

# Q4

Quarterly Market Review  
Fourth Quarter 2023

# Quarterly Market Review

Fourth Quarter 2023

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.

## Overview:

[Q4 2023 SAM Commentary: A Surprising \(?\) End to the Year](#)

[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](#)

# A Surprising (?) End to the Year

It was quite a year. At the start of the year, inflation was at 6.5%. Nearly everyone was predicting a recession. As we went through the year, the Federal Reserve was raising rates at one of the fastest paces ever. We had three major bank failures (which if measured by assets, nearly surpassed the failures in 2009), a continuation of one major war (Ukraine/Russia), and a new one (Israel/Gaza). There was much to be pessimistic about.

And yet, markets weren't just resilient, they were jubilant. For the year, the S&P 500 was up 26.3%, while international markets<sup>1</sup> were up 15%. After a difficult third quarter, almost everything rebounded in the fourth quarter: the S&P 500 finished up 11.7%, while international markets were up 10.1%. And unlike where we were in the third quarter, where most of the total S&P 500 index return was due to the 7 largest stocks (now nicknamed the "magnificent 7"), performance broadened out to more companies. Small capitalization companies, as defined by the Russell 2000, were up 14%, and the Russell 2000 value did even better, up 15.3%. Small caps also beat large caps internationally with the MSCI world small cap index up 12.1%.

What was especially surprising was the magnitude of the rally in the bond market. Ten-year treasuries declined to under 3.8% in late December from a peak of 5% in mid-October—a huge move for under just over two months. Because of this move, the Bloomberg Aggregate Bond index increased 6.8% in the quarter.

As a reminder, last quarter I wrote:

Some are asking if they should take their money out of the market. We've discussed in these letters quite a few times how difficult it is to time the market. As I mentioned in my last letter, very few thought the S&P 500 would be up double digits this year. I think Ben Carlson said it best that "The Big Short by Michael Lewis has lost investors more money than the last 3 bear markets combined."<sup>2</sup> What he meant by that is those "contrarians" that always see a bear market coming will eventually be right but will miss out on so many gains along the way that it doesn't pay to try...I've been in the investment business for 30 years, and I haven't met anyone who can consistently time the market.

I admit that I had no idea what was going to happen in the fourth quarter, so I'm not taking a victory lap. My point here is that being a skeptic often

sounds smarter than optimistically believing that the future will be better than the present. We don't know what will happen in the short term, so we try to prepare for what can go wrong and let the upside from owning risk assets like equities take care of itself. We know owning equities takes patience and discipline to deal with the inevitable volatility, so we do our utmost to combat behavioral risk—both yours and ours.

Part of how we try to combat behavioral risk for some clients is to advise them to own some amount of fixed income and cash. Over decades, the equity market has had higher returns, but with higher volatility. Philosophically for us, fixed income and cash are intended to provide psychological safety and the capacity to weather volatility in the equity market.

That's one of the reasons why we tend to take less risk in the fixed income portion of the portfolio. The adjoining chart shows the performance of the fixed income portfolio of one sample client (most clients saw similar results) in 2023. As you can see, our fixed income returns were much less volatile than the fixed income market,<sup>3</sup> while providing very similar returns.<sup>4</sup> By having the psychological safety to weather any storm, we believe that clients will maximize their returns over the long-term.



<sup>1</sup> As measured by the MSCI Developed EAFE index. Results are in US dollars.

<sup>2</sup> <https://awealthofcommonsense.com/2023/07/contrarians-are-usually-wrong/>

<sup>3</sup> As defined by the Bloomberg Aggregate Bond Index

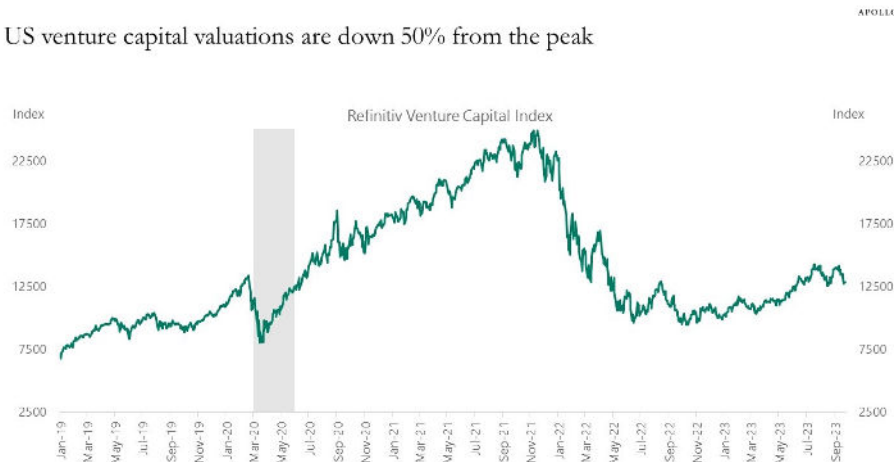
<sup>4</sup> Especially on a tax-adjusted basis. The adjoining chart only shows gross returns.

# A Surprising (?) End to the Year

Getting the right structure in place is critical. Every year is volatile, but this election year is likely to have some heightened volatility. Please reach out to us if there is any change in your personal situation so we can recalibrate together to make sure you are on the right path, and that you are never a forced seller during adverse times.

Not everything was good in 2023. IPO markets are still largely closed, and venture capital hasn't rebounded like public markets (see adjoining chart).<sup>5</sup> There is also a lot of capital waiting to be invested in almost all private markets. But overall, most asset classes were strong in the fourth quarter.

US venture capital valuations are down 50% from the peak



One piece of sad investment news was the death of Charlie Munger on November 28, less than two months before he was to celebrate his 100<sup>th</sup> birthday. Charlie, Warren Buffett's right-hand person at Berkshire Hathaway for 60 years, was often credited for changing Berkshire's investment style to one of buying "wonderful companies at fair prices" from buying "good companies at cheap prices." Much of the investment success at Berkshire was due to Charlie in addition to Buffett.

In addition to his investment acumen, however, Charlie will be missed for his charm and wit. I had the pleasure of meeting Charlie in person just once when he came to my office (at a previous firm) with the management of Costco. At the time in his high 80s, he was as sharp mentally as anyone in the room (from attending the Berkshire Hathaway annual meeting, I can honestly say this continued into his late 90s) and made his points with humor and acerbic wit. Charlie has so many famous quips (often slightly off-color), that any list would do it injustice. But here are a few I saw quoted recently:<sup>6</sup>

1. Go to bed smarter than when you woke up.
2. I think that every time you see the word EBITDA, you should substitute the words "bullshit earnings."<sup>7</sup>
3. If you don't get this elementary, but mildly unnatural, mathematics of elementary probability into your repertoire, then you go through a long life like a one-legged man in an ass-kicking contest.
4. Remember that reputation and integrity are your most valuable assets—and can be lost in a heartbeat.
5. People calculate too much and think too little.
6. Develop into a lifelong self-learner through voracious reading; cultivate curiosity and strive to become a little wiser every day.
7. You need patience, discipline, and agility to take losses and adversity without going crazy.
8. Knowing that you don't know is more useful than being brilliant.
9. Acquire worldly wisdom and adjust your behavior accordingly. If your new behavior gives you a little temporary unpopularity with your peer group then to hell with them.
10. It's waiting that helps you as an investor and a lot of people just can't stand to wait. If you didn't get the deferred -gratification gene, you've got to work very hard to overcome that.

