Q3

Quarterly Market Review

Third Quarter 2017

U|P|A|L

Quarterly Market Review

Third Quarter 2017

This report features world capital market performance and a timeline of events for the last quarter. It begins with a global overview, then features the returns of stock and bond asset classes in the US and international markets.

The report also illustrates the impact of globally diversified portfolios and features a quarterly topic.

Overview:

Market Summary

World Stock Market Performance

World Asset Classes

US Stocks

International Developed Stocks

Emerging Markets Stocks

Select Country Performance

Select Currency Performance vs. US Dollar

Real Estate Investment Trusts (REITs)

Commodities

Fixed Income

Impact of Diversification

Quarterly Topic: Stop Monkeying Around!

Market Summary

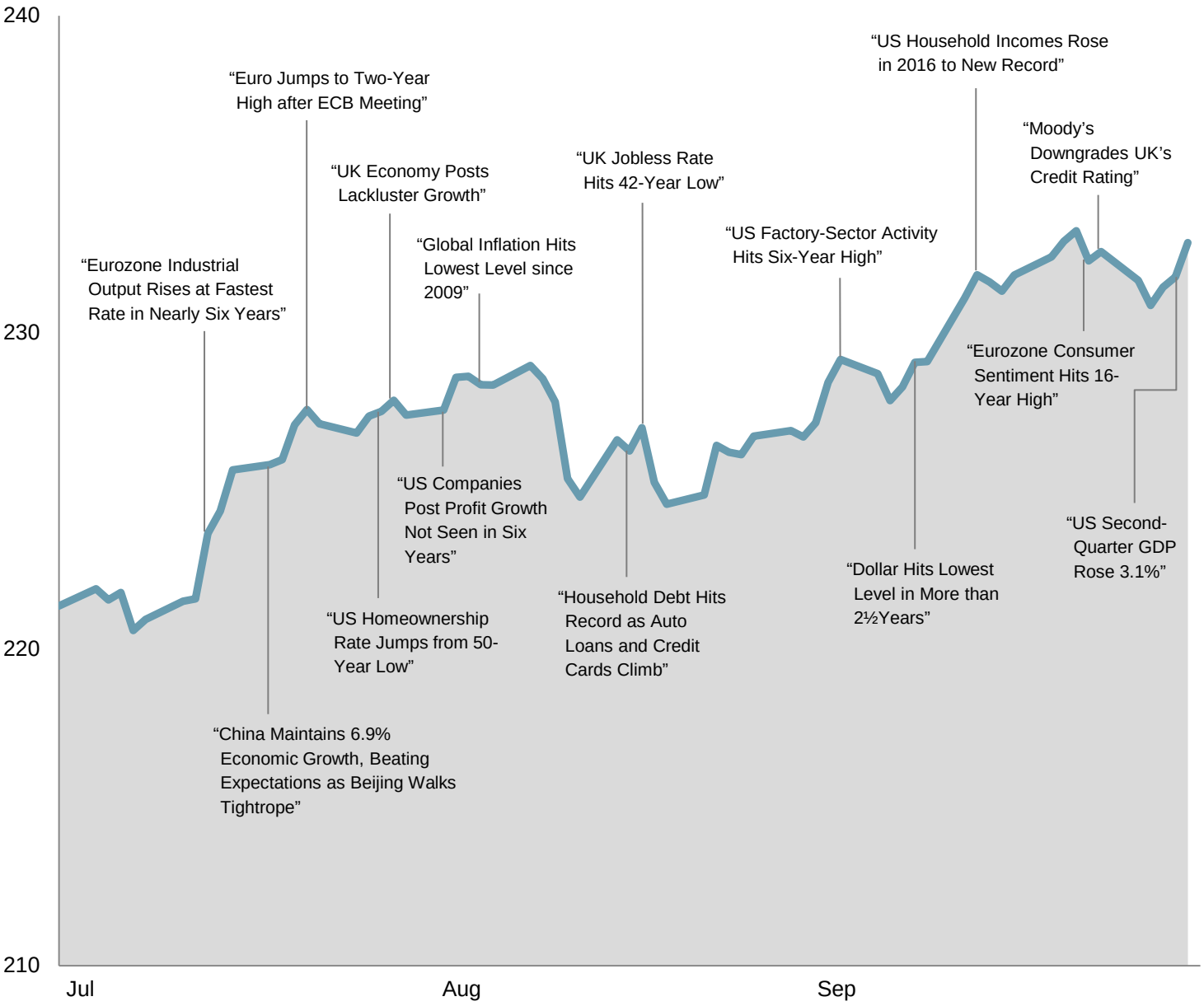
Index Returns

	US Stock Market	International Developed Stocks	Emerging Markets Stocks	Global Real Estate	US Bond Market	Global Bond Market ex US
Q3 2017	**STOCKS**				**BONDS**	
	4.57%	**5.62%**	**7.89%**	**1.13%**	**0.85%**	**0.70%**
Since Jan. 2001						
Avg. Quarterly Return	1.9%	1.6%	3.1%	2.7%	1.2%	1.1%
Best Quarter	16.8% **Q2 2009**	25.9% **Q2 2009**	34.7% **Q2 2009**	32.3% **Q3 2009**	4.6% **Q3 2001**	5.5% **Q4 2008**
Worst Quarter	-22.8% **Q4 2008**	-21.2% **Q4 2008**	-27.6% **Q4 2008**	-36.1% **Q4 2008**	-3.0% **Q4 2016**	-3.2% **Q2 2015**

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 div.]), Emerging Markets (MSCI Emerging Markets Index [net div.]), Global Real Estate (S&P Global REIT Index [net div.]), US Bond Market (Bloomberg Barclays US Aggregate Bond Index), and Global Bond ex US Market (Citi WGBI ex USA 1–30 Years [Hedged to USD]). The S&P data are provided by Standard & Poor's Index Services Group. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. MSCI data © MSCI 2017, all rights reserved. Bloomberg Barclays data provided by Bloomberg. Citi fixed income indices copyright 2017 by Citigroup.

