The Profitability Premium in EM Equities

*Quality* is increasingly regarded as an investment style adopted by equity portfolio managers. Along with more traditional styles such as value, growth and momentum, this approach aims to capture “premiums” that have historically been associated with outperformance over broad equity markets. *Quality* can, however, be defined in many different ways. While it has typically been associated with buying low-leverage companies or those with stable earnings, more recent approaches focus on the notion of profitability.

More and more research is showing that profitable companies, defined by returns on equity or similar measures, are “persistently” profitable, maintaining their profitability over long-term investment horizons. Furthermore, evidence shows that this level of persistence may not always be priced into market expectations, as strategies that overweight profitable companies outperform over time. This suggests that there exists a profitability premium that investors can capture.

The notion of a profitability premium is a major factor in how we think about investing in emerging market (EM) equities. EM is made up of 50 to 60 extraordinarily different countries, with different sets of initial conditions, social and geopolitical constraints, natural resource endowments, abilities to withstand shock, and policy mix characteristics. So a top-down, bottom-up investment process that can identify countries, industries and companies that have the characteristics that suggest future growth is critically important. As fundamental equity investors, we look closely at a firm’s profitability, aiming to identify mispriced businesses that we believe have a high likelihood of sustaining profitability in the future.

In this paper we look at some of the empirical evidence supporting our focus on profitability. There are a number of traditional measures, as well as some new measures. By analysing these using broad sets of data we see definite trends in profitability within EM companies, and have found that high-profitability
strategies outperform. Our analysis shows that over the last 15 years, the size of the profitability premium has been roughly 9% per year. Over the same period, a long/short strategy driven by profitability would have achieved, before transaction costs, a Sharpe ratio of 0.71. These results support the investment approach of identifying strong, profitable companies that we believe can deliver outperformance over time.

Why should a profitability premium exist?

Before turning to the analysis of profitability, it is helpful to consider some background on the idea of quality premiums. Until recently, the empirical evidence that a portfolio manager can generate alpha by being consistently exposed to quality stocks was controversial. However, as we argue in the Appendix, this applies to typical quality strategies such as buying low-leverage companies or companies with stable earnings. More clear evidence has been found for the profitability factor. Empirical work has so far focused on developed markets, particularly the US. In these markets, empirical evidence clearly demonstrates that profitable firms tend to consistently outperform unprofitable ones.

Why do equity markets offer a return for holding highly profitable stocks? This empirical result remains a puzzle among academics. Intuitively, we would expect unprofitable firms to be more risky and, as a consequence, to display higher expected returns. In other words, investors holding stocks issued by firms with low return on equity (ROE) should be rewarded for the risk they bear. Some have suggested that investors tend to underreact to changes in fundamentals because of behavioural biases. Other explanations are based on a new systematic risk factor, priced in the market, that stems from technological innovation.¹

As we argue in the next section, profitable firms tend to remain profitable over time, and this phenomenon is as true in emerging markets as in developed markets.

The profitability premium in EM equities

In this section we shall analyse in detail the performance of gross profitability, a measure which has been advocated in recent academic studies, and show that it attracts a significant premium in EM equities. We begin however by examining more traditional profitability measures such as ROE and ROIC.

Profitability is persistent

The first step of our empirical analysis is to measure the persistence in profitability of EM companies. Our profitability measure is ROE, and the data source is the UBS investment research database.² We have estimated transition probabilities³ for MSCI EM constituents at the annual frequency using data from January 1998 until September 2013. At the end of each month we form quintiles by sorting stocks on ROE from lowest (Q1) to highest (Q5).

**FIGURE 1: ESTIMATED TRANSITION PROBABILITIES OF QUINTILES SORTED BY ROE (ANNUAL DATA)**

*Data from January 1998 to September 2013*

<table>
<thead>
<tr>
<th>Score at t-1</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data</td>
<td>12.4%</td>
<td>9.0%</td>
<td>7.5%</td>
<td>7.5%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Q1</td>
<td>53.2%</td>
<td>20.0%</td>
<td>7.5%</td>
<td>4.4%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Q2</td>
<td>19.6%</td>
<td>38.8%</td>
<td>20.3%</td>
<td>8.3%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Q3</td>
<td>7.1%</td>
<td>20.5%</td>
<td>35.9%</td>
<td>21.6%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Q4</td>
<td>4.3%</td>
<td>8.1%</td>
<td>22.0%</td>
<td>39.1%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Q5</td>
<td>3.4%</td>
<td>3.7%</td>
<td>6.7%</td>
<td>19.1%</td>
<td>58.3%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: UBS Investment Research, PIMCO

Hypothetical example for illustrative purposes only.