He will definitely be missed.

<sup>5</sup> Slok, Torsten Dr. "VC Valuations Down 50%", Apollo, The Daily Spark, October 6, 2023

<sup>6</sup> <https://finance.yahoo.com/news/25-best-quotes-charlie-munger-160218373.html> and <https://traderlion.com/quotes/charlie-munger-quotes/>

<sup>7</sup> My old boss used to call it EBBS – earnings before the bad stuff. Same idea.

# A Surprising (?) End to the Year

## Carbon offsets

There were a couple of stories I came across on carbon offsets that I thought would be interesting to share. This one could have easily gone into the following section (Interesting stories for the quarter), but due to the seriousness of climate change, I decided to make it its own section.

Many companies are saying that they plan to be carbon neutral by some date in the future. How do they do that, when every company pollutes? In theory, the company could release some carbon, but then plant a tree which absorbs carbon from the atmosphere. If it plants enough trees, it can offset its carbon pollution, and—voilà—they are carbon neutral.

That sounds simple and understandable. But what happens if I know a forest is going to be cut down, and I buy it and let it stand? Theoretically, preventing a forest from being cut down has a similar value (carbon-wise) to planting a new forest. And instead of purchasing the forest themselves, what if the company pays someone else who already owns a forest not to cut it down? In other words, what if they just purchase the carbon credit that the forest owner has by just not cutting their forest? When companies speak of carbon offsets, they are most likely speaking about this type of offset. The difficulty here is how to determine how much of the forest you purchased would have been cut (i.e. the baseline carbon amount), to figure out how much of a carbon credit they should have to sell in the first place.

The baseline is often set by a reference forest nearby that is being cut down, and the owner of the credit references the other forest's pace of deforestation to determine how much credit they should get for not cutting down their own forest. But you can see the issue here: what happens if the reference forest ends up being cut down more slowly than expected? There's a perverse incentive to cut down the reference forest faster so that it looks like you are saving more carbon by not cutting down your first forest!

There was a wild story of these perverse incentives that was chronicled in a recent New Yorker article.<sup>8</sup> A company called South Pole tried to sell carbon offsets by claiming it was saving a large forest from being cut down. But as it turns out, not only did much of the money disappear, but much of the carbon offsets were "fake" (i.e. they sold too many credits) in large part because the reference forest didn't cut down as many trees as they thought. For the planet, this is a good thing. For the accounting of carbon offsets, it's shady. Don't trust people claiming to be carbon neutral just yet!

## Interesting stories from the quarter

Piggybacking on the carbon offset discussion above, here's a hilarious story on cow burps.<sup>9</sup> When cows burp they release carbon. But if you could get them to burp less, by changing their feed to a special low-burp diet, there's a reduction in carbon. According to Bloomberg, Canada is trying to encourage farmers to reduce emissions by granting them credits that could be sold as carbon offsets to other businesses. In order to do that, you need the baseline of what would have happened without the change in diet. Matt Levine notes:

You sell the burping reductions to like an oil-sands company to offset their emissions. Drilling up oil causes carbon emissions, and cows burping cause carbon emissions, but, through the magic of accounting, getting the cows to burp less offsets the oil drillers' carbon emissions.

What are the chances that there will be some sort of cow burp accounting scandal, where ranchers claim excessive credits by manipulating the inputs into the formulas?

I think it's bound to happen.

<sup>8</sup> <https://www.newyorker.com/magazine/2023/10/23/the-great-cash-for-carbon-hustle>. I highly encourage everyone to read the full article.

<sup>9</sup> This whole story is from: Levine, Matt "Cow Burps" Bloomberg Opinion, Money Stuff, December 15, 2023

# A Surprising (?) End to the Year

There were so many other good stories for the quarter, it was hard to cut them for this letter.

Two famous fraudsters got convicted this quarter. As a follow-up to our third quarter 2022 letter, Trevor Milton, founder of EV truck manufacturer Nikola<sup>10</sup> was convicted for fraudulently claiming Nikola's truck was ready to go, when in reality he had to roll it downhill to look like it could drive. In addition, Sam Bankman-Fried (or SBF as he is known), founder of crypto trading company Alameda Research and crypto exchange FTX, was convicted of fraud for inappropriately (and without disclosure) borrowing and losing client deposits at Alameda rather than keeping them segregated. Caroline Ellison, the CEO of Alameda (and on again/off again girlfriend of SBF), testified that as crypto prices declined in 2022, at SBF's request, she prepared seven different balance sheets to show one of its lenders, and SBF chose to send alternative seven. There's only one accepted way to present balance sheets, so if you are contemplating choosing alternative number seven, you should know already there was a problem.<sup>11</sup>

Last quarter I wrote about the movie *Dumb Money* saying if you are ever tempted to do something that sounds too good to be true, watch the movie to jar you out of it. Well, it seems like the UK Financial Conduct Authority is worried that people will take the opposite message from the movie, because they felt the need to run an ad at the beginning of UK showings of *Dumb Money*.

The voiceover starts to talk about a 'once-in-a-lifetime opportunity to make some serious money'. It is then revealed that the anonymous tipster is in fact typing in an online forum, before the advert ends with the FCA's call to action: 'Don't Get Played'. The FCA is supporting the main advert with digital screens in cinema foyers, and geo-targeted display ads - tailored to people who have visited cinemas, alongside ads in contextual locations online, where the target audience research investments. This makes the connection with audiences both before and after the film and reminds them what they should do before they invest.<sup>12</sup>

I'm not sure what to make of that other than behavioral risk has little to no bounds. Maybe I should have suggested not to watch the movie?

Lastly, a story that only has one word for it: Chutzpah.<sup>13</sup> SEC rules require that any company must report any security breach publicly at most four days after being made aware of the breach. A ransomware group named AlphV broke into the systems of fintech company MeridianLink asking for ransom. When MeridianLink didn't pay the ransom after the four days, AlphV reported the breach to the SEC, claiming that MeridianLink refused to disclose this security breach to its investors, even though they were the ones who hacked them in the first place! I'll be looking to see whether they ever claim the whistleblower reward for SEC reporting violations.

