

Q3

Quarterly Market Review

Third Quarter 2022

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This report features world capital market performance and a timeline of events for the past quarter. It begins with our quarterly commentary, followed by the returns of stock, commodities, and bond asset classes in the US and international markets.

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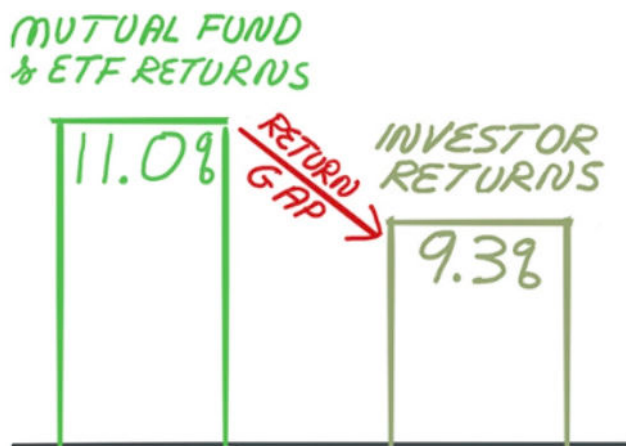
What We “Know”

“Hope is important because it can make the present moment less difficult to bear. If we believe that tomorrow will be better, we can bear a hardship today.”—Thích Nhất Hạnh

A common theme in our letters over the last year has been that it’s very hard to time the market. In our last quarterly letter, while we acknowledged all the negative forces that could affect the market, we listed five things to be optimistic about. And indeed, the market (defined as the S&P 500 for expedience) started the quarter by rallying 9% in July, before falling 4% in August and another 9% in September. All in, the market declined a bit less than 5% for the quarter.

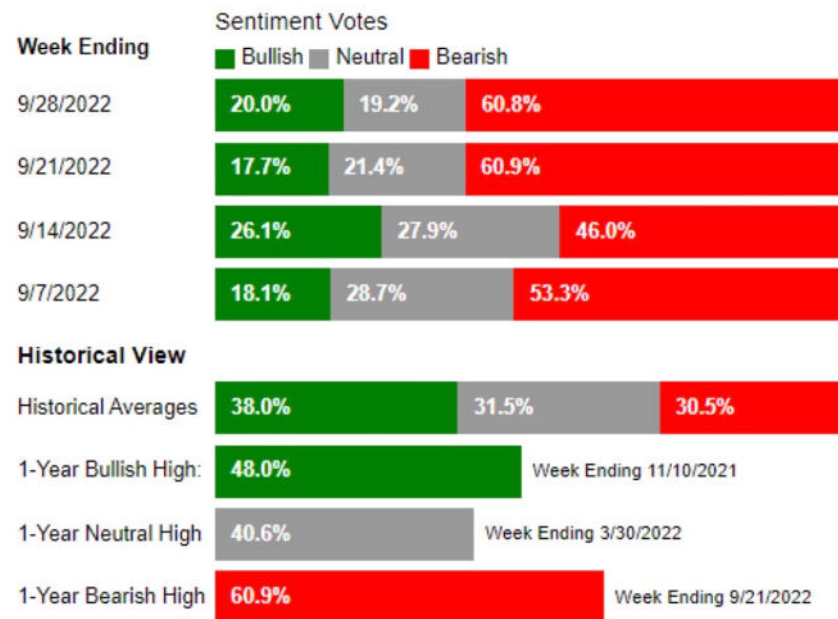
That’s obviously disappointing. But while 5% isn’t a disaster, because the market rose and then fell 13% in the last two months, it *feels* a lot worse than it was. That is a danger.

We have spoken at length about the behavior gap, whereby mutual fund investors underperform the underlying funds. The study we had been quoting was dated, but a new study from Morningstar just came out with data through 2021. Unfortunately, recent investor performance hasn’t improved.¹



As you can see from the chart on the left, investors continue to underperform the underlying funds, and by an amount that hasn’t diminished over time. The study puts the reason for the gap squarely on buy and sell decisions by investors, which is often tied to volatility.

One of the reasons for that return gap is that it is common for people to become bearish after the market declines. Last quarter, we showed you the American Association of Individual Investors (AAII)² sentiment survey which showed that investors were much more bearish than normal. Since then, it’s gotten worse.



¹ https://www.aaii.com/investor-update/article/19281-mutual-fund-and-etf-investors-continue-to-lower-their-returns?a=updatenm20220804&utm_medium=email&_hsmi=221885439&_hsenc=p2ANatz-aLwn1zL5IKSpOl_pvbnCRmToFF4dgBqwxWCMmCk8R_Op_uHOJxPKWBd4GZ5uiRREnm5Zv0Vhf
² <https://www.aaii.com/sentimentsurvey>

What We “Know”

(continued from page 3)

The “experts” don’t know what will happen either. On the same day in July, a JP Morgan strategist said that that inflation had peaked, the Fed would pivot, and equities would rebound in the second half, while Morgan Stanley strategists said it was too early to expect the Fed to stop tightening even as fears of recession grow.³ Separately, the CEO of Goldman Sachs, David Solomon, was quoted as saying, “In my dialogue with CEOs operating big global businesses, they tell me that they continue to see persistent inflation in their supply chains. Our economists, meanwhile, say there are signs that inflation will move lower in the second half of the year. The answer in uncertain.”⁴ One investor even blamed inflation on millennials⁵, which seems like a bit of a stretch to me.

I really love this recent quote by Howard Marks⁶:

“When asked whether we’re heading toward a recession, my usual answer is that whenever we’re not in a recession, we’re heading toward one. The question is when. I believe we’ll always have cycles, which means recessions and recoveries will always lie ahead. Does the fact that there’s a recession ahead mean we should reduce our investments or alter our portfolio allocation? I don’t think so.”

I wanted to address two other things in this letter that we haven’t addressed in the past. First, there are some who argue that all the innovation is in technology so why not just own technology? I recently saw this chart which listed the top 30 stocks ranked by total return over the last 30 years:⁷