Figure 1 can be interpreted as follows: If a stock is currently in quintile (Q) 5 (last column) the estimated probability that it will remain in Q5 until next year is 58.3%. It will be demoted to Q4 with a probability of 18.7%.

The main conclusion is that, at the annual frequency, ROE scores are sticky, as suggested by the fact that the percentages along the main diagonal are higher than the off-diagonal ones. A formal statistical test rejects the null hypothesis that ROE has no persistence. Hence, the probability of migrating from a high profitability quintile to a low profitability one is low.
The first row in Figure 1 records the average percentage of companies for which no data on ROE is available after one year. As Fama and French (2007) point out, this can occur for two reasons: The data provider no longer covers that company, or the company ceases to exist because of a corporate action. Assuming that the companies with missing ROE data behave like the remainder of the sample, we would conclude that the probability of moving from high profitability (Q5) to low or medium profitability (Q1-Q3) after one year is just 16.7%.

However, one may argue that a single calendar year is not a sufficient period of time to detect mean reversion in profitability. Hence, we repeated the same analysis over a three-year interval (see Figure 2).

**FIGURE 2: ESTIMATED TRANSITION PROBABILITIES OF QUINTILES SORTED BY ROE (THREE-YEAR PERIOD)**
*Data from January 1998 to September 2013*

<table>
<thead>
<tr>
<th>Score at t-3</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data</td>
<td>23.5%</td>
<td>19.8%</td>
<td>17.0%</td>
<td>15.1%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Q1</td>
<td>36.8%</td>
<td>18.7%</td>
<td>11.6%</td>
<td>8.0%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Q2</td>
<td>18.4%</td>
<td>26.3%</td>
<td>18.1%</td>
<td>11.6%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Q3</td>
<td>9.8%</td>
<td>19.9%</td>
<td>24.8%</td>
<td>19.3%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Q4</td>
<td>6.5%</td>
<td>10.5%</td>
<td>20.0%</td>
<td>27.1%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Q5</td>
<td>5.1%</td>
<td>4.9%</td>
<td>8.5%</td>
<td>18.9%</td>
<td>44.3%</td>
</tr>
<tr>
<td>Total</td>
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<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: UBS Investment Research, PIMCO

The conclusion is the same. A firm ranked in the highest-profitability quintile (Q5) will remain in the top two (Q4 and Q5) after three years, with an estimated probability of 18.7 + 44.3% = 63%. The proportion of companies lacking ROE data after three years is fairly high at 15%. If we assume that those companies behave in line with the rest of the sample, then the estimated probability of moving from Q5 to a quintile below Q4 after three years is a mere 25.9%. In other words, on average almost three out of four companies in the top quintile will remain highly profitable (i.e., Q4 or Q5) after three years.

We found evidence that the persistence of firm-level profitability, a well-known empirical fact in the US equity market, is also present in EM.

**Do profitable firms outperform?**
Let us now turn to the performance of a simulated strategy that maintains consistent exposure to highly profitable names in EM. In particular, we consider both ROE and return on invested capital (ROIC) as signals.

The portfolio construction methodology is similar to the papers summarised in the Appendix. That is, we run a double sort by size and profitability in each region: Latin America, EMEA (Europe, the Middle East and Africa) and Asia (excluding Japan). The high-ROE portfolio is then composed of the top third of the companies sorted by ROE in each size/region bucket (small, medium and large stocks in each region). Transaction costs are ignored.

Figure 3 shows the cumulative total return of four long/short strategies. In each case we simulate a portfolio that is long high-profitability and short low-profitability stocks.