World Stock Market Performance

MSCI All Country World Index with selected headlines from Q3 2017

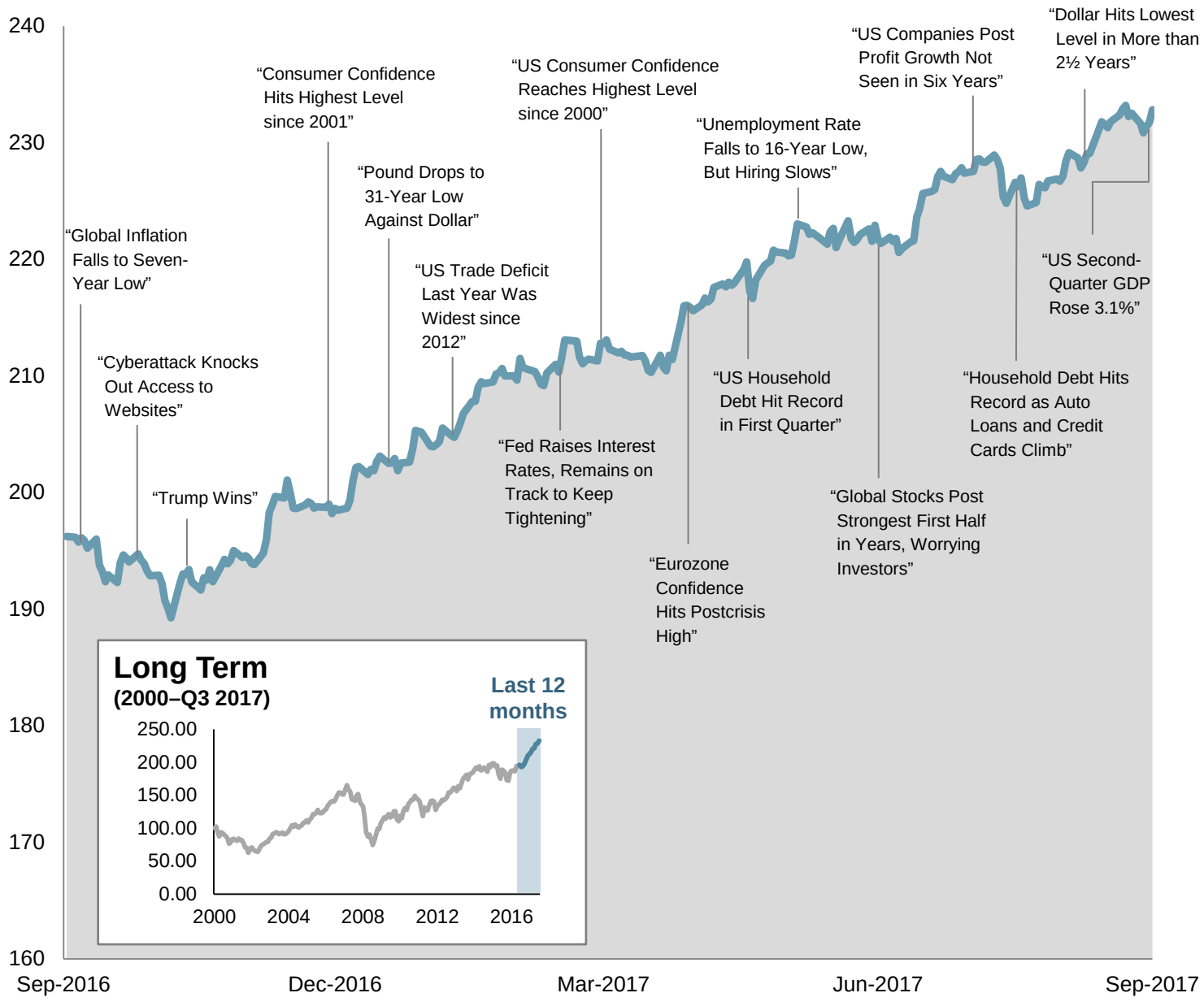


These headlines are not offered to explain market returns. Instead, they serve as a reminder that investors should view daily events from a long-term perspective and avoid making investment decisions based solely on the news.

Graph Source: MSCI ACWI Index [net div.]. MSCI data © MSCI 2017, 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



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Graph Source: MSCI ACWI Index [net div.]. MSCI data © MSCI 2017, all rights reserved.

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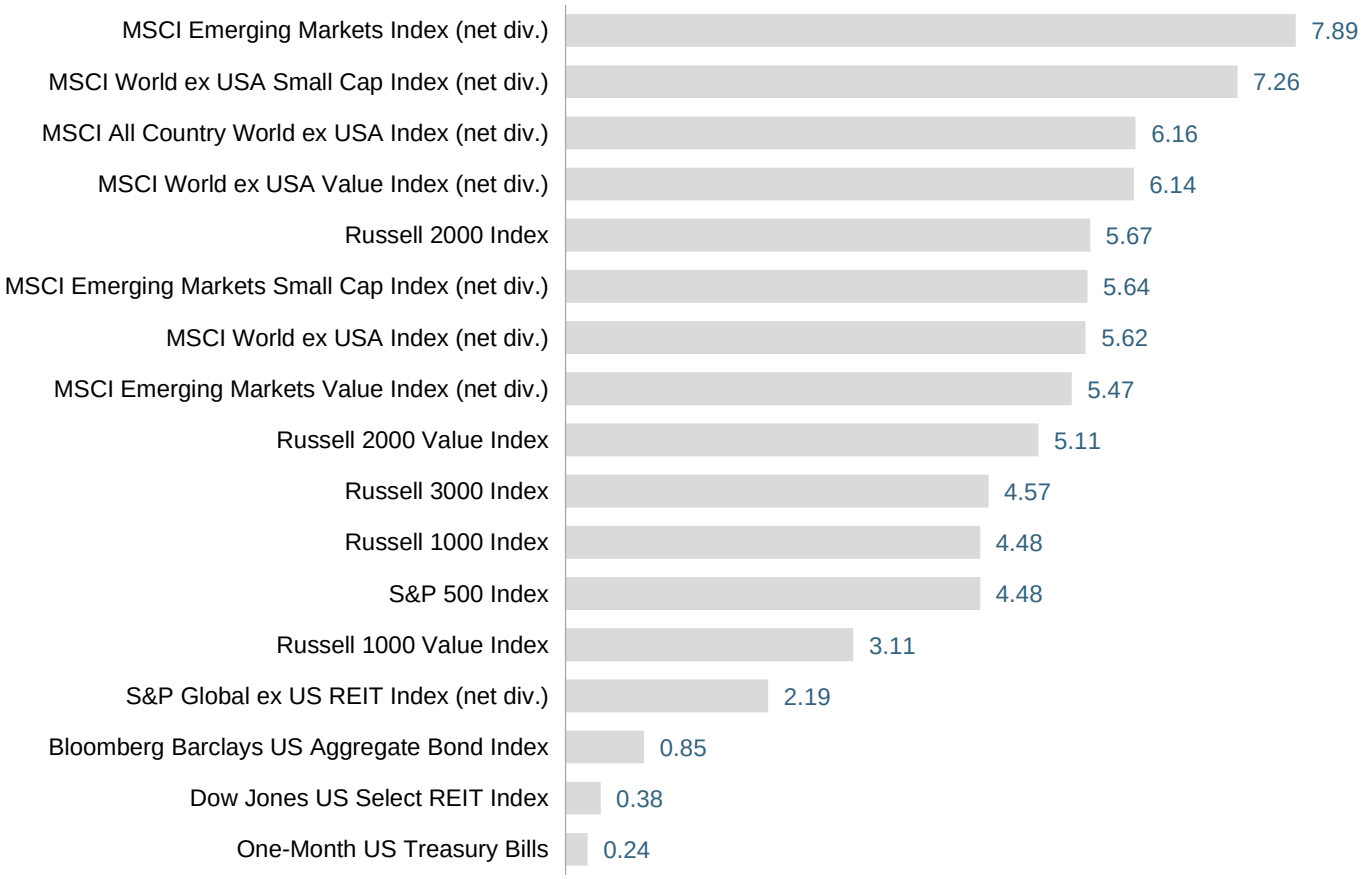
World Asset Classes