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

Avi and the SAM team

<sup>10</sup> <https://www.cnbc.com/2023/12/18/nikola-founder-trevor-milton-sentencing-fraud-charges.html>







<sup>11</sup> [https://www.bloomberg.com/news/articles/2023-10-11/ftx-bribes-dating-diary-falsified-records-ellison-testimony?cmpid=BBD101223\\_MONEYSTUFF&utm\\_medium=email&utm\\_source=newsletter&utm\\_term=231012&utm\\_campaign=moneystuff](https://www.bloomberg.com/news/articles/2023-10-11/ftx-bribes-dating-diary-falsified-records-ellison-testimony?cmpid=BBD101223_MONEYSTUFF&utm_medium=email&utm_source=newsletter&utm_term=231012&utm_campaign=moneystuff)

<sup>12</sup> Levine, Matt "Dumb Money" Bloomberg Opinion, Money Stuff, October 2, 2023

<sup>13</sup> <https://www.wsj.com/tech/cybersecurity/a-ransomware-gang-wanted-its-victim-to-pay-up-so-it-went-to-the-sec-803cf786> and Levine, Matt "Chutzpah" Bloomberg Opinion, Money Stuff, November 16, 2023

# Quarterly Market Summary

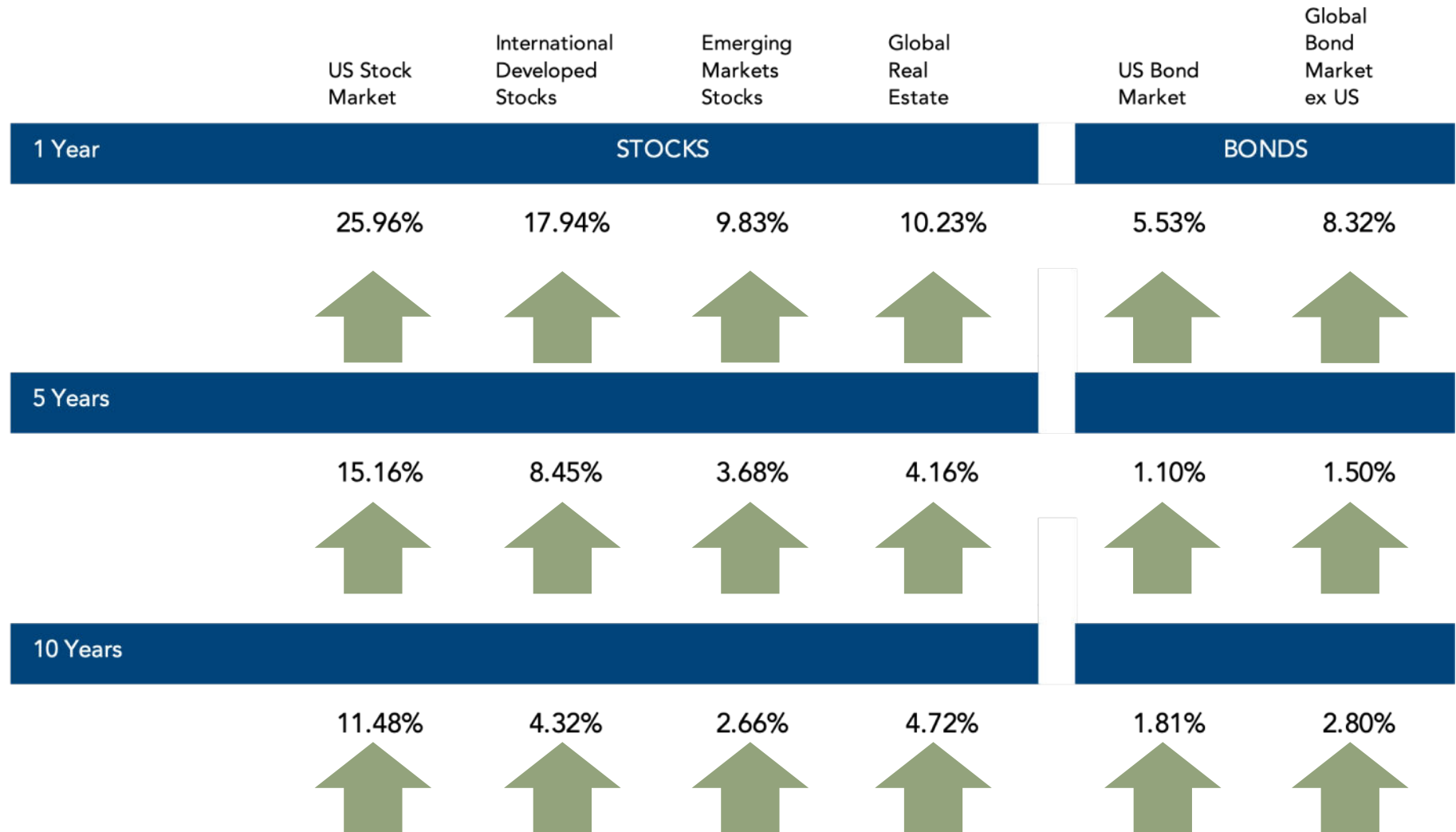
## Index Returns

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
<b>Q4 2023</b>	<b>STOCKS</b>				<b>BONDS</b>	
	12.07%	10.51%	7.86%	15.47%	6.82%	5.36%
						
<b>Since Jan. 2001</b>						
Average Quarterly Return	2.3%	1.6%	2.5%	2.3%	0.9%	0.9%
Best Quarter	22.0%	25.9%	34.7%	32.3%	6.8%	5.4%
	2020 Q2	2009 Q2	2009 Q2	2009 Q3	2023 Q4	2023 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 © 2024 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 2024, all rights reserved. Bloomberg data provided by Bloomberg.

