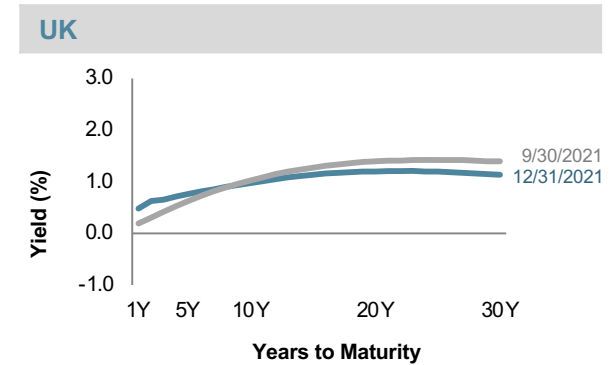
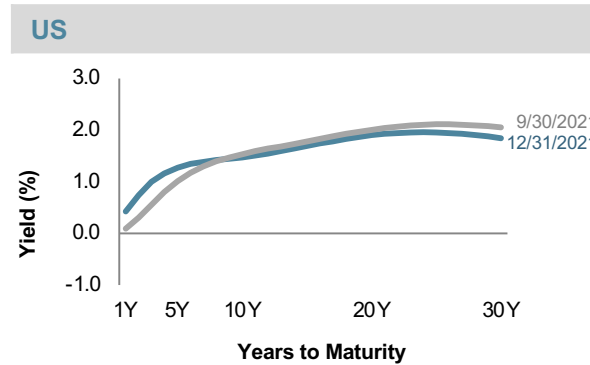
Government bond yield movements in the global developed markets were mixed for the quarter. Interest rates in many global developed markets increased along the shorter end but decreased along the longer end of their respective curves.

Term premiums were mixed in developed markets. Long-term bonds were generally the best performers, and intermediate-term bonds were generally the worst performers.

Short- and intermediate-term nominal interest rates were negative in Japan and Germany.

### Changes in Yields (bps) since 9/30/2021

	1Y	5Y	10Y	20Y	30Y
US	33.3	26.5	-6.0	-10.8	-20.8
UK	28.9	13.3	-5.1	-19.2	-26.4
Germany	2.2	7.3	0.8	-12.1	-12.0
Japan	2.1	0.1	1.2	3.3	1.8
Canada	39.3	14.0	-7.4	-23.6	-32.0
Australia	28.3	53.6	20.6	5.7	1.0



# Impact of Diversification

As of November 30, 2021

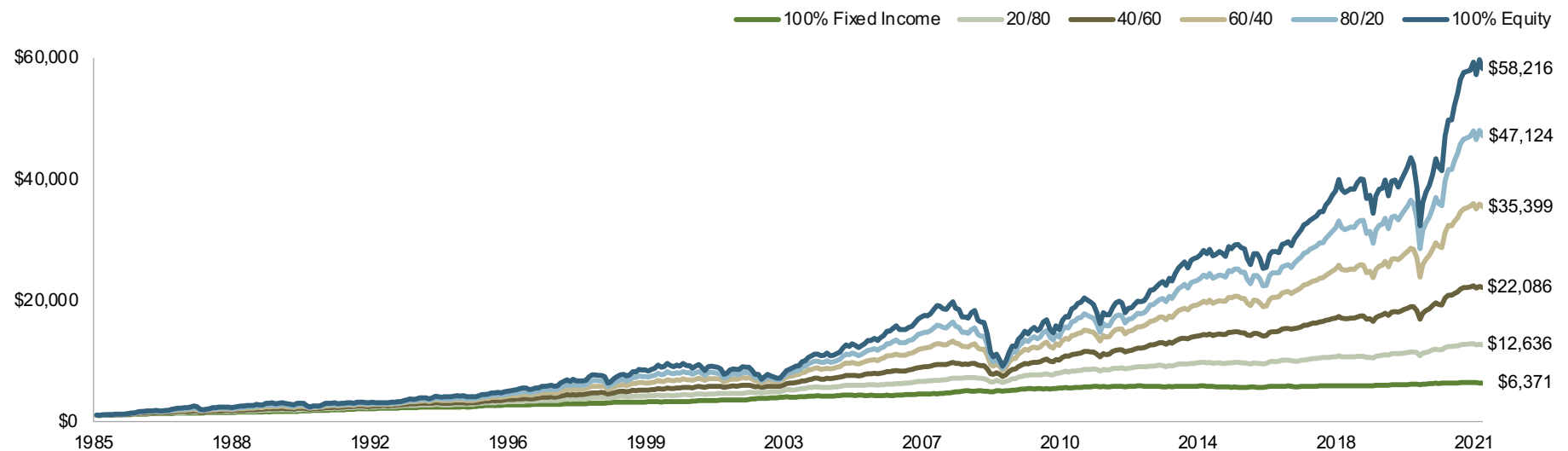
These indices illustrate the performance of different global stock/bond mixes and highlight the benefits of diversification. Mixes with larger allocations to stocks are considered riskier but have higher expected returns over time.