**FIGURE 3: PERFORMANCE OF EQUALLY WEIGHTED (EW) AND CAP-WEIGHTED (CW) LONG/SHORT STRATEGIES**
*Data from February 1996 to June 2013*

The conclusion is the same. A firm ranked in the highest-profitability quintile (Q5) will remain in the top two (Q4 and Q5) after three years, with an estimated probability of 18.7 + 44.3% = 63%. The proportion of companies lacking ROE data after three years is fairly high at 15%. If we assume that those companies behave in line with the rest of the sample, then the estimated probability of moving from Q5 to a quintile below Q4 after three years is a mere 25.9%. In other words, on average almost three out of four companies in the top quintile will remain highly profitable (i.e., Q4 or Q5) after three years.
Overall, the long/short profitability-driven strategies would have outperformed cash, at least before transaction costs. In general, the strategy suffers whenever a ‘dash to trash’ occurs, like in 1998, 2003 and 2009. As risk aversion abates, investors typically shun profitable stocks in favour of stocks with cheap valuations.

The performance of ROE and ROIC as alpha signals is analysed in more detail in Figure 4. Sharpe ratios range from 0.27 to 0.41. The average return difference between high- and low-ROE equally weighted (EW) portfolios is 5.13% annualised. Although this is significantly different from zero only at the 10% significance level, statistical significance is hard to achieve in a sample that is considerably smaller than the one available for US equities.

Figure 6 analyses the performance of a long/short gross profitability strategy, which is long the top quintile and short the bottom one. The Sharpe ratio is 0.71, higher than the ones obtained by the ROE and ROIC strategies. The average excess return is also considerably higher compared to the other quality strategies considered above (9.01% per year) and statistically significant. In comparison, the market displayed a Sharpe ratio of 0.27 over the same period.

Building on this simple intuition, we considered five long-only portfolios of EM stocks sorted by industry-adjusted gross profitability. (see Figure 5). The ranking of our portfolios by performance is remarkably consistent over time: The most profitable firms (Q5) tend to outperform those in Q4, which in turn do better than the median profitability firms, and so on. The spread between the absolute performance of the top quintile (which would have returned more than 700% over the sample period) and that of Q1 and Q2 (which would have barely reached a return of 100%) is surprisingly wide.
We also simulated a modified version of the long/short strategy by restricting the universe to the largest 125 stocks in the MSCI EM universe. The resulting Sharpe ratio is remarkably close to the one obtained by selecting stocks from the full universe. Both average return and volatility are slightly higher for the large-cap version. These findings suggest that the profitability premium is not concentrated in the smaller stocks of the EM universe.

How do the returns to gross profitability compare to traditional quant factors?

Figure 7 analyses the performance of the Fama-French factors (value and size) and price momentum over the same time period. Each long/short index is built using the same methodology as our ROE and ROIC factors.

The Fama-French value factor (based on the book-to-price ratio) would have displayed a Sharpe ratio of 0.49 over the sample period, thus underperforming gross profitability. Size and price momentum would also have had lower returns, both in absolute and risk-adjusted terms.

If we allow for a more sophisticated quantitative signal, then a composite value factor would have obtained a Sharpe ratio of 0.88, thereby outperforming gross profitability.8 This result is driven mostly by the dividend yield component of the composite signal, which would have been particularly effective during the period considered here. However, the main conclusion is that even when comparing the simple gross-profitability signal to a composite value indicator we find that they would have attained a similar level of performance.

The return correlation of the new profitability factor with other style factors is remarkably low. The factor is negatively correlated with size because profitable stocks tend to have larger market cap and, hence, the gross profitability strategy displays a large cap tilt. The positive correlation with momentum arguably is driven by the characteristics of our sample period. The strong impact of the credit crisis (and the aftermath of the tech bubble) implies that quality stocks have been in favour for much of the period, suggesting that they are likely to be picked by a momentum strategy.

Finally, we assess whether the traditional quant factors can explain the performance of our gross-profitability factor. Is gross profitability just an alternative way to obtain exposure to large-cap momentum stocks? The results in Figure 8 suggest that this is not the case. The remarkably low R² shows that systematic exposure to the traditional factors (value, momentum and size) explains a tiny fraction of the variability in returns.