# Long-Term Market Summary

Index returns as of December 31, 2023

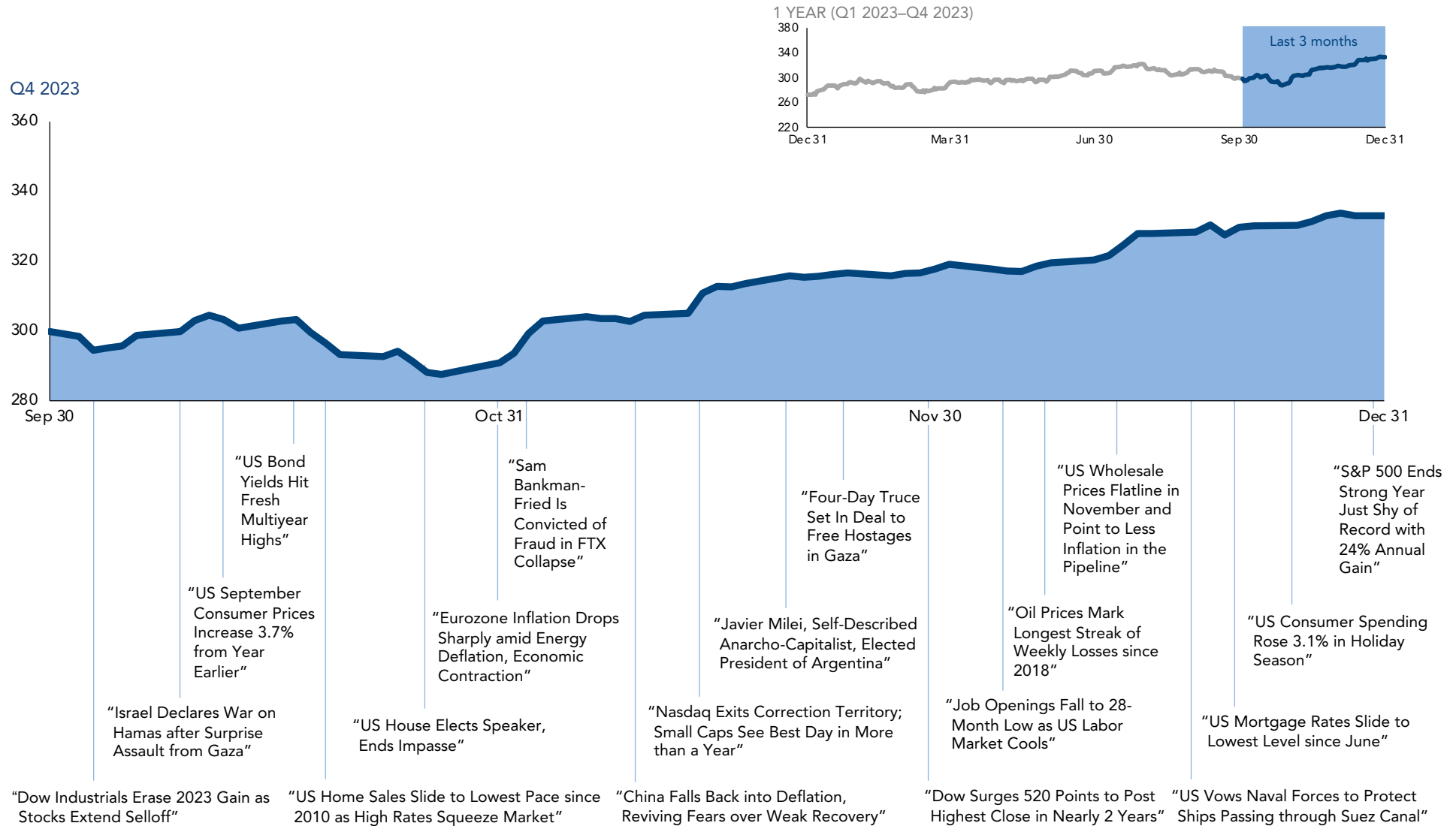


Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Market segment (index representation) as follows: US Stock Market (Russell 3000 Index), International 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 © 2024 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 2024, all rights reserved. Bloomberg data provided by Bloomberg.



# World Stock Market Performance

## MSCI All Country World Index with selected headlines from Q4 2023



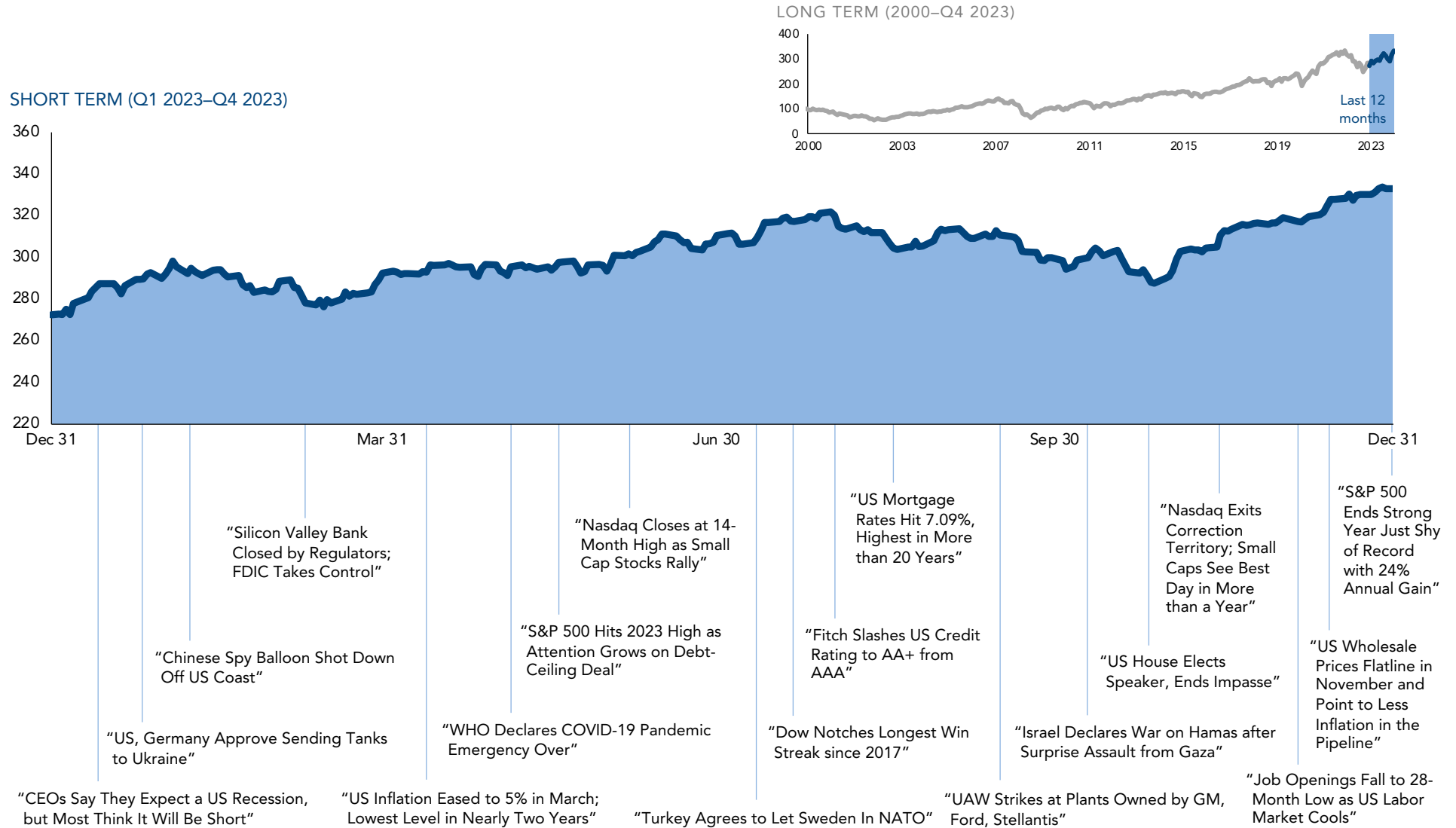
These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.