Third Quarter 2017 Index Returns (%)

With broad market indices used as proxies, emerging markets outperformed developed markets, including the US, during the quarter.

The value effect was positive in non-US developed markets but negative in the US and emerging markets. Small caps outperformed large caps in US and non-US developed markets but underperformed in emerging markets.



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US Stocks

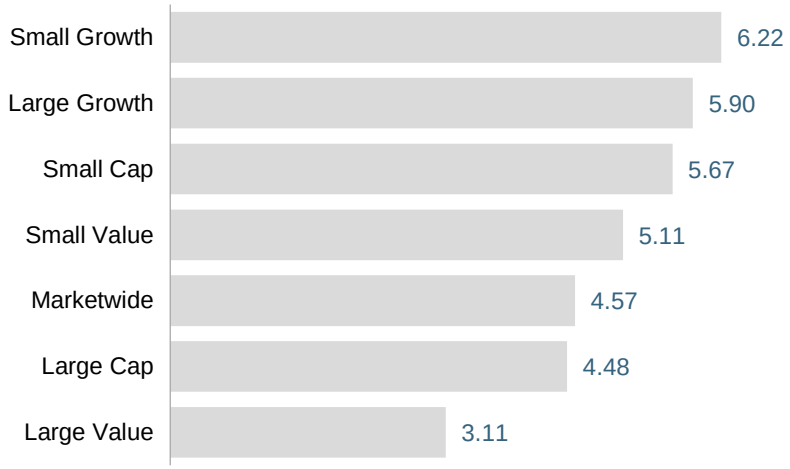
Third Quarter 2017 Index Returns

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

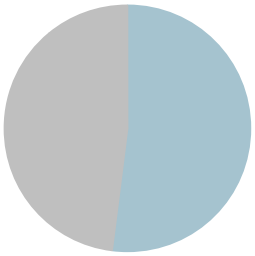
Value underperformed growth indices in the US across all size ranges.

Small caps in the US outperformed large caps.

Ranked Returns for the Quarter (%)



World Market Capitalization—US



52%

US Market
$26.0 trillion

Period Returns (%)

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
Marketwide	13.91	18.71	10.74	14.23	7.57
Large Cap	14.17	18.54	10.63	14.27	7.55
Large Value	7.92	15.12	8.53	13.20	5.92
Large Growth	20.72	21.94	12.69	15.26	9.08
Small Cap	10.94	20.74	12.18	13.79	7.85
Small Value	5.68	20.55	12.12	13.27	7.14
Small Growth	16.81	20.98	12.17	14.28	8.47

** Annualized*

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International Developed Stocks

Third Quarter 2017 Index Returns

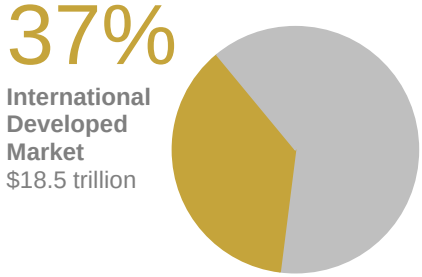
In US dollar terms, developed markets outperformed US equity indices but underperformed emerging markets indices during the quarter.

With broad market indices used as proxies, the value effect was positive. The value effect was positive in large caps but negative in mid and small caps.

Overall, small caps outperformed large caps in non-US developed markets.

Ranked Returns (%)

World Market Capitalization—International Developed



Period Returns (%)

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
Large Cap	19.17	18.73	4.57	7.81	1.28
Small Cap	23.82	20.42	9.59	11.16	4.04
Value	17.05	22.46	3.24	7.36	0.64
Growth	21.47	15.04	5.82	8.19	1.86

** Annualized*

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Emerging Markets Stocks

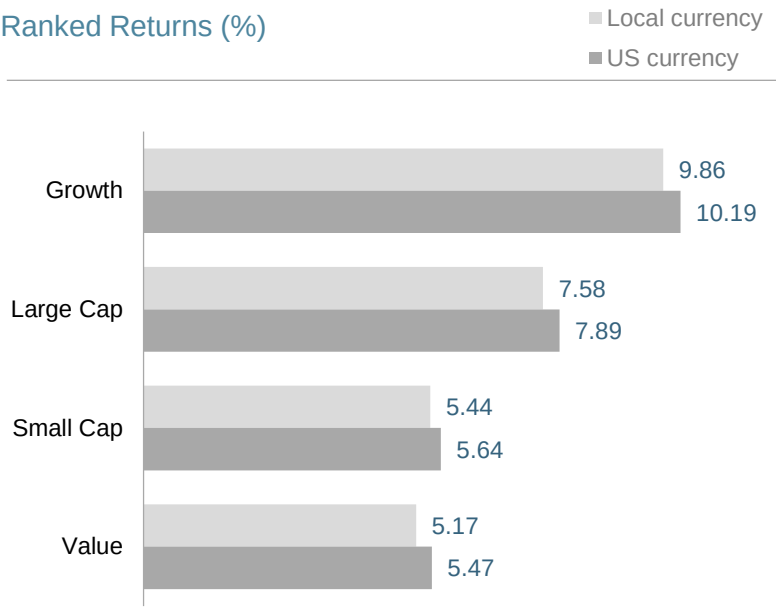
Third Quarter 2017 Index Returns

In US dollar terms, emerging markets indices outperformed developed market indices, including the US, during the quarter.

