



M U R R A Y
FINANCIAL SERVICES

Q4

Quarterly Market Review
Fourth Quarter 2022

Quarterly Market Review

Fourth 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 concludes with 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

Quarterly Topic: Time the Market at Your Peril

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 |
|--------------------------|---|---|---|--|---|---|
| Q4 2022 | STOCKS | | | | BONDS | |
| | 7.18% | 16.18% | 9.70% | 6.88% | 1.87% | 0.18% |
| |  |  |  |  |  |  |
| Since Jan. 2001 | | | | | | |
| Average Quarterly Return | 2.1% | 1.5% | 2.5% | 2.2% | 0.9% | 0.9% |
| Best Quarter | 22.0% | 25.9% | 34.7% | 32.3% | 4.6% | 4.6% |
| | 2020 Q2 | 2009 Q2 | 2009 Q2 | 2009 Q3 | 2001 Q3 | 2008 Q4 |
| Worst Quarter | -22.8% | -23.3% | -27.6% | -36.1% | -5.9% | -4.1% |
| | 2008 Q4 | 2020 Q1 | 2008 Q4 | 2008 Q4 | 2022 Q1 | 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 © 2023 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 2023, all rights reserved. Bloomberg data provided by Bloomberg.

Long-Term Market Summary

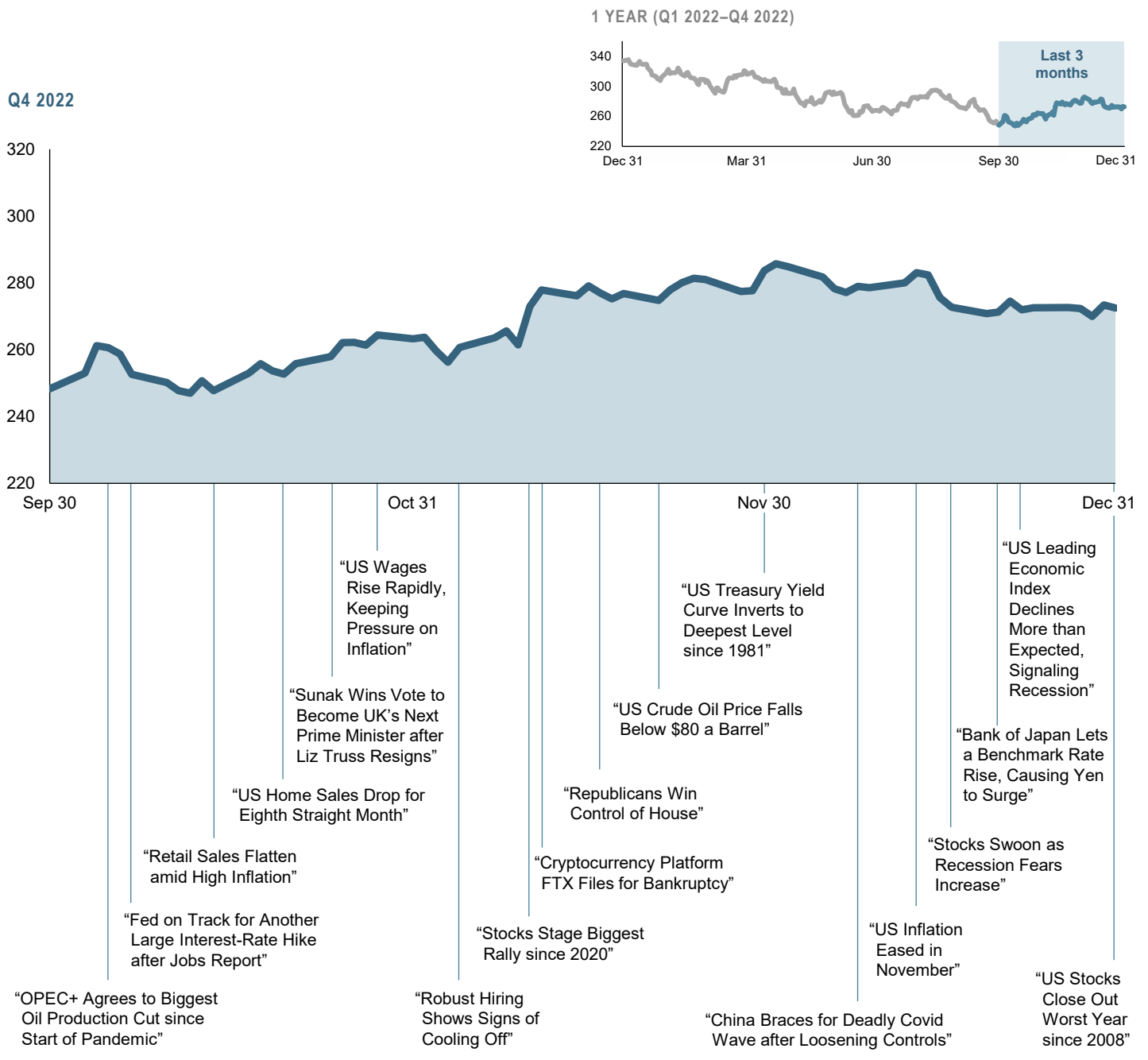
Index returns as of December 31, 2022

| | US Stock Market | International Developed Stocks | Emerging Markets Stocks | Global Real Estate | US Bond Market | Global Bond Market ex US |
|----------|---|---|---|--|---|---|
| 1 Year | STOCKS | | | | BONDS | |
| | -19.21% | -14.29% | -20.09% | -24.36% | -13.01% | -9.76% |
| |  |  |  |  |  |  |
| 5 Years | | | | | | |
| | 8.79% | 1.79% | -1.40% | 0.92% | 0.02% | 0.52% |
| |  |  |  |  |  |  |
| 10 Years | | | | | | |
| | 12.13% | 4.59% | 1.44% | 3.88% | 1.06% | 2.10% |
| |  |  |  |  |  |  |