Graph Source: MSCI ACWI Index (net dividends). MSCI data © MSCI 2024, all rights reserved. Index level based at 100 starting January 2000.

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 2024, all rights reserved. Index level based at 100 starting January 2000.

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# US Stocks

## Fourth Quarter 2023 Index Returns

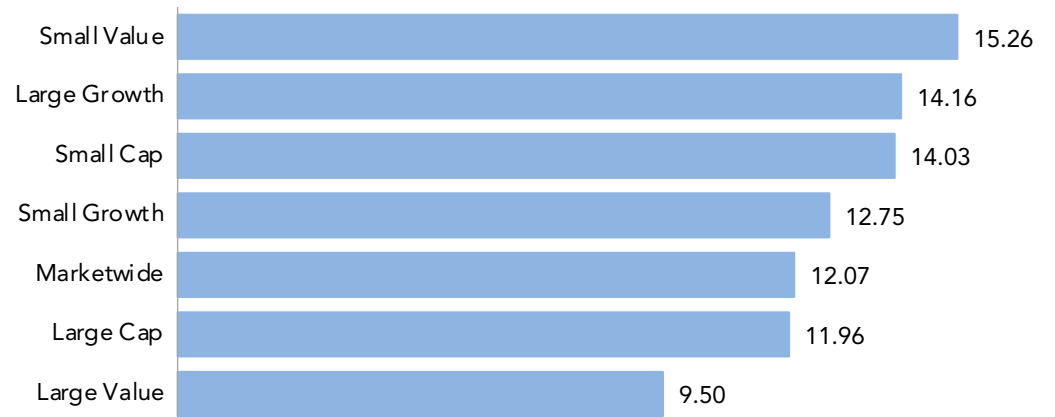
The US equity market posted positive returns for the quarter and outperformed both non-US developed and emerging markets.

Value underperformed growth within large caps and outperformed within small caps.

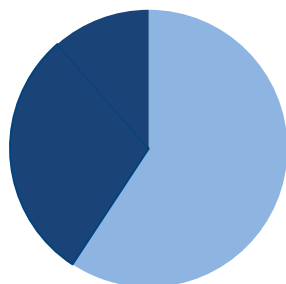
Small caps outperformed large caps.

REIT indices outperformed equity market indices.

### Ranked Returns (%)



### World Market Capitalization—US



61%

US Market  
\$46.4 trillion

### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	* Annualized
					10 Years*
Small Value	15.26	14.65	7.94	10.00	6.76
Large Growth	14.16	42.68	8.86	19.50	14.86
Small Cap	14.03	16.93	2.22	9.97	7.16
Small Growth	12.75	18.66	-3.50	9.22	7.16
Marketwide	12.07	25.96	8.54	15.16	11.48
Large Cap	11.96	26.53	8.97	15.52	11.80
Large Value	9.50	11.46	8.86	10.91	8.40

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 2024, all rights reserved.

# International Developed Stocks

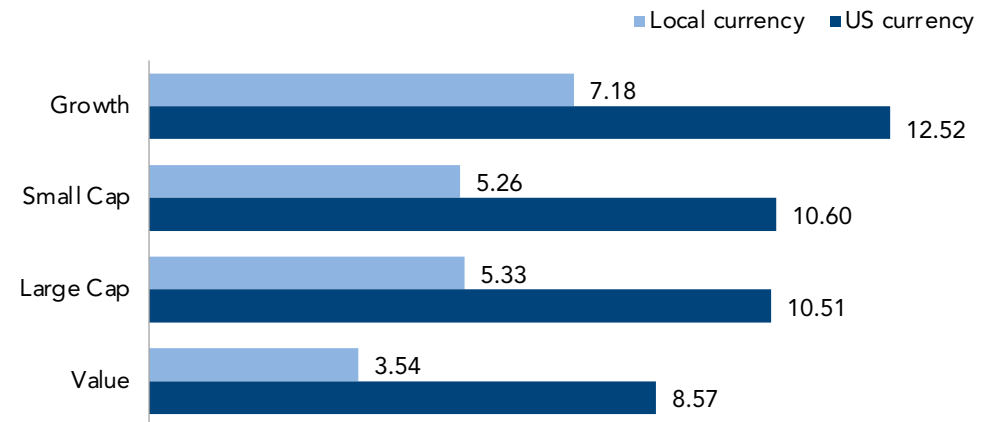
## Fourth Quarter 2023 Index Returns

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

Value underperformed growth.

Small caps outperformed large caps.

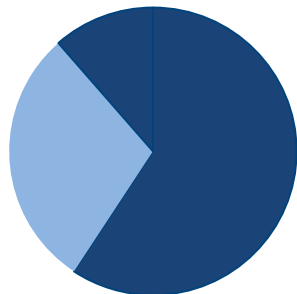
### Ranked Returns (%)



### World Market Capitalization—International Developed

28%

International Developed Market  
\$21.0 trillion



### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Growth	12.52	17.45	0.44	8.94	5.08
Small Cap	10.60	12.62	-0.20	7.05	4.63
Large Cap	10.51	17.94	4.42	8.45	4.32
Value	8.57	18.48	8.19	7.48	3.29

<sup>^</sup> Annualized

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# Emerging Markets Stocks

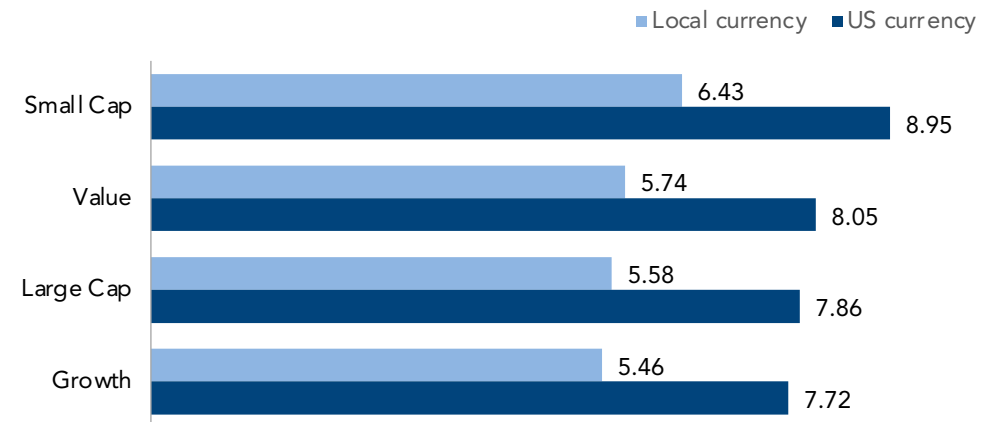
## Fourth Quarter 2023 Index Returns

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

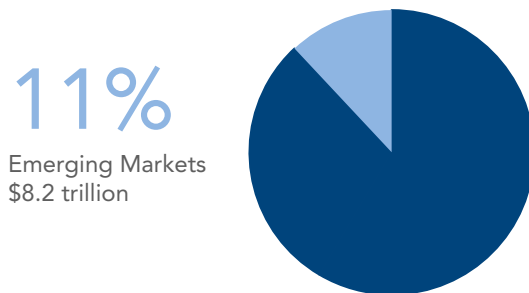
Value outperformed growth.

