



# Q2

## Quarterly Market Review

Second Quarter 2022

## THE FED & QE

Pelley: “Where does it come from? Do you just print it?”

Powerll: “We print it digitally. So as a Central Bank, we have the ability to create money digitally.”

Jerome Powell – “60 Minutes interview, May 2020

In this famous interview Jerome Powell stated that Central Banks can print money digitally, but what he didn’t mention was that they print **bank reserves**, which is money only for commercial banks and not for the average person and never directly reach the private sector.

So if they only print **digital reserves** and not real economy money (e.g. the Fed doesn’t have a printing press that cranks out currency which only the U.S. Department of the Treasury can do), why do they engage in QE in the first place?

Well, they do this because of the way QE helps in generating the so-called **Portfolio Rebalancing Effect**. When the economy and markets are negatively impacted (e.g. as it did during the COVID-19 pandemic), through the **Portfolio Rebalancing Effect** they hope the flow of credit and capital will proceed smoothly and hence economic activity and aggregate demand will consequently pick up and ultimately support an increase in inflationary pressures. But how does this work?

Historically, commercial banks own a portfolio of bonds because (1) regulators incentivize them to do that (e.g. banks are required to hold cash as reserves and incentivized to hold stock of high quality liquid assets), (2) bonds are interesting-bearing and liquid instruments which are also widely accepted as collateral, and (3) they serve as a hedging tool for the interest rate risk of their liabilities. So when a Central Bank performs QE and directly buys bonds from a commercial bank, they merely change the composition of the commercial bank asset side by reducing the amount of bonds they own and instead increasing the amount of cash reserves. But cash reserves are a sub-optimal asset class for a bank to own, and hence why they’ll instead tend to rebalance their portfolio towards “riskier” bonds. This is

mainly because high quality “regulatory-friendly” bonds carry higher yields than bank reserves, and because bonds can be used to hedge interest rate risk, while bank reserves can’t. Hence banks look to rebalance their portfolio toward a better composition by buying Treasuries, MBS, Corporate Bonds, etc. So this significant injection of reserves can effect banks’ optimal portfolio allocation by changing their liquidity profile and duration of assets. And there is evidence that it can also lead to higher loan growth and an increase in the share of riskier loans such as commercial real estate, construction, C&I, and consumer loans within banks’ loan portfolios.

When overdone, this expansive monetary policy can create inflation when it’s overdone as cheap capital chases fewer and fewer solid ventures and asset classes. The other cost is a consequence of reallocating credit. This cost to society is the difference between the value of those real resources in speculative investments and the value of those real resources as employed in the productive ventures forgone.

The Fed can also use contractionary monetary policy, as it is doing now by raising the Fed Funds interest rate and engaging in Quantitative Tapering (QT) in trying to reduce inflation without causing a recession or hard landing.

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# Quarterly Market Review

Second Quarter 2022

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: Three Crucial Lessons for Weathering the Stock Market's Storm

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
Q2 2022	STOCKS					BONDS	
	-16.70%	-14.66%	-11.45%	-17.22%		-4.69%	-4.01%
							
Since Jan. 2001							
Average Quarterly Return	2.2%	1.4%	2.6%	2.3%		1.0%	0.9%
Best Quarter	22.0% 2020 Q2	25.9% 2009 Q2	34.7% 2009 Q2	32.3% 2009 Q3		4.6% 2001 Q3	4.6% 2008 Q4
Worst Quarter	-22.8% 2008 Q4	-23.3% 2020 Q1	-27.6% 2008 Q4	-36.1% 2008 Q4		-5.9% 2022 Q1	-4.1% 2022 Q1

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: US Stock Market (Russell 3000 Index), International Developed Stocks (MSCI World ex USA Index [net dividends]), Emerging Markets (MSCI Emerging Markets Index [net dividends]), Global Real Estate (S&P Global REIT Index [net dividends]), US Bond Market (Bloomberg US Aggregate Bond Index), and Global Bond Market ex US (Bloomberg Global Aggregate ex-USD Bond Index [hedged to USD]). S&P data © 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. 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. Bloomberg data provided by Bloomberg.

# Long-Term Market Summary

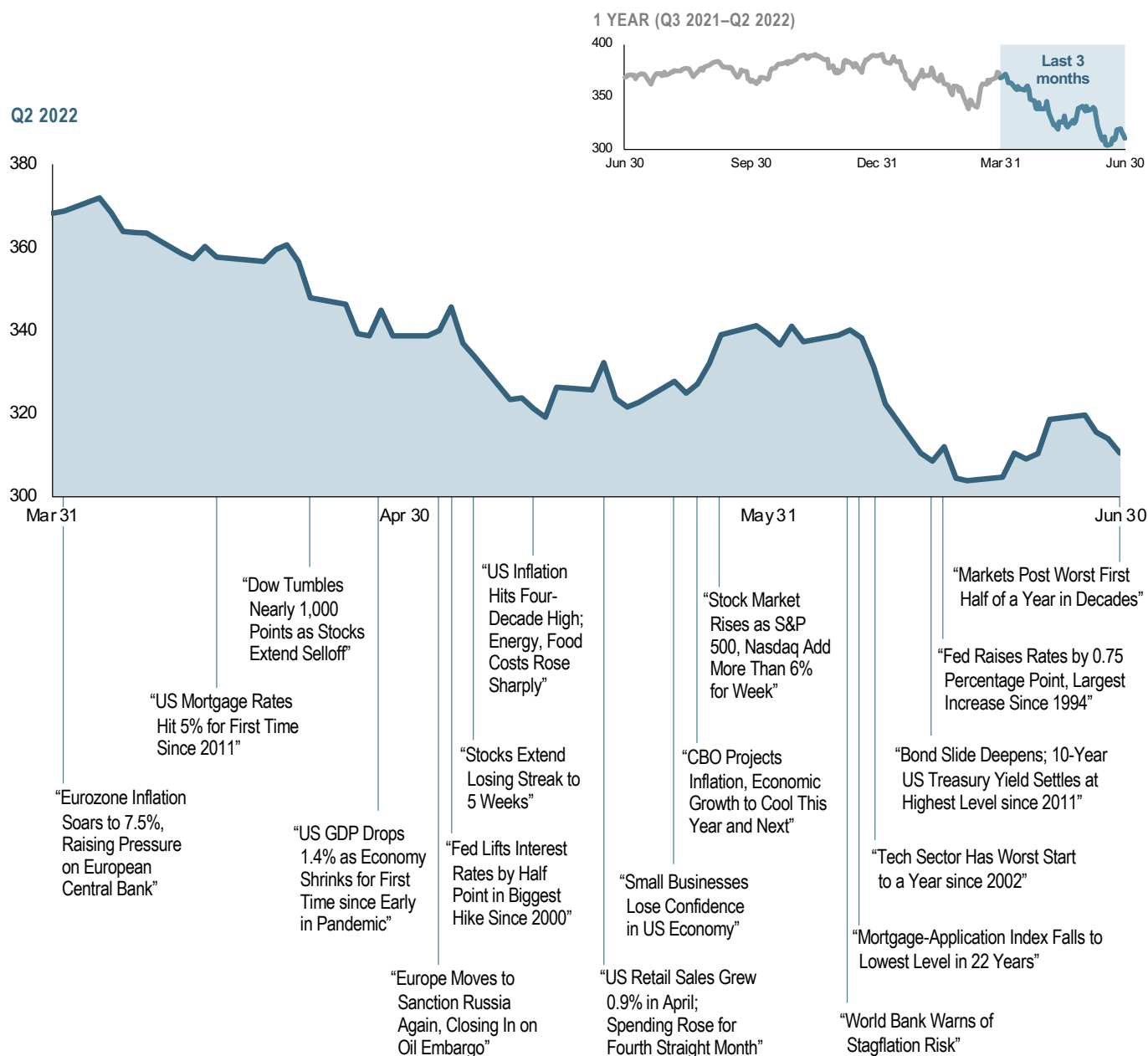
Index Returns as of June 30, 2022

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate		US Bond Market	Global Bond Market ex US
1 Year	STOCKS					BONDS	
	-13.87%	-16.76%	-25.28%	-10.61%		-10.29%	-7.75%
							