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World Stock Market Performance

MSCI All Country World Index with selected headlines from Q4 2022

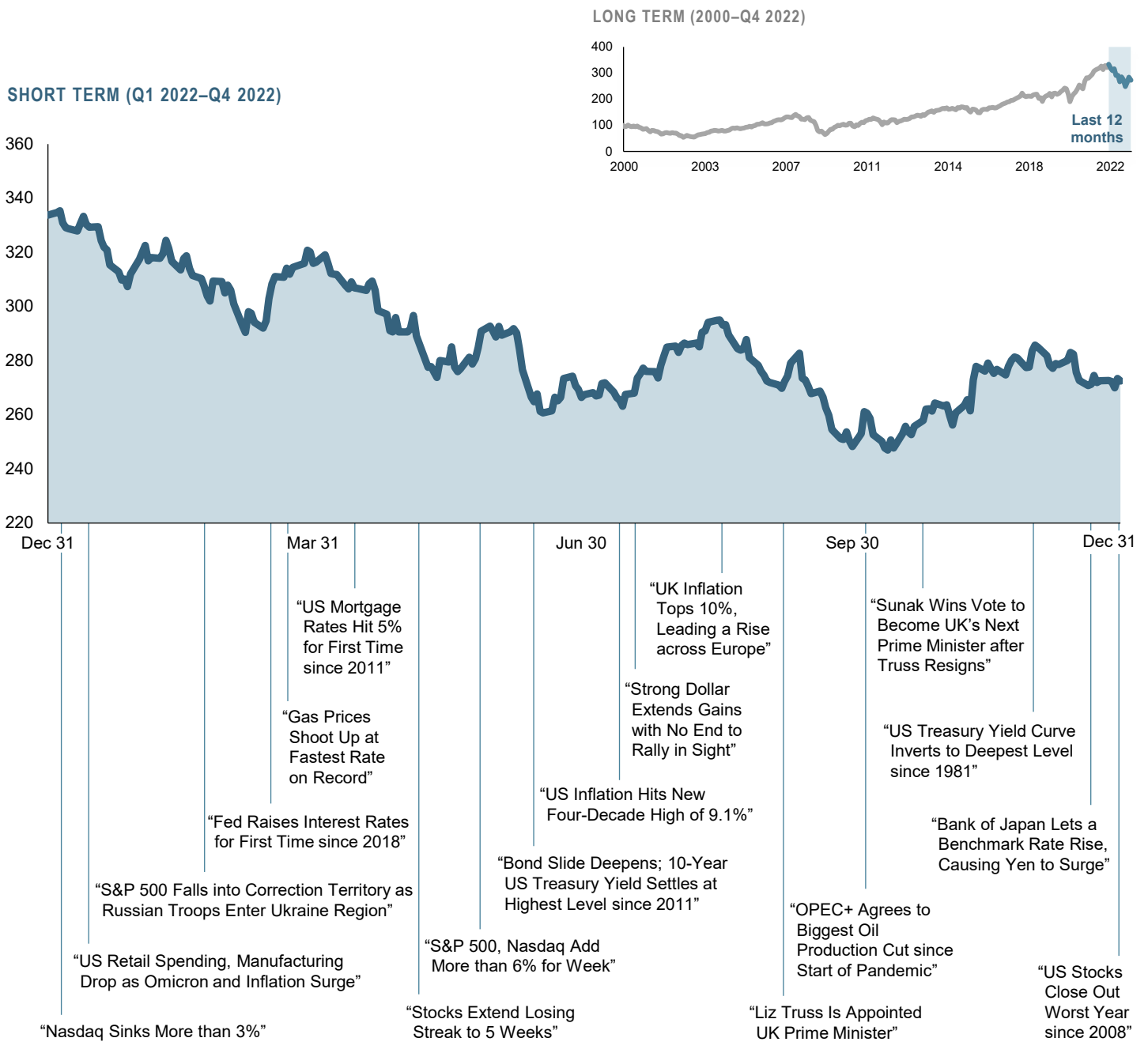


These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.