In addition, the only significant exposure is the negative exposure to the size factor. Given that the size factor is, on average, profitable, this is actually a drag on the average return of the strategy. As a result, even after controlling for the traditional risk factors, the alpha of gross profitability (9.26% annualised) is positive and statistically significant.
**FIGURE 8: REGRESSION OF GROSS-PROFITABILITY RETURNS ON THE MARKET, SIZE (SMALL MINUS BIG), VALUE (HIGH MINUS LOW BOOK-TO-PRICE) AND MOMENTUM (WINNERS MINUS LOSERS). THE INTERCEPT IS EXPRESSED AS AN ANNUAL PERCENTAGE.**

*Data from January 1998 to August 2013*

<table>
<thead>
<tr>
<th>Source</th>
<th>Coefficient</th>
<th>Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>9.26%</td>
<td>[0.0294, 0.1558]</td>
</tr>
<tr>
<td>Mkt</td>
<td>0.019</td>
<td>[-0.055, 0.093]</td>
</tr>
<tr>
<td>SMB</td>
<td>-0.259</td>
<td>[-0.452, -0.065]</td>
</tr>
<tr>
<td>HML</td>
<td>0.004</td>
<td>[-0.150, 0.157]</td>
</tr>
<tr>
<td>WML</td>
<td>0.110</td>
<td>[-0.014, 0.233]</td>
</tr>
<tr>
<td>R squared</td>
<td>0.065</td>
<td></td>
</tr>
<tr>
<td>F test</td>
<td>3.18</td>
<td>P-value 0.015</td>
</tr>
</tbody>
</table>

Source: UBS Investment Research, PIMCO

Hypothetical example for illustrative purposes only.

**Conclusion**

We have analysed the performance of a quality investment style that consists of systematically overweighting stocks that display high profitability.

First, we have shown that in EM, like in developed markets, firm-level profitability is persistent. Our results suggest that if a firm is classified as highly profitable relative to the universe today, it is likely to remain a highly profitable firm in one year’s time. As a consequence, profitability is predictable. By holding high-profitability names in his portfolio today, a portfolio manager can expect to end up with a high-profitability portfolio at the end of the investment period.

We then showed that, in the long run, highly profitable firms outperformed those with inferior profitability overall in EM. A long/short strategy based on ranking EM stocks by ROE or ROIC produced positive excess returns in our data. This phenomenon has been labelled the ‘profitability premium’ in the academic literature.

Recent academic work has argued that gross measures of profit, such as the difference between revenues and cost of goods sold, are more powerful than reported earnings. When we examined similar factors in EM, we found the same to be true. Our analysis uncovered strong evidence that gross profitability is an important factor in explaining the cross-section of stock returns in the MSCI EM index. Ignoring transaction costs, a portfolio of profitable stocks would have outperformed a portfolio of low-profitability names by 9% per year on average over the last 15 years.

Comparing our quality factor to traditional alpha factors also yields interesting results. With a Sharpe ratio of 0.71, gross profitability in EM compares favourably to value, momentum and size in terms of absolute and risk-adjusted performance. Even the Sharpe ratio of a more refined value factor, built by combining four different value metrics, is on a similar level as gross profitability. In addition, the gross profitability factor is virtually uncorrelated with all the traditional investment styles considered in the analysis.

All of the above findings support our view that profitability should be a key focus for investors in EM equities. In our fundamental approach, we aim to identify highly profitable firms that will sustain profitability over time. Through the experience of our equity analysts we seek to understand the ‘true’ economic profitability of a firm, and to identify mispriced yet highly profitable firms. We believe this focus can lead to long-term outperformance over broad emerging market equity indices.

**Appendix**

**Do high quality stocks outperform?**

In this section we introduce the idea of quality investment style, focusing particularly on profitability strategies.

**Defining quality**

Profitability is typically regarded as a *quality* factor by researchers in the industry. Indices that measure the performance of high quality stocks are available from all major data providers:

- S&P defines quality as the stability of earnings and dividends over the last 10 years
- MSCI uses a combination of ROE, financial leverage and stable earnings growth
- Dow Jones focuses on ROE and financial leverage.
What is the empirical evidence underpinning the use of quality as an alpha factor? There is little agreement that buying stocks of companies with low debt generates alpha. In fact, according to the evidence available in the academic studies of Bhandari (1988) and Fama and French (1992), low-leverage firms tend to underperform. The theoretical work of Gomes and Schmid (2010) implies that the relationship between leverage and expected stock returns depends on the investment opportunities available to the firm. In the presence of financial market imperfections, leverage and investment are generally correlated so that highly levered firms are also mature firms with relatively more (safe) book assets and fewer (risky) growth opportunities.

