February 2021 Investment Insights

Systematic Investment Solutions:
Low volatility & emerging markets – conservative participation in thriving equity markets

Emerging markets present an outstanding long-term growth opportunity compared to low interest rates and muted economic performance in developed markets. Higher returns in the past, however, were also accompanied by higher risks translating in elevated level of volatility and considerable drawdowns. Nevertheless, the importance of emerging markets stocks in the context of risk diversification of the overall portfolio has significantly increased. Yet still, investors are concerned with the risk of emerging markets. In this paper we will argue that based on the low-risk effect, conservative equity portfolios could address these volatility concerns by reducing risk while still providing full participation in the long-term equity premium of emerging markets.

The case for emerging markets – in general and today

Emerging market equities could offer convincing benefits to investors, including access to an outstanding growth opportunity, additional diversification potential, as well as a potentially less efficient stocks market compared to those in the developed markets.

The emerging market countries are home to approximately 60% of the world population and according to the International Monetary Fund (2017), emerging markets and developing economies recently accounted for nearly 80% of global economic growth. Reasons behind these facts, as well as future growth expectations are based on the observation of strong demographics, i.e. a mostly younger population with dynamic workforces in combination with an increasing productivity due to improving access to education, as well as increasing education standards.

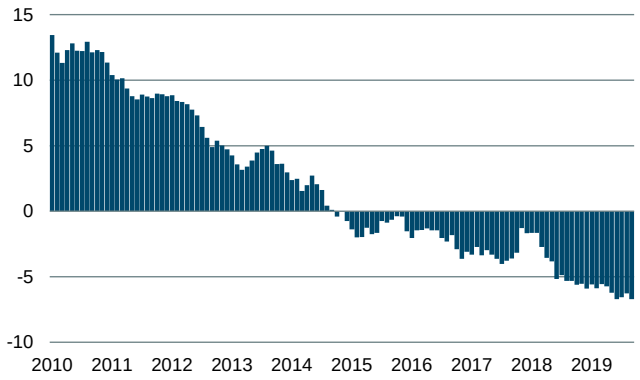
Further, emerging markets own a large part of the world's natural resources, such as Russia's oil reserves. Still, emerging countries account for only 12% of the global market capitalization (MSCI, 2019) compared to almost 41% of the world's GDP (International Monetary Fund, 2017). Hence, it seems reasonable to expect a growing importance of emerging markets to the world economy, as well as the portfolios of investors.

The main attractions of emerging markets are then its growth potential, but also the diversification potential that they offer to global portfolios. Due to higher political, economic and idiosyncratic risk, emerging markets stocks have experienced a considerable downside risk, when compared to developed markets. However, emerging countries are relatively low correlated between countries. With this characteristic, as well as other specific development trends they have emerged to a valuable diversification tool. A follow-up paper of this series will deal with this topic in more detail and present an in-depth analysis of the country factor in emerging markets.

Relative returns and valuation multiples in the emerging markets

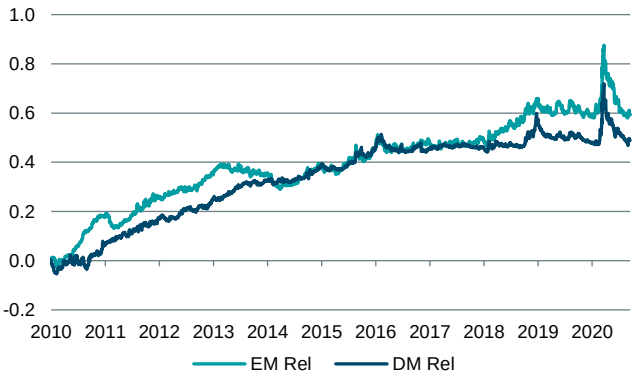
Apart from the reasons above, it should not be unmentioned that the current attractiveness of emerging markets is also based on attractive valuation and catch-up potential relative to the developed markets:

FIGURE 1. ANNUAL EXCESS RETURN OF THE MSCI EM RELATIVE TO THE MSCI WORLD FOR MONTHLY ROLLING 10-YEAR PERIODS 12/00 TO 08/20



Source: DWS International GmbH, Refinitiv. Monthly rolling 10-year periods 12/00 to 08/20. Past performance is not a reliable indicator of future returns.