5 Years							
	10.60%	2.66%	2.18%	2.79%		0.88%	1.30%
							
10 Years							
	12.57%	5.37%	3.06%	5.15%		1.54%	2.66%
							

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# World Stock Market Performance

MSCI All Country World Index with selected headlines from Q2 2022



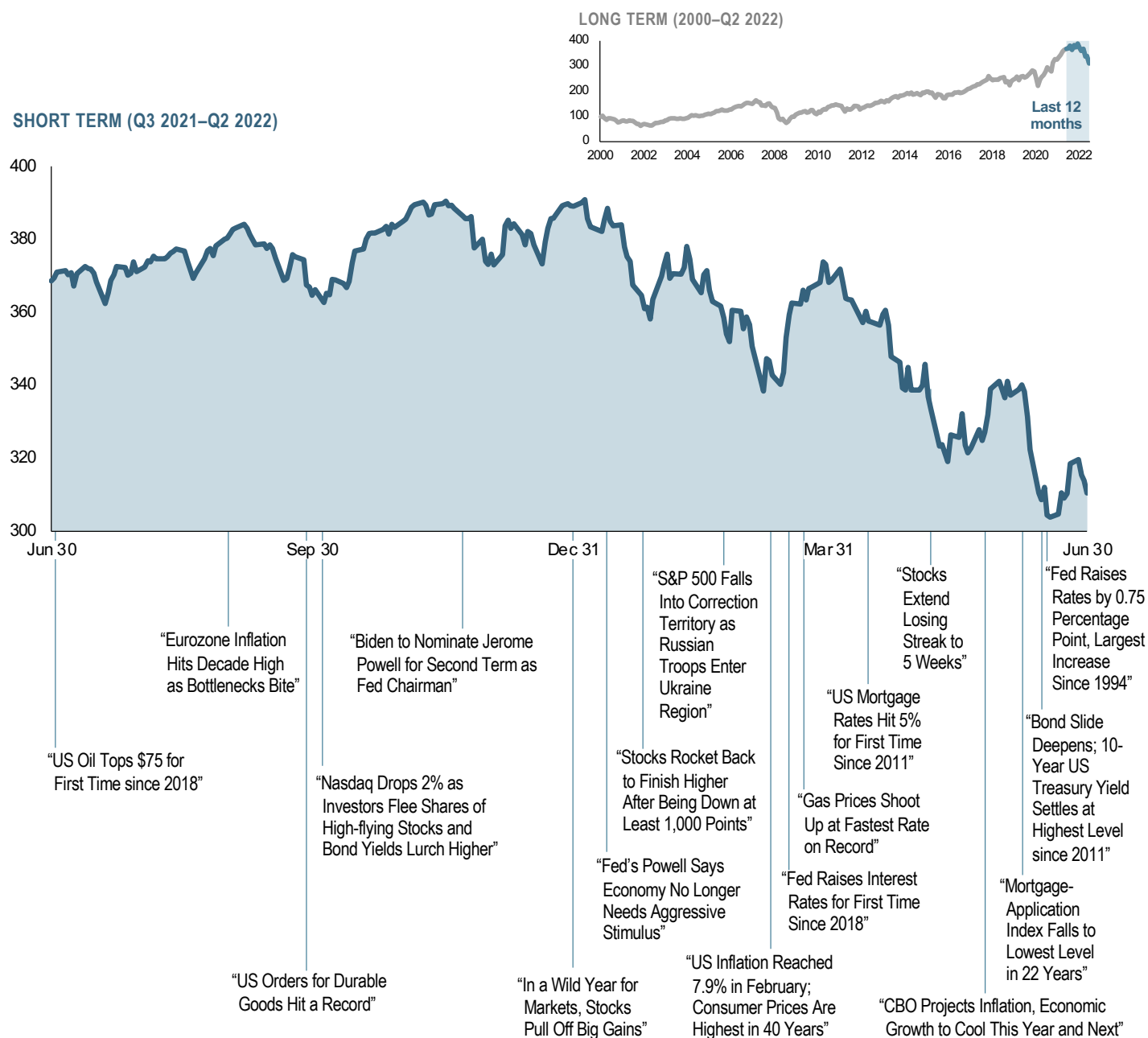
*These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.*

Graph Source: MSCI ACWI Index (net div.). 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.  
 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.

# US Stocks

## Second quarter 2022 index returns

The US equity market posted negative returns for the quarter and underperformed both non-US developed and emerging markets.

Value outperformed growth.

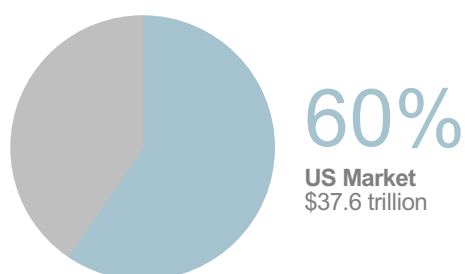
Small caps underperformed large caps.

REIT indices underperformed equity market indices.

### Ranked Returns (%)

Large Value	-12.21	
Small Value	-15.28	
Large Cap	-16.67	
Marketwide	-16.70	
Small Cap	-17.20	
Small Growth	-19.25	
Large Growth	-20.92	

### World Market Capitalization—US



### Period Returns (%)

\* Annualized

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Large Value	-12.21	-12.86	-6.82	6.87	7.17	10.50
Small Value	-15.28	-17.31	-16.28	6.18	4.89	9.05
Large Cap	-16.67	-20.94	-13.04	10.17	11.00	12.82
Marketwide	-16.70	-21.10	-13.87	9.77	10.60	12.57
Small Cap	-17.20	-23.43	-25.20	4.21	5.17	9.35
Small Growth	-19.25	-29.45	-33.43	1.40	4.80	9.30
Large Growth	-20.92	-28.07	-18.77	12.58	14.29	14.80

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

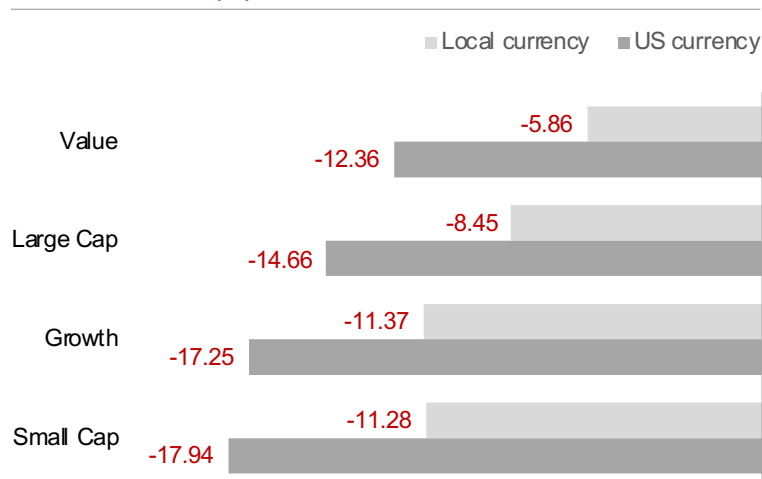
## Second quarter 2022 index returns

Developed markets outside of the US posted negative returns for the quarter, outperforming the US and underperforming emerging markets.

