MILLENNIUM
INVESTMENT SERVICES

QUARTERLY MARKET REVIEW

FIRST QUARTER 2022

Quarterly Market Review

First Quarter 2022

2022 got off to a volatile start, as a variety of factors pushed stock and bond returns markedly lower in the first quarter. It began with a surge in inflation, and the promise of rising interest rates sooner than expected. Then Russia shocked the world with a full-blown attack of Ukraine. When it became clear that the assault would not be over in a few days, markets began calibrating the impact of a longer-term conflict.

The daily horror raining down on the people of Ukraine is beyond saddening, with the atrocities being inflicted upon them drawing comparisons to those of the Nazi regime in World War II. The market response was not solely due to geopolitical concerns, though, as the invasion quickly caused dramatic rises in commodity prices, and exacerbated existing supply chain issues. Much of the rest of the world displayed unprecedented unity against Russia, imposing debilitating economic sanctions. However, those sanctions will also have a negative impact on worldwide economic activity, raising further concerns.

At this point, it's impossible to predict how long this awful war will continue, or if it, heaven forbid, will escalate to include more countries or even the use of nuclear weapons. It's during times like these, when uncertainty abounds, and the most emotionally comforting thing would be to pull your money out of

Overview:

Quarterly Market Review

(continued from page 2)

the equity markets, that we urge clients to set aside that impulse. Instead of making wholesale changes to a well-thought-out investment plan, try to stay calm, and if anything, consider using market disruption as an opportunity to add to such positions here and there.

The coming months are likely to be bumpy, as the impact of the war and higher interest rates are factored into equity and fixed income security prices. However, the Fed will eventually get a handle on inflation, and we are already seeing strong employment numbers, as the Department of Labor recently announced the lowest weekly jobless claims in over 50 years. It's also encouraging that many parts of society are returning to at least a version of normal, post-COVID. One or more future surges in virus cases are predicted by many, but the hope is that, similar to Omicron, as vaccination rates rise, the overall level of severity of any surge will become lessened.

Peace to you and yours.

Warm regards,

Tony Reed

Tony Reed, CPA, CFP
President

MILLENNIUM INVESTMENT SERVICES

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
Q1 2022	**STOCKS**				**BONDS**	
	-5.28%	-4.81%	-6.97%	-3.81%	-5.93%	-4.05%
Since Jan. 2001						
Average Quarterly Return	2.4%	1.6%	2.8%	2.6%	1.0%	1.0%
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 © 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 March 31, 2022

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
	STOCKS				BONDS	
1 Year	11.92%	3.04%	-11.37%	18.97%	-4.15%	-3.56%
5 Years	15.40%	7.14%	5.98%	7.10%	2.14%	2.25%
10 Years	14.28%	6.25%	3.36%	7.48%	2.24%	3.20%

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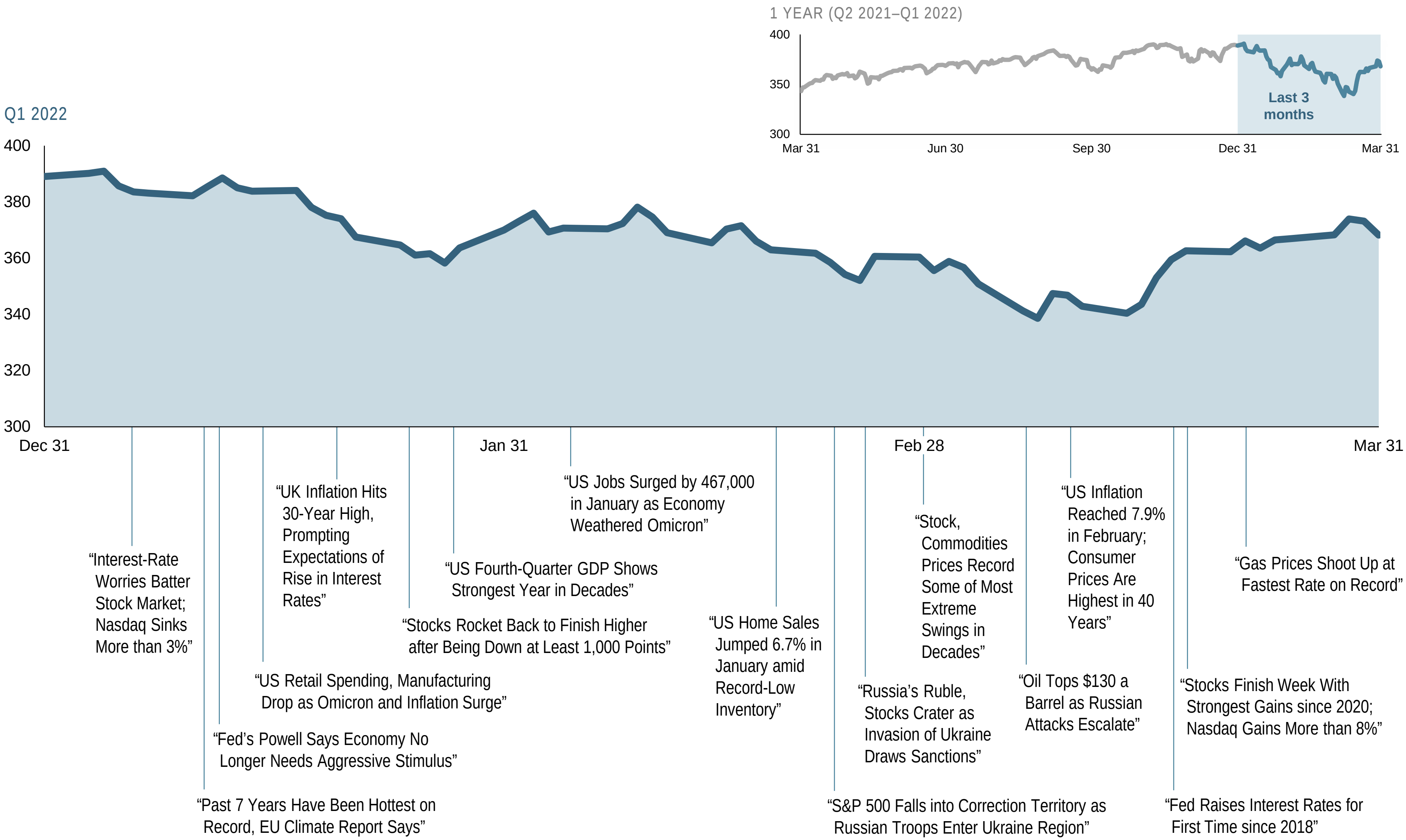
World Stock Market Performance