## Period Returns (%)

\* Annualized

Dimensional Core Plus Wealth Index Model	3 Month	1 Year	3 Years*	5 Years*	10 Years*	10-Year STDEV <sup>1</sup>
100% Equity	-1.78	23.54	15.92	14.01	12.71	14.06
80/20	-1.65	18.55	14.51	12.50	11.57	11.73
60/40	-1.54	13.35	12.61	10.53	9.76	9.04
40/60	-1.43	8.37	9.15	7.57	7.17	6.12
20/80	-1.67	3.23	5.98	4.87	4.05	3.71
100% Fixed Income	-1.02	0.33	2.65	2.08	1.04	1.72

## Growth of Wealth: The Relationship Between Risk and Return



1. STDEV (standard deviation) is a measure of the variation or dispersion of a set of data points. Standard deviations are often used to quantify the historical return volatility of a security or portfolio.

**Diversification does not eliminate the risk of market loss. For illustrative purposes only. Past performance is no guarantee of future results.** The performance reflects the growth of a hypothetical \$1,000. Assumes all models have been rebalanced monthly. See appendix for allocation information. All performance results are based on performance of indexes with model/back-tested asset allocations; the performance was achieved with the benefit of hindsight; it does not represent actual investment strategies. The index models are unmanaged and the model's performance does not reflect advisory fees or other expenses associated with the management of an actual portfolio. In particular, Model performance may not reflect the impact that economic and market factors may have had on the advisor's decision making if the advisor were actually managing client money. The models are not recommendations for an actual allocation. Indices are not available for direct investment. Backtested performance results assume the reinvestment of dividends and capital gains. Sources: Dimensional Fund Advisors LP for Dimensional Indices. Copyright 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.

# Quarterly Topic: All-Time-High Anxiety

Fourth Quarter 2021

Weston Wellington  
Vice President

Investors are often conflicted about record-high stock prices. They are pleased to see their existing equity holdings gain in value but apprehensive that higher prices somehow foreshadow a dramatic downturn in the future. And they may be reluctant to make new purchases since the traditional “buy low, sell high” mantra suggests committing funds to stocks at an all-time high is a surefire recipe for disappointment.

Financial journalists periodically stoke investors’ record-high anxiety by suggesting the laws of physics apply to financial markets—that what goes up must come down. “Stocks Head Back to Earth,” read a headline in the *Wall Street Journal* in 2012.<sup>1</sup> “Weird Science: Wall Street Repeals Law of Gravity,” *Barron’s* put it in 2017.<sup>2</sup> And a *Los Angeles Times* reporter had a similar take last year, noting that low interest rates have “helped stock and bond markets defy gravity.”<sup>3</sup>

Those who find such observations alarming will likely shy away from purchasing stocks at record highs. But shares are not heavy objects kept aloft through strenuous effort. They are perpetual claim tickets on companies’ earnings and dividends. Thousands of business managers go to work every day seeking projects that appear to offer profitable returns on capital while providing goods and services people desire. Although some new ideas and the firms behind them end in failure, history offers abundant evidence that investors around the world can be rewarded for the capital they provide.

Whether at a new high or a new low, today’s share price reflects investors’ collective judgment of what tomorrow’s earnings and dividends are likely to be—and those of all the tomorrows to come. And every day, stocks must be priced to deliver a positive expected return for the buyer. Otherwise, no trade

would take place. It’s difficult to imagine a scenario where investors freely invest in stocks with the expectation of losing money.