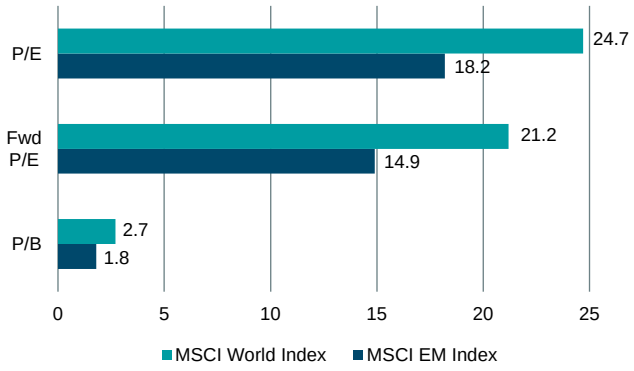
FIGURE 3. CUMULATIVE ETF-FLOWS IN % OF ASSETS UNDER MANAGEMENT OF 100 LARGEST DEVELOPED AND EMERGING MARKETS ETFS 01/2010 TO 08/2020



Source: DWS International GmbH, Refinitiv Datastream. Cumulative ETF flows in % of assets under management of the respective ETFs 2010 - 08.2020

While the long-term performance of emerging markets has easily outpaced that of developed markets (8.9% vs 5.6% p.a. from 12/2000 to 08/2020), the recent decade's performance has been rather weak (3.9% p.a. from 08/2010 to 08/2020). In addition, it is often argued that valuation is not factored into the price of emerging market stocks quite as much as it is for developed market stocks, which is supported by valuation measures.

FIGURE 2. VALUATION MULTIPLES EMERGING MARKETS VS DEVELOPED MARKETS



Source: MSCI. As of: 31 August 2020.

Emerging markets ETFs: growing demand

The increasing interest in emerging markets equities is also reflected in increasing flows towards emerging markets ETFs. A zoom on the global ETF market can underpin this rising interest in emerging countries as indicated in the above paragraph. The flows into ETFs on emerging markets indexes have been rising in the years prior to 2014 and, following a brief period of equal growth in ETF inflows to developed and emerging markets, emerging markets ETF flows are on the rise again.

Having established that there has been a notable increase in investor demand and growth expectations regarding emerging markets equities, in the following section, we provide the reader with a brief overview of the low volatility effect as a possible entry concept for more cautious investors, who shy away from volatility and drawdowns in these markets. We then build volatility-decile portfolios based on the MSCI Emerging Markets index to assess performance differences between more and less volatile stocks. Further, we dive into implementation specifics of emerging markets and the low volatility factor.

The low volatility effect

Before we introduce the low volatility effect in emerging markets, we will give a brief overview of low volatility strategies as a possible entry concept. As outlined in our first paper of this LowVol series "Low volatility: How low-risk can outperform high-risk" by Lan et al. (2020). The low volatility effect has been identified by Robert Haugen and James Heins in 1972 and since then documented in numerous researches, such as "Betting against beta" by Frazzini et al. (2014) or "The volatility effect revisited" by Blitz et al. (2020). The above-mentioned researchers have found that low-risk stocks have continuously outperformed riskier stocks on a risk-adjusted basis.

While in contradiction to common finance theory, higher risk stocks should be compensated with higher returns, this effect has proven to be persistent across time and all major stock markets including the emerging markets. Reasons for this effect are valuation inefficiencies created by benchmarking, passive indexing and active manager's preference of high beta stocks (Karceski 2000, Wurgler 2011).

Other explanations for the low volatility effect are behavioral aspects, such as overconfidence, representativeness and preference for lotteries (Boyer 2010, Cornell 2009) as well as agency problems with respect to portfolio manager compensation (Baker 2012).

In the remainder of this paper, we will analyse and test low volatility strategies in emerging markets. Resulting from this analysis, we will then make a case of a conservative participation strategy in emerging markets.

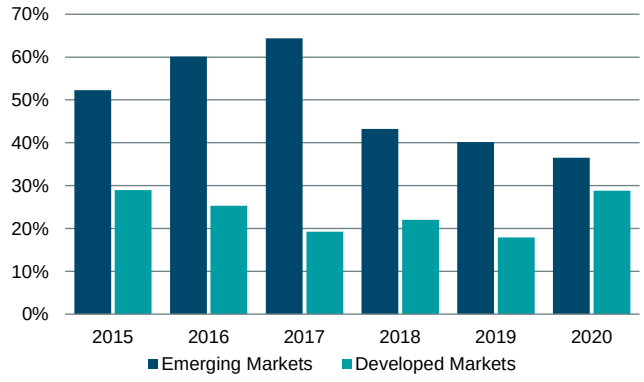
Bringing it together: The low volatility effect in global emerging markets

Emerging markets countries can be subject to large swings in volatility regimes

We will now derive an investment thesis of implementing low volatility strategies in emerging countries.