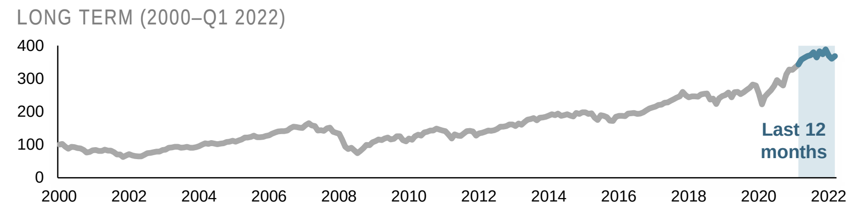
MSCI All Country World Index with selected headlines from Q1 2022

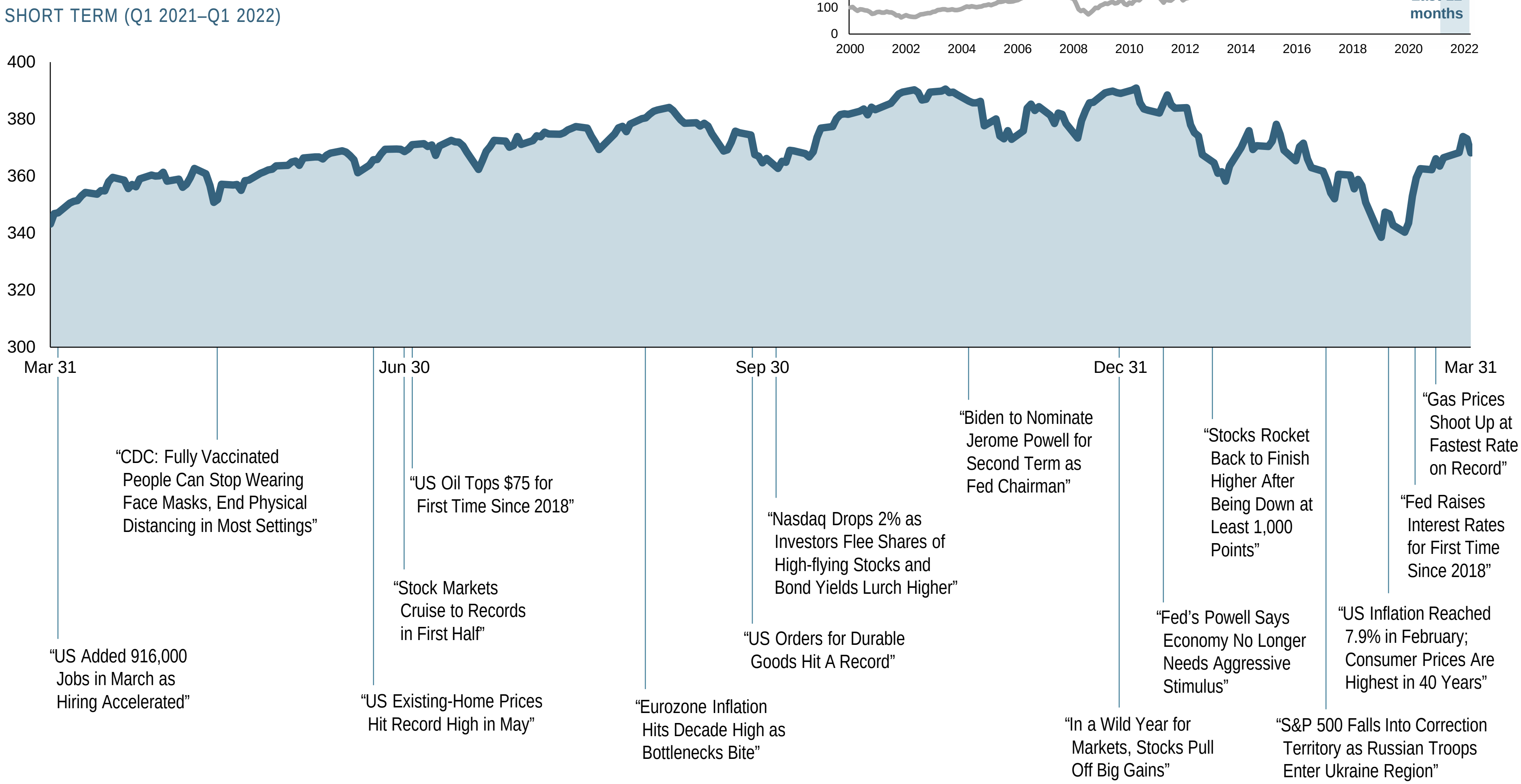


These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.

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

First quarter 2022 index returns

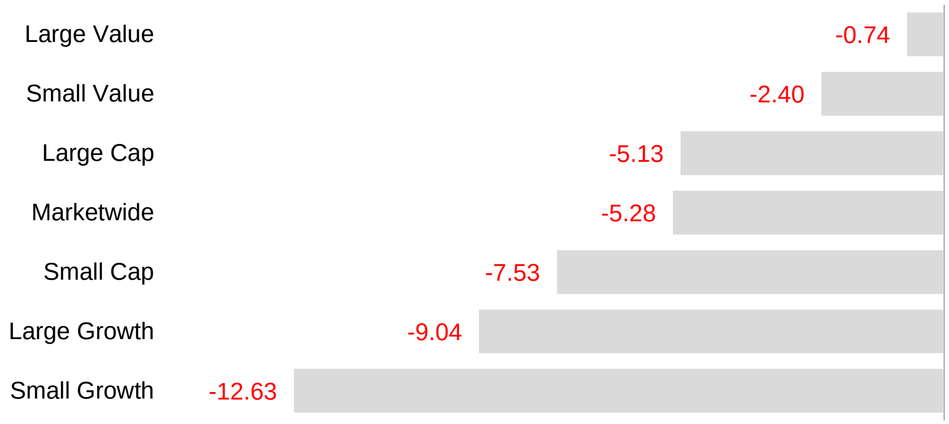
The US equity market posted negative returns for the quarter and underperformed non-US developed markets, but outperformed emerging markets.

Value outperformed growth.

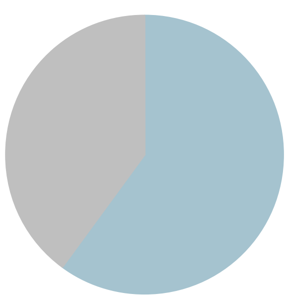
Small caps underperformed large caps.

REIT indices outperformed equity market indices.

Ranked Returns (%)



World Market Capitalization—US



60%

US Market
$44.9 trillion

Period Returns (%)

** Annualized*

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Large Value	-0.74	11.67	13.02	10.29	11.70
Small Value	-2.40	3.32	12.73	8.57	10.54
Large Cap	-5.13	13.27	18.71	15.82	14.53
Marketwide	-5.28	11.92	18.24	15.40	14.28
Small Cap	-7.53	-5.79	11.74	9.74	11.04
Large Growth	-9.04	14.98	23.60	20.88	17.04
Small Growth	-12.63	-14.33	9.88	10.33	11.21

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International Developed Stocks