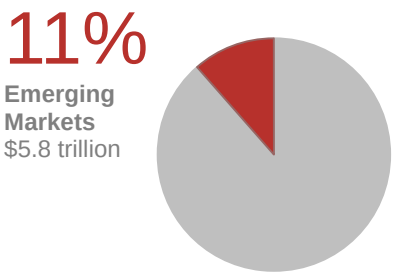
With broad market indices used as proxies, the value effect was negative. Across the size spectrum in the large and mid cap space, the value effect was negative; however, in the small cap space, the effect was positive.

Overall, small caps underperformed large caps in emerging markets.

Ranked Returns (%)



World Market Capitalization—Emerging Markets



Period Returns (%)

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
Large Cap	27.78	22.46	4.90	3.99	1.32
Small Cap	22.53	14.89	3.14	4.60	1.74
Value	19.87	18.55	1.62	1.34	0.67
Growth	36.03	26.35	8.12	6.55	1.88

** Annualized*

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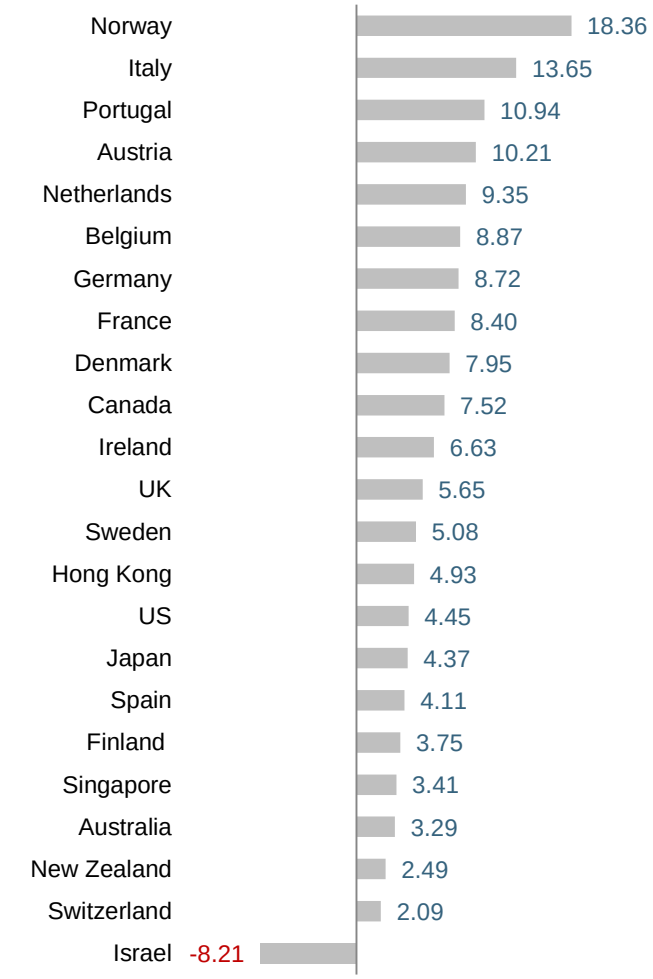
Select Country Performance

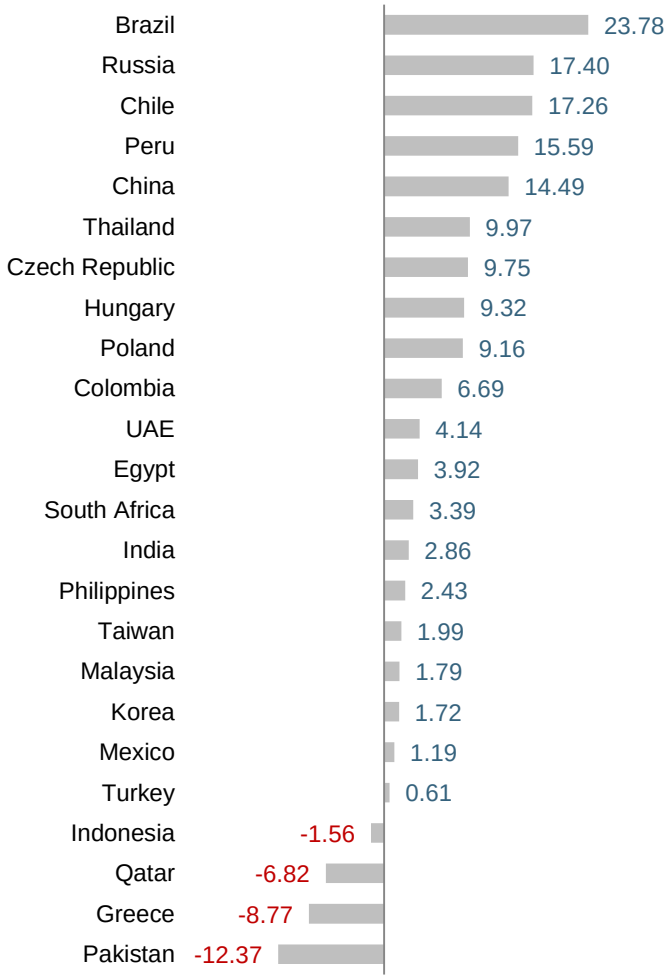
Third Quarter 2017 Index Returns

In US dollar terms, Norway and Italy recorded the highest country performance in developed markets, while Israel posted the lowest—and only negative—return in developed markets. In emerging markets, Brazil, Russia, and Chile posted the highest returns, while Pakistan and Greece had the lowest performance.