Emerging markets are by no means a homogeneous group, which is evident by comparing the performance difference between the best and worst country:

FIGURE 4. PERFORMANCE DIFFERENCE BETWEEN BEST AND WORST PERFORMING COUNTRY



Source: DWS International GmbH, Refinitiv. As of: 31 August 2020.

This also explains why the country allocation is such an important element in fundamental equity strategies.

Regional and country specific events are more important in emerging markets than they are in developed markets.
In the past, volatility shifts in emerging markets have shown to be largely unrelated to minor global events. They seem to be driven by country-specific events, such as the hyperinflation in Latin America or the peso crisis in Mexico (Aggarwal et al., 1999). Blitz et al. (2012) also find that the volatility effect in emerging markets is only weakly related to that in developed equity markets during the years of 1988 – 2010.

A study conducted by Baker et al. (2012) has tested the existence of the low volatility anomaly in 12 emerging market countries from 1990 to 2011. By analyzing monthly-rebalanced decile portfolios based on their historical 24-month volatility, they found that the lowest volatility decile has clearly outperformed the highest volatility decile throughout the sample. In the next section, we examine whether the low-risk effect is still present in the emerging markets by analyzing data after 2011 until 2020.

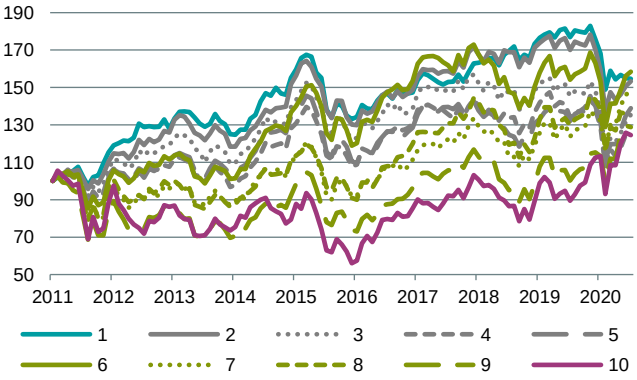
Performance of low vs. high-risk deciles

To further investigate Baker et al. (2012)'s findings for more recent years based on monthly return data we analyse monthly rebalanced, equally weighted decile portfolios based on their historical 12-month volatility.

We first analyze the performance of the decile portfolios within the MSCI EM universe in more detail. Figure 5 proves that stocks with higher risk have exhibited lower returns. The highest risk decile was also the worst performer, whereas the decile with the lowest risk performed best.

The good performance of the most risky decile during the pandemic largely stemmed from a heavy weight towards extremely well performing China Domestic shares in the 10th decile in the months of June – August. This could be an indicator for irrational market behavior in China during the crisis period.

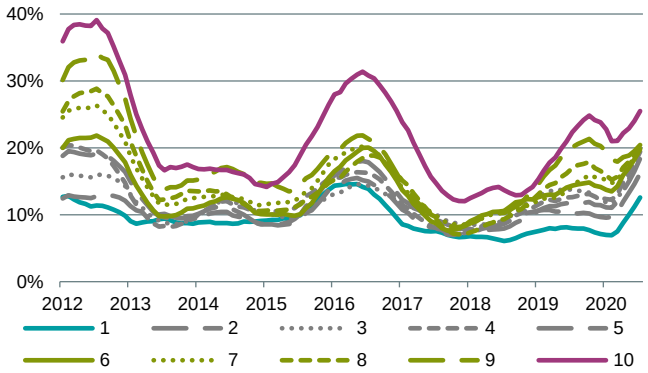
FIGURE 5. CUMULATIVE RELATIVE PERFORMANCE OF DECILE PORTFOLIOS



Source: DWS International GmbH, Barra Portfolio Manager. 01/2011 to 08/2020. Based on monthly return data for the MSCI EM index, Equally-weighted and monthly rebalanced decile portfolios. Past performance is not a reliable indicator of future returns.

Figure 6 shows the 12- months rolling volatility of each decile portfolio. The risk of low volatility equities also increases in periods of stress, however less than the market as a whole, which means that the strategy yields the best risk reduction in periods of market stress.