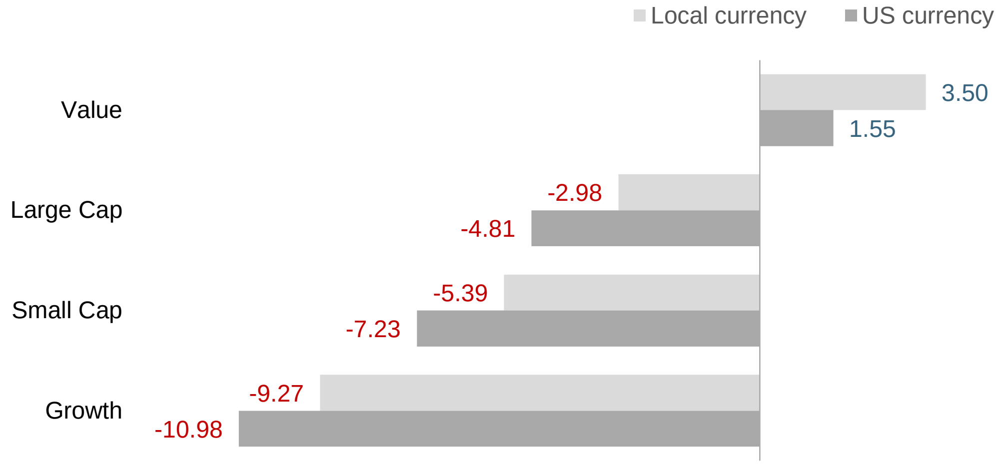
First quarter 2022 index returns

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

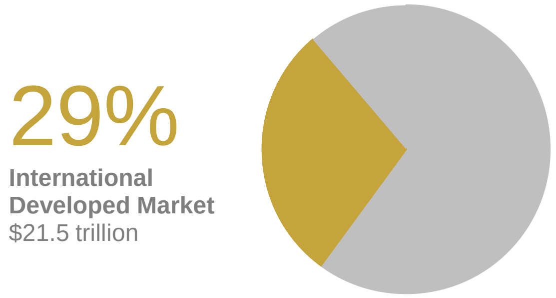
Value outperformed growth.

Small caps underperformed large caps.

Ranked Returns (%)



World Market Capitalization—International Developed



Period Returns (%)

** Annualized*

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Value	1.55	6.18	6.29	4.86	5.02
Large Cap	-4.81	3.04	8.55	7.14	6.25
Small Cap	-7.23	-1.69	9.55	7.79	7.78
Growth	-10.98	-0.32	10.20	9.07	7.26

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 2022, all rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.

Emerging Markets Stocks

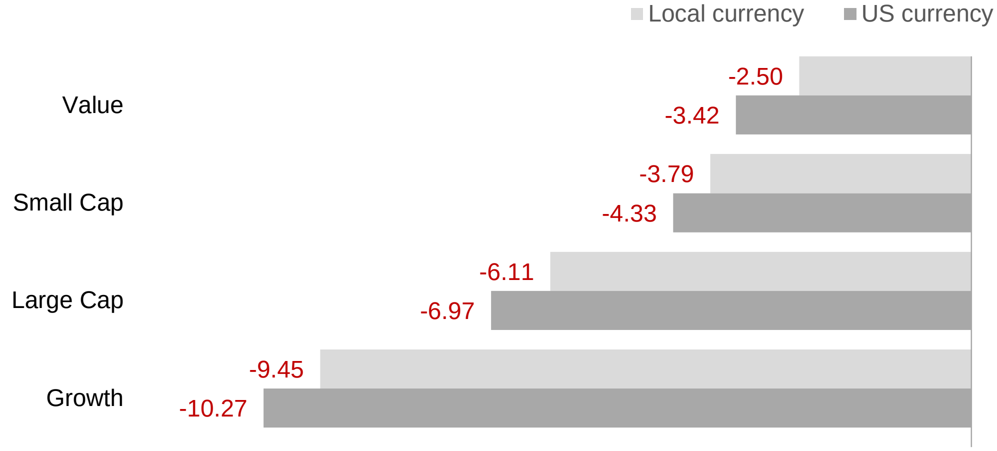
First quarter 2022 index returns

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

Value outperformed growth.

Small caps outperformed large caps.

Ranked Returns (%)

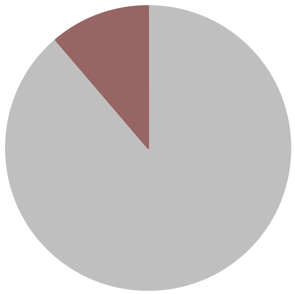


World Market Capitalization—Emerging Markets

11%

Emerging Markets

$8.4 trillion



Period Returns (%)

** Annualized*

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Value	-3.42	-3.53	3.22	4.24	1.58
Small Cap	-4.33	5.52	11.93	7.81	5.31
Large Cap	-6.97	-11.37	4.94	5.98	3.36
Growth	-10.27	-18.29	6.42	7.51	5.00