We are not aware of any empirical study of the link between earnings volatility and expected returns. The only related papers, to our knowledge, are Haugen and Baker (1996) and Huang (2009). The former found no significant relationship between returns and the volatility of earnings yields. Huang (2009) documented that firms with stable cash flows tend to outperform. The paper argues that cash flows are a better measure of economic earnings than reported earnings, which are subject to the smoothing phenomenon documented in the accounting literature.

The great debate on the profitability factor
The recent paper of Novy-Marx (2013) has sparked a debate on the main drivers of equity returns, prompting Fama and French themselves to review some of their early work (Fama and French, 2013). In fact, Fama and French (2008) had concluded that the profitability effect is weak and it is not clear whether it is distinct from value and size. However, they now recognise that using a better measure of profitability (gross profit divided by book value instead of ROE) improves the results. The use of gross profit is one of the main points in Novy-Marx (2013). He builds a profitability measure by dividing gross profit by assets, while Fama and French (2013) insist on dividing by book value.

The methodology varies considerably across the different studies. Both Novy-Marx (2013) and Fama and French (2013) consider double sorts on profitability and size. In addition, double sorts on investment rate and profitability are used by Chen, Novy-Marx and Zhang (2011). Fama and French (2013) even experiment with triple sorts on book-to-price, size and profitability. Moreover, Novy-Marx (2013) argues that profitability ratios should be compared within a sector and hedges the sector exposure of each portfolio.

The main conclusion is robust to the choice of methodology: All these studies find evidence that, in the US market, profitable firms have outperformed unprofitable firms within baskets of stocks with homogeneous characteristics such as size. As a result, new factor models that include profitability in addition to the traditional value, size and momentum factors are proliferating.

Why does it work?
Fama and French (2013) do not attempt to offer an economic explanation of the profitability premium. They just highlight the mechanism that warrants the use of profitability sorts. By using a simple dividend discount model, and assuming clean surplus accounting, they come up with a decomposition of book to price (B/M):

\[
\frac{M_t}{B_t} = \frac{\sum_{t=1}^{\infty} E(Y_{t+k} - dB_{t+k})/(1+r)^t}{B_t}
\]

where \(Y\) is earnings and \(dB\) is the change in book value. The rate \(r\) is the internal rate of return on dividends, which is approximately the expected stock return in the long term. This relationship suggests that if two firms have the same book-to-price \(B/M\) and expected book value growth (i.e., reinvested earnings) \(dB/B\), then the firm with higher expected \(ROE \ (=Y/B)\) must also have a higher expected return \(r\). A similar decomposition by Cohen, Gompers and Vuolteenaho (2002) can be used to make the same point.

It is well documented that ROE is very persistent over time (Penman, 1991; Fama and French, 1995). As a consequence, if a company has a high ROE today, it is likely that future ROEs...
will also be high relative to the universe. This suggests that, within a basket of stocks that have similar valuations and similar expected book value growth, one should overweight the more profitable names.

A couple of papers have come up with theoretical explanations of the result. Kogan and Papanikolaou (forthcoming) argue that firms with low profitability are more exposed to investment-specific technology shocks, that is, shocks that only apply to new assets acquired through investment. This happens because the firm’s existing assets are unprofitable and therefore make up a small portion of its value. Uncertainty about future shocks is priced in the market and the risk premium is negative. The intuition behind this result is based on the general equilibrium model of Papanikolaou (2011). In short, the idea is that a positive productivity shock that affects new investment triggers a decrease in wages, which in turn forces workers to reduce leisure in the short term. Hence, economic agents are willing to pay a high price for a security that promises a payoff when an investment-specific technology shock occurs, which implies that such a security would have a low expected return. Low-profitability firms have higher exposure to such shocks and therefore attract lower expected returns.