Value outperformed growth.

Small caps underperformed large caps.

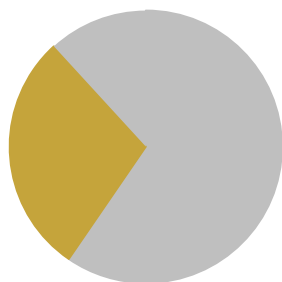
### Ranked Returns (%)



### World Market Capitalization—International Developed

29%

International Developed Market  
\$18.1 trillion



### Period Returns (%)

\* Annualized

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Value	-12.36	-11.00	-10.28	1.13	1.26	4.42
Large Cap	-14.66	-18.76	-16.76	1.70	2.66	5.37
Growth	-17.25	-26.33	-23.37	1.55	3.61	6.04
Small Cap	-17.94	-23.87	-23.02	1.97	2.16	6.70

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# Emerging Markets Stocks

Second quarter 2022 index returns

Emerging markets posted negative returns for the quarter, outperforming the US and non-US developed markets.

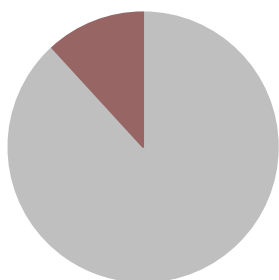
Value outperformed growth.

Small caps underperformed large caps.

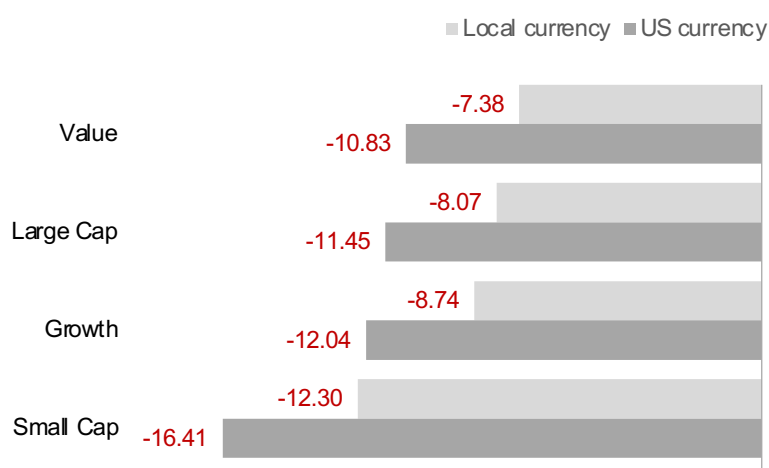
## World Market Capitalization— Emerging Markets

12%

Emerging  
Markets  
\$7.4 trillion



## Ranked Returns (%)



## Period Returns (%)

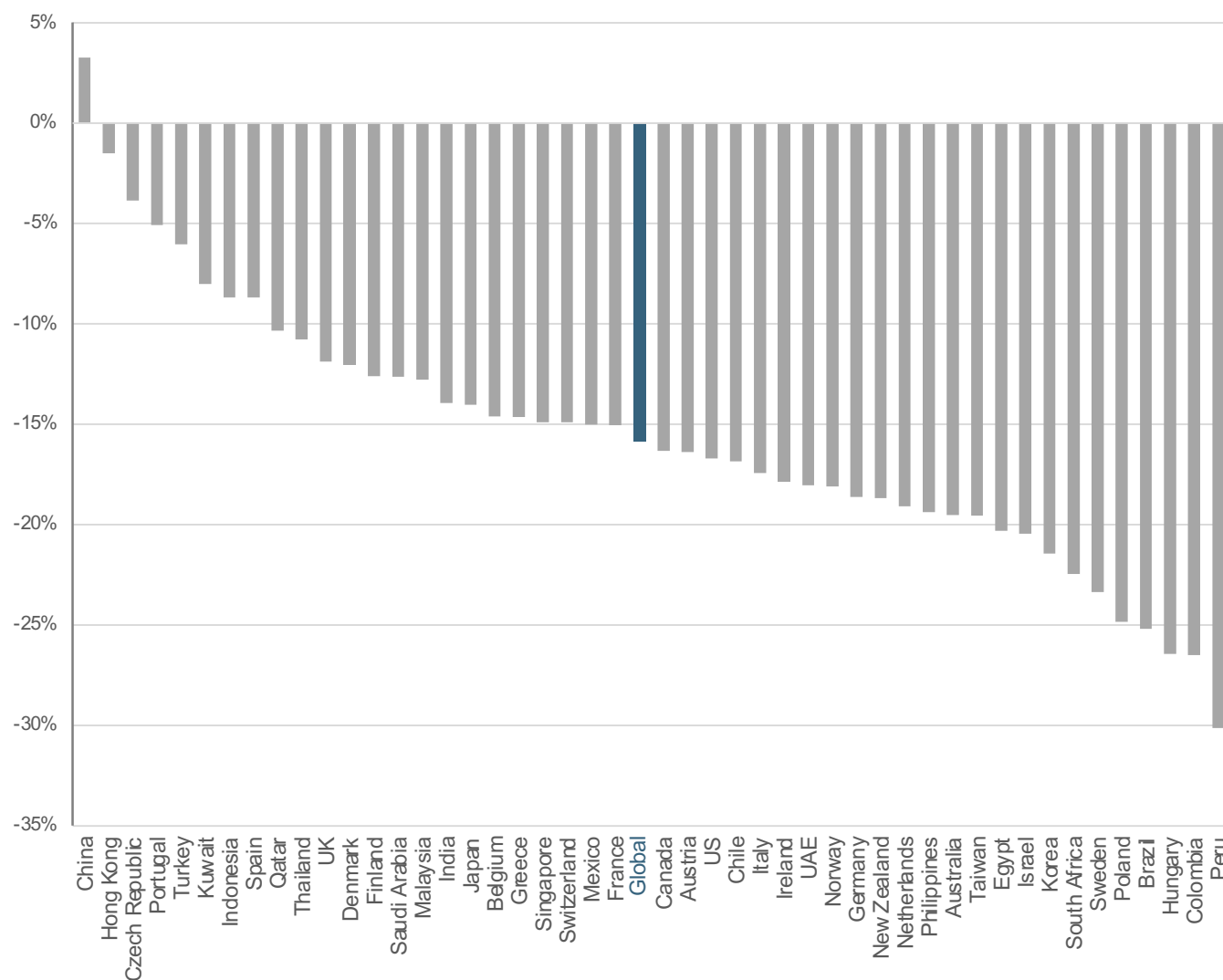
\* Annualized

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Value	-10.83	-13.89	-18.59	-0.97	1.25	1.46
Large Cap	-11.45	-17.63	-25.28	0.57	2.18	3.06
Growth	-12.04	-21.07	-31.18	1.88	2.92	4.54
Small Cap	-16.41	-20.03	-20.72	5.78	3.48	4.31

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# Country Returns

Second quarter 2022 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)

Second quarter 2022 index returns

US real estate investment trusts underperformed non-US REITs during the quarter.