Best Performing Stocks in the S&P 500 over the last 30 Years (Sep 1992 - Aug 2022)							
Rank	Symbol	Name	Industry	IPO Date	30-Yr Total Return	Annualized Return	Growth of \$10k
1	MNST*	Monster Beverage Corp	Beverages - Non-Alcoholic	8/18/1995	213088%	32.8%	\$ 21,318,826
2	AMZN*	Amazon.com Inc	Internet Retail	5/15/1997	168927%	34.1%	\$ 16,902,713
3	POOL*	Pool Corp	Industrial Distribution	10/13/1995	49989%	26.0%	\$ 5,008,857
4	AAPL	Apple Inc	Consumer Electronics	12/12/1980	46544%	22.7%	\$ 4,664,384
5	NVDA*	NVIDIA Corp	Semiconductors	1/22/1999	41421%	29.1%	\$ 4,152,072
6	APH	Amphenol Corp	Electronic Components	11/8/1991	41174%	22.2%	\$ 4,127,421
7	QCOM	Qualcomm Inc	Semiconductors	12/13/1991	41112%	22.2%	\$ 4,121,191
8	NVR	NVR Inc	Residential Construction	6/17/1986	40790%	22.2%	\$ 4,088,964
9	MO	Altria Group Inc	Tobacco	7/2/1985	37458%	21.8%	\$ 3,755,837
10	RMD*	ResMed Inc	Medical Instruments & Supplies	6/2/1995	34147%	23.9%	\$ 3,424,669
11	KLAC	KLA Corp	Semiconductor Equipment & Materials	10/8/1980	33665%	21.4%	\$ 3,376,540
12	ROP*	Roper Technologies Inc	Specialty Industrial Machinery	11/1/1996	33440%	25.2%	\$ 3,353,994
13	JKHY	Jack Henry & Associates Inc	Information Technology Services	11/20/1985	32584%	21.3%	\$ 3,268,381
14	MCHP*	Microchip Technology Inc	Semiconductors	3/26/1993	31248%	21.5%	\$ 3,134,759
15	ORLY*	O'Reilly Automotive Inc	Specialty Retail	4/22/1993	29643%	21.4%	\$ 2,974,289
16	JCI	Johnson Controls International	Building Products & Equipment	10/11/1965	29257%	20.9%	\$ 2,935,668
17	BIIB	Biogen Inc	Drug Manufacturers - General	9/17/1991	28480%	20.7%	\$ 2,858,023
18	DHR	Danaher Corp	Diagnostics & Research	11/3/1986	28318%	20.7%	\$ 2,841,826
19	CTSH*	Cognizant Technology Solutions	Information Technology Services	6/19/1998	26752%	26.0%	\$ 2,685,192
20	SBUX	Starbucks Corp	Restaurants	6/26/1992	26688%	20.5%	\$ 2,678,760
21	BBY	Best Buy Co Inc	Specialty Retail	7/20/1987	25983%	20.4%	\$ 2,608,266
22	GILD	Gilead Sciences Inc	Drug Manufacturers - General	1/22/1992	25717%	20.3%	\$ 2,581,679
23	LOW	Lowe's Companies Inc	Home Improvement Retail	12/19/1979	24106%	20.1%	\$ 2,420,575
24	ROST	Ross Stores Inc	Apparel Retail	8/8/1985	24007%	20.1%	\$ 2,410,734
25	UNH	UnitedHealth Group Inc	Healthcare Plans	10/10/1991	23623%	20.0%	\$ 2,372,316
26	IDXX	IDEXX Laboratories Inc	Diagnostics & Research	6/21/1991	22835%	19.9%	\$ 2,293,543
27	NFLX*	Netflix Inc	Entertainment	5/23/2002	20669%	30.1%	\$ 2,076,852
28	INTU*	Intuit Inc	Software - Application	3/12/1993	20653%	19.8%	\$ 2,075,310
29	CPRT*	Copart Inc	Auto & Truck Dealerships	3/17/1994	20596%	20.6%	\$ 2,069,568
30	ORCL	Oracle Corp	Software - Infrastructure	3/12/1986	20525%	19.4%	\$ 2,062,458

*Not full 30 year period. Company IPO was before 30 years ago. Returns & Annualized Returns are since IPO.

COMPOUND Data Source: YCharts @CharlieBilello

One of the interesting things about the list is that only 11 of the 30 stocks (counting generously) are technology related. There are opportunities in many sectors, which is another reason why diversification is so beneficial.

³ <https://www.bloomberq.com/news/articles/2022-07-25/morgan-stanley-jpmorgan-disagree-on-fed-policy-pause-outlook?srnd=premium>

⁴ “What CEOs Are Saying: ‘We See Inflation Deeply Entrenched’,” Wall Street Journal, July 23, 2022

⁵ https://www.cnbc.com/2022/07/15/millennials-are-to-blame-for-sky-high-inflation-strategist-says.html?_source=iosappshare%7Ccom.apple.UIKit.activity.Message

⁶ https://www.oaktreecapital.com/docs/default-source/memos/i-beq-to-differ.pdf?sfvrsn=7d814866_9

⁷ <https://twitter.com/charliebilello/status/1568232114637635585>

What We "Know"

(continued from page 4)

The second item I want to speak about is foreign markets. Regardless of which index you use, foreign markets have underperformed the US market by many hundreds of basis points per year over the last decade plus. This is driven by two factors. First, the valuations of international markets are now close to a low relative to the US and two standard deviations below the norm. Similarly, the difference in dividend yields is the highest in over 20 years.⁸

Second, the currencies of most major international markets have weakened dramatically versus the dollar. Therefore, returns in dollars have had a major currency headwind (see chart below)⁹:

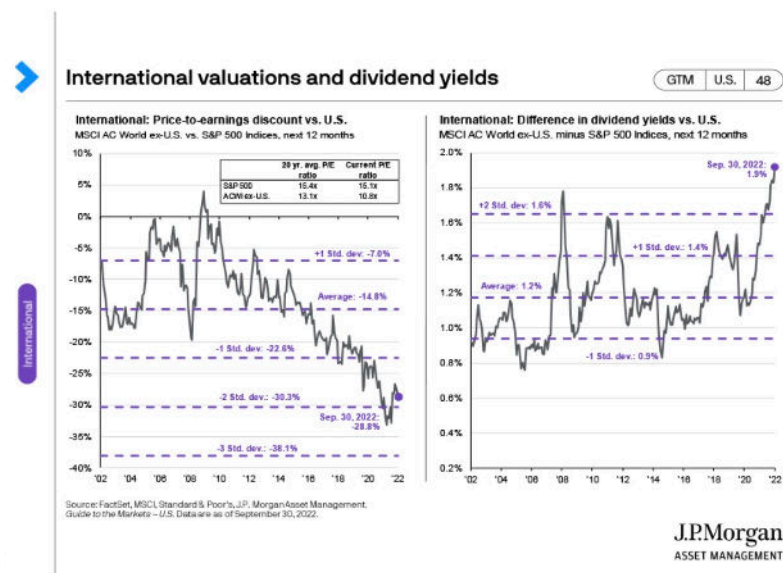


EXHIBIT 1: U.S. DOLLAR REAL EFFECTIVE EXCHANGE RATE



What the chart below tells us is that stocks in countries with undervalued currencies tend to outperform over the next three years¹⁰:

EXHIBIT 3: 3-YEAR RELATIVE USD COUNTRY RETURNS BY STARTING CURRENCY VALUATION



Data from December 1970 to June 2022 | Source: GMO, MSCI
 Ranges for bars were chosen to have roughly similar events in each in both 1970-2022 and 2000-2022 periods.

⁸ <https://am.jpmorgan.com/us/en/asset-management/adv/insights/market-insights/guide-to-the-markets/> page 48

⁹ <https://www.gmo.com/americas/research-library/2q-2022-gmo-quarterly-letter/>

¹⁰ Ibid

What We “Know”

(continued from page 5)



We don't know for sure what will happen, of course. But as GMO states, there are two ways to win here: valuations and currencies. I think the odds are good enough to keep a sizable allocation to foreign markets. Across portfolios, SAM clients have approximately one-third of their equity exposure (not including alternatives) in foreign markets.