Graph Source: MSCI ACWI Index (net dividends). MSCI data © MSCI 2023, all rights reserved. Index level based at 100 starting January 2001. 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 2023, all rights reserved. Index level based at 100 starting January 2001. 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

Fourth quarter 2022 index returns

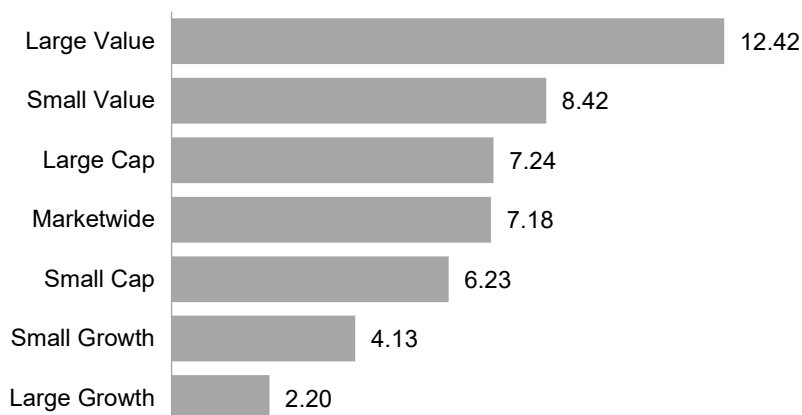
The US equity market posted positive returns for the quarter and underperformed both non-US developed and emerging markets.

Value outperformed growth.

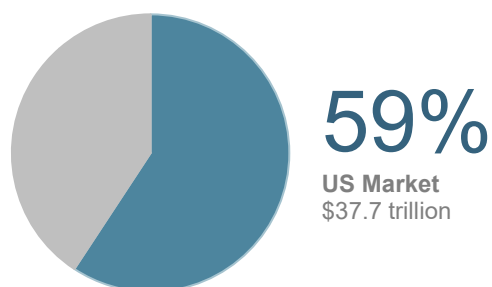
Small caps underperformed large caps.

REIT indices underperformed equity market indices.

Ranked Returns (%)



World Market Capitalization—US



Period Returns (%)

| Asset Class | QTR | 1 Year | Annualized | | |
|--------------|-------|--------|------------|---------|----------|
| | | | 3 Years | 5 Years | 10 Years |
| Large Value | 12.42 | -7.54 | 5.96 | 6.67 | 10.29 |
| Small Value | 8.42 | -14.48 | 4.70 | 4.13 | 8.48 |
| Large Cap | 7.24 | -19.13 | 7.35 | 9.13 | 12.37 |
| Marketwide | 7.18 | -19.21 | 7.07 | 8.79 | 12.13 |
| Small Cap | 6.23 | -20.44 | 3.10 | 4.13 | 9.01 |
| Small Growth | 4.13 | -26.36 | 0.65 | 3.51 | 9.20 |
| Large Growth | 2.20 | -29.14 | 7.79 | 10.96 | 14.10 |

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 2023, all rights reserved.

International Developed Stocks

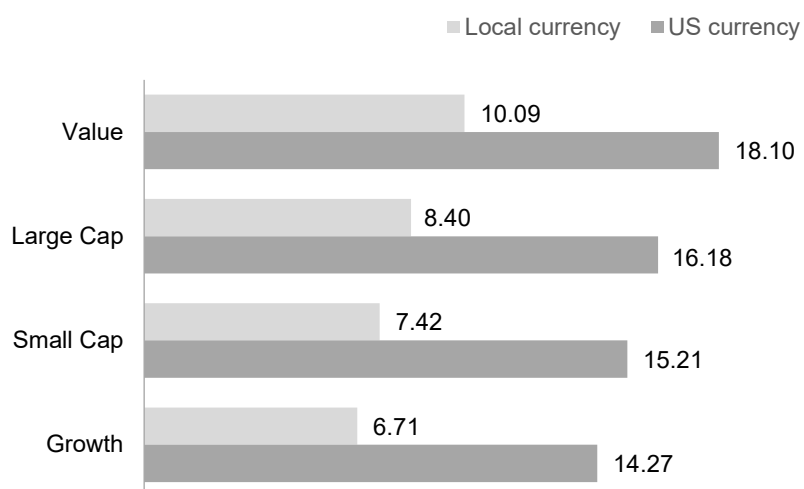
Fourth quarter 2022 index returns

Developed markets outside of the US posted positive returns for the quarter and outperformed both US and emerging markets.

Value outperformed growth.

Small caps underperformed large caps.

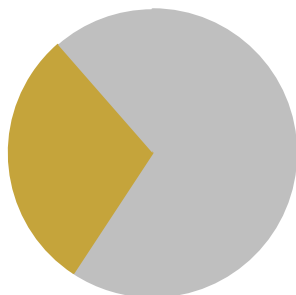
Ranked Returns (%)



World Market Capitalization— International Developed

29%

International
Developed Market
\$18.6 trillion



Period Returns (%)

| Asset Class | QTR | 1 Year | 3 Years | Annualized | |
|-------------|-------|--------|---------|------------|----------|
| | | | | 5 Years | 10 Years |
| Value | 18.10 | -5.64 | 1.13 | 0.56 | 3.55 |
| Large Cap | 16.18 | -14.29 | 1.27 | 1.79 | 4.59 |
| Small Cap | 15.21 | -20.59 | -0.15 | 0.45 | 5.77 |
| Growth | 14.27 | -22.68 | 0.71 | 2.56 | 5.35 |

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: 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 2023, 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