## Ranked Returns (%)

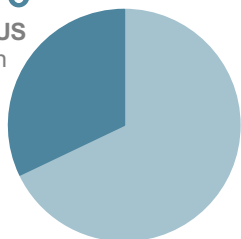
Global ex US REITS -17.50

US REITS -18.10

## Total Value of REIT Stocks

32%

World ex US  
\$453 billion  
298 REITs  
(25 other countries)



68%

US  
\$960 billion  
116 REITs

## Period Returns (%)

\* Annualized

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Global ex US REITS	-17.50	-19.93	-17.73	-4.38	0.20	3.47
US REITS	-18.10	-21.14	-6.41	2.54	4.28	6.61

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.

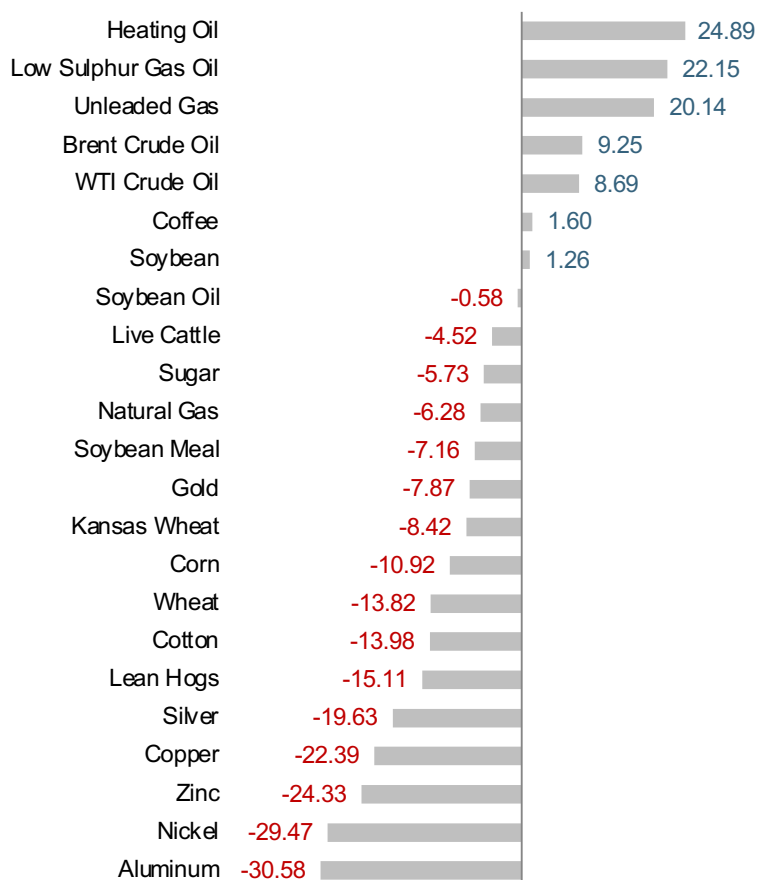
# Commodities

## Second quarter 2022 index returns

The Bloomberg Commodity Index Total Return returned -5.66% for the second quarter of 2022.

Aluminum and Nickel were the worst performers, returning -30.58% and -29.47% during the quarter, respectively. Heating Oil and Low Sulphur Gas Oil were the best performers, returning +24.89% and +22.15% during the quarter, respectively.

### Ranked Returns (%)



### Period Returns (%)

\* Annualized

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Commodities	-5.66	18.44	24.27	14.34	8.39	-0.82

Past performance is not a guarantee of future results. Index is not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Commodities returns represent the return of the Bloomberg Commodity Total Return Index. Individual commodities are sub-index values of the Bloomberg Commodity Total Return Index. Data provided by Bloomberg.

# Fixed Income

## Second quarter 2022 index returns

Interest rates increased across all maturities in the US Treasury market for the quarter.

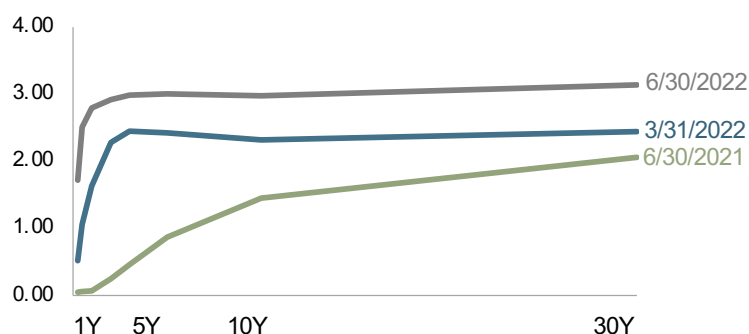
The yield on the 5-Year US Treasury Note increased 59 basis points (bps) to 3.01%. The yield on the 10-Year US Treasury Note increased 66 bps to 2.98%. The yield on the 30-Year US Treasury Bond increased 70 bps to 3.14%.

On the short end of the yield curve, the 1-Month US Treasury Bill yield increased 111 bps to 1.28%, while the 1-Year US Treasury Bill yield increased 117 bps to 2.80%. The yield on the 2-Year US Treasury Note increased 64 bps to 2.92%.

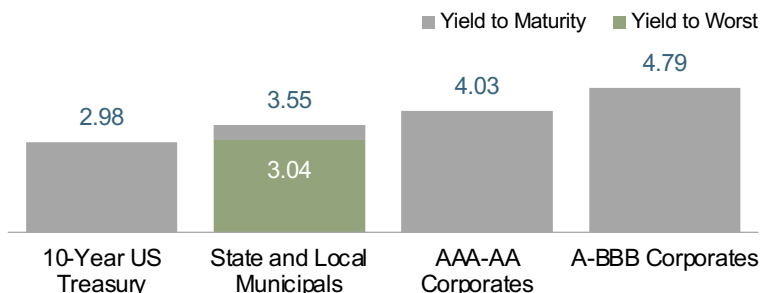
In terms of total returns, short-term corporate bonds returned -1.94% and intermediate-term corporate bonds returned -3.92%.<sup>1</sup>

The total return for short-term municipal bonds was +0.08% and -1.30% for intermediate-term municipal bonds. Within the municipal fixed income market, general obligation bonds outperformed revenue bonds, returning -2.51% vs. -3.37%, respectively.<sup>2</sup>

US Treasury Yield Curve (%)



Bond Yields Across Issuers (%)