Before we get to the interesting stories from the quarter, I wanted to give major kudos to Patagonia founder Yvon Chouinard. A few weeks ago, he transferred all his voting shares into a trust run by the family and his economic shares into a non-profit whose mission is to combat climate change. Patagonia has always been about the mission, and Chouinard literally put his money where his mouth is. You just don't see that too often.

Like prior letters, here are a few interesting stories from the quarter.

Trevor Milton was the founder of Nikola¹¹, an electric vehicle startup. He had boldly made claims that their new electric truck was a "fully functioning vehicle inside and outside," and that the first prototype had "already" been built. To back his statement up, the company then released a video showing its truck in action. But Nikola didn't actually have a working truck at the time; so the video released was of its truck rolling downhill, making it look like it could drive.

As if that wasn't enough, Milton also claimed that the truck would have a drinking fountain using the water created by the truck's hydrogen fuel cell, a novelty feature. Days later, however, Mr. Milton allegedly typed "can you drink water from a fuel cell" into an internet search. He was boasting about features that sounded good and then googling it after to see if they were possible.

Mr. Milton was just convicted for fraud.

Anthony Scaramucci's SkyBridge Capital announced that Sam Bankman-Fried's FTX Ventures would acquire 30% of SkyBridge. Scaramucci said that the FTX deal was a product of poor performance: "If I was doing super-well

right now — our performance is mediocre, lackluster — who knows if we would be doing the transaction."

But there might have been another motivation. As told by Matt Levine¹², the FT article goes on:

"Scaramucci said the transaction was decided over a two-hour lunch at a hotel in the Bahamas, where Bankman-Fried is based. Scaramucci was with his family on a Disney cruise that had docked in the islands. He said he proposed lunch to discuss the possibility of a partnership, as well as to avoid going to a water park with his children. What percentage of mergers and acquisitions do you think are driven by people trying to avoid spending time with their children?"

No comment necessary.

Finally, I came across an interesting paper which studied Wall Street sell-side analysts' work habits.¹³ Since most sell-side analysts use Bloomberg, and log into Bloomberg in the morning and log out at night, the authors studied analysts' accuracy of earnings estimates (and the number of reports that change earnings estimates) based on how long they work (when they log in and log out of Bloomberg every day), and how often they travel to meet companies (if they don't log in at all). Their analysis showed that working more increased both the number of earnings changes and the accuracy of the earnings. Those that travel more issued fewer earnings estimate changes, but the estimates were more accurate. My conclusion from this? We should always be striving, as Jonathan likes to say, for more learning, growth, and fun. And it's time for me to get back to work!

Thanks to all of you for your trust in our partnership.

Avi and the SAM team



¹¹ Most of this story comes from: Levine, Matt "Nikola" Bloomberg Opinion, Money Stuff, September 12, 2022

¹² Levine, Matt "How M&A Happens" Bloomberg Opinion, Money Stuff, September 13, 2022

¹³ https://www3.nd.edu/~zda/AWL_PAD.pdf

Quarterly Market Summary

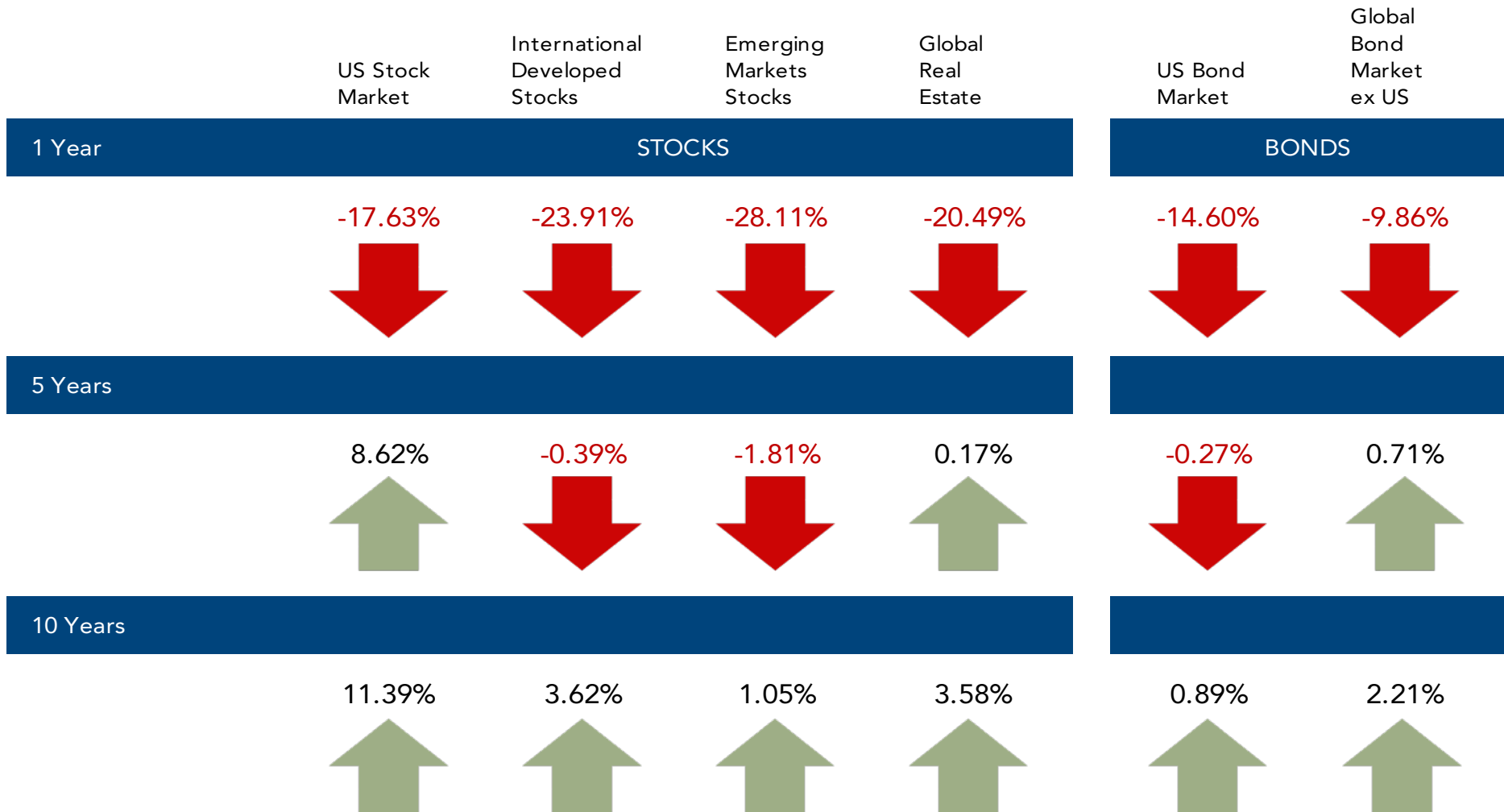
Index Returns

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
Q3 2022	STOCKS				BONDS	
	-4.46%	-9.20%	-11.57%	-11.12%	-4.75%	-2.21%
						
Since Jan. 2001						
Average Quarterly Return	2.1%	1.3%	2.4%	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 © 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