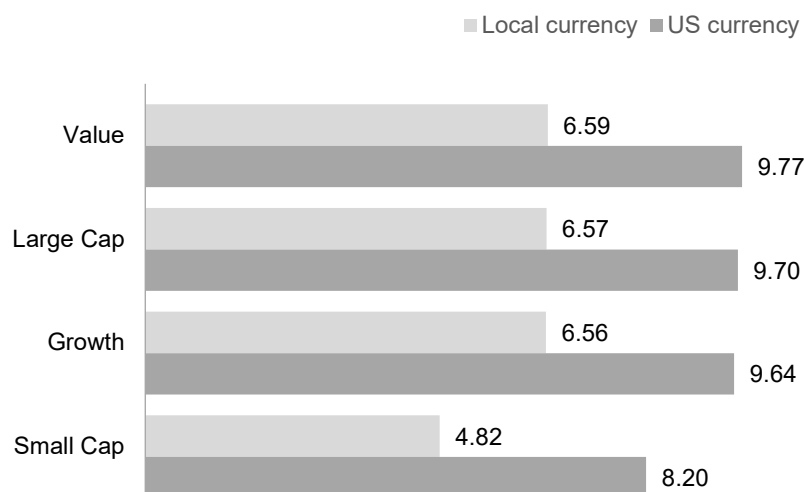
Fourth quarter 2022 index returns

Emerging markets posted positive returns for the quarter and outperformed the US market, but underperformed non-US developed markets.

Value outperformed growth.

Small caps underperformed large caps.

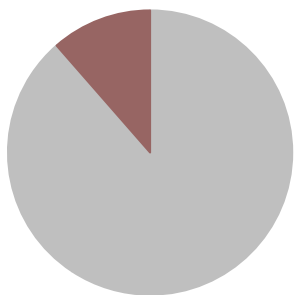
Ranked Returns (%)



World Market Capitalization— Emerging Markets

11%

Emerging
Markets
\$7.3 trillion



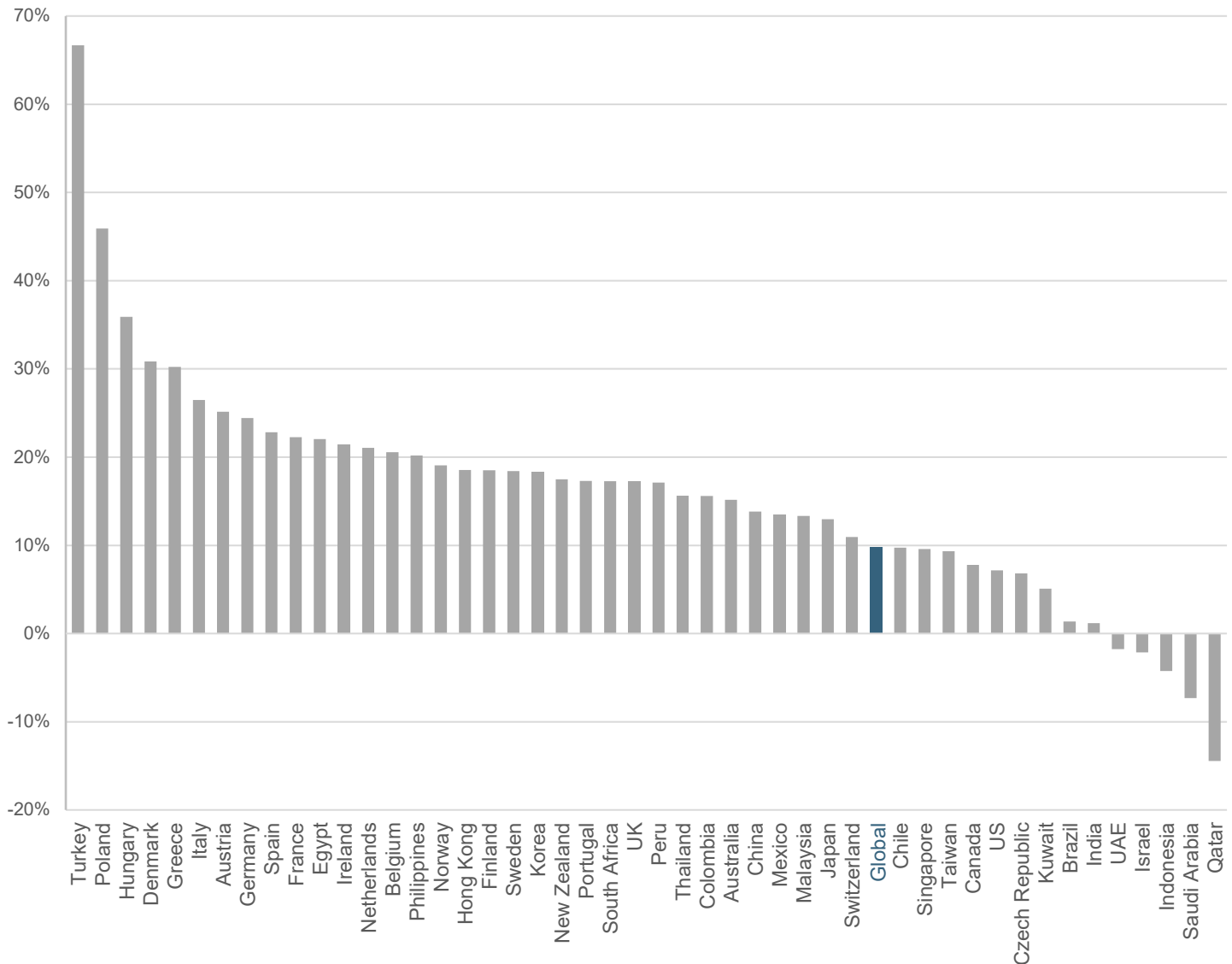
Period Returns (%)