Investors should treat record high prices with neither excitement nor alarm, but rather indifference. If stocks have a positive expected return, reaching record highs with some frequency is exactly the outcome we would expect. Using month-end data over the 94-year period ending in 2020, the S&P 500 Index produced a new high in ending wealth in more than 30% of those monthly observations. Moreover, purchasing shares at all-time records has, on average, generated similar returns over subsequent one-, three-, and five-year periods to those of a strategy that purchases stocks following a sharp decline, as **Exhibit 1** shows.

## EXHIBIT 1

### All Rise

*Average annualized returns for S&P 500 Index after market highs and declines*

	1 year later	3 years later	5 years later
After new market high	13.9%	10.5%	9.9%
After 20% market decline	11.6%	9.9%	9.6%

### Past performance is no guarantee of future results.

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1. Jonathan Cheng and Christian Berthelsen, “Stocks Head Back to Earth,” *Wall Street Journal*, February 11, 2012.

2. Kopin Tan, “Weird Science: Wall Street Repeals Law of Gravity,” *Barron’s*, August 7, 2017.

3. Russ Mitchell, “Tesla’s Insane Stock Price Makes Sense in a Market Gone Mad,” *Los Angeles Times*, July 22, 2020.



# Quarterly Topic: All-Time-High Anxiety

(continued from page 16)

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Humans are conditioned to think that after the rise must come the fall, tempting us to fiddle with our portfolios. But the data suggest such signals only exist in our imagination and that our efforts to improve results will just as likely penalize them.

Investors should take comfort knowing that share prices are not fighting the forces of gravity when they move higher and have confidence that record highs only tell us the system is working just as we would expect—nothing more.

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Investment products: • Not FDIC Insured • Not Bank Guaranteed • May Lose Value  
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# Appendix

# Sources and Descriptions of Data

## **DIMENSIONAL CORE PLUS 100/0 WEALTH INDEX MODEL**

January 1985–present Dimensional Wealth Index Model data compiled by Dimensional. The Dimensional Core Plus 100/0 Wealth Index Model combines the following indices: Dimensional US Adjusted Market 2 Index, Dimensional US Adjusted Market Value Index, Dimensional US Large Cap High Profitability Index, Dimensional International Adjusted Market Index, Dimensional International Vector Index, Dimensional International Large Cap High Profitability Index, Dimensional Emerging Markets Adjusted Market Index, Dimensional Emerging Markets Value Index, and the S&P Global REIT Index (gross dividends). The weight of the REIT index is based on the market capitalization weight of equity REITs within the global universe of eligible stocks and equity REITs, rounded to the nearest 1%. Within the remaining non-REIT allocation, US equities are overweight relative to their market capitalization weight. The weights of the US, developed ex US, and emerging markets equities are then rescaled to sum to the total non-REIT weight of the Wealth Index Model and are all rounded to the nearest 1%. Regional weights are rebalanced quarterly. Within the US equity allocation, each month the weights of the Dimensional US Adjusted Market 2 Index, Dimensional US Adjusted Market Value Index, and Dimensional US Large Cap High Profitability Index are 66.67%, 16.67%, and 16.67%, respectively. Within the developed ex US equity allocation, each month the weights of the Dimensional International Adjusted Market Index, Dimensional International Vector Index, and Dimensional International Large Cap High Profitability Index are 60%, 20%, and 20%, respectively. Within the emerging market equity allocation, each month the weights of the Dimensional Emerging Markets Adjusted Market Index and Dimensional Emerging Markets Value Index are equal. The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Core Plus 100/0 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

## **DIMENSIONAL CORE PLUS 80/20 WEALTH INDEX MODEL**

January 1985–present Dimensional Wealth Index Model data compiled by Dimensional. 80% of the weight is allocated to the Dimensional Core Plus 100/0 Wealth Index Model and 20% of the weight is allocated to the Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD). The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD) is represented by Bloomberg US Aggregate Bond Index from January 1985 to December 1989 and the Bloomberg Global Aggregate Bond Index (Hedged to USD) from January 1990 to January 1999. The Dimensional Core Plus 80/20 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