### Period Returns (%)

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
ICE BofA US 3-Month Treasury Bill Index	0.10	0.14	0.17	0.63	1.11	0.64
ICE BofA 1-Year US Treasury Note Index	-0.48	-1.27	-1.44	0.53	1.10	0.73
FTSE World Government Bond Index 1-5 Years (hedged to USD)	-0.95	-3.30	-3.79	0.04	1.08	1.22
Bloomberg Municipal Bond Index	-2.94	-8.98	-8.57	-0.18	1.51	2.38
FTSE World Government Bond Index 1-5 Years	-4.28	-7.69	-9.90	-2.02	-0.57	-1.05
Bloomberg U.S. Aggregate Bond Index	-4.69	-10.35	-10.29	-0.93	0.88	1.54
Bloomberg U.S. TIPS Index	-6.08	-8.92	-5.14	3.04	3.21	1.73
Bloomberg U.S. High Yield Corporate Bond Index	-9.83	-14.19	-12.81	0.21	2.10	4.47
Bloomberg U.S. Government Bond Index Long	-11.89	-21.20	-18.42	-2.94	0.50	1.65

1. Bloomberg US Corporate Bond Index.

2. Bloomberg Municipal Bond Index.

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

## Second quarter 2022 yield curves

Interest rates generally increased across maturities within global developed markets for the quarter.

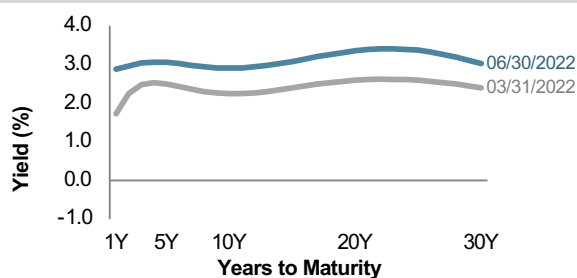
Realized term premiums were negative in global developed markets.

In Germany, short-term nominal interest rates increased to become positive during the quarter. In Japan, short-term nominal interest rates remained negative.

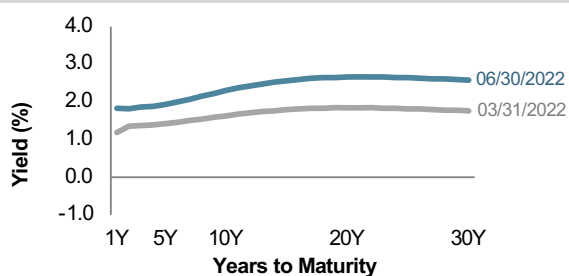
### Changes in Yields (bps) since 3/31/2022

	1Y	5Y	10Y	20Y	30Y
US	115.5	55.1	66.3	76.0	62.3
UK	64.5	50.6	66.7	81.9	81.6
Germany	83.1	68.9	84.9	103.8	95.7
Japan	-3.0	0.2	11.0	20.4	28.2
Canada	116.2	74.7	83.5	76.4	77.0
Australia	146.4	78.0	81.7	68.5	61.2

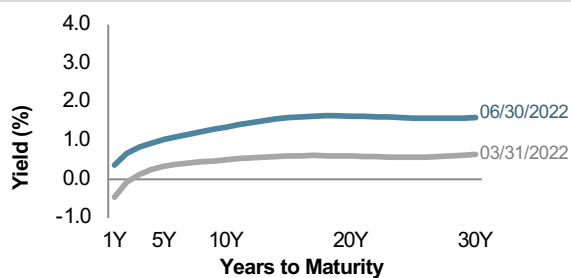
### US



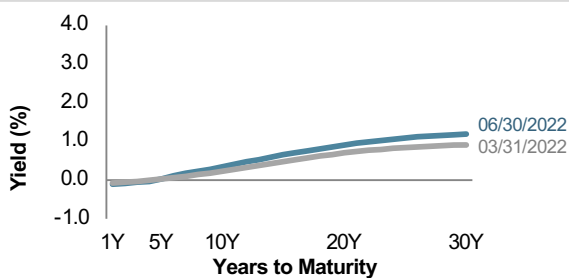
### UK



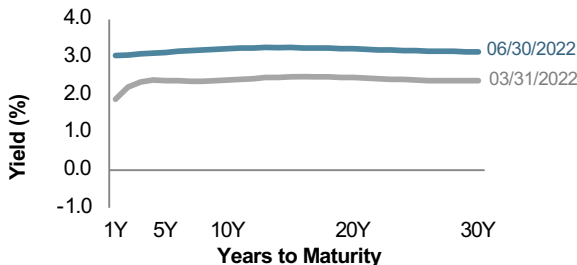
### Germany



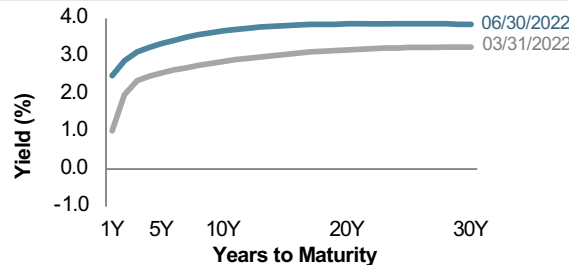
### Japan



### Canada



### Australia



One basis point (bps) equals 0.01%. Source: ICE BofA government yield. ICE BofA index data © 2022 ICE Data Indices, LLC.

# Impact of Diversification

As of December 31, 2021

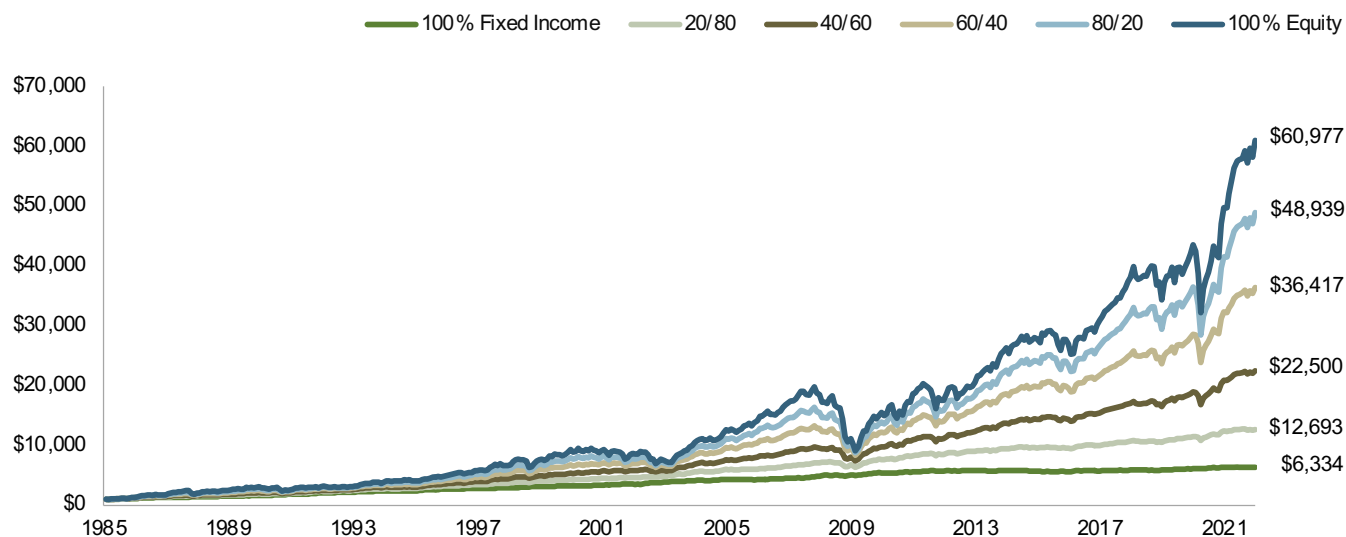
These portfolios illustrate the performance of different global stock/bond mixes and highlight the benefits of diversification. Mixes with larger allocations to stocks are considered riskier but have higher expected returns over time.