| Asset Class | QTR | 1 Year | 3 Years | Annualized | |
|-------------|------|--------|---------|------------|----------|
| | | | | 5 Years | 10 Years |
| Value | 9.77 | -15.83 | -2.62 | -1.59 | 0.06 |
| Large Cap | 9.70 | -20.09 | -2.69 | -1.40 | 1.44 |
| Growth | 9.64 | -23.96 | -2.93 | -1.33 | 2.68 |
| Small Cap | 8.20 | -18.02 | 5.11 | 1.06 | 3.21 |

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Country Returns

Fourth quarter 2022 index returns



Past performance is no guarantee of future results.

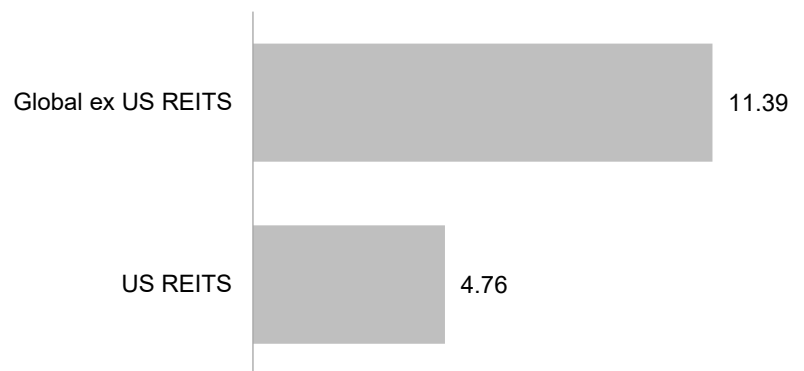
Country returns are the country component indices of the MSCI All Country World IMI Index for all countries except the United States, where the Russell 3000 Index is used instead. Global is the return of the MSCI All Country World IMI Index. MSCI index returns are net dividend. Indices are not available 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 2023, all rights reserved.

Real Estate Investment Trusts (REITs)

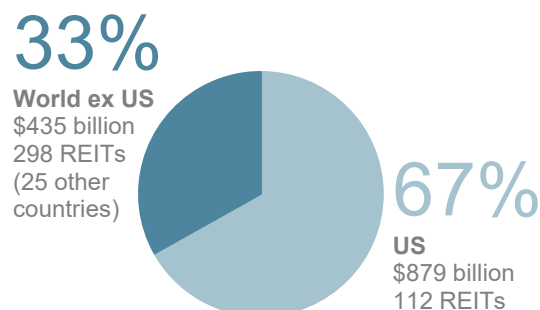
Fourth quarter 2022 index returns

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

Ranked Returns (%)



Total Value of REIT Stocks



Period Returns (%)

| Asset Class | QTR | 1 Year | Annualized | | |
|--------------------|-------|--------|------------|---------|----------|
| | | | 3 Years | 5 Years | 10 Years |
| Global ex US REITs | 11.39 | -22.56 | -7.77 | -2.13 | 1.61 |
| US REITs | 4.76 | -25.96 | -1.37 | 2.50 | 5.74 |