## **DIMENSIONAL CORE PLUS 60/40 WEALTH INDEX MODEL**

January 1985–present Dimensional Wealth Index Model data compiled by Dimensional. 60% of the weight is allocated to the Dimensional Core Plus 100/0 Wealth Index Model and 40% of the weight is allocated to the following fixed income indices: Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD) (20%) and Dimensional US Adjusted Investment Grade Index (20%). The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD) is represented by Bloomberg US Aggregate Bond Index from January 1985 to December 1989 and the Bloomberg Global Aggregate Bond Index (Hedged to USD) from January 1990 to January 1999. The Dimensional Core Plus 60/40 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

## **DIMENSIONAL CORE PLUS 40/60 WEALTH INDEX MODEL**

January 1985–present Dimensional Wealth Index Model data compiled by Dimensional. 40% of the weight is allocated to the Dimensional Core Plus 100/0 Wealth Index Model and 60% of the weight is allocated to the following fixed income indices: Dimensional Targeted Credit Index (Hedged to USD) (20%), Dimensional Global Short-Term Government Variable Maturity Index (Hedged to USD) (20%), and Dimensional US Adjusted Investment Grade Index (20%). The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Targeted Credit Index is represented by the Bloomberg US Credit 1–3 Year Bond Index from January 1985 to January 1999. The Dimensional US Adjusted Investment Grade Index is represented by Bloomberg US Aggregate Bond Index from January 1985 to January 1989. The Dimensional Core Plus 40/60 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

## **DIMENSIONAL CORE PLUS 20/80 WEALTH INDEX MODEL**

Dimensional Wealth Index Model data compiled by Dimensional. 20% of the weight is allocated to the Dimensional Core Plus 100/0 Wealth Index Model, and 80% of the weight is allocated to the following fixed income indices: Dimensional Global Government/Credit 1–3 Year Unhedged Index (30%), Dimensional Targeted Credit Index (Hedged to USD) (10%), Dimensional Global Short-Term Government Variable Maturity Index (Hedged to USD) (20%), and Dimensional US Adjusted Investment Grade Index (20%). The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Global Government/Credit 1–3 Year Unhedged Index is represented by the Bloomberg US Government/Credit 1–3 Year Bond Index from January 1985 to January 1999. The Dimensional Targeted Credit Index is represented by the Bloomberg US Credit 1–3 Year Bond Index from January 1985 to January 1999. The Dimensional US Adjusted Investment Grade Index is represented by Bloomberg US Aggregate Bond Index from January 1985 to January 1989. The Dimensional Core Plus 20/80 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

## **DIMENSIONAL CORE PLUS 0/100 WEALTH INDEX MODEL**

Dimensional Wealth Index Model data compiled by Dimensional. The Dimensional Core Plus 0/100 Wealth Index Model combines the following indices: Dimensional Global Short-Term Government Index (Hedged to USD) (20%), Dimensional Global Government/Credit 1–3 Year Unhedged Index (40%), Dimensional Short-Duration Real Return Index (20%), and Dimensional Global Short-Term Government Variable Maturity Index (Hedged to USD) (20%). The Wealth Index Model returns are calculated monthly as a weighted average of the returns of the underlying indices. The Dimensional Global Short-Term Government Index (Hedged to USD) is represented by the Bloomberg US Government 1–3 Year Bond Index at 75% weight and the ICE BofA US 3-Month Treasury Bill Index at 25% weight from January 1985 to October 1992 and the Bloomberg US Government 1–2 Year Bond Index from November 1992 to January 1999. The Dimensional Global Government/Credit 1–3 Year Unhedged Index is represented by the Bloomberg US Government/Credit 1–3 Year Bond Index from January 1985 to January 1999. The Dimensional Short-Duration Real Return Index is not available back to 1985. The Dimensional Short-Duration Real Return Index is represented by Bloomberg US TIPS Index 1–5 Years from August 1997 to October 2006. Prior to August 1997, its weight is redistributed pro rata to the other fixed income indices. The Dimensional Core Plus 0/100 Wealth Index Model has been retrospectively calculated by Dimensional and did not exist prior to March 2020.

Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. The returns of indices presented herein reflect hypothetical performance and do not represent returns that any investor actually attained. Changes in the assumptions upon which such performance is based may have a material impact on the hypothetical returns presented. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not actually been executed, results may have under- or overcompensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that Dimensional Fund Advisors will achieve profits or avoid incurring substantial losses.