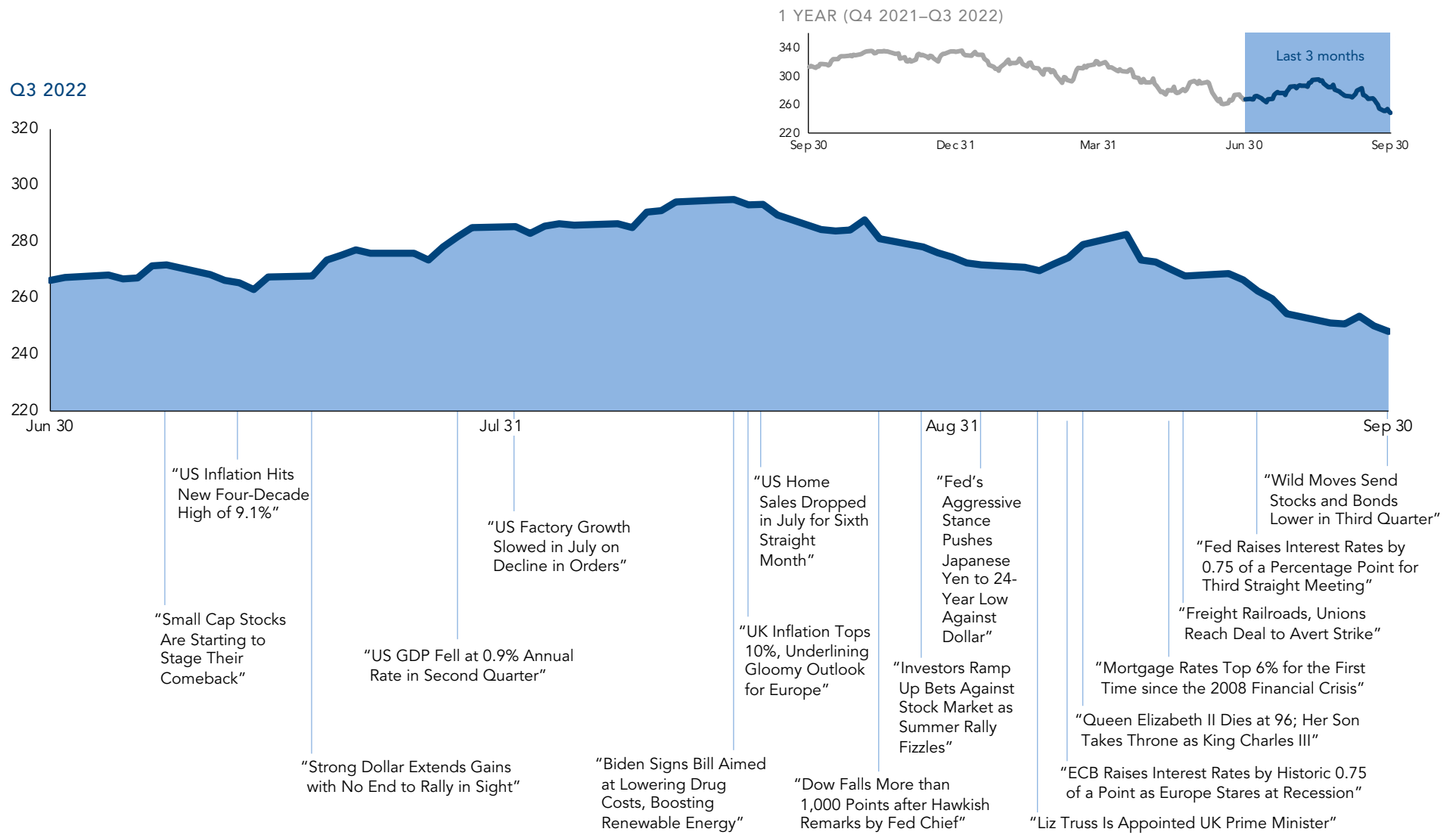
Index returns as of September 30, 2022



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.

World Stock Market Performance

MSCI All Country World Index with selected headlines from Q3 2022



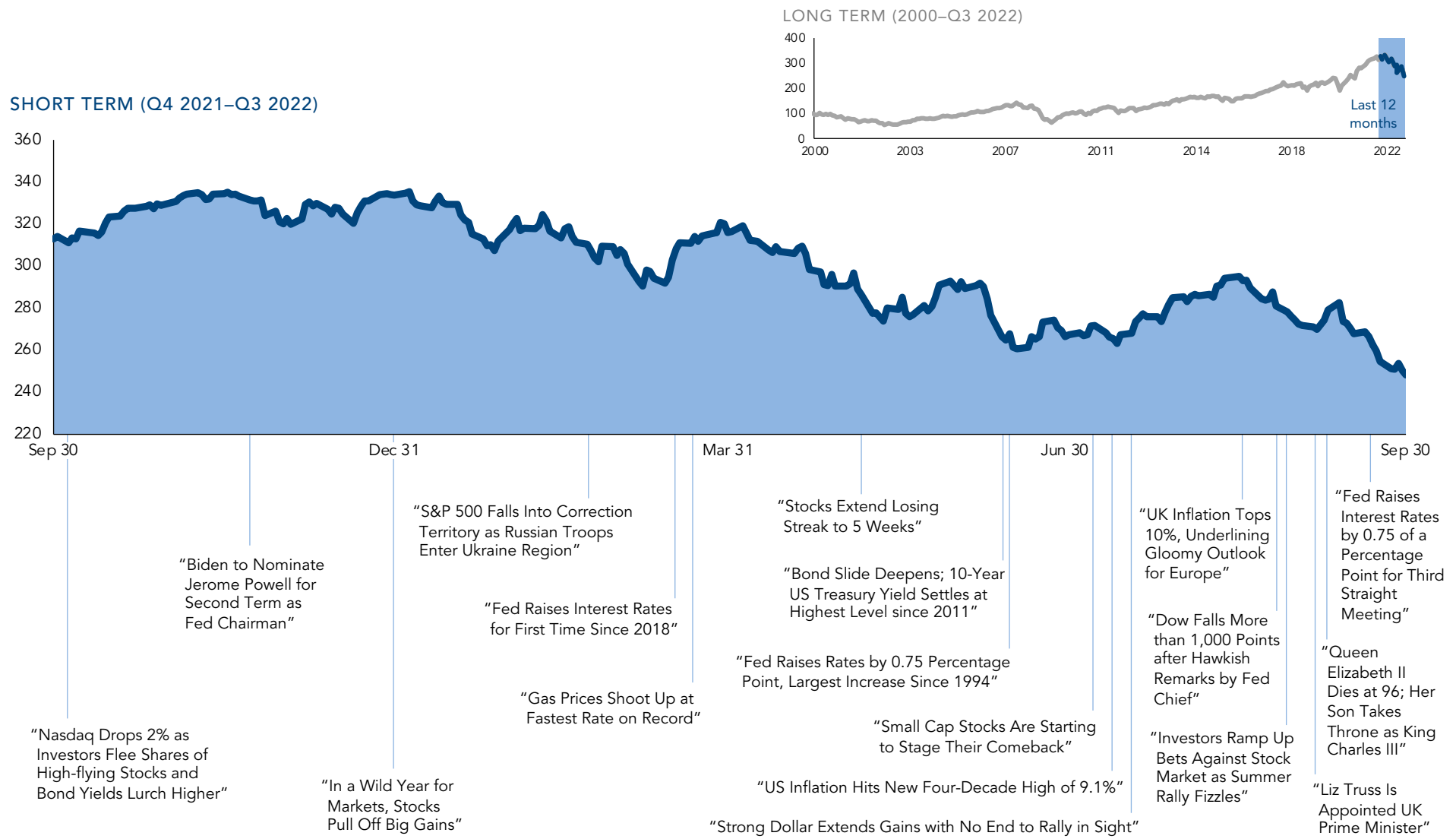
These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.