## Period Returns (%)

\* Annualized

Dimensional Core Plus Wealth Index Model	3 Months	1 Year	3 Years*	5 Years*	10 Years*	10-Year STDEV <sup>1</sup>
100% Equity	6.61	22.63	21.12	14.57	13.24	14.11
80/20	5.30	17.70	18.49	12.90	11.94	11.76
60/40	3.86	12.63	15.37	10.82	9.99	9.07
40/60	2.22	7.79	10.82	7.75	7.28	6.13
20/80	0.55	2.10	6.40	4.89	4.05	3.71
100% Fixed Income	-0.51	-0.93	2.20	1.98	0.97	1.73

## 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 \$10,000. 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.

# Three Crucial Lessons for Weathering the Stock Market's Storm

Second Quarter 2022

Marlena Lee, PhD

Global Head of Investment Solutions

Investors can always expect uncertainty. While volatile periods like the one we're experiencing now can be intense, investors who learn to embrace uncertainty may often triumph in the long run. Reacting to down markets is a good way to derail progress made toward reaching your financial goals.

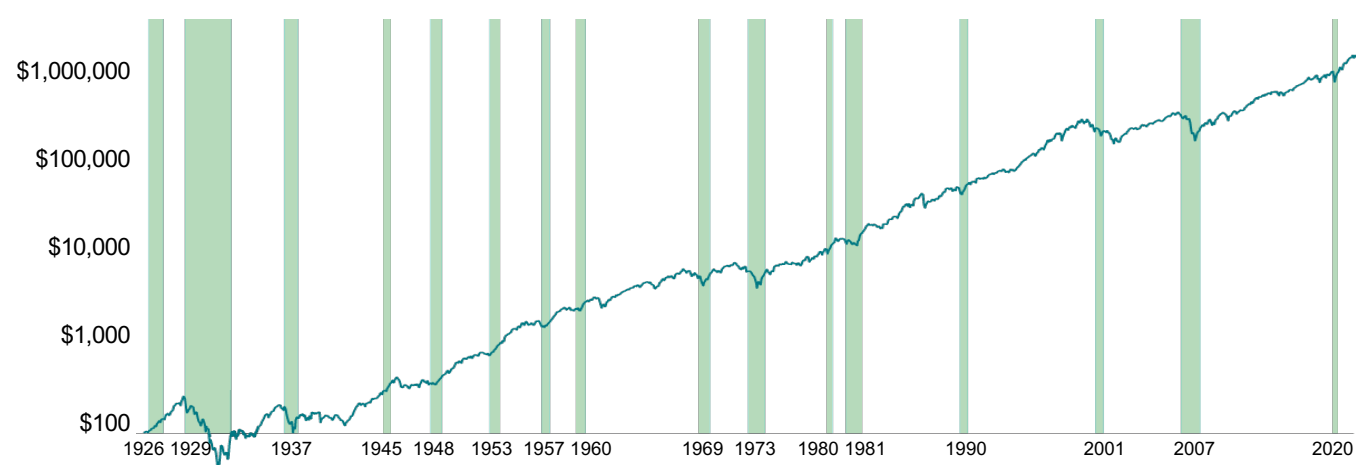
Here are three lessons to keep in mind during periods of volatility that can help you stick to your well-built plan. And if you don't have a plan, there's a suggestion for that too.

## 1. A recession is not a reason to sell

Are we headed into a recession? A century of economic cycles teaches us we may well be in one before economists make that call.

But one of the best predictors of the economy is the stock market itself. Markets tend to fall in advance of recessions and start climbing earlier than the economy does. As the below shows, returns have often been positive while in a recession.

### Growth of \$100, 1926–2021



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

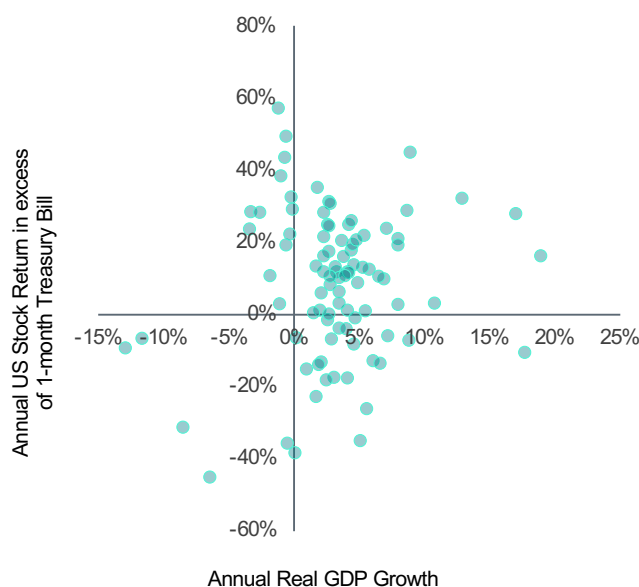
In US dollars. Recessions shaded in green. Stock returns represented by Fama/French Total US Market Research Index, provided by Ken French and available at [mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). This value-weighted US market index is constructed every month, using all issues listed on the NYSE, AMEX, or Nasdaq with available outstanding shares and valid prices for that month and the month before. Exclusions: American depositary receipts.

Sources: CRSP for value-weighted US market return. Rebalancing: Monthly. Dividends: Reinvested in the paying company until the portfolio is rebalanced. Growth of wealth shows the growth of a hypothetical investment of \$100 in the securities in the Fama/French US Total Market Research Index from July 1926 through December 2021.

# Three Crucial Lessons for Weathering the Stock Market's Storm

(continued from page 16)

All the dots in the upper left quadrant in the chart below are years where the US economy contracted but US stocks still outperformed less-risky Treasury bills. It's a great illustration of the forward-looking nature of markets. If you're worried, other investors are too, and that uncertainty is reflected in stock prices.