# Sources and Descriptions of Data

## **DIMENSIONAL US ADJUSTED MARKET 2 INDEX**

January 1975–present Compiled by Dimensional from CRSP and Compustat data. Targets all securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with an emphasis on companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within the small cap universe. The index also excludes those companies with the highest asset growth within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. The index overweights securities of companies with smaller capitalization and lower relative price to a greater degree than the Dimensional US Adjusted Market 1 Index. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to March 2007. The calculation methodology was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index. Prior to January 1975 Targets all securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with an emphasis on companies with smaller capitalization and lower relative price.

## **DIMENSIONAL US LARGE CAP HIGH PROFITABILITY INDEX**

Compiled by Dimensional from CRSP and Compustat data. Targets securities of US companies with market capitalizations above the 1,000th largest company whose profitability is in the top 35% of all large cap companies after the exclusion of utilities, companies lacking financial data, and companies with negative relative price. The index emphasizes companies with lower relative price, higher profitability, and lower market capitalization. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to December 2016.

## **DIMENSIONAL US ADJUSTED MARKET VALUE INDEX**

January 1975–present Compiled by Dimensional from CRSP and Compustat data. Targets all securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with an emphasis on companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within the small cap universe. The index also excludes those companies with the highest asset growth within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. The index overweights securities of companies with smaller capitalization and lower relative price to a greater degree than the Dimensional US Adjusted Market 2 Index. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to March 2007. The calculation methodology

was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

## **DIMENSIONAL INTERNATIONAL ADJUSTED MARKET INDEX**

Compiled by Dimensional from Bloomberg securities data. Targets all the securities in the eligible markets with an emphasis on companies with smaller market capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within their country's small cap universe. The index also excludes those companies with the highest asset growth within their country's small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in November 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

## **DIMENSIONAL INTERNATIONAL LARGE CAP HIGH PROFITABILITY INDEX**

Compiled by Dimensional from Bloomberg securities data. Targets large cap securities in the eligible markets whose profitability is in the top 35% of their country's large cap securities, after the exclusion of utilities and companies with either negative or missing relative price data. The index emphasizes companies with lower relative price, higher profitability, and lower market capitalization. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to December 2016.

## **DIMENSIONAL INTERNATIONAL VECTOR INDEX**

Compiled by Dimensional from Bloomberg securities data. Targets all the securities in the eligible markets with an emphasis on companies with smaller market capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within their country's small cap universe. The index also excludes those companies with the highest asset growth within their country's small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. The index overweights securities of companies with smaller capitalization and lower relative price to a greater degree than the Dimensional International Adjusted Market Index. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in November 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. The returns of indices presented herein reflect hypothetical performance and do not represent returns that any investor actually attained. Changes in the assumptions upon which such performance is based may have a material impact on the hypothetical returns presented. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not actually been executed, results may have under- or overcompensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that Dimensional Fund Advisors will achieve profits or avoid incurring substantial losses.

# Sources and Descriptions of Data

## **DIMENSIONAL EMERGING MARKETS ADJUSTED MARKET INDEX**

Compiled by Dimensional from Bloomberg securities data. Targets all securities in the eligible markets with an emphasis on companies with smaller market capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within their country's small cap universe. The index also excludes those companies with the highest asset growth within their country's small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in November 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

## **DIMENSIONAL EMERGING MARKETS VALUE INDEX**

January 1990–present Compiled by Dimensional from Bloomberg securities data. Targets securities of companies whose relative price is in the bottom 33% of their country's companies, after the exclusion of utilities and companies with either negative or missing relative price data. The index emphasizes companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability within their country's small cap universe. The index also excludes those companies with the highest asset growth within their country's small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. Exclusions: REITs and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology was amended in November 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

## **S&P GLOBAL REIT INDEX**

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## **DIMENSIONAL SHORT-DURATION REAL RETURN INDEX**

Compiled by Dimensional using data provided by Bloomberg. Includes securities in Bloomberg US 3–5 Year Government, Credit Aaa, Aa, A, Baa indices; Bloomberg US 1–3 Year Government, Credit Aaa, Aa, A, Baa indices; Bloomberg Inflation Swap USD 2YR Zero Coupon Index (Excess Return); and Bloomberg Inflation Swap USD 5YR Zero Coupon Index (Excess Return). For the fixed income component of the index, we do the following: (1) Securities can be over- or underweighted based on government/credit spreads. When the difference in yields between credit and government bonds is narrow, government bonds may be overweighted. When the difference in yields between credit and government bonds is wide, government bonds may be underweighted. (2) Securities can be over- or underweighted with respect to their market cap weight based on credit spreads. When the difference in yields