Small caps outperformed large caps.

### Ranked Returns (%)



### World Market Capitalization—Emerging Markets



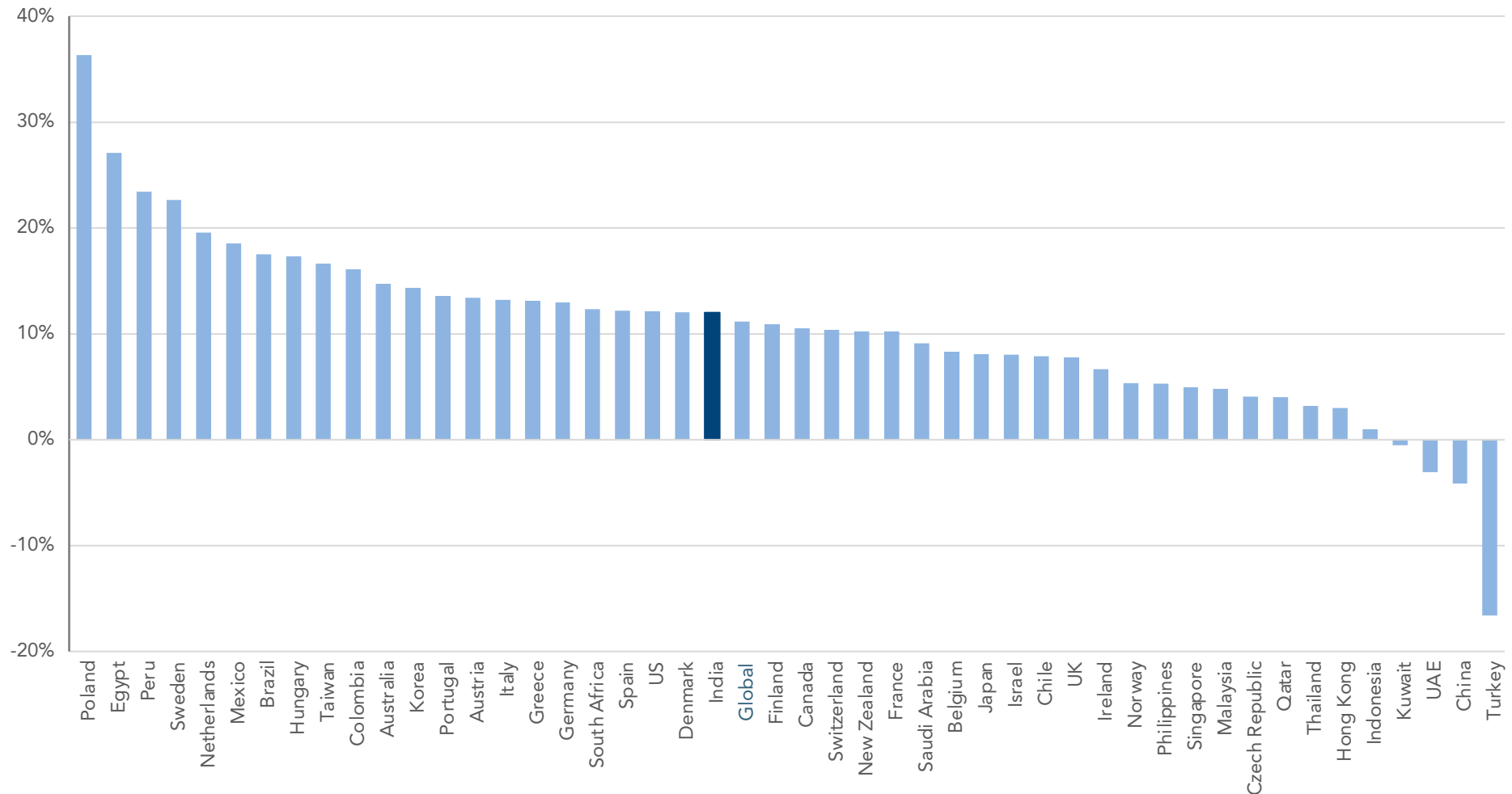
### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	* Annualized
					10 Years*
Small Cap	8.95	23.92	6.45	9.92	5.34
Value	8.05	14.21	-0.01	3.37	1.94
Large Cap	7.86	9.83	-5.08	3.68	2.66
Growth	7.72	5.83	-9.67	3.90	3.28

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 Emerging Markets Index), Small Cap (MSCI Emerging Markets Small Cap Index), Value (MSCI Emerging Markets Value Index), and Growth (MSCI Emerging Markets 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 Emerging Markets IMI Index used as the proxy for the emerging market portion of the market. MSCI data © MSCI 2024, all rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.

# Country Returns

## Fourth Quarter 2023 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 2024, all rights reserved.

# Real Estate Investment Trusts (REITs)

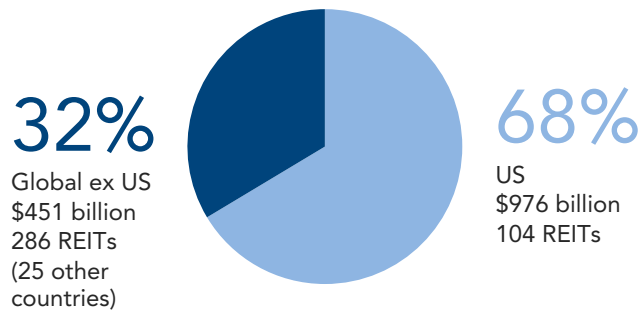
## Fourth Quarter 2023 Index Returns

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

### Ranked Returns (%)



### Total Value of REIT Stocks



### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	* Annualized
					10 Years*
US REITS	16.35	13.96	7.18	6.12	7.00
Global ex US REITS	14.98	5.59	-2.69	0.48	1.92

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 © 2024 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved.