## Past performance is no guarantee of future results.

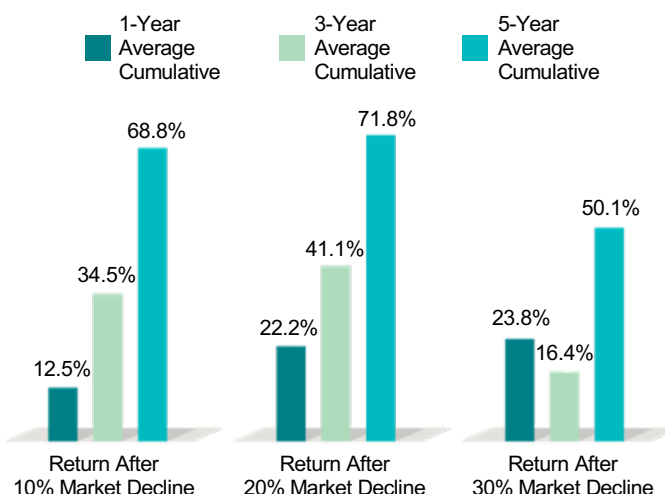
Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. In USD. Annual GDP growth rates obtained from the US Bureau of Economic Analysis. GDP growth numbers are adjusted to 2012 USD terms to remove the effects of inflation. Data provided by Fama/French. Eugene Fama and Ken French are members of the Board of Directors of the general partner of and provide consulting services to, Dimensional Fund Advisors LP. Please see "Appendix Descriptions" for a description of the Fama/French index data.

Results shown during periods prior to each index's index inception date do not represent actual returns of the respective index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Backtested performance results assume the reinvestment of dividends and capital gains.

Whether accompanied by recessions or not, market downturns can be unsettling. But over the past century, US stocks have averaged positive returns over one-year, three-year, and five-year periods following a steep decline.

A year after the S&P 500 crossed into bear market territory (a 20% fall from the market's previous peak), it rebounded by about 20% on average. And after five years, the S&P 500 averaged returns over 70%.<sup>1</sup>

## Fama/French Total US Market Research Index Returns July 1, 1926–December 31, 2021



## Past performance is no guarantee of future results.

Market declines or downturns are defined as periods in which the cumulative return from a peak is -10%, -20%, or -30% or lower. Returns are calculated for the 1-, 3-, and 5-year look-ahead periods beginning the day after the respective downturn thresholds of -10%, -20%, or -30% are exceeded. The bar chart shows the average returns for the 1-, 3-, and 5-year periods following the 10%, 20%, and 30% thresholds. For the 10% threshold, there are 29 observations for 1-year look-ahead, 28 observations for 3-year look-ahead, and 27 observations for 5-year look-ahead. For the 20% threshold, there are 15 observations for 1-year look-ahead, 14 observations for 3-year look-ahead, and 13 observations for 5-year look-ahead. For the 30% threshold, there are 7 observations for 1-year look-ahead, 6 observations for 3-year look-ahead, and 6 observations for 5-year look-ahead. Peak is a new all-time high prior to a downturn. Data provided by Fama/French and available at [mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). Fama/French Total US Market Research Index: 1926–present: Fama/French Total US Market Research Factor and One-Month US Treasury Bills. Source: Ken French website.

**We believe that staying invested puts you in the best position to capture the recovery.** If you take risk out of your portfolio, it should be a strategic, not tactical, choice. We believe the only good reason to sell out of a stock portfolio now—so long as it's diversified and low-cost—is because you learned something about your risk tolerance or your investment goals have changed.

# Three Crucial Lessons for Weathering the Stock Market's Storm

(continued from page 17)

## 2. Time the market at your peril

When stocks have declined, it might be tempting to sell to stem further losses. You might think, "I'll sit out until things get a bit better." But by the time markets are less volatile, you'll have often missed part of the recovery. Yes, it stings to watch your portfolio shrink, but imagine how you'll feel when it's stuck while the market rebounds.

Big return days are hard to predict, and you really don't want to miss them. If you invested \$1,000 in the S&P 500 continuously from the beginning of 1990 through the end of 2020, you would have \$20,451. If you missed the single best day, you'd only have \$18,329—and only \$12,917 if you missed the best five days.<sup>2</sup>

History shows the stock market tends to rebound quickly. The same can't be said for individual stocks or even entire sectors. (How many railroad stocks do you own?) So, while investing means taking on some risk for expected reward, investors should mitigate risks where they can. Diversification is a top risk mitigation tool, along with investing in fixed income and having a financial plan.

## 3. It may be a good time to reassess your portfolio and your plan

We saw many fads crop up through the pandemic, from baking to puppy adoption. Did you experiment with one of the

pandemic investment fads—FAANGs or meme stocks or dogecoin? If so, it may be time to put those fads in the rearview.

Do you know the names of all the stocks you own? Then you probably own too few. How much of your portfolio sits outside the US? Because about half the global market is comprised of foreign stocks. If you only invest in the S&P 500, you're missing half of the investment opportunity set. A market-cap-weighted global portfolio is a better starting point than chasing segments of the market that have outperformed in the past few years.

And if you want to outperform the market, allow decades of academic research to light the way. Portfolios focused on small caps, value stocks, and more profitable companies have had higher returns over the long run. The portfolio I use is invested across more than 10,000 global equities in over 40 countries.

Beyond a well-designed portfolio, one of the best ways to deal with volatile markets and disappointing returns is to have planned for them. A financial advisor can help you develop a plan that bakes in the chances you'll experience some market lows. And they can help you find the confidence to weather the current storm and get to the other side.

A sound approach to investing—through a plan, a well-designed portfolio, and an advisor—is the ultimate self-care during these rough markets. Your future self will thank you.

*This piece first appeared in MarketWatch with the title "Follow these 3 crucial lessons for weathering the stock market's storm."*

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2. Past performance, including hypothetical performance, is no guarantee of future results. Growth of \$1,000 is hypothetical and assumes reinvestment of income and no transaction costs or taxes. The analysis is for illustrative purposes only and is not indicative of any investment.  
S&P data © 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Indices are not available for direct investment.  
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Investments involve risks. The investment return and principal value of an investment may fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original value. Past performance is not a guarantee of future results. There is no guarantee strategies will be successful.

Dimensional Fund Advisors LP is an investment advisor registered with the Securities and Exchange Commission. Investment products: • Not FDIC Insured • Not Bank Guaranteed • May Lose Value  
Dimensional Fund Advisors does not have any bank affiliates.

# Appendix

# Dimensional Core Plus Wealth Index Models

Weights (%)



	0%	20%	40%	60%	80%	100%
<b>Equity Total</b>	<b>0%</b>	<b>20%</b>	<b>40%</b>	<b>60%</b>	<b>80%</b>	<b>100%</b>
Dimensional US Adjusted Market 2 Index	0	9	18	27	36	45
Dimensional US Large Cap High Profitability Index	0	2	5	7	9	11
Dimensional US Adjusted Market Value Index	0	2	5	7	9	11
Dimensional International Adjusted Market Index	0	3	5	8	10	13
Dimensional International Large Cap High Profitability Index	0	1	2	3	3	4
Dimensional International Vector Index	0	1	2	3	3	4
Dimensional Emerging Markets Adjusted Market Index	0	1	2	3	4	5
Dimensional Emerging Markets Value Index	0	1	2	3	4	5
S&P Global REIT Index	0	0	1	1	2	2
<b>Fixed Income Total</b>	<b>100%</b>	<b>80%</b>	<b>60%</b>	<b>40%</b>	<b>20%</b>	<b>0%</b>
Dimensional Short-Duration Real Return Index	20	0	0	0	0	0
Dimensional US Adjusted Investment Grade Index	0	20	20	20	0	0
Dimensional Global Short-Term Government Index (Hedged to USD)	20	0	0	0	0	0
Dimensional Global Short-Term Government Variable Maturity Index (Hedged to USD)	20	20	20	0	0	0
Dimensional Global Government/Credit 1-3 Year Unhedged Index	40	30	0	0	0	0
Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD)	0	0	0	20	20	0
Dimensional Targeted Credit Index (Hedged to USD)	0	10	20	0	0	0

Weights may not equal 100 due to rounding. Weights as of December 31, 2021. Rebalanced monthly. For illustrative purposes only. The index models are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Indices are not available for direct investment. Please see "Sources and Descriptions of Data" in the appendix for descriptions of the Dimensional index data.