Ranked Developed Markets Returns (%)



Ranked Emerging Markets Returns (%)



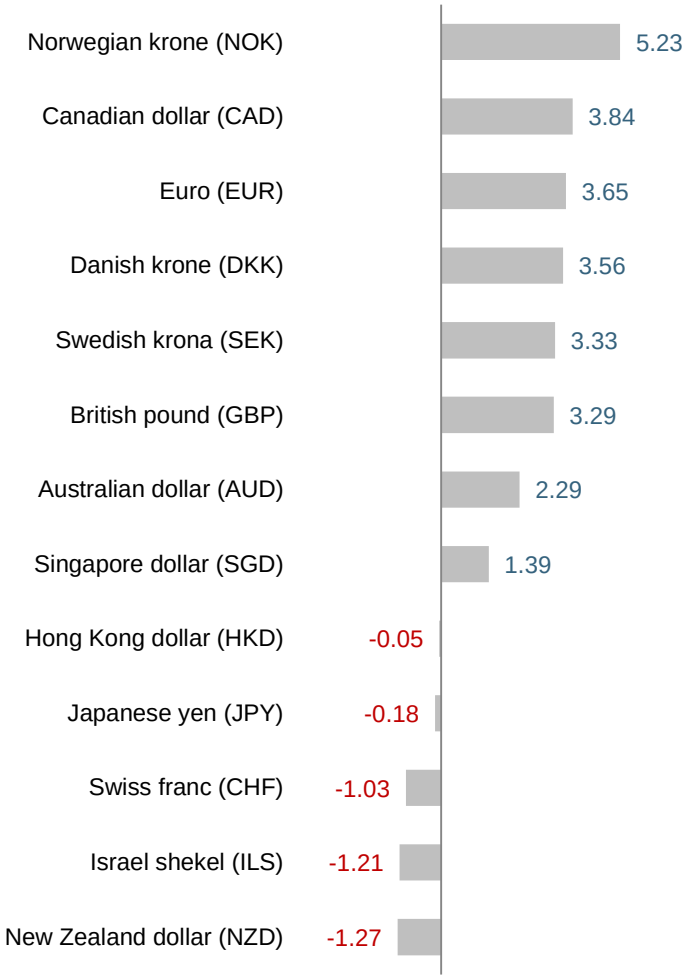
Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect the expenses associated with the management of an actual portfolio. Country performance based on respective indices in the MSCI World ex US IMI Index (for developed markets), MSCI USA IMI Index (for US), and MSCI Emerging Markets IMI Index. All returns in USD and net of withholding tax on dividends. MSCI data © MSCI 2017, all rights reserved. UAE and Qatar have been reclassified as emerging markets by MSCI, effective May 2014.

Select Currency Performance vs. US Dollar

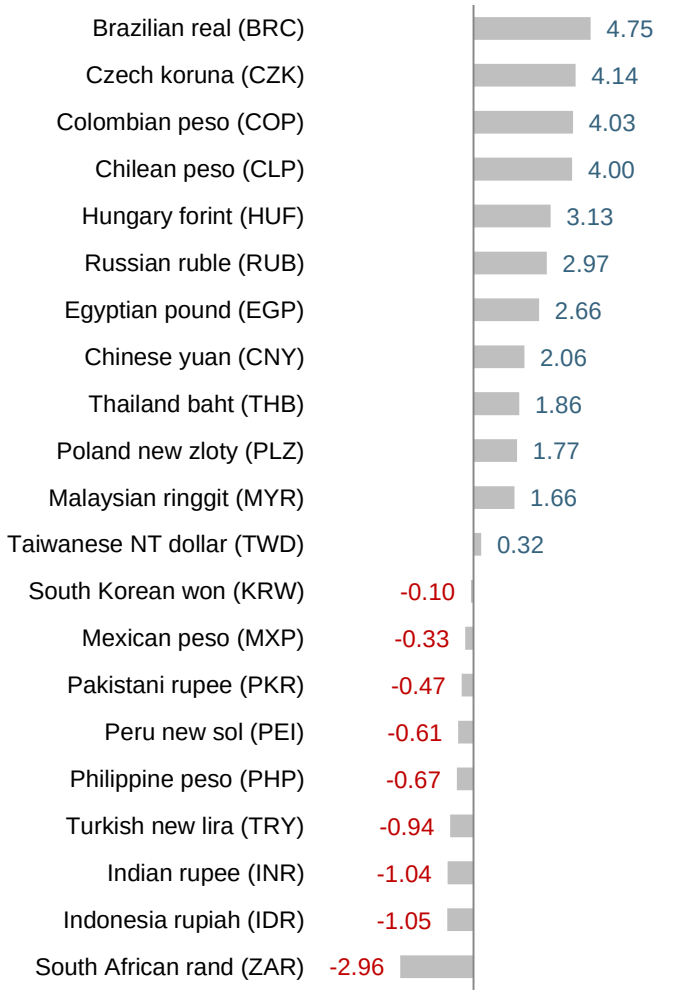
Third Quarter 2017

Currency performance was mixed in both developed and emerging markets. Among developed markets currencies, the Norwegian krone appreciated by 5%, while the Israeli shekel and the New Zealand dollar depreciated by approximately 1%. In emerging markets, the Brazilian real appreciated by almost 5%, while the South African rand depreciated by almost 3%.

Ranked Developed Markets Returns (%)



Ranked Emerging Markets Returns (%)



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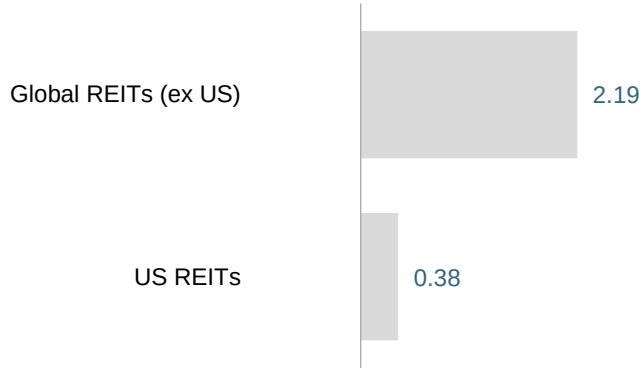
Real Estate Investment Trusts (REITs)

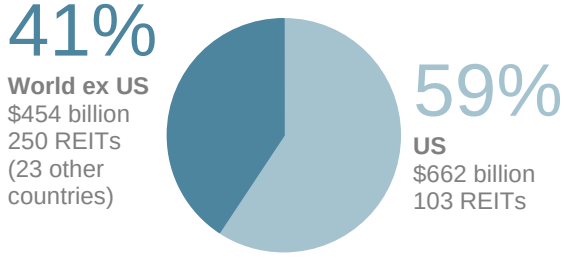
Third Quarter 2017 Index Returns

Non-US real estate investment trusts outperformed US REITs.

Ranked Returns (%)



Total Value of REIT Stocks



Period Returns (%)

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
US REITs	1.75	-0.83	9.28	9.16	5.31
Global REITs (ex US)	8.63	-0.45	3.63	5.44	0.27

** Annualized*

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 US Select REIT Index data provided by Dow Jones ©. S&P Global ex US REIT Index data provided by Standard and Poor's Index Services Group © 2017.