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

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

World Stock Market Performance

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



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

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

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US Stocks

Third Quarter 2022 Index Returns

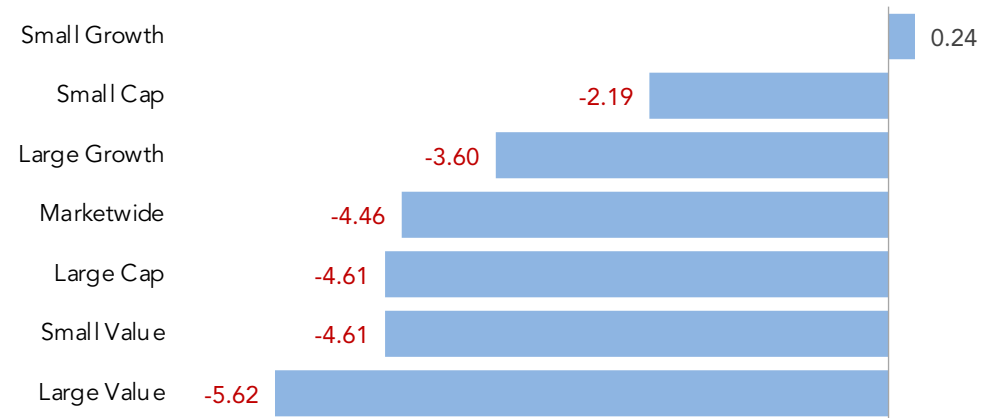
The US equity market posted negative returns for the quarter and outperformed both non-US developed and emerging markets.

Value underperformed growth.

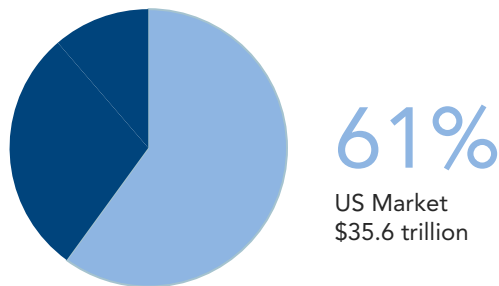
Small caps outperformed large caps.

REIT indices underperformed equity market indices.

Ranked Returns (%)



World Market Capitalization—US



Period Returns (%)

* Annualized

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Small Growth	0.24	-29.27	2.94	3.60	8.81
Small Cap	-2.19	-23.50	4.29	3.55	8.55
Large Growth	-3.60	-22.59	10.67	12.17	13.70
Marketwide	-4.46	-17.63	7.70	8.62	11.39
Large Cap	-4.61	-17.22	7.95	9.00	11.60
Small Value	-4.61	-17.69	4.72	2.87	7.94
Large Value	-5.62	-11.36	4.36	5.29	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. 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

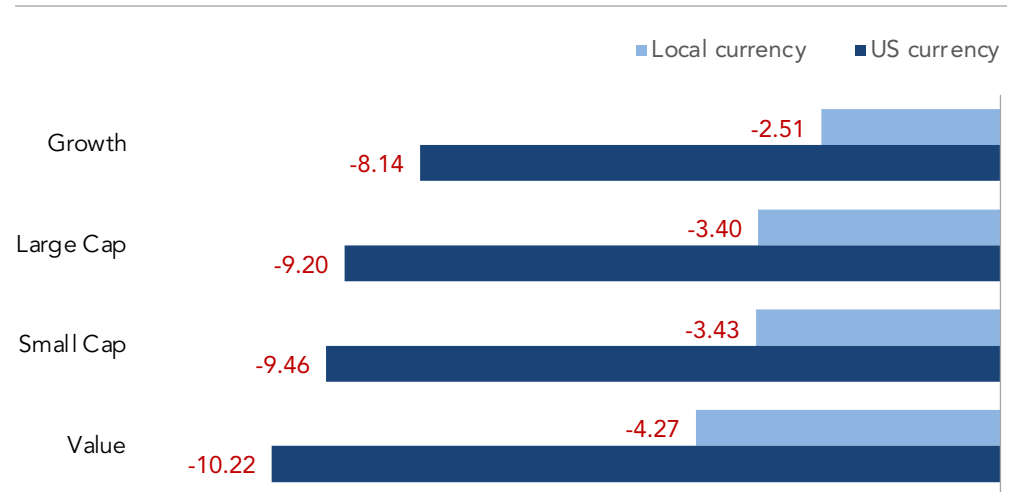
Third Quarter 2022 Index Returns

Developed markets outside of the US posted negative returns for the quarter and underperformed the US market, but outperformed emerging markets.

Value underperformed growth.

Small caps underperformed large caps.

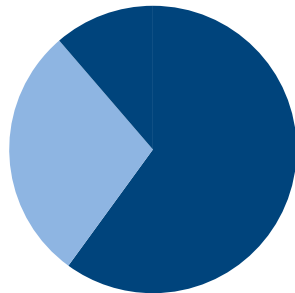
Ranked Returns (%)



World Market Capitalization—International Developed

28%

International Developed Market
\$16.2 trillion



Period Returns (%)

Asset Class	QTR	YTD	1 Year	* Annualized		
				3 Years*	5 Years*	10 Years*
Growth	-8.14	-32.33	-29.44	-1.14	0.85	4.46
Large Cap	-9.20	-26.23	-23.91	-1.21	-0.39	3.62
Small Cap	-9.46	-31.07	-30.80	-1.27	-1.24	4.78
Value	-10.22	-20.10	-18.58	-1.97	-2.08	2.53

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Emerging Markets Stocks

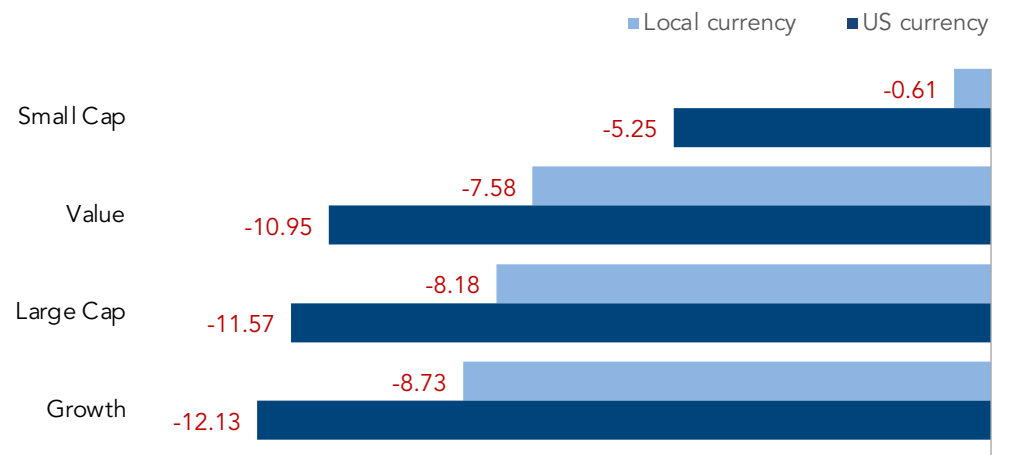
Third Quarter 2022 Index Returns

Emerging markets posted negative returns for the quarter and underperformed both US and non-US developed markets.