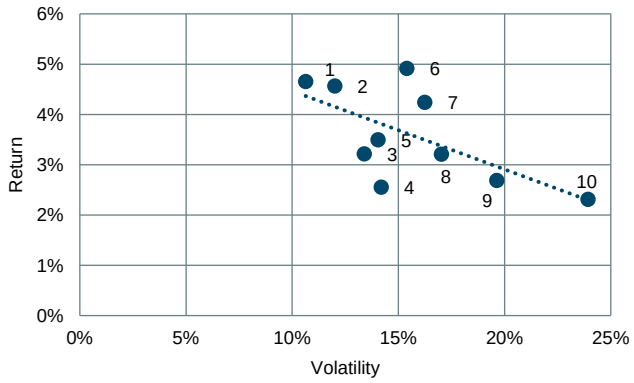
FIGURE 6. 12-MONTHS ROLLING VOLATILITY OF DECILE PORTFOLIOS



Source: DWS International GmbH, Barra Portfolio Manager. 01/2011 to 08/2020. Based on monthly return data for the MSCI EM index, Equally-weighted and monthly rebalanced decile portfolios.

A risk-return scatterplot of all decile portfolios indicates that, even though high risks lead to high expected returns, they do not always lead to high realized returns, because the markets are not always efficient.

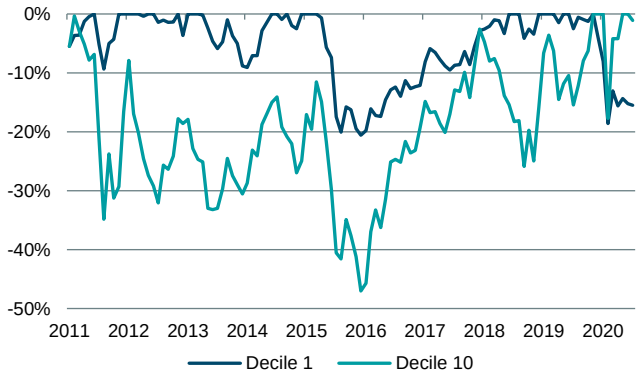
FIGURE 7. PERFORMANCE OF DECILE PORTFOLIOS



Source: DWS International GmbH, Barra Portfolio Manager. 01/2011 to 08/2020. Based on monthly return data for the MSCI EM index, Equally-weighted and monthly rebalanced decile portfolios.

Next, we discuss the drawdowns of the two most extreme deciles during the period of January 2011 to August 2020. The figure below shows that the low volatility decile of the MSCI Emerging Markets experienced fewer and substantially less severe large drawdowns when compared to the high volatility decile. This finding can be strenghtened by the fact that the worst return of the lowest risk decile during the analysis period was -11%, whereas it was -18% for the highest risk decile.

FIGURE 8. DRAWDOWNS MSCI EM LOWEST AND HIGHEST RISK DECILE



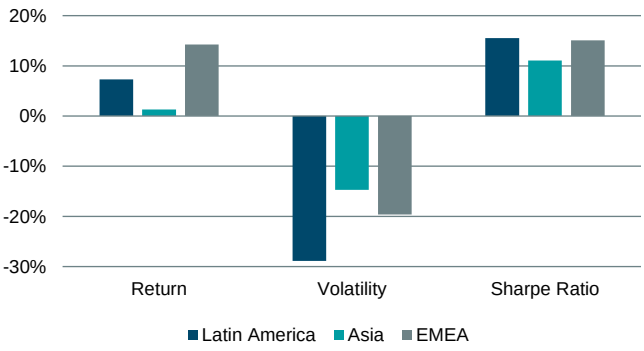
Source: DWS International GmbH, Barra Portfolio Manager. 01/2011 to 08/2020. Based on monthly return data for the MSCI EM index, Equally-weighted and monthly rebalanced decile portfolios.

To assess the low-risk effect broken down to several regions in the emerging markets we looked at the deciles with highest and lowest expected absolute risk for the regions Emerging Asia, Emerging Latin America and Emerging EMEA.

We chose to focus on three main regions within the emerging markets, rather than countries to create a more realistic investment scenario. Some emerging markets are not investible and a regional analysis will yield a good proxy for each region as whole rather than analyzing separate markets that are hard to replicate within a realistic investment setting.