Commodities

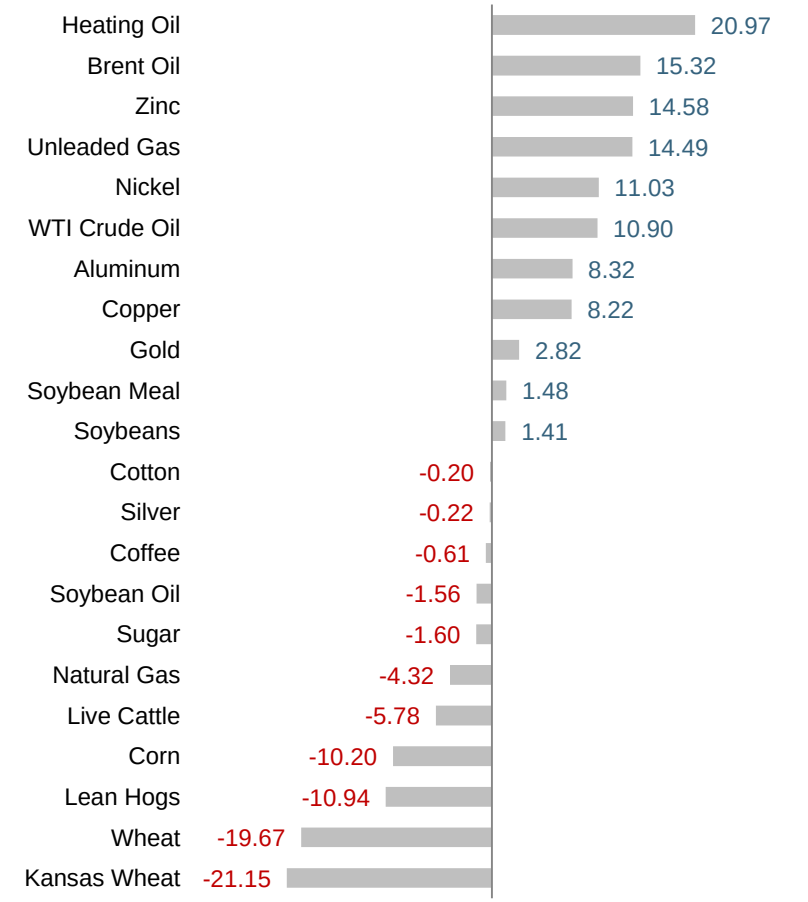
Third Quarter 2017 Index Returns

The Bloomberg Commodity Index Total Return gained 2.52% during the third quarter.

The energy complex led advancing commodities, with heating oil returning 20.97%, Brent crude oil 15.32%, unleaded gas 14.49%, and WTI crude oil 10.90%.

Grains was the worst-performing complex, with Kansas wheat and Chicago wheat declining 21.15% and 19.67%, respectively. Lean hogs also experienced a decline, decreasing by 10.94%.

Ranked Returns for Individual Commodities (%)



Period Returns (%)

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
Commodities	-2.87	-0.29	-10.41	-10.47	-6.83

** Annualized*

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. All index returns are net of withholding tax on dividends. Securities and commodities data provided by Bloomberg.

Fixed Income

Third Quarter 2017 Index Returns

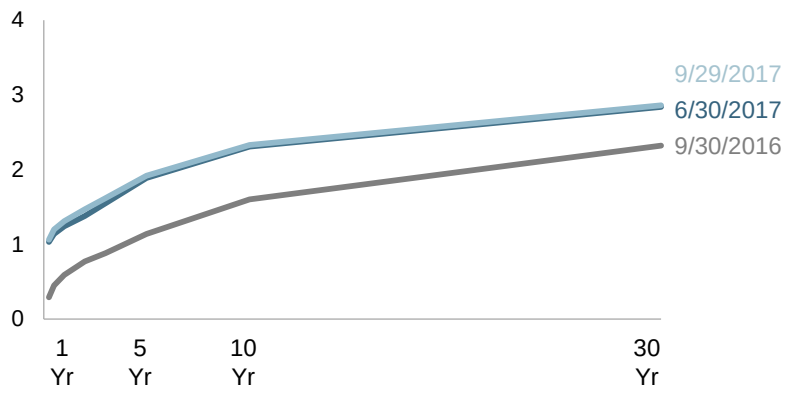
Interest rates increased across the US fixed income market for the quarter. The yield on the 5-year Treasury note increased by 3 basis points (bps) to 1.92%. The yield on the 10-year Treasury note increased by 2 bps to 2.33%. The 30-year Treasury bond yield increased by 2 bps to finish at 2.86%.

The yield on the 1-year Treasury bill rose 7 bps to 1.31%, and the 2-year Treasury note yield rose 9 bps to 1.47%. The yield on the 3-month Treasury bill increased 3 bps to 1.06%, while the 6-month Treasury bill yield increased 6 bps to 1.20%.

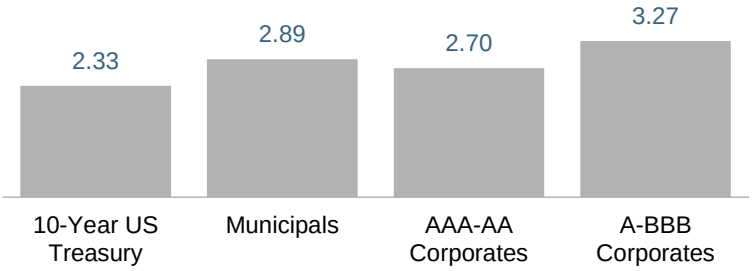
In terms of total returns, short-term corporate bonds gained 0.59%, and intermediate-term corporates gained 1.05%.

Short-term municipal bonds generated a total return of 0.49%, while intermediate-term municipal bonds returned 0.83%. General obligation bonds gained 1.14%, outperforming revenue bonds by 4 bps.