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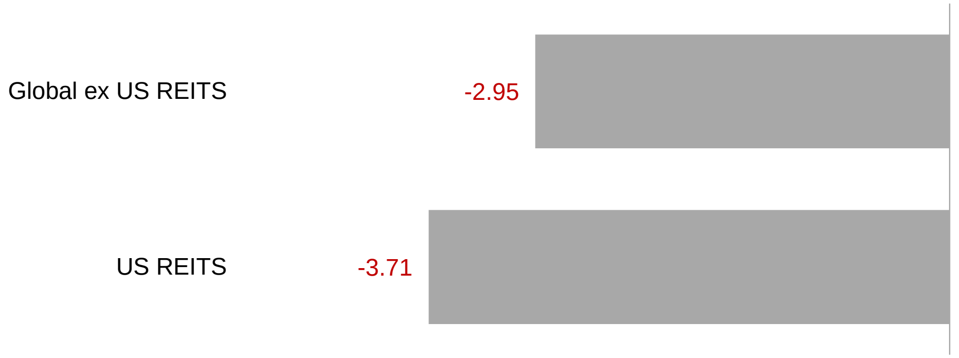
Real Estate Investment Trusts (REITs)

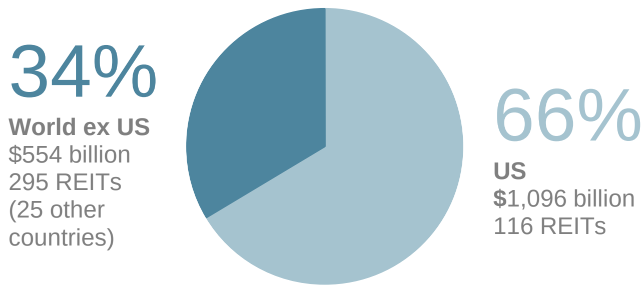
First quarter 2022 index returns

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

Ranked Returns (%)



Total Value of REIT Stocks



Period Returns (%)

** Annualized*

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Global ex US REITS	-2.95	7.00	2.85	4.66	5.72
US REITS	-3.71	27.72	9.90	8.89	9.17

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

Commodities

First quarter 2022 index returns

The Bloomberg Commodity Index Total Return returned +25.55% for the first quarter of 2022.

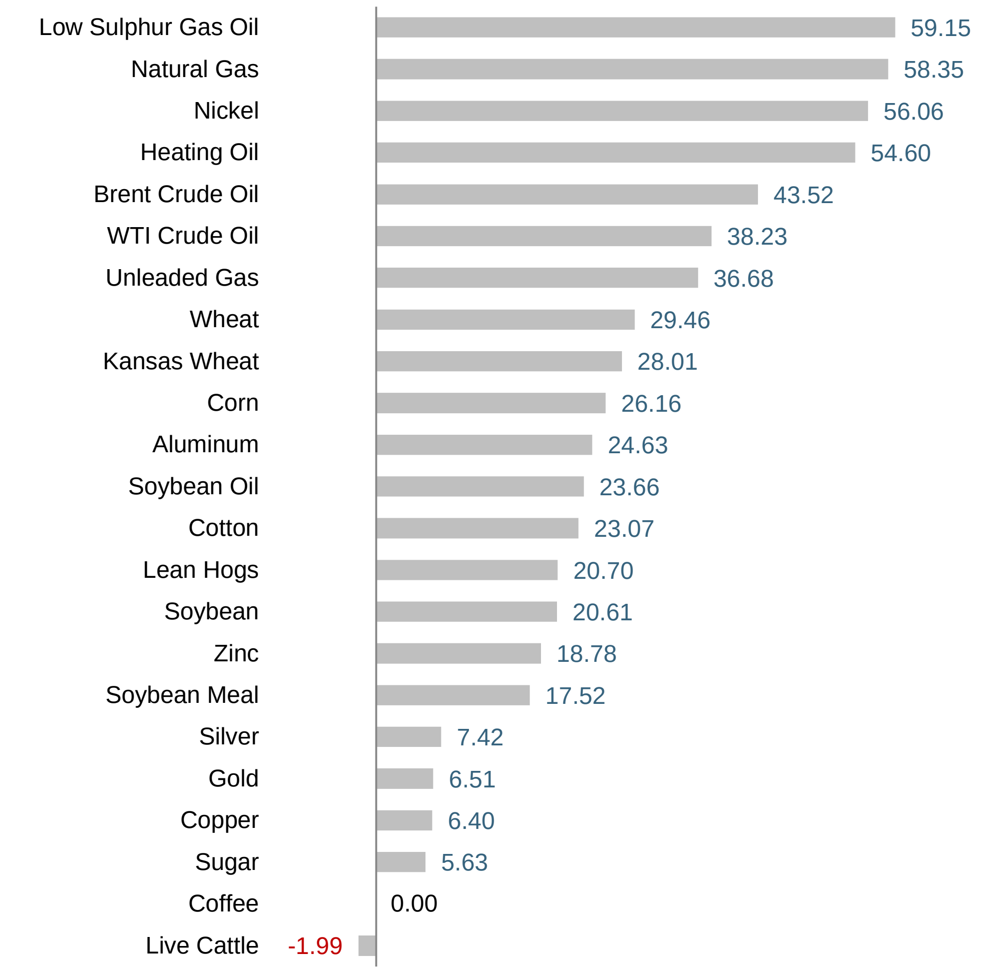
Low Sulphur Gas Oil and Natural Gas were the best performers, returning +59.15% and +58.35% during the quarter, respectively. Live Cattle and Coffee were the worst performers, returning -1.99% and 0.00% during the quarter, respectively.