Value outperformed growth.

Small caps outperformed large caps.

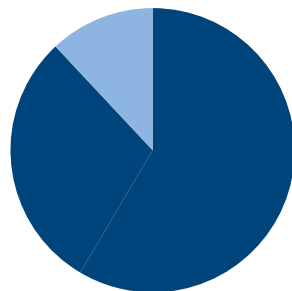
Ranked Returns (%)



World Market Capitalization—Emerging Markets

11%

Emerging Markets
\$6.6 trillion



Period Returns (%)

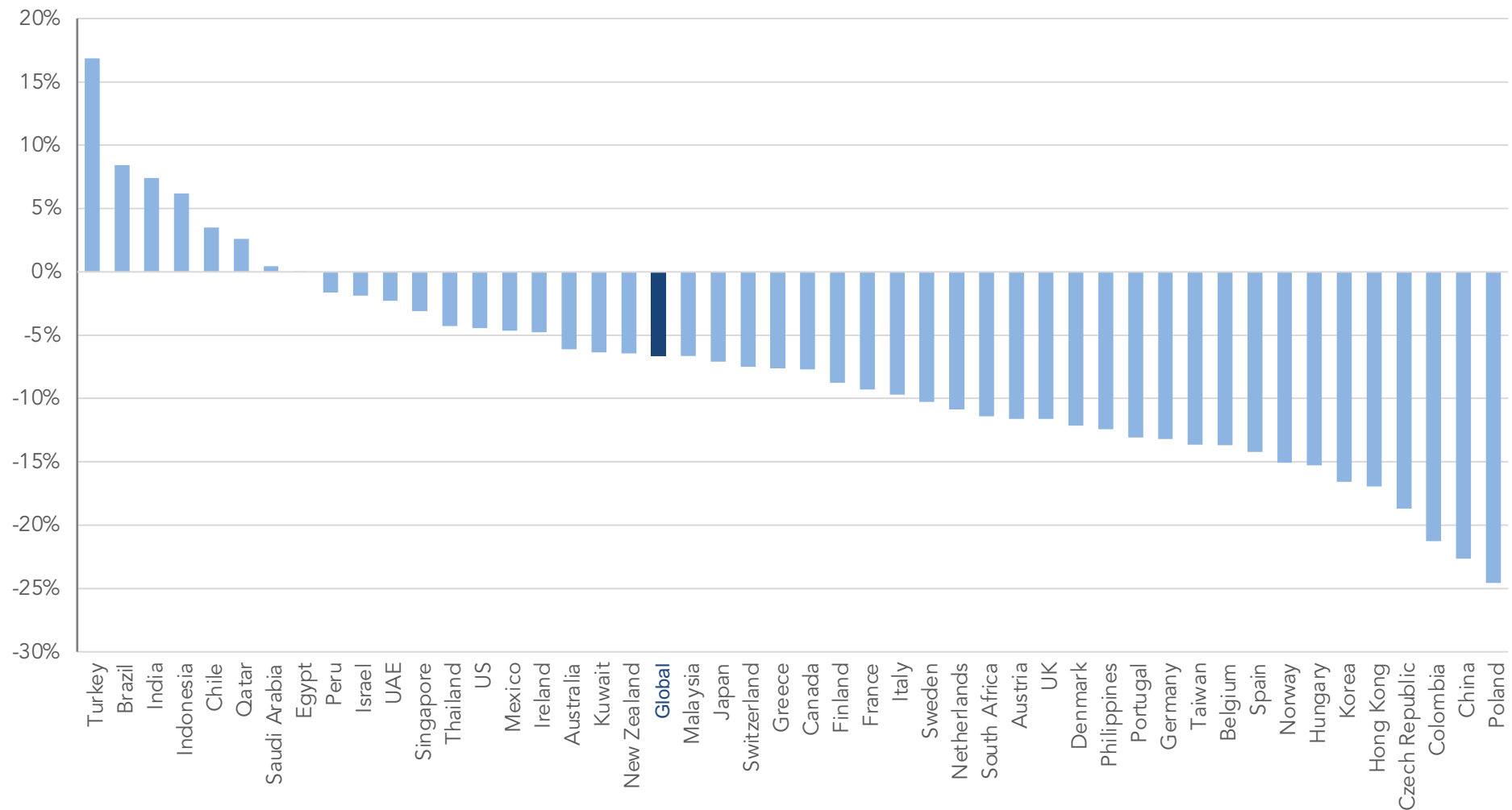
Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
Small Cap	-5.25	-24.23	-23.23	5.54	1.25	2.91
Value	-10.95	-23.32	-23.63	-2.57	-2.13	-0.41
Large Cap	-11.57	-27.16	-28.11	-2.07	-1.81	1.05
Growth	-12.13	-30.65	-32.09	-1.75	-1.64	2.38

* Annualized

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Country Returns

Third Quarter 2022 Index Returns



Past performance is no guarantee of future results.

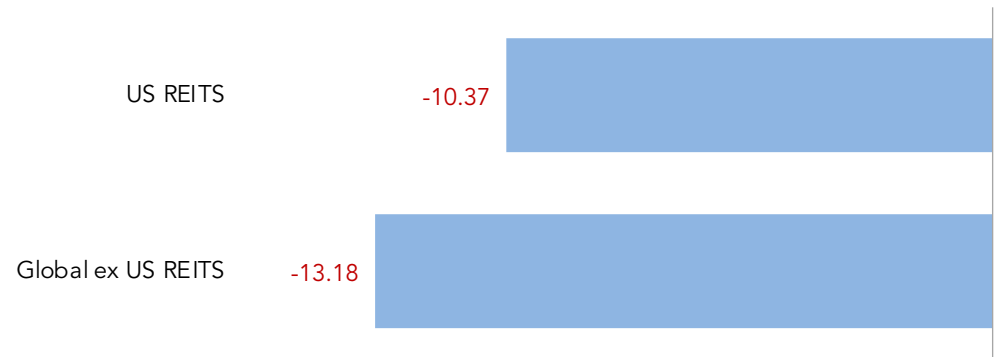
Country returns are the country component indices of the MSCI All Country World IMI Index for all countries except the United States, where the Russell 3000 Index is used instead. Global is the return of the MSCI All Country World IMI Index. MSCI index returns are net dividend. Indices are not available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