Our findings confirm the existence of the Low-Risk-Effect also for the period after 2011.

FIGURE 9. PERFORMANCE MSCI EM LOWEST VS. HIGHEST RISK DECILE



Source: DWS International GmbH, Barra Portfolio Manager. 01/2011 to 08/2020. Past performance is not a reliable indicator of future returns. The Sharpe Ratio calculation does not consider any risk-free rate.

The relative performance of the lowest vs the highest risk decile clearly demonstrates an outperformance of the lowest risk decile in terms of risk and return measures. Annualized standard deviation is much lower for the lowest-risk decile and annualized returns are as well superior. The combination of higher return und lower risk results in a considerably larger Sharpe Ratio, which has also been evidenced by Baker et al. (2012) for the years prior.

The difference in minimum values and drawdowns was even more severe for the three emerging market regions Asia, EMEA and Latin America.

Implementation specifics in emerging markets

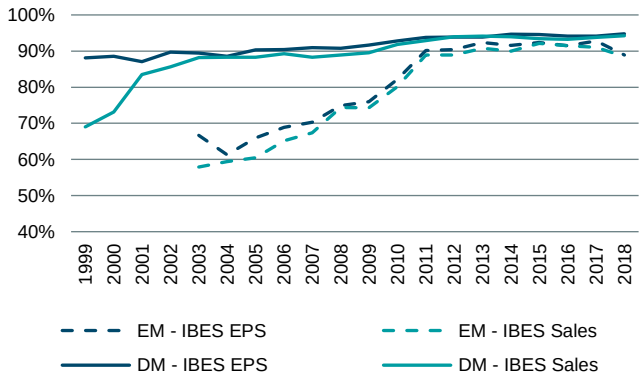
Having shown that a low volatility strategy can help to lower risk when investing in the emerging markets environment, we will now discuss the implementation specifics in emerging markets. In order to do so we analyse the MSCI Emerging Markets index and the MSCI Emerging Markets Min Volatility index and point out some different characteristics and tilts which can arise thorough the implementation of a low volatility strategy.
To make use of the Low-Risk-Effect in the emerging markets a few critical aspects need to be considered for a successful implementation.

Data Quality & Availability

Since most countries in the emerging markets have very young capital markets, data samples are rather short. However, the availability of historical data-points is only one of many problems one will come across when working with emerging markets data, other problems are for example hyperinflation, lax accounting standards or structural breaks like accounting changes.

As illustrated in the graph below, comparable data coverage for emerging markets starts in 2003, on selected items since 2008. Hence, any successful investment strategy needs to be extremely selective in the data used to make investment decisions.

FIGURE 10. DIFFERENCES BETWEEN DM AND EM STRUCTURE, COVERAGE ON SELECTED IBES ITEMS



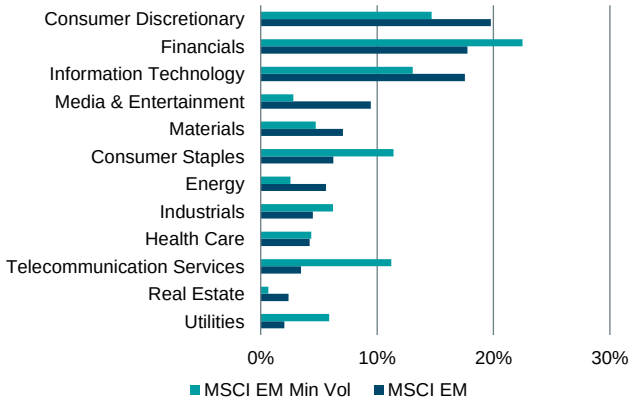
Source: DWS International GmbH, Refinitiv 1999-2018. As of: 31 August 2020.
Past performance is not a reliable indicator of future returns.

Sector Effects

Low volatility indices attempt to smooth out market fluctuations and for this reason dispense with certain stocks altogether and clearly underweight certain sectors. However, this sector monoculture simultaneously increases the risk due to lower fund diversification. As an example, the MSCI EM Min Vol index holds only 16 stocks in the Energy sector (as of August 2020), whereas the MSCI EM holds 65 stocks in this sector.

The graph below shows the weights towards each sector in the MSCI World EM and Min Vol respectively. The low volatility index has more concentrated sector weights and deviates in part substantially from the broad index. Here, an active approach with clear investment guidelines might be better suited to avoid these concentrations.