US Treasury Yield Curve (%)



Bond Yields across Issuers (%)



Period Returns (%)

* Annualized

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*
Bloomberg Barclays Long US Government Bond Index	6.06	-6.14	4.84	2.87	6.83
Bloomberg Barclays Municipal Bond Index	4.66	0.87	3.19	3.01	4.52
Bloomberg Barclays US Aggregate Bond Index	3.14	0.07	2.71	2.06	4.27
Bloomberg Barclays US Corporate High Yield Index	7.00	8.88	5.83	6.36	7.84
Bloomberg Barclays US TIPS Index	1.72	-0.73	1.62	0.02	3.90
BofA Merrill Lynch 1-Year US Treasury Note Index	0.55	0.60	0.46	0.39	1.05
BofA Merrill Lynch Three-Month US Treasury Bill Index	0.57	0.66	0.32	0.22	0.47
Citi World Government Bond Index 1-5 Years (hedged to USD)	1.07	0.59	1.35	1.30	2.32

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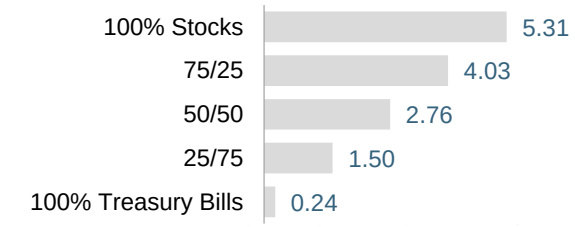
Impact of Diversification

Third Quarter 2017 Index Returns

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

Ranked Returns (%)

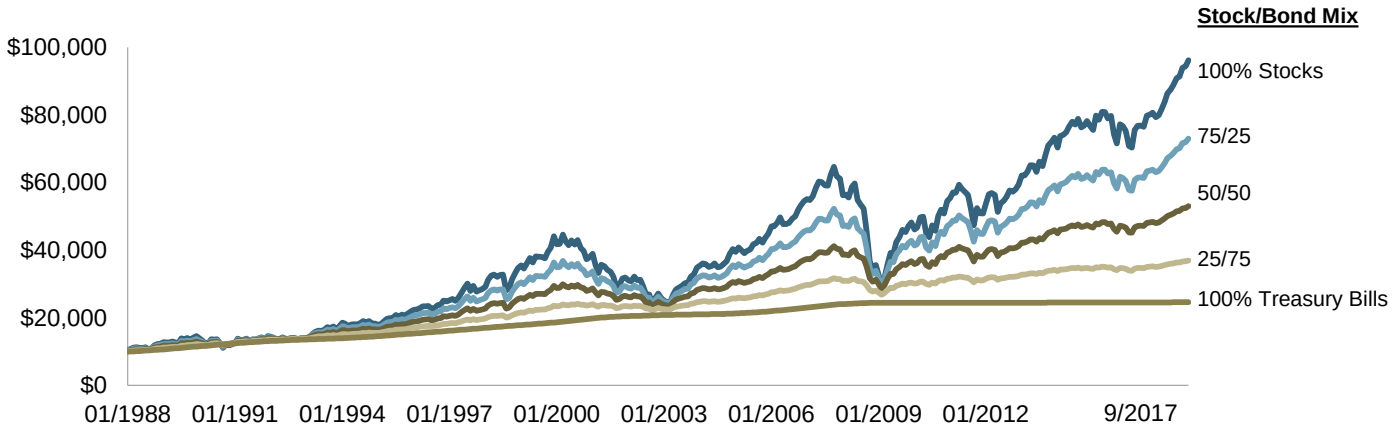


Period Returns (%)

** Annualized*

Asset Class	YTD	1 Year	3 Years*	5 Years*	10 Years*	10-Year STDEV[1]
100% Stocks	17.75	19.29	8.02	10.79	4.45	16.90
75/25	13.22	14.35	6.13	8.14	3.70	12.66
50/50	8.85	9.60	4.21	5.48	2.76	8.43
25/75	4.62	5.01	2.25	2.82	1.65	4.20
100% Treasury Bills	0.53	0.58	0.25	0.16	0.36	0.22

Growth of Wealth: The Relationship between Risk and Return



1. STDEV (standard deviation) is a measure of the variation or dispersion of a set of data points. Standard deviations are often used to quantify the historical return volatility of a security or portfolio.

Diversification does not eliminate the risk of market loss. Past performance is not a guarantee of future results. Indices are not available for direct investment. Index performance does not reflect expenses associated with the management of an actual portfolio. Asset allocations and the hypothetical index portfolio returns are for illustrative purposes only and do not represent actual performance. Global Stocks represented by MSCI All Country World Index (gross div.) and Treasury Bills represented by US One-Month Treasury Bills. Globally diversified allocations rebalanced monthly, no withdrawals. Data © MSCI 2017, all rights reserved. Treasury bills © Stocks, Bonds, Bills, and Inflation Yearbook™, Ibbotson Associates, Chicago (annually updated work by Roger G. Ibbotson and Rex A. Sinquefield).

Quit Monkeying Around!

Third Quarter 2017

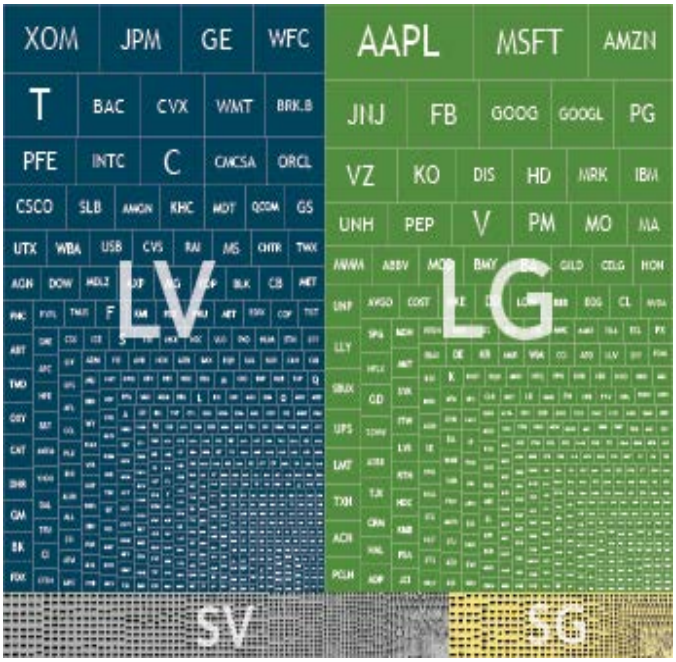
In the world of investment management there is an oft-discussed idea that blindfolded monkeys throwing darts at pages of stock listings can select portfolios that will do just as well, if not better, than both the market and the average portfolio constructed by professional money managers. If this is true, why might it be the case?