# Dimensional Core Plus Wealth Index Models

Period Returns as of December 31, 2021 (%)

	1 Year	3 Years	5 Years	10 Years
<b>Equity</b>				
Dimensional US Adjusted Market 2 Index	26.86	24.55	16.64	15.93
Dimensional US Large Cap High Profitability Index	26.17	30.94	22.18	18.03
Dimensional US Adjusted Market Value Index	29.62	20.90	12.42	14.23
Dimensional International Adjusted Market Index	14.05	14.97	10.39	9.22
Dimensional International Large Cap High Profitability Index	13.71	17.05	11.99	9.00
Dimensional International Vector Index	14.74	14.55	9.93	9.43
Dimensional Emerging Markets Adjusted Market Index	5.36	12.07	10.52	6.82
Dimensional Emerging Markets Value Index	12.84	8.42	8.77	5.38
S&P Global REIT Index (gross dividends)	32.50	14.87	9.41	10.17
<b>Fixed Income</b>				
Dimensional Short-Duration Real Return Index	6.26	5.75	3.75	2.53
Dimensional US Adjusted Investment Grade Index	-1.92	5.06	3.71	3.24
Dimensional Global Short-Term Government Index (Hedged to USD)	-0.07	1.57	1.57	1.21
Dimensional Global Short-Term Government Variable Maturity Index (Hedged to USD)	-1.94	1.36	1.30	1.63
Dimensional Global Government/Credit 1-3 Year Unhedged Index	-4.29	1.17	1.61	-0.28
Dimensional Global Adjusted Fixed Income Market Index (Hedged to USD)	-0.67	7.38	5.59	6.17
Dimensional Targeted Credit Index (Hedged to USD)	-0.19	4.69	3.66	4.35

Past performance is no guarantee of future results. Actual returns may be lower.

Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment. See "Sources and Descriptions of Data" in the appendix for descriptions of Dimensional index data.



# Sources and Descriptions of Data

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

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**

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 the 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**

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 the 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**

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 the 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 the 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 the 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 the securities in the eligible 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 eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to March 2007. Accordingly, the results shown during the periods prior to March 2007 do not represent actual returns of the index. Other periods selected may have different results, including losses. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index. Prior to January 1975: Compiled by Dimensional from CRSP and Compustat data. Targets all the securities in the eligible market with an emphasis on companies with smaller capitalization and lower relative price. The eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: non-US companies, REITs, UITs, and investment companies.

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

Compiled by Dimensional from CRSP and Compustat data. Consists of 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. The eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. 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. Accordingly, the results shown during the periods prior to December 2016 do not represent actual returns of the index. Other periods selected may have different results, including losses.

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

January 1975–present: Compiled by Dimensional from CRSP and Compustat data. Targets all the securities in the eligible market, excluding securities of companies with the largest market capitalizations and highest relative price. The index emphasizes 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 eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to March 2007. Accordingly, the results shown during the periods prior to March 2007 do not represent actual returns of the index. Other periods selected may have different results, including losses. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index. Prior to January 1975: Compiled by Dimensional from CRSP and Compustat data. Targets all the securities in the eligible market with an emphasis on securities with smaller capitalization and lower relative price, excluding securities with the largest market capitalizations and highest relative price. The eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: non-US companies, REITs, UITs, and investment companies.

## **DIMENSIONAL INTERNATIONAL ADJUSTED MARKET INDEX**

Compiled by Dimensional from Bloomberg securities data. Targets all of the securities in the eligible markets 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 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 monthly returns are computed as the simple average of the monthly returns of four subindices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the UK. Exclusions: REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the index. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index was amended in November 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

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# Sources and Descriptions of Data

## **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 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 monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the UK. Exclusions: REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the index. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index 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. Consists of large cap companies with high relative price in eligible markets whose profitability is in the top 35% of their country's large cap universe, 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. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Japan, Italy, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the UK. Exclusions: REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to December 2016. Accordingly, the results shown during the periods prior to December 2016 do not represent actual returns of the index.

## **DIMENSIONAL EMERGING MARKETS 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 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 monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Brazil, Chile, China, Colombia, the Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey. Exclusions: REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the index. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index 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**

Compiled by Dimensional from Bloomberg securities data. Consists of companies whose relative price is in the bottom 33% of their country's respective constituents, 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. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of each quarter of the year. Maximum index weight of any one company is capped at 5%. Countries currently included are Brazil, Chile, China, Colombia, the Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey. Exclusions: REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to April 2008. Accordingly, the results shown during the periods prior to April 2008 do not represent actual returns of the index. The calculation methodology for the index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the index 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

## 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 retrospectively calculated by Dimensional and did not exist prior to January 2020. Accordingly, results shown during the periods prior to January 2020 do not represent actual returns of the index. Other periods selected may have different results, including losses.

## 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. Rebalanced monthly. The index has been retrospectively calculated by Dimensional and did not exist prior to November 2016. Accordingly, results shown during the periods prior to November 2016 do not represent actual returns of the index. Other periods selected may have different results, including losses.

## 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. Eligible currencies: AUD, CAD, CHF, EUR, GBP, JPY, and USD. Within the eligible universe, we apply market weights to construct the index. Rebalanced monthly. The index has been retroactively calculated by Dimensional and did not exist prior to March 2020. Accordingly, results shown during the periods prior to March 2020 do not represent actual returns of the index. Other periods selected may have different results, including losses.

## 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: Australia, Austria, 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. Rebalanced monthly. The index has been retrospectively calculated by Dimensional and did not exist prior to January 2019. Accordingly, results shown during the periods prior to January 2019 do not represent actual returns of the index. Other periods selected may have different results, including losses.

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 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. Eligible currencies: AUD, CAD, CHF, EUR, GBP, JPY, and USD. 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. Rebalanced monthly. The index has been retrospectively calculated by Dimensional and did not exist prior to January 2020. Accordingly, results shown during the periods prior to January 2020 do not represent actual returns of the index. Other periods selected may have different results, including losses. 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: Australia, Austria, Belgium, Canada, France, Germany, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, the UK, and the US as data becomes available. Rebalanced monthly based on market weights.

## **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, and USD. 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. Rebalanced monthly. The index has been retrospectively calculated by Dimensional and did not exist prior to November 2017. Accordingly, results shown during the periods prior to November 2017 do not represent actual returns of the index. Other periods selected may have different results, including losses.

## **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. Eligible currencies: AUD, CAD, CHF, EUR, GBP, JPY, and USD. 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. Rebalanced monthly. The index has been retrospectively calculated by Dimensional and did not exist prior to January 2020. Accordingly, results shown during the periods prior to January 2020 do not represent actual returns of the index. Other periods selected may have different results, including losses.

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.