Period Returns (%)

** Annualized*

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Commodities	25.55	49.25	16.12	9.00	-0.70

Ranked Returns (%)



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

First quarter 2022 index returns

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

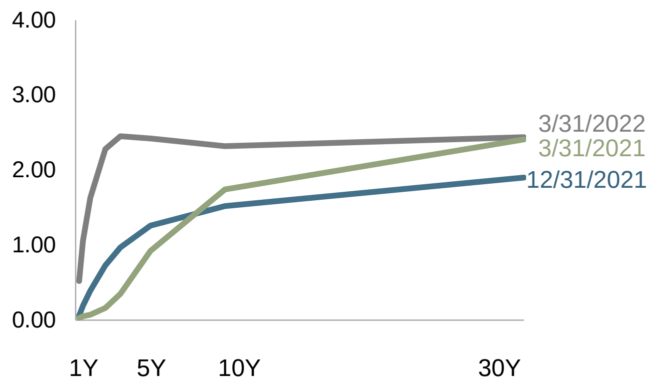
The yield on the 5-Year US Treasury Note increased 116 basis points (bps) to 2.42%. The yield on the 10-Year US Treasury Note increased 80 bps to 2.32%. The yield on the 30-Year US Treasury Bond increased 54 bps to 2.44%.

On the short end of the yield curve, the 1-Month US Treasury Bill yield increased 11 bps to 0.17%, while the 1-Year US Treasury Bill yield increased 124 bps to 1.63%. The yield on the 2-Year US Treasury Note increased 155 bps to 2.28%.

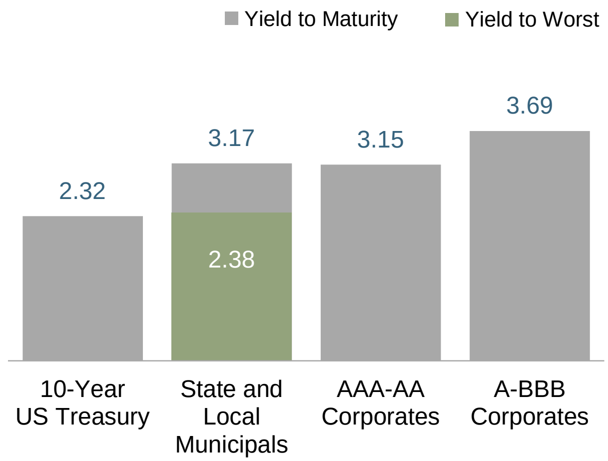
In terms of total returns, short-term corporate bonds returned -3.73% and intermediate-term corporate bonds returned -5.25%.[1]

The total return for short-term municipal bonds was -3.33% and -5.77% for intermediate-term municipal bonds. Within the municipal fixed income market, general obligation bonds outperformed revenue bonds, returning -6.07% versus -6.54%, respectively.[2]

US Treasury Yield Curve (%)



Bond Yield Across Issuers (%)



Period Returns (%)

*Annualized

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
ICE BofA US 3-Month Treasury Bill Index	0.04	0.06	0.81	1.13	0.63
ICE BofA 1-Year US Treasury Note Index	-0.80	-0.94	1.01	1.22	0.78
FTSE World Government Bond Index 1-5 Years (hedged to USD)	-2.38	-2.81	0.86	1.34	1.36
Bloomberg U.S. TIPS Index	-3.02	4.29	6.22	4.43	2.69
FTSE World Government Bond Index 1-5 Years	-3.56	-5.58	0.05	0.74	-0.64
Bloomberg U.S. High Yield Corporate Bond Index	-4.84	-0.66	4.58	4.69	5.75
Bloomberg U.S. Aggregate Bond Index	-5.93	-4.15	1.69	2.14	2.24
Bloomberg Municipal Bond Index	-6.23	-4.47	1.53	2.52	2.88
Bloomberg U.S. Government Bond Index Long	-10.57	-1.46	3.23	3.88	3.96

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. Sinquefield). 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.

