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# Strategic allocation to quantitative emerging markets strategies

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# Emerging versus developed markets equities

We investigate the added value of allocating to emerging equity markets and show a clear positive contribution to a traditional equity/bond portfolio. We argue that timing when to get in and out of emerging markets is difficult. In addition, we find that a diversified portfolio of the value and momentum factor premiums in emerging markets exhibits a significantly better risk-adjusted performance than the passive emerging market portfolio. Consequently, allocating to these factor premiums adds significant value, also when the developed markets equity portfolio is already allocated to factors. We therefore recommend investors to allocate part of their portfolio to factor premiums in emerging equity markets.

Emerging equity markets are traditionally known for their higher returns than developed markets. However, the higher returns come along with higher volatility, which might test investors' patience from time to time. After a period of market declines, investors may consider to lower the weight of emerging markets (EM) in their portfolio or even wonder whether investing in this asset class is still beneficial. Similarly, when emerging markets have outperformed developed markets (DM), the allocation to the latter is under pressure.

We take a fresh look at the strategic allocation to emerging equities, considering not only the market portfolio, but also various other factor premiums documented to exist in the emerging equity market. We start by investigating the long-term return characteristics of passive DM equities, passive EM equities and government bonds.<sup>1</sup> Exhibit 1 shows that from January 1988<sup>2</sup> to September 2015, the excess returns of emerging markets have roughly been 75% higher than in developed markets (around 3 percentage points). As expected, also the volatility has been substantially higher, around 1.5 times. This leads to a higher Sharpe ratio for EM equities. Government bonds have performed very well over this period with a Sharpe ratio of 0.41 compared with 0.27 for DM equities.

**Exhibit 1 | Market premiums**

	<i>Equities DM</i>	<i>Equities EM</i>	<i>Bonds</i>
Total return	7.4%	10.6%	6.0%
Excess return	4.0%	7.1%	2.6%
Volatility	14.9%	23.2%	6.3%
Sharpe ratio	0.27	0.30	0.41

Source: Robeco. Sample period: January 1988 until September 2015. Excess returns are on top of the one-month US Treasury bill rate. All figures are in US dollars and do not include the impact of transaction costs. Average returns are calculated using geometric averaging.

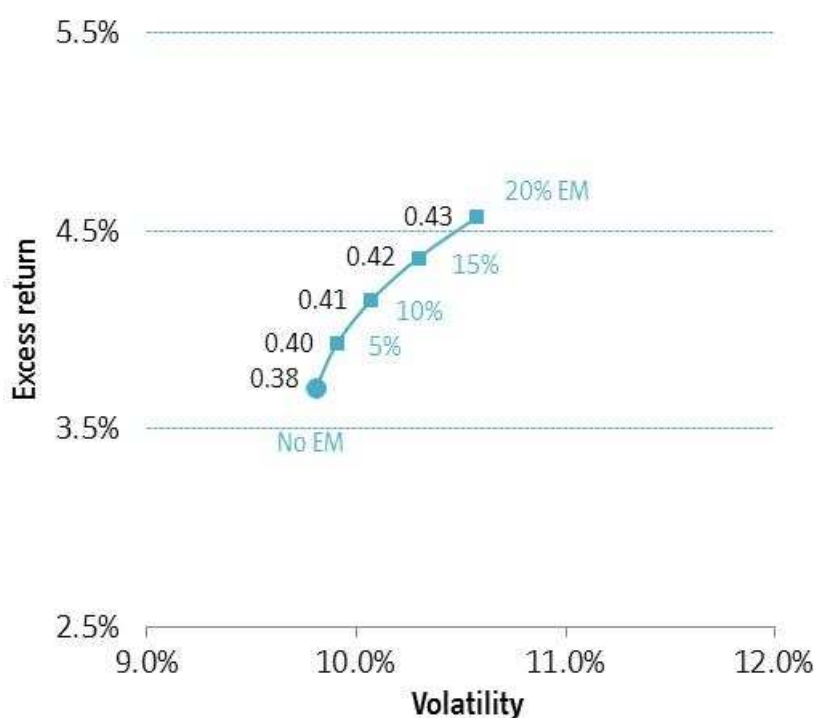
<sup>1</sup> For passive developed markets equities we use the MSCI World index, for passive emerging markets equities the MSCI Emerging Markets index and for government bonds the JP Morgan World Government Bond index.

<sup>2</sup> January 1988 is the start of the MSCI Emerging Markets index.

# Strategic allocation to emerging markets

In our next analysis, we investigate the added value of strategically allocating to emerging markets. We assume that the starting portfolio of investors consists of a 60% allocation to developed markets equities and a 40% allocation to government bonds. This portfolio has an annual excess return of 3.7% since 1988 and a volatility of 9.8%. We then investigate a range of portfolios where the investor allocates part of its equity portfolio passively to emerging markets equities. This allocation increases gradually in steps of 5% to 20% at the expense of developed markets equities. The weight of government bonds remains the same. For example, the portfolio that allocates 20% to emerging markets, allocates 40% to developed markets equities and 40% to government bonds. Exhibit 2 shows the results.

**Exhibit 2 | Strategic allocation to passive emerging markets**



Source: Robeco. Sample period: January 1988 until September 2015. The Sharpe ratios of the portfolios are shown next to each data point in the graph. Excess returns are on top of the one-month US Treasury bill rate. All figures are in US dollars and do not include the impact of transaction costs. Average returns are calculated using geometric averaging.

## Allocation to emerging markets increases the Sharpe ratio

We find that allocating to emerging markets increases the risk-adjusted performance of a traditional equity/bond portfolio. The volatility of the portfolio increases, but return even more, namely from 3.7% excess return when not allocating to emerging markets to 4.6% excess return when allocating 20% to emerging markets. This results in considerably higher Sharpe ratios, which rise from 0.38 to 0.43.

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We realize that emerging markets have significantly outperformed developed markets over the past 27 years by around 3%. For the future, an investor might expect a somewhat lower additional return.<sup>3</sup> At the same time, an investor could also assume a lower volatility level, as the volatility difference between emerging and developed markets has been lower in the recent period.<sup>4</sup> Therefore, it seems reasonable to expect similar improvements in the portfolio's risk-adjusted returns (i.e.: Sharpe ratios) going forward. Moreover, emerging markets have a correlation of 73% with developed markets in our sample. So, also if an investor expects a similar Sharpe ratio for both emerging and developed market equities, an allocation to emerging markets adds value because of diversification benefits. Another view is that if the starting point is the worldwide market portfolio, there does not seem to be a reason to exclude emerging equity markets.

<