Another explanation, considered by Wang and Yu (2013), is related to real options. Low-profitability firms are less risky because they can abandon their projects. The more unprofitable the firm is, the more valuable this option becomes. Being less risky, low-profitability firms have lower expected returns.

Cohen, Gompers and Vuolteenaho (2002) found that markets underreact to changes in future expected ROEs. Moreover, they implicitly suggested that institutional investors do not fully exploit this pattern because they are constrained to remain close to the benchmark. The analysis is based on a predictive model of stock returns and a return decomposition. It assumes that expected returns at the firm level depend on lagged book to price, ROE and returns. Armed with this simple model, Cohen, Gompers and Vuolteenaho (2002) decomposed the surprise return (i.e., the difference between realised and expected return) into cash flow news and what they termed mispricing news. The former represents the change in expected future ROEs, which should be positively related to return surprises. The latter is a residual term that reflects biases in the market’s pricing process. When returns move because of mispricing news (e.g., when the stock price drifts upwards following a positive earnings surprise), institutional investors tend to trade in the right direction (i.e., sell in the positive price drift example) but the information is not fully exploited.

The authors wish to thank Claire Jones, analyst at UBS, for her assistance with this analysis.
References


1 The Appendix contains a summary of the competing explanations put forward in the literature.
2 ROE is defined as earnings yield / (book / price). Earnings yields are 12-month forward estimated numbers. It is worth pointing out that accounting data and analyst forecasts are missing for several of the constituents at the beginning of the sample period.
3 This kind of analysis assumes that probabilities do not change over time and are the same for each stock regardless of sector, size, country, and so on. Moreover, it assumes implicitly that missing values occur randomly.
4 Under this assumption we simply rescale the percentages in each column of Figure 1 so that the entries from Q1 to Q5 add up to 100%.
5 In particular, we take an average of overlapping three-year intervals.
6 ROIC is earnings before interest and tax (EBIT) / invested capital (nonfinancials) or profit before tax (PBT) / shareholders’ funds (financials). PBT figures are 12-month forward estimated numbers.
7 The data is from UBS Investment Research. We adjust each company’s ratio by subtracting the average of the relevant GICS level one sector. Stocks with missing gross profitability are not assigned to any of the quintiles.
8 The composite value signal is an equally weighted combination of book to price ratio, dividend yield, EBIT yield and earnings yield factors.
9 InvestmentNews reported that this prompted the first major change in 20 years in the approach to equity portfolio construction of Dimensional Fund Advisors, the company that lists Fama and French as consultants and board members (J. Kephart, Sweeping changes under way at DFA, 7 August 2013).
Past performance is not a guarantee or a reliable indicator of future results. Equities may decline in value due to both real and perceived general market, economic and industry conditions. Investing in foreign-denominated and/or domiciled securities may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. Investments in value securities involve the risk the market’s value assessment may differ from the manager and the performance of the securities may decline. Investing in international companies (both debt and equity) is speculative and may be subject to greater levels of credit, issuer and liquidity risks, and the repayment of default obligations contains significant uncertainties; such companies may be engaged in restructurings or bankruptcy proceedings. Investing in securities of smaller companies tends to be more volatile and less liquid than investing in securities of larger companies. High yield, lower-rated securities involve greater risk than higher-rated securities; portfolios that invest in them may be subjected to greater levels of credit and liquidity risk than portfolios that do not. Investments in companies engaged in mergers, reorganizations or liquidations may involve risks as pending deals may not be completed on time or on favorable terms. Derivatives may involve certain costs and risks, such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested. Investors should consult their investment professional prior to making an investment decision.

No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown. Hypothetical or simulated performance results have several inherent limitations. Unlike an actual performance record, simulated results do not represent actual performance and are generally prepared with the benefit of hindsight. There are frequently sharp differences between simulated performance results and the actual results subsequently achieved by any particular account, product or strategy. In addition, since trades have not actually been executed, simulated results cannot account for the impact of certain market risks such as lack of liquidity. There are numerous other factors related to the markets in general or the implementation of any specific investment strategy, which cannot be fully accounted for in the preparation of simulated results and all of which can adversely affect actual results.

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The MSCI Emerging Markets Index consists of the following 21 emerging market countries (Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey).

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