The Dart Board

Exhibit 1 shows the components of the Russell 3000 Index (regarded as a good proxy for the US stock market) as of December 31, 2016. Each stock in the index is represented by a box, and the size of each box represents the stock's market capitalization (share price multiplied by shares outstanding) or "market cap" in the index. For example, Apple (AAPL) is the largest box since it has the largest market cap in the index. The boxes get smaller as you move from the top to the bottom of the exhibit, from larger stocks to smaller stocks. The boxes are also color coded based on their market cap and whether they are value or growth stocks. Value stocks have lower relative prices (as measured by, for instance the price-to-book ratio) and growth stocks tend to have higher relative prices. In the exhibit, blue represents large cap value stocks (LV), green is large cap growth stocks (LG), gray is small cap value stocks (SV), and yellow is small cap growth stocks (SG).

For the purposes of this analogy you can think of Exhibit 1 as a proxy for the overall stock market and therefore similar to a portfolio that, in aggregate, professional money managers hold in their competition with their simian challengers. Because for every investor holding an overweight to a stock (relative to its market cap weighting) there must also be an investor underweight that same stock, this means that, in aggregate, the average dollar invested holds a portfolio that looks like the overall market.[1]

Exhibit 1. US Stocks Sized by Market Capitalization



For illustrative purposes only. Illustration includes constituents of the Russell 3000 Index as of December 31, 2016, on a market-cap weighted basis segmented into Large Value, Large Growth, Small Value, and Small Growth. Source: Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. Please see Appendix for additional information.

1. For more on this concept, please see "*The Arithmetic of Active Management*" by William Sharpe.

Quit Monkeying Around!

(continued from page 16)

Exhibit 2, on the other hand, represents the dart board the monkeys are using to play their game. Here, the boxes represent the same stocks shown in Exhibit 1, but instead of weighting each company by market cap, the companies are weighted equally. For example, in this case, Apple's box is the same size as every other company in the index regardless of its market cap. If one were to pin up pages of newspaper stock listings to throw darts at, Exhibit 2 would be much more representative of what the target would look like.

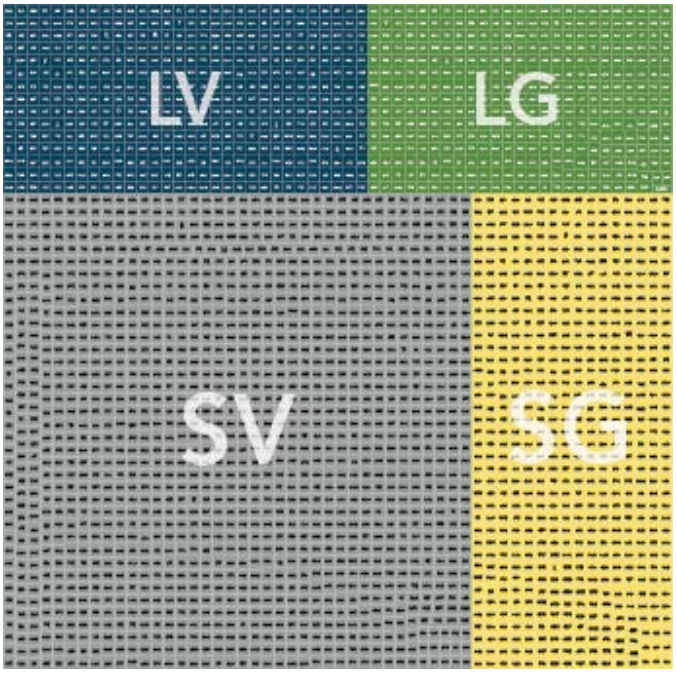
When looking at Exhibits 1 and 2, the significant differences between the two are clear. In Exhibit 1, the surface area is dominated by large value and large growth (blue and green) stocks. In Exhibit 2, however, small cap value stocks dominate (gray). Why does this matter? Research has shown that, historically over time, small company stocks have had excess returns relative to large company stocks. Research has also shown that, historically over time, value (or low relative price) stocks have had excess returns relative to growth (or high relative price) stocks. Because Exhibit 2 has a greater proportion of its surface area dedicated to small cap value stocks, it is more likely that a portfolio of stocks selected at random by throwing darts would end up being tilted towards stocks which research has shown to have had higher returns when compared to the market.

So…Throw Away?

This does not mean, however, that haphazardly selecting stocks by the toss of a dart is an efficient or reliable way to invest. For one thing, it ignores the complexities that arise in competitive markets.

Consider as an example something seemingly as straightforward as a strategy that holds every stock in the Russell 3000 Index at an equal weight (the equivalent of buying the whole dart board in Exhibit 2). In order to maintain an equal weight in all 3,000 securities, an investor would have to rebalance frequently, buying shares of companies that have gone down in price and selling shares that have gone up. This is because as prices change, so will each individual holding's respective weight in the portfolio. By not considering whether or not these frequent trades add value over and above the costs they generate, investors are opening themselves up to a potentially less than desirable outcome.

Exhibit 2. US Stocks Sized Equally



For illustrative purposes only. Illustration includes the constituents of the Russell 3000 Index as of December 31, 2016 on an equal-weighted basis segmented into Large Value, Large Growth, Small Value, and Small Growth. Source: Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. Please see Appendix for additional information.

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Instead, if there are well-known relationships that explain differences in expected returns across stocks, using a systematic and purposeful approach that takes into consideration real-world constraints is more likely to increase your chances for investment success. Considerations for such an approach include things like: understanding the drivers of returns and how to best design a portfolio to capture them, what a sufficient level of diversification is, how to appropriately rebalance, and last but not least, how to manage the costs associated with pursuing such a strategy.

The Long Game

Finally, the importance of having an asset allocation well suited for your objectives and risk tolerance, as well as being able to remain focused on the long term, cannot be overemphasized. Even well-constructed portfolios pursuing higher expected returns will have periods of disappointing results. A financial advisor can help an investor decide on an appropriate asset allocation, stay the course during periods of disappointing results, and carefully weigh the considerations mentioned above to help investors decide if a given investment strategy is the right one for them.

Conclusion

So what insights can investors glean from this analysis? First, by tilting a portfolio towards sources of higher expected returns, investors can potentially outperform the market without needing to outguess market prices. Second, implementation and patience are paramount. If one is going to pursue higher expected returns, it is important to do so in a cost-effective manner and to stay focused on the long term.

Appendix

Large cap is defined as the top 90% of market cap (small cap is the bottom 10%), while value is defined as the 50% of market cap of the lowest relative price stocks (growth is the 50% of market cap of the highest relative price stocks). For educational and informational purposes only and does not constitute a recommendation of any security. The determinations of Large Value, Large Growth, Small Value, and Small Growth do not represent any determinations Dimensional Fund Advisors may make in assessing any of the securities shown.

Source: Dimensional Fund Advisors LP.

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