# Commodities

## Fourth Quarter 2023 Index Returns

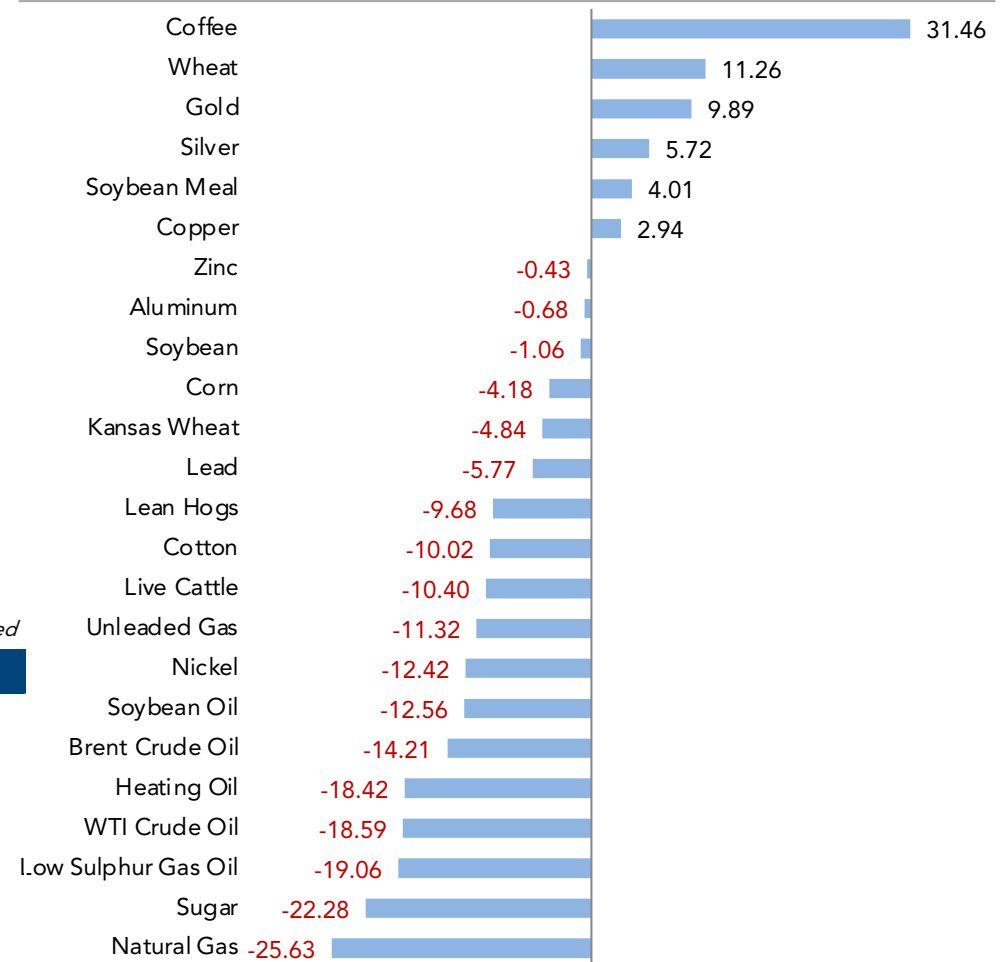
The Bloomberg Commodity Total Return Index returned -4.63% for the fourth quarter of 2023.

Natural Gas and Sugar were the worst performers, returning -25.63% and -22.28% during the quarter, respectively. Coffee and Wheat were the best performers, returning +31.46% and +11.26% during the quarter, respectively.

### Period Returns (%)

Asset Class	QTR	1 Year	3 Years*	5 Years*	10 Years*
Commodities	-4.63	-7.91	10.76	7.23	-1.11

### 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

## Fourth Quarter 2023 Index Returns

Interest rates generally decreased in the US Treasury market for the quarter.

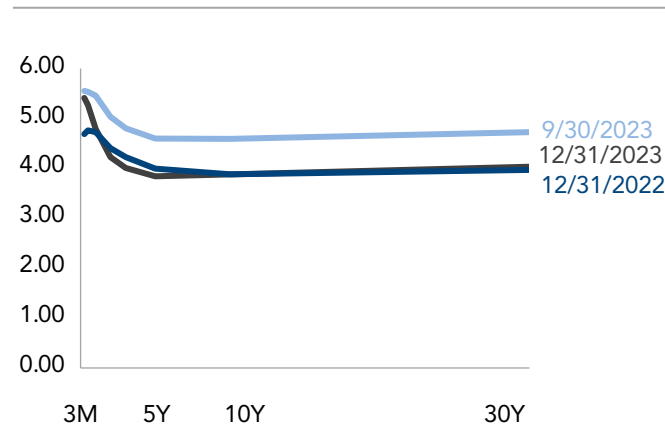
On the short end of the yield curve, the 1-Month US Treasury Bill yield increased 5 basis points (bps) to 5.60%, while the 1-Year US Treasury Bill yield decreased 67 bps to 4.79%. The yield on the 2-Year US Treasury Note decreased 80 bps to 4.23%.

The yield on the 5-Year US Treasury Note decreased 76 bps to 3.84%. The yield on the 10-Year US Treasury Note decreased 71 bps to 3.88%. The yield on the 30-Year US Treasury Bond decreased 70 bps to 4.03%.

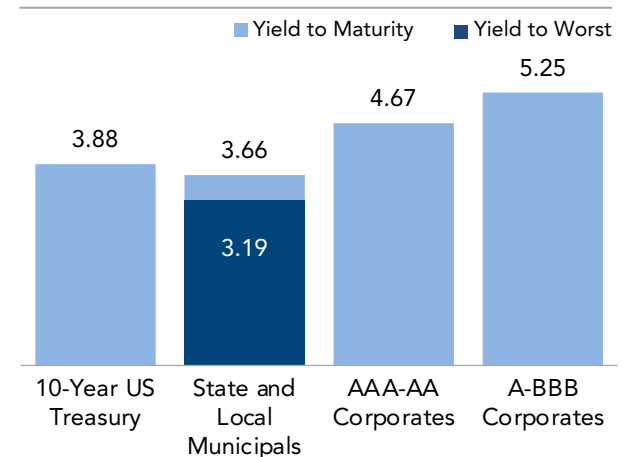
In terms of total returns, short-term US treasury bonds returned +3.21% while intermediate-term US treasury bonds returned +3.99%. Short-term corporate bonds returned +4.12% and intermediate-term corporate bonds returned +5.86%.<sup>1</sup>

The total returns for short- and intermediate-term municipal bonds were +3.53% and +6.53%, respectively. Within the municipal fixed income market, general obligation bonds returned +7.79% while revenue bonds returned +8.15%.<sup>2</sup>

US Treasury Yield Curve (%)



Bond Yield Across Issuers (%)



Period Returns (%)