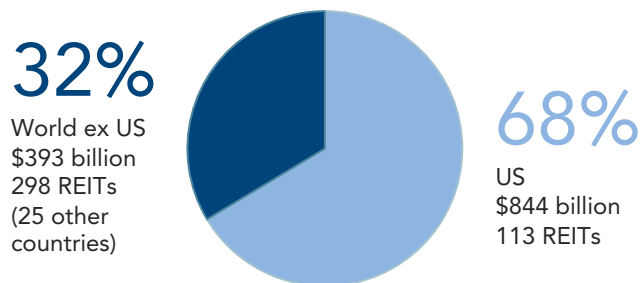
Third Quarter 2022 Index Returns

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

Ranked Returns (%)



Total Value of REIT Stocks



Period Returns (%)

Asset Class	QTR	YTD	1 Year	* Annualized		
				3 Years*	5 Years*	10 Years*
US REITS	-10.37	-29.32	-17.15	-3.29	1.95	5.49
Global ex US REITS	-13.18	-30.48	-27.32	-9.72	-3.01	1.12

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

Third Quarter 2022 Index Returns

The Bloomberg Commodity Total Return Index returned -4.11% for the third quarter of 2022.

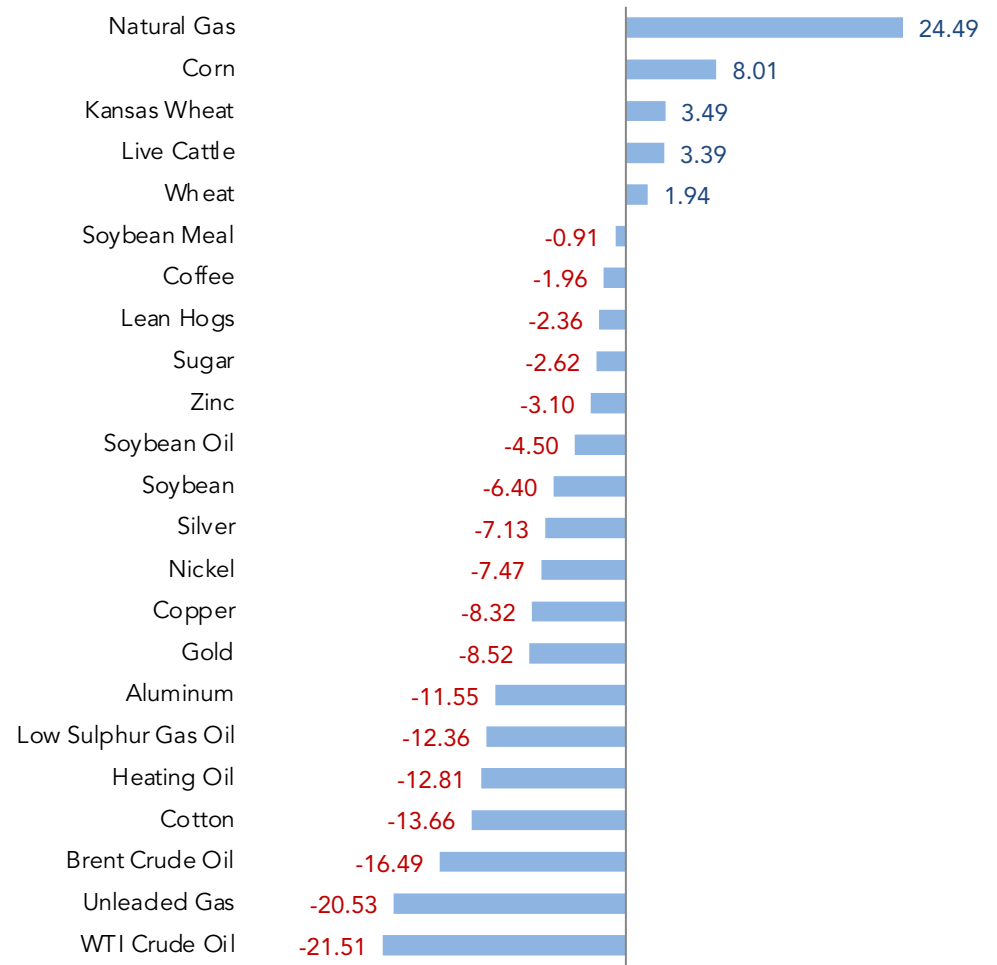
WTI Crude Oil and Unleaded Gas were the worst performers, returning -21.51% and -20.53% during the quarter, respectively. Natural Gas and Corn were the best performers, returning +24.49% and +8.01% during the quarter, respectively.

Period Returns (%)

Asset Class	QTR	YTD	1 Year	3 Years**	5 Years**	10 Years**
Commodities	-4.11	13.57	11.80	13.45	6.96	-2.14

* Annualized

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

Third Quarter 2022 Index Returns

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

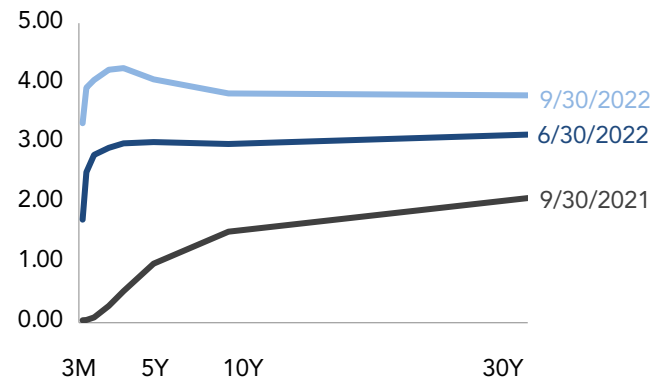
The yield on the 5-Year US Treasury Note increased 105 basis points (bps) to 4.06%. The yield on the 10-Year US Treasury Note increased 85 bps to 3.83%. The yield on the 30-Year US Treasury Bond increased 65 bps to 3.79%.

On the short end of the yield curve, the 1-Month US Treasury Bill yield increased 151 bps to 2.79%, while the 1-Year US Treasury Bill yield increased 125 bps to 4.05%. The yield on the 2-Year US Treasury Note increased 130 bps to 4.22%.