FIGURE 11. SECTOR WEIGHTS ACCORDING TO GICS CLASSIFICATION



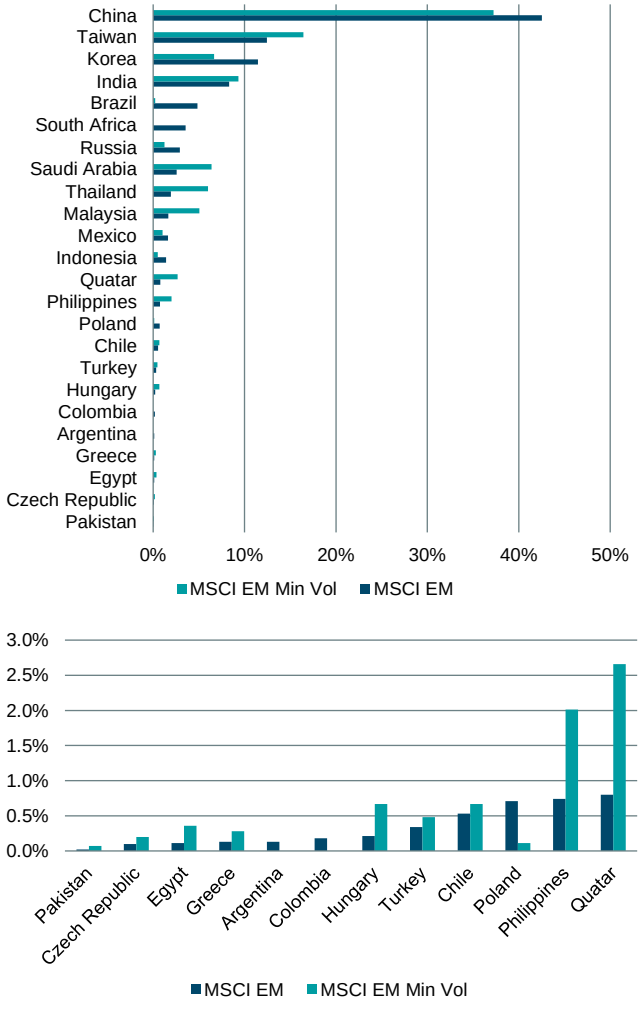
Source: DWS International GmbH, Barra Portfolio Manager. As of: 31 August 2020.

Country Effects

In addition, following the logic of risk mitigation through diversification, low volatility strategies increase the weight towards smaller countries by construction (e.g. Quatar, Egypt or Hungary as displayed below). This alleged safety could be particularly damaging in the context of investments in emerging markets, where smaller countries often tend to be the less developed and rather unstable economies, i.e. tend to respond strongly to country specific effects.

Weights towards smaller and less liquid economies can be effectively steered by implementing restrictions into quantitative portfolio optimization.

FIGURE 12. COUNTRY WEIGHTS AND A ZOOM INTO SMALLER NATION WEIGHTS



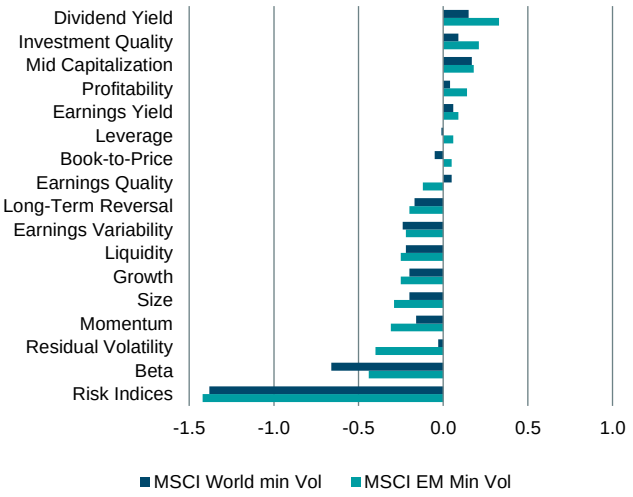
Source: DWS International GmbH, Barra Portfolio Manager. As of: 31 August 2020.

Style Effects

Through the steering of a portfolio exposure towards only one specific factor, stronger or less strong tilts can emerge with respect to other factors, which becomes evident in the illustration below. MSCI's minimum volatility indexes are characterized by exposures to common risk factors that substantially differ to those of the broad MSCI index. For example, minimum volatility indices are implicitly tilted towards quality and away from momentum and growth, which can also be seen in Figure 13 below.