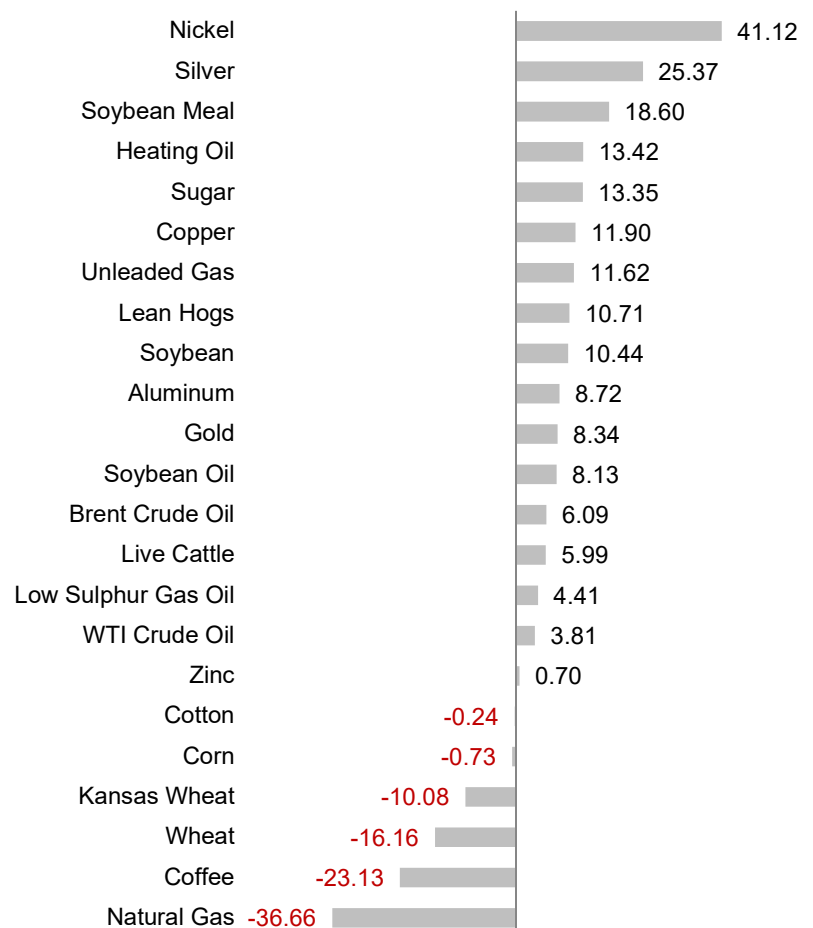
Commodities

Fourth quarter 2022 index returns

The Bloomberg Commodity Total Return Index returned +2.22% for the fourth quarter of 2022.

Nickel and Silver were the best performers, returning +41.12% and +25.37% during the quarter, respectively. Natural Gas and Coffee were the worst performers, returning -36.66% and -23.13% during the quarter, respectively.

Ranked Returns (%)



Period Returns (%)

| Asset Class | QTR | 1 Year | Annualized | | |
|-------------|------|--------|------------|---------|----------|
| | | | 3 Years | 5 Years | 10 Years |
| Commodities | 2.22 | 16.09 | 12.65 | 6.44 | -1.28 |

Fixed Income

Fourth quarter 2022 index returns

Interest rates changes were mixed in the US Treasury market for the quarter.

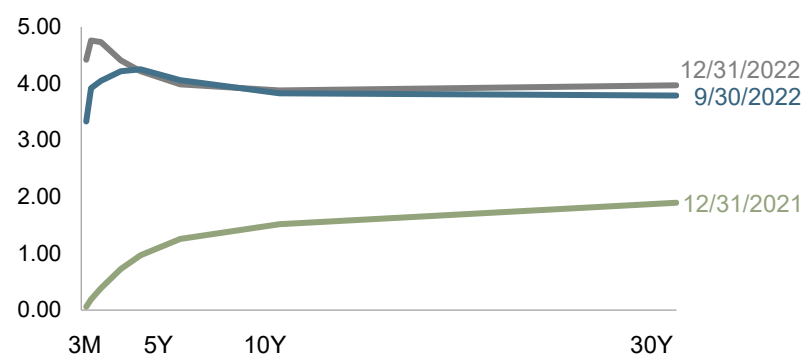
On the short end of the yield curve, the 1-Month US Treasury Bill yield increased 133 basis points (bps) to 4.12%, while the 1-Year US Treasury Bill yield increased 68 bps to 4.73%. The yield on the 2-Year US Treasury Note increased 19 bps to 4.41%.

The yield on the 5-Year US Treasury Note decreased 7 bps to 3.99%. The yield on the 10-Year US Treasury Note increased 5 bps to 3.88%. The yield on the 30-Year US Treasury Bond increased 18 bps to 3.97%.

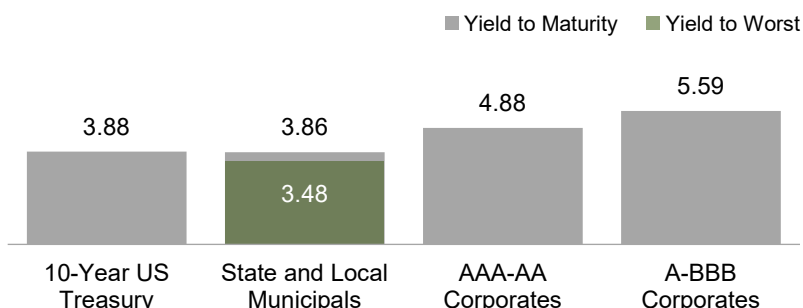
In terms of total returns, short-term US treasury bonds returned +0.94% while intermediate-term US treasury bonds returned +1.02%. Short-term corporate bonds returned +1.95% and intermediate-term corporate bonds returned +2.72%.¹

The total return for short-term municipal bonds was +2.00% and +3.81% for intermediate-term municipal bonds. Within the municipal fixed income market, general obligation performed in line with revenue bonds, returning +4.19% vs +4.21%, respectively.²

US Treasury Yield Curve (%)



Bond Yields Across Issuers (%)



Period Returns (%)

| Asset Class | QTR | 1 Year | Annualized | | |
|--|-------|--------|------------|---------|----------|
| | | | 3 Years | 5 Years | 10 Years |
| Bloomberg U.S. High Yield Corporate Bond Index | 4.17 | -11.19 | 0.05 | 2.31 | 4.03 |
| Bloomberg Municipal Bond Index | 4.10 | -8.53 | -0.77 | 1.25 | 2.13 |
| FTSE World Government Bond Index 1-5 Years | 3.83 | -8.73 | -2.44 | -1.15 | -1.20 |
| Bloomberg U.S. TIPS Index | 2.04 | -11.85 | 1.21 | 2.11 | 1.12 |
| Bloomberg U.S. Aggregate Bond Index | 1.87 | -13.01 | -2.71 | 0.02 | 1.06 |
| ICE BofA US 3-Month Treasury Bill Index | 0.84 | 1.46 | 0.72 | 1.26 | 0.76 |
| ICE BofA 1-Year US Treasury Note Index | 0.76 | -1.02 | 0.23 | 1.09 | 0.74 |
| FTSE World Government Bond Index 1-5 Years (hedged to USD) | 0.57 | -4.49 | -0.75 | 0.73 | 0.98 |
| Bloomberg U.S. Government Bond Index Long | -0.59 | -29.19 | -7.39 | -2.19 | 0.61 |