Is It Time to Sell Stocks?

First Quarter 2022

Weston Wellington
DFA Vice President

After touching record highs in early January, US stocks[1] have slumped, and investors have been confronted with worrisome headlines[2] in the financial press:

"Inflation Hits Fastest Clip Since '82"
—Gwynn Guilford, *Wall Street Journal*, January 13, 2022

"Economists Cut Back Growth Forecasts as Threats Pile Up"
—Harriett Torry and Anthony DeBarros, *Wall Street Journal*, January 18, 2022

"Giant Stock Swings Send Some Into Bear Territory"
—Gunjan Banerji and Peter Santilli, *Wall Street Journal*, January 18, 2022

"Markets Drop as Turbulent Trading Persists"
—Gunjan Banerji and Will Horner, *Wall Street Journal*, January 26, 2022

"Fed Set to Start Increasing Rates by Mid-March"
—Nick Timiraos, *Wall Street Journal*, January 27, 2022

Some stocks that attracted intense interest last year have fallen sharply from their previous highs, as **Exhibit 1** shows.[3]

Is rising inflation a negative for equity investors? Do large losses in a handful of popular stocks signal a downturn ahead for the broad market?

Invariably, the question behind the question is, "Should I be doing something different in my portfolio?" This is just another version of the market timing question dressed in different clothes. Should I sell stocks and wait for a more favorable outlook to buy them back? More precisely, can we find clear trading rules that will tell us when to buy or hold stocks, when to sell, when to admit our mistakes, and so on?

EXHIBIT 1

Stock Slump

Name	Ticker	Return through 12/31	Return through 1/31
Robinhood Markets Inc. Class A	HOOD	-79.1%	-83.4%
AMC Entertainment Holdings Inc. Class A	AMC	-62.5%	-77.9%
GameStop Corp. Class A	GME	-69.3%	-77.4%
Tesla Inc.	TSLA	-15.0%	-24.7%

Past performance is no guarantee of future results. Performance may increase or decrease as a result of currency fluctuations.

Source: Bloomberg.

Named securities may be held in accounts managed by Dimensional. This information should not be considered a recommendation to buy or sell a particular security.

The lure of successful trading strategies is seductive. If only we could find them, our portfolios would do so much better.

Consider Felicity Foresight. She is gifted with the ability to identify patterns in the champagne bubbles floating to the top of her glass on New Year's Eve, enabling her to predict the best performer between S&P 500 stocks and US Treasury bills over the subsequent 12 months. How would her hypothetical portfolio have performed over the past 50 years following this simple annual readjustment strategy?

1. As of January 31, the S&P 500 was down 5.17% for the year.
2. Headlines are sourced from publicly available news outlets and are provided for context, not to explain the market's behavior.
3. While these stocks were selected based on newsworthiness and the high level of attention they received in the media in 2021, their returns may not be reflective of all high-profile stocks over the period.

Is It Time to Sell Stocks?

(continued from page 14)

Rather well. Following a Perfect Timing strategy by investing in the best performer each year, she turned $1,000 into $1.8 million, nearly 10 times the wealth produced using a buy-and-hold strategy for the S&P 500 Index (see **Exhibit 2**).

EXHIBIT 2

Past Perfect?

Growth of $1,000, January 1972–December 2021	
Perfect Timing Strategy	$1,811,565
S&P 500 Index	$197,063
One-Month US Treasury Bills	$8,727
Perfectly Awful Timing Strategy	$949

Past performance is no guarantee of future results. Performance may increase or decrease as a result of currency fluctuations.

Source: One-Month US Treasury Bills is the IA SBBI US 30 Day TBill TR USD. S&P data © 2022 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. Treasury bills data provided by Ibbotson Associates via Morningstar Direct.

In USD. Data presented in the Growth of $1,000 exhibit is for illustrative purposes only and is not indicative of any investment. The examples assume that the hypothetical portfolio fully divested its holdings of stocks (or bonds) at the end of the last trading day of any year when a switch was indicated, held the other asset for the subsequent year, and performed the exercise again at year's end. The examples are hypothetical and assume reinvestment of income and no transaction costs or taxes. There is no guarantee strategies will be successful. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio.

But also consider Hapless Harry. He was never a fan of New Year's and manages to get it wrong each and every year. His Perfectly Awful strategy winds up losing money over the same 50-year period.

Motivated by the substantial payoff associated with successful timing, researchers over the years have examined a wide range of strategies based on analysis of earnings, dividends, interest rates, economic growth, investor sentiment, stock price patterns, and so on.