between AAA+AA and A+BBB is narrow, AAA+AA bonds may be held above market cap weight. When the difference in yields between AAA+AA and A+BBB is wide, AAA+AA bonds may be held below market cap weight. When the difference in yields between AAA+AA and BBB is narrow, BBB bonds may be held below market cap weight. When the difference in yields between AAA+AA and BBB is wide, BBB bonds may be held above market cap weight. (3) The duration of the index is based on the term spread (of real yields) between the real yields of the 3–5 year and 1–3 year credit bonds. Real yield is defined as nominal yield minus inflation swap rate. When the term spread is wide, the duration of the index can be longer than the duration of Bloomberg US Credit 1–5 Year Index. When the term spread is narrow, the duration of the index can be shorter than the duration of Bloomberg US Credit 1–5 Year Index. (4) The duration of the government component is based on the term spread (of real yields) between 3–5 year government bonds and 1–3 year government bonds. When the term spread is wide, the duration of the government component can be longer than the duration of Bloomberg US Government 1–5 Year Index. When the term spread is narrow, the duration of the index can be shorter than the duration of Bloomberg US Government 1–5 Year Index. We use the 2-year and 5-year inflation swap indices to construct an index to match the duration of the fixed income component. The Dimensional index return is the sum of the fixed income component and the inflation swap index return component. Rebalanced monthly. The index has been retroactively calculated by Dimensional and did not exist prior to January 2020.

## **DIMENSIONAL US ADJUSTED INVESTMENT GRADE INDEX**

Compiled by Dimensional using data provided by Bloomberg. Includes securities in Bloomberg US 3–10 Year Government, Credit Aaa, Aa, A, Baa indices; and Bloomberg US 1–3 Year Government, Credit Aaa, Aa, A, Baa indices. Securities can be over- or underweighted based on government/credit spreads. When the difference in yields between credit and government bonds is narrow, government bonds may be held above 50%. When the difference in yields between credit and government bonds is wide, government bonds may be held below 50%. Securities can be over or underweighted with respect to their market cap weight based on credit spreads. When the difference in yields between AAA+AA and A+BBB is narrow, AAA+AA bonds may be held above market cap weight. When the difference in yields between AAA+AA and A+BBB is wide, AAA+AA bonds may be held below market cap weight. When the difference in yields between AAA+AA and BBB is narrow, BBB bonds may be held below market cap weight. When the difference in yields between AAA+AA and BBB is wide, BBB bonds may be held above market cap weight. The duration of the index is based on the term spread between 5–10 year government/credit bonds and 1–3 year government/credit bonds. When the term spread is wide, the duration of the index can be longer than the duration of Bloomberg US Aggregate Index. When the term spread is narrow, the duration of the index can be shorter than the duration of Bloomberg US Aggregate Index. The duration of the government component is based on the term spread between 5–10 year government bonds and 1–3 year government bonds. When the term spread is wide, the duration of the government component can be longer than the duration of Bloomberg US Government Index. When the term spread is narrow, the duration of the index can be shorter than the duration of Bloomberg US Government Index. The index has been retroactively calculated by Dimensional and did not exist prior to January 2017.

Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. The returns of indices presented herein reflect hypothetical performance and do not represent returns that any investor actually attained. Changes in the assumptions upon which such performance is based may have a material impact on the hypothetical returns presented. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not actually been executed, results may have under- or overcompensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that Dimensional Fund Advisors will achieve profits or avoid incurring substantial losses.



# Sources and Descriptions of Data

## **DIMENSIONAL GLOBAL SHORT-TERM GOVERNMENT INDEX (HEDGED TO USD)**

Compiled by Dimensional using data provided by Bloomberg. Based on securities in the universe of Bloomberg Global Aggregate 1–2 Year Index; includes global government bonds only. Within the eligible universe, we apply market weights to construct the index. Currency exposure is hedged to USD. Rebalanced monthly. The index has been retroactively calculated by Dimensional and did not exist prior to January 2020.