1. Bloomberg US Treasury and US Corporate Bond Indices

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 (S&BI) Yearbook™, Ibbotson Associates, Chicago (annually updated work by Roger G. Ibbotson and Rex A. Sinquefeld). FTSE fixed income indices © 2023 FTSE Fixed Income LLC, all rights reserved. ICE BofA index data © 2023 ICE Data Indices, LLC. S&P data © 2023 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Bloomberg data provided by Bloomberg.

Global Fixed Income

Fourth quarter 2022 yield curves

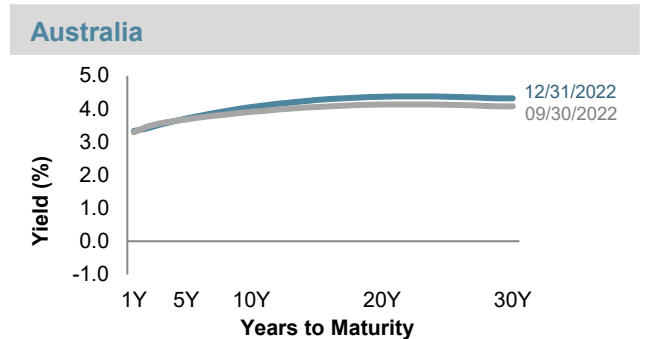
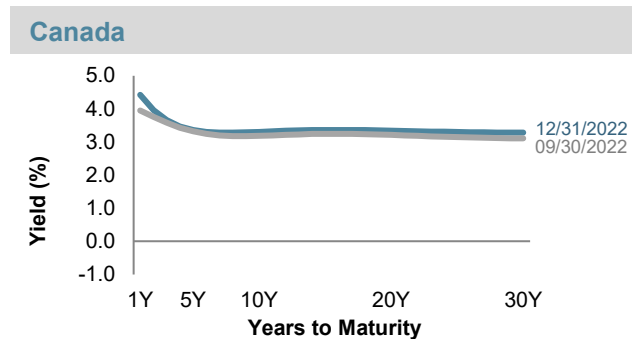
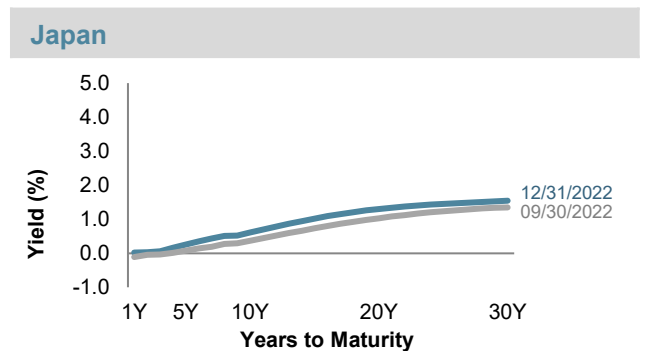
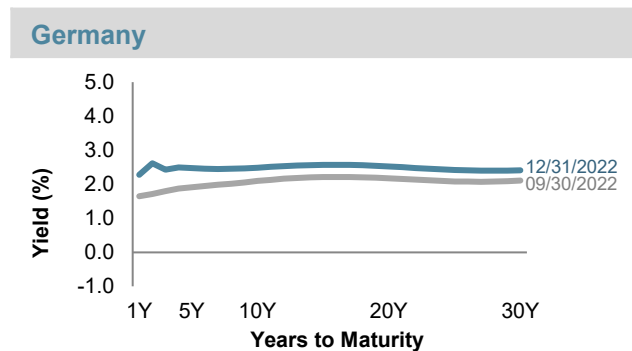
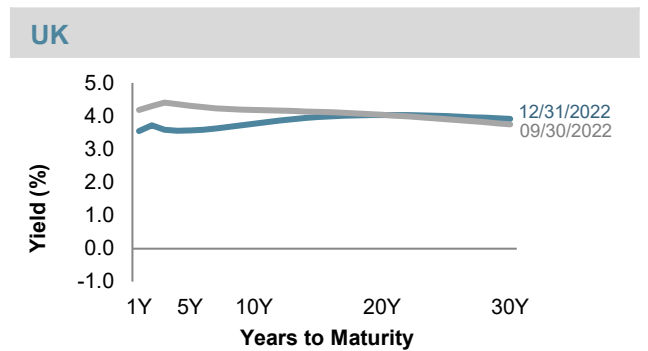
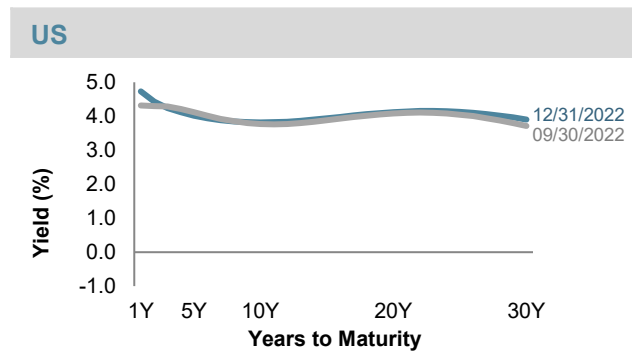
Interest rate changes were mixed within global developed markets for the quarter. Generally, interest rates increased the most along the ultra-short and longer-term segments.