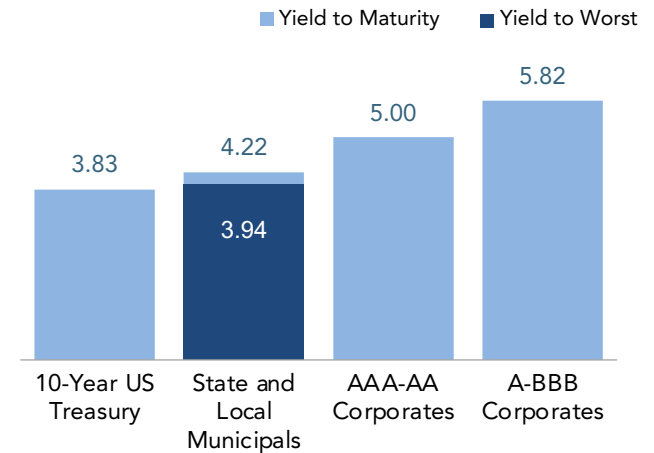
In terms of total returns, short-term corporate bonds returned -1.94% and intermediate-term corporate bonds returned -3.11%.¹

The total return for short-term municipal bonds was -1.88% and -2.65% for intermediate-term municipal bonds. Within the municipal fixed income market, general obligation bonds outperformed revenue bonds, returning -3.30% vs. -3.62%, respectively.²

US Treasury Yield Curve (%)



Bond Yield Across Issuers (%)



Period Returns (%)

Asset Class	QTR	YTD	1 Year	3 Years*	5 Years*	10 Years*
ICE BofA US 3-Month Treasury Bill Index	0.46	0.61	0.62	0.59	1.15	0.68
ICE BofA 1-Year US Treasury Note Index	-0.50	-1.77	-1.95	0.18	0.94	0.67
Bloomberg U.S. High Yield Corporate Bond Index	-0.65	-14.74	-14.14	-0.45	1.57	3.94
FTSE World Government Bond Index 1-5 Years (hedged to USD)	-1.79	-5.03	-5.53	-0.87	0.63	0.96
Bloomberg Municipal Bond Index	-3.46	-12.13	-11.50	-1.85	0.59	1.79
Bloomberg U.S. Aggregate Bond Index	-4.75	-14.61	-14.60	-3.26	-0.27	0.89
FTSE World Government Bond Index 1-5 Years	-4.77	-12.10	-13.34	-3.33	-1.83	-1.74
Bloomberg U.S. TIPS Index	-5.14	-13.61	-11.57	0.79	1.95	0.98
Bloomberg U.S. Government Bond Index Long	-9.60	-28.77	-26.60	-8.48	-1.62	0.60

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.

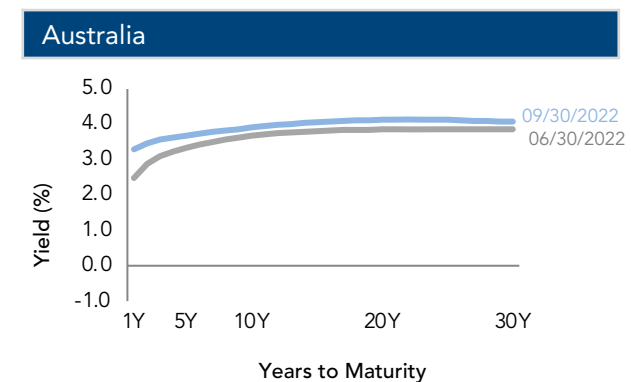
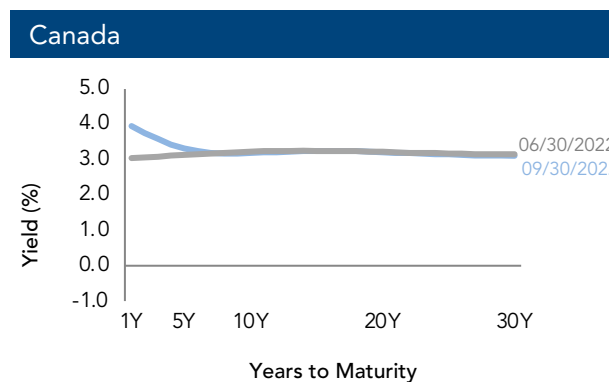
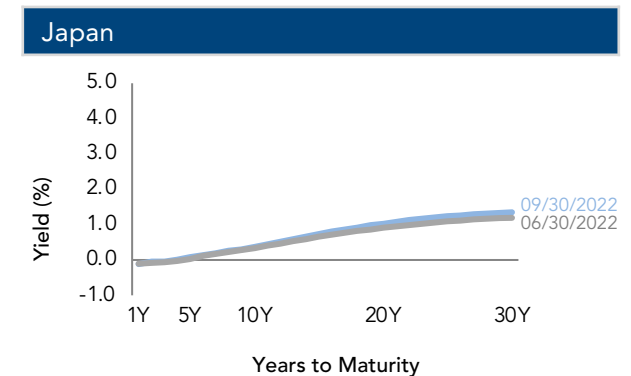
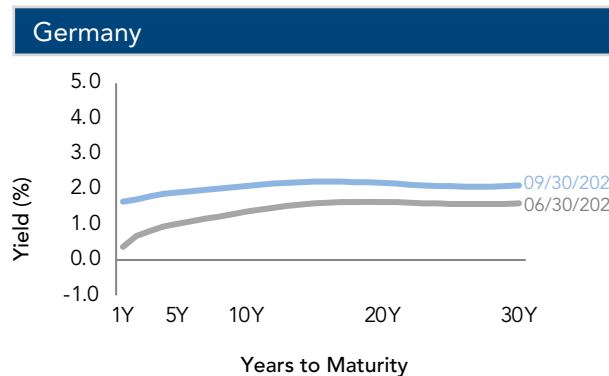
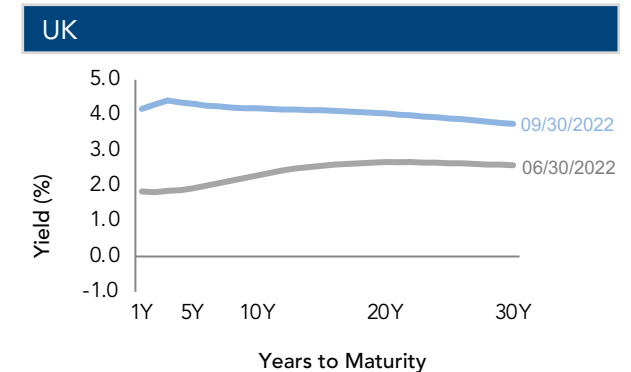
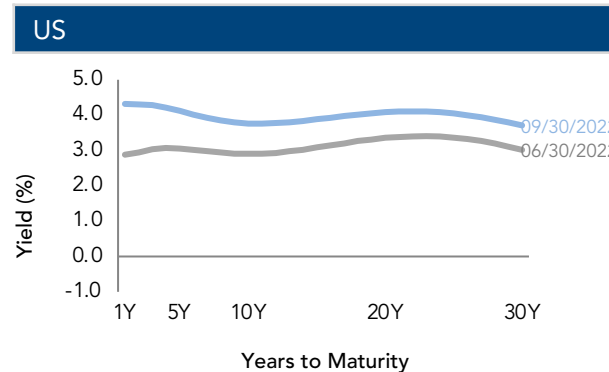
Global Fixed Income

Third Quarter 2022 Yield Curves

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

Realized term premiums were negative in global developed markets.

In Japan, short-term nominal interest rates remained negative. In Canada, the short-term segment of the yield curve inverted.



Changes in Yields (bps) since 6/30/2021

	1Y	5Y	10Y	20Y	30Y
US	143.7	106.4	86.3	72.8	68.6
UK	235.1	238.0	188.6	137.8	117.5
Germany	128.0	88.7	73.9	53.5	50.9
Japan	-1.1	4.4	2.6	12.1	15.7
Canada	90.6	18.6	-4.1	-0.6	-3.5
Australia	81.1	34.8	23.4	27.6	22.6

Important Disclosures

September 2022

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