Being aware of possible unintended factor tilts that come along with a low volatility strategy and having a portfolio construction process in place that can address those if necessary is important to avoid nasty surprises. Our factor model can deliberately integrate factor exposures to the portfolio and therefor enhance the strategy according to our view.

FIGURE 13. ACTIVE FACTOR EXPOSURES MSCI EM MIN LOW VOL AND MSCI EM, AS OF AUGUST 2020

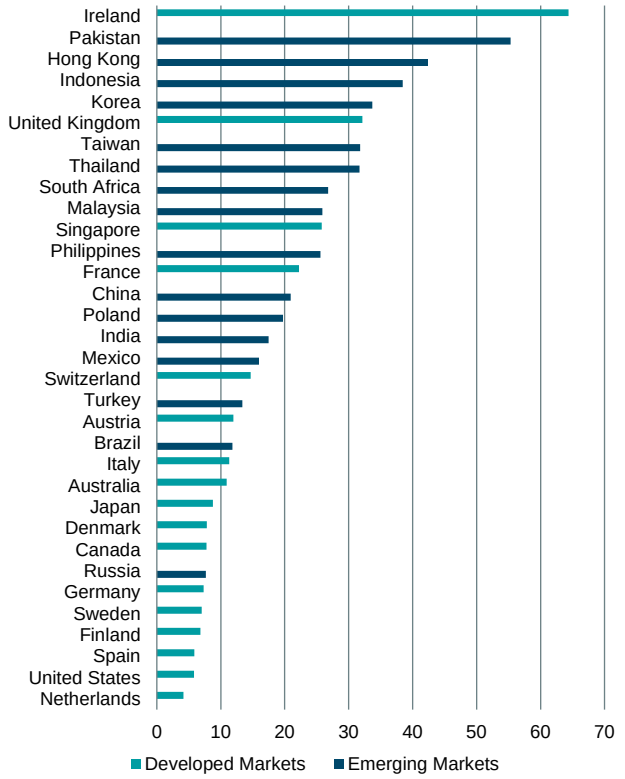


Source: DWS International GmbH, Barra Portfolio Manager. As of: 31 August 2020.

Trading costs

Another factor to consider when making investments in emerging markets are trading costs, which are often three to five times higher than in developed markets. Figure 14 depicts average trading cost in developed and emerging markets. With the exception of a few countries, emerging markets nations generally tend to have higher trading costs and therefore suggest a more conservative model approach. The high implementation costs in emerging markets are due to high volatility and concentrated trading volumes. Additionally, higher inflows to emerging country stocks, as already indicated in the beginning of this paper have further pushed up costs.

FIGURE 14. TRADING COSTS DM VS. EM IN BASIS POINTS



Source: DWS International GmbH, JP Morgan, based on 0.5mn Euro tickets, including direct and indirect trading costs. As of: September 2020.

When it comes to larger trades in emerging markets, limited liquidity might pose another problem; trading costs are significantly higher for trades larger than 25% of marketable daily traded value in the emerging markets, when compared to developed markets (The Trade News, 2017).

Therefore, effective management of trading costs, i.e. minimizing trading in the high-cost environments inherent in these markets is an essential building block for success in the emerging markets. Possible measures include, but are not limited to, the systematic consideration of transaction cost estimates and turnover limits.

Conclusion: Low volatility investing in emerging markets – Could be a perfect match for quantitative strategies

Emerging markets, attractive for their outstanding long-term growth and diversification potential, backed by strong demographics and ownership of large parts of the world's natural resources are yet still associated with higher risks compared to developed market equities.

Our study confirms the existence of the low-risk-effect in the emerging markets, which offers investors the possibility to participate from the long-term equity premium of the emerging markets while reducing portfolio risk.

A successful low-risk implementation is however highly dependent on the systematic consideration of emerging markets-specific implementation aspects in the investment process.

Emerging market stocks are less researched, hence a fundamental analysis is very time consuming. However, a quantitative strategy enables us to filter out the stocks with favorable/unfavorable characteristics more efficiently and unbiased, having a broader rather than deeper knowledge.

Therefore, disciplined, rules-based, and engineered investment approaches have several advantages when compared to traditional approaches. Further, quantitative approaches allow the systematic consideration of the above-mentioned implementation aspects like effective and stringent trading cost management as well as carefully steering sector and country weights to avoid hidden and unwanted risk exposures.

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