One colorful example, known as the Hindenburg Omen, had a brief moment of fame in 2010. Developed by a blind mathematician and former physics teacher, this stock market indicator took its name from the German airship disaster of 1937. The Omen signaled a decline only when multiple measures of 52-week high/low prices and moving averages all turned negative. This indicator had correctly foreshadowed major downturns in 1987 and 2008. When it flashed a "sell" signal on Thursday, August 12, 2010, internet chat rooms and Wall Street trading desks were buzzing the next day, Friday the 13th, with talk of a looming crash, according to the *Wall Street Journal*.[4] But no crash occurred, and the S&P 500 had its highest September return since 1939.[5]

The money management industry is highly competitive, with more stock mutual funds and ETFs available in the US than listed stocks.[6] If someone could develop a profitable timing strategy, we would expect to see some funds employing it with successful results. But a recent Morningstar report suggests investors should be wary of those claiming to do so. The report examined the results of two types of funds[7], each holding a mix of stocks and bonds:

- **Balanced**: Minimal change in allocation to stocks
- **Tactical Asset Allocation**: Periodic shifts in allocation to stocks

4. Steven Russolillo and Tomi Kilgore, " 'Hindenburg Omen' Flashes," Wall Street Journal, August 14, 2010.
5. Weston Wellington, "Hindenburg Omen Flames Out," Down to the Wire (blog), Dimensional Fund Advisors, October 8, 2010.
6. The Russell 3000 Index contains the stocks of 3,000 US companies and represented about 97% of the investable US equity market as of Dec. 31, 2021. According to the Investment Company Institute, there were 2,997 domestic equity funds and 1,032 US equity exchange-traded funds at the end of 2020.
7. Morningstar described the risk profile of the Tactical Asset allocation as generally in line with that of Morningstar's 50%–70% equity category. The narrower "balanced" category used here was a subset of Morningstar's 50%–70% category that has a fairly static mix of about 60% stocks and 40% bonds.

Is It Time to Sell Stocks?

(continued from page 15)

As a group, funds that sought to enhance results by opportunistically shifting assets between stocks and fixed income underperformed funds that simply held a relatively static mix (see **Exhibit 3**). Morningstar further pointed out that if the performance of non-surviving tactical funds were included, the numbers would be even worse. Its conclusion: “The failure of tactical asset allocation funds suggests investors should not only stay away from funds that follow tactical strategies, but they should also avoid making short-term shifts between asset classes in their own portfolios.”[8]

EXHIBIT 3

Scare Tactics

% Annualized Return through August 31, 2021	3 Year	5 Year	10 Year
Tactical Asset Allocation	8.36	8.38	6.18
Balanced	10.49	9.89	8.93
Tactical Underperformance	-2.13	-1.51	-2.75

Past performance, including hypothetical performance, is no guarantee of future results. Performance may increase or decrease as a result of currency fluctuations.

Source Morningstar. Morningstar defines Tactical Allocation portfolios as those that “seek to provide capital appreciation and income by actively shifting allocations across investments. These portfolios have material shifts across equity regions and bond sectors on a frequent basis. To qualify for the tactical allocation category, the fund must have minimum exposures of 10% in bonds and 20% in equity. Next, the fund must historically demonstrate material shifts in sector or regional allocations either through a gradual shift over three years or through a series of material shifts on a quarterly basis. Within a three-year period, typically the average quarterly changes between equity regions and bond sectors exceeds 15% or the difference between the maximum and minimum exposure to a single equity region or bond sector exceeds 50%.”

We should not be surprised by these results. Successful timing requires two correct decisions: when to pare back the allocation to stocks and when to increase it again. Watching a portfolio shrink in value during a market downturn can be discomforting. But investors seeking to avoid the pain by temporarily shifting away from their long-term strategy may wind up trading one source of anguish for another. The initial upsurge in prices from their lows often takes many investors by surprise, and they find it extraordinarily difficult to buy stocks that were available at sharply lower prices a few weeks earlier. The opportunity cost can be substantial: Over the 25-year period ending in 2021, a hypothetical $100,000 invested in the stocks that make up the Russell 3000 Index would have grown to $1,036,694.[9] But during this quarter-century, missing just the best consecutive 90-trading-day period (which ended June 22, 2020) shaved the ending wealth figure by an alarming 33%.[10]

Add to this the likelihood of increased transaction costs and the potential tax consequences of a short-term trading strategy, and the odds of adding value through market timing grow even slimmer.

As a thoughtful financial advisor once observed, “A portfolio is like a bar of soap. The more you handle it, the less you have.”

8. Amy C. Arnott, “Tactical Asset Allocation: Don’t Try This at Home,” Morningstar, September 20, 2021.
9. Data presented in the Growth of $100,000 example is hypothetical and assumes reinvestment of income and no transaction costs or taxes. The exhibit is presented for illustrative purposes only and is not indicative of any investment.
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