## **DIMENSIONAL GLOBAL SHORT-TERM GOVERNMENT VARIABLE MATURITY INDEX (HEDGED TO USD)**

Compiled by Dimensional using FTSE data © 2022. Includes securities in the FTSE World Government Bond 1–3 Years and 3–5 Years indices. Countries: Austria, Australia, Belgium, Canada, France, Germany, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, the UK, and the US. Countries with the steepest yield curves are overweight with respect to their market cap weight. For countries included, duration corresponds to the steepest segment of that country's yield curve. Currency exposure is hedged to USD. Rebalanced monthly. The index has been retroactively calculated by Dimensional and did not exist prior to January 2019.

## **DIMENSIONAL GLOBAL GOVERNMENT/CREDIT 1–3 YEAR UNHEDGED INDEX**

February 1999–present Compiled by Dimensional using data provided by Bloomberg. Based on securities in the universe of Bloomberg Global Aggregate Index, includes global government bonds and global investment grade corporate bonds. Within the universe, the index identifies the yield curves that offer higher expected returns, and the duration ranges on those yield curves offering higher expected returns, and assesses the increased expected returns associated with allocation to bonds with different credit qualities. It then overweights (with respect to their market cap weight) bonds of yield curves, duration ranges, and credit qualities that offer higher expected returns. It also employs credit quality, currency, and duration requirements relative to the eligible market. Returns are in USD, unhedged. Rebalanced monthly. Prior to February 1999 Compiled by Dimensional using data © 2022 by FTSE. Includes securities in the FTSE World Government Bond 1–3 Years Index. Countries: Austria, Australia, Belgium, Canada, France, Germany, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, and the US as data becomes available. Rebalanced monthly based on market weights. The index has been retroactively calculated by Dimensional and did not exist prior to January 2020.

## **DIMENSIONAL GLOBAL ADJUSTED FIXED INCOME MARKET INDEX (HEDGED TO USD)**

Compiled by Dimensional using data provided by Bloomberg. Based on securities in the universe of the Bloomberg Global Aggregate Index and Global High Yield Index. Includes global government bonds, global investment grade corporate bonds, and global BB corporates. Eligible currencies: AUD, CAD, CHF, EUR, GBP, JPY, USD. Currency exposure is hedged to USD. Within the universe, the index identifies the yield curves that offer higher expected returns, the duration ranges on those yield curves offering higher expected returns, and assesses the increased expected returns associated with allocation to bonds with different credit qualities. It then overweights (with respect to their market cap weight) bonds of yield curves, duration ranges, and credit qualities that offer higher expected returns. It also employs credit quality, currency, and duration requirements relative to the eligible market. The index has been retroactively calculated by Dimensional and did not exist prior to January 2018.

## **DIMENSIONAL TARGETED CREDIT INDEX (HEDGED TO USD)**

Compiled by Dimensional using data provided by Bloomberg. Based on securities in the universe of Bloomberg Global Aggregate Index and Global High Yield Index, includes global investment grade corporate bonds and global BB corporates only. Within the universe, the index identifies the yield curves that offer higher expected returns, and the duration ranges on those yield curves offering higher expected returns, and assesses the increased expected returns associated with allocation to bonds with different credit qualities. It then overweights (with respect to their market cap weight) bonds of yield curves, duration ranges, and credit qualities that offer higher expected returns. It also employs credit quality, currency, and duration requirements relative to the eligible market. Currency exposure is hedged to USD. Rebalanced monthly. The index has been retroactively calculated by Dimensional and did not exist prior to January 2020.

Indices are not available for direct investment; therefore, their performance does not reflect the expenses associated with the management of an actual portfolio. The returns of indices presented herein reflect hypothetical performance and do not represent returns that any investor actually attained. Changes in the assumptions upon which such performance is based may have a material impact on the hypothetical returns presented. Hypothetical backtested returns have many inherent limitations. Unlike actual performance, it does not represent actual trading. Since trades have not actually been executed, results may have under- or overcompensated for the impact, if any, of certain market factors, such as lack of liquidity, and may not reflect the impact that certain economic or market factors may have had on the decision-making process. Hypothetical backtested performance also is developed with the benefit of hindsight. Other periods selected may have different results, including losses. There can be no assurance that Dimensional Fund Advisors will achieve profits or avoid incurring substantial losses.