Asset Class	QTR	1 Year	*Annualized		
			3 Years *	5 Years *	10 Years *
Bloomberg U.S. Government Bond Index Long	12.69	3.11	-11.35	-1.23	2.27
Bloomberg Municipal Bond Index	7.89	6.40	-0.40	2.25	3.03
Bloomberg U.S. High Yield Corporate Bond Index	7.16	13.44	1.98	5.37	4.60
Bloomberg U.S. Aggregate Bond Index	6.82	5.53	-3.31	1.10	1.81
FTSE World Government Bond Index 1-5 Years	4.95	4.79	-2.95	-0.07	-0.44
Bloomberg U.S. TIPS Index	4.71	3.90	-1.00	3.15	2.42
FTSE World Government Bond Index 1-5 Years (hedged to USD)	3.09	5.26	-0.09	1.34	1.44
ICE BofA 1-Year US Treasury Note Index	1.79	4.74	1.18	1.66	1.18
ICE BofA US 3-Month Treasury Bill Index	1.37	5.01	2.15	1.88	1.25

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 © 2024 FTSE Fixed Income LLC, all rights reserved. ICE BofA index data © 2024 ICE Data Indices, LLC. S&P data © 2024 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 2023 Yield Curves

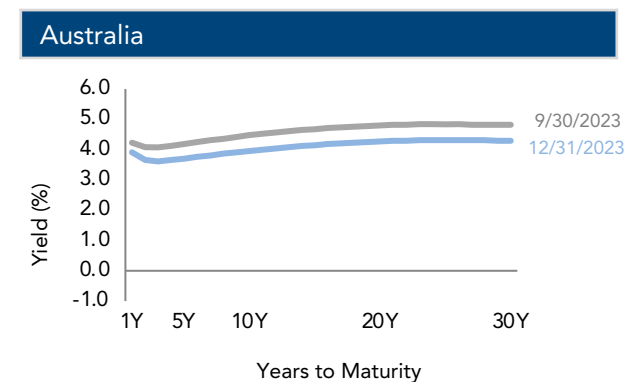
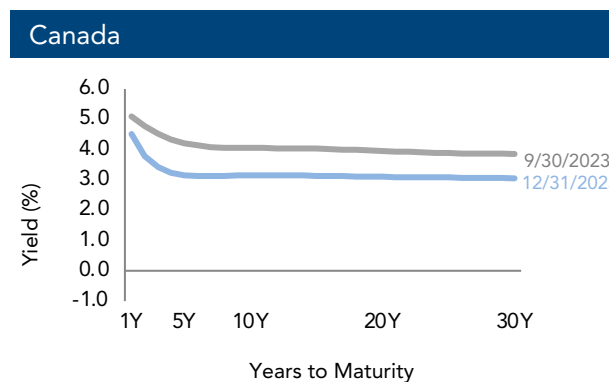
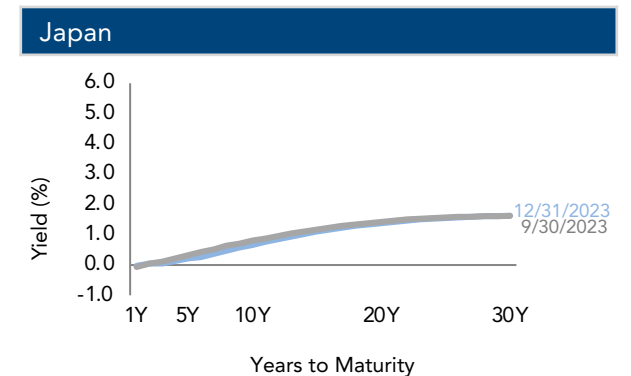
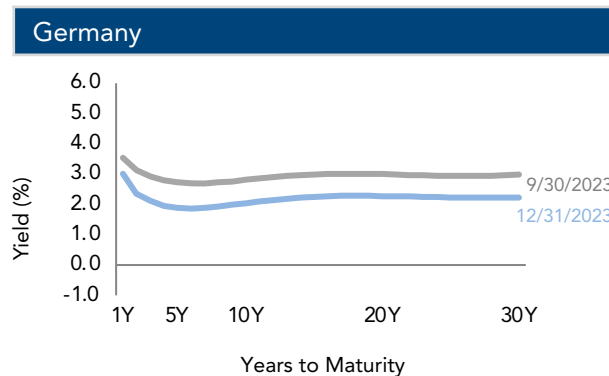
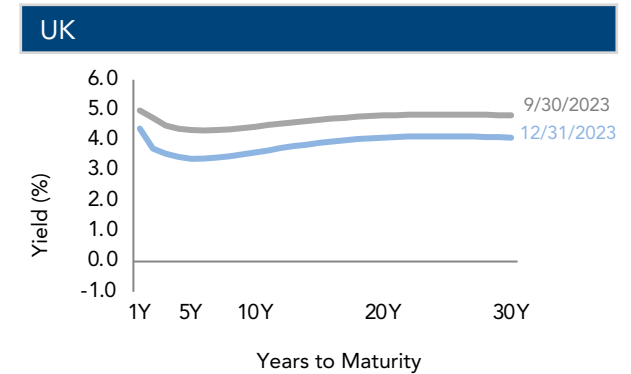
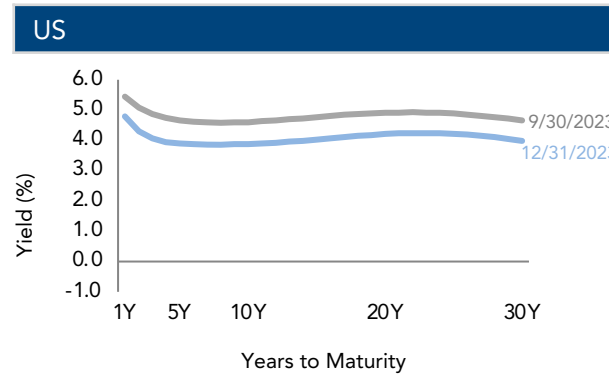
Interest rates generally decreased across global developed markets for the quarter.

Realized term premiums were generally positive across global developed markets, as longer-term bonds generally outperformed shorter-term bonds.

In Japan, ultrashort-term nominal interest rates were negative. In the UK, Germany, Canada, and Australia, the short-term segment of the yield curve was inverted.

### Changes in Yields (bps) since 09/30/2023

	1Y	5Y	10Y	20Y	30Y
US	-65.2	-76.9	-72.2	-70.3	-67.8
UK	-59.7	-93.9	-84.8	-72.8	-73.1
Germany	-52.7	-84.6	-76.3	-72.1	-74.9
Japan	3.9	-10.3	-13.3	-4.1	0.8
Canada	-58.0	-106.2	-90.0	-85.7	-80.5
Australia	-30.6	-48.0	-51.1	-53.2	-52.9



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December 2023

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