Realized term premiums were mixed within global developed markets. Intermediate-term bonds were generally the best performers and long-term bonds were generally the worst performers.

In Japan, except for ultra-short term interest rates, interest rates were generally positive. In Canada, the short-term maturity segment of the yield curve remained inverted.

Changes in Yields (bps) since 9/30/2022

| | 1Y | 5Y | 10Y | 20Y | 30Y |
|-----------|-------|-------|-------|------|------|
| US | 41.0 | -10.2 | 4.8 | 3.6 | 19.4 |
| UK | -63.7 | -74.6 | -41.2 | -0.5 | 16.1 |
| Germany | 63.1 | 55.9 | 39.1 | 35.3 | 30.3 |
| Japan | 13.1 | 17.9 | 24.4 | 27.1 | 19.2 |
| Canada | 46.9 | 4.0 | 12.0 | 13.0 | 17.1 |
| Australia | 4.2 | 2.3 | 14.4 | 23.7 | 24.1 |



Time the Market at Your Peril

Fourth quarter 2022

David Booth, Executive Chairman and Founder, Dimensional Fund Advisors

Technology enables immediate access to everything wherever and whenever we want it. In many cases, such as staying in touch with friends and family, or learning about world events, that's a good thing. However, when it comes to investing and money management, my fear is that faster and easier ways of investing will allow people to lose more money faster and easier.

As access to investing expands, it becomes even more important to adopt an investment plan that doesn't try to actively pick stocks or time the market. The purpose of having an investment plan is so you can relax. So you don't look at the market every day, stressing out and asking, "How'm I doing? How'm I doing?" Investors actively trading are not just potentially missing out on the expected return of the market—they're stressed out, worrying about how the news alert they just received will impact their long-term financial health, and whether they can or should do anything about it.

I don't blame people for this. The financial services industry has not done a good enough job educating investors that the best approach for their long-term financial well-being is to make a plan, implement it, and stick with it.

But it has done a great job selling index funds. Over the past decade, the percentage of the stock market that is passively held has grown considerably, with equity index funds representing 52% of the US equity fund market at the end of 2021.¹ And yet some

investors appear to be using index funds to pursue an active investment approach. For example, the largest S&P 500 ETF had the highest average daily trade volume of US-listed securities in 2021, at \$31 billion.² So instead of picking individual stocks, people seem to be acting like stock pickers when buying and selling index funds and ETFs.

Despite the overwhelming evidence and compelling story to the contrary. When economist Michael Jensen published his landmark 1968 paper, which showed that active stock pickers added no consistent value, other academics soon confirmed his insights. More than five decades and 50 years of data later, the theory still holds up. There are some stock pickers who experience success, but we don't know how to identify them before the fact. We can't separate skill from luck. Picking stocks is more like gambling than investing.

This academic research inspired the invention of the index fund, which allowed investors not only to buy the broad stock market, but also to track the performance of the manager and compare costs. I worked on one of the first index funds. When I co-founded Dimensional, we built strategies that were informed by indices but weren't limited by the same mechanical constraints. So I accepted this research early on and built a company based on it. I still believe it 50 years later. My colleagues and I weren't sure at the beginning that it would appeal to a lot of people, but it did.

1. Data sourced from Morningstar; funds of funds are excluded.

2. US dollars.

Time the Market at Your Peril

(continued from page 15)

I'm proud of the fact that we have always viewed marketing as a way to educate financial professionals and investors. In fact, we started by working with institutions and only expanded to individual investors by working with financial advisors who could help teach their clients how to think about the market and invest for the long term. We wanted to prevent people from making the mistake I still see too many people making.

But I fear it will only get worse. ETFs make it easier to trade. So do free platforms that allow people to trade on their phones. There seem to be as many ETFs as there are stocks that make up those ETFs. I really like ETFs. They are another chapter in this 50-year story of creating safer and better financial products for investors. Our firm has been using them to give financial professionals and investors more

choice in how they access Dimensional Investing. But they are tools, and they have to be used effectively. Which is why you may need an advisor more than ever—to help keep you from jumping from one thing to another. Our approach is to get you out of the game of worrying and guessing by having a plan that can provide peace of mind. It's a sensible approach you can live with. Trust the financial advisor who trusts the market.

The financial industry has made great strides improving the investment options available, but we have more work to do helping investors with those options. There are great solutions right in front of people. As an industry, we need to do a better job of educating current and potential clients. How the bulk of our society lives out their later years depends on it.

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. Diversification does not eliminate the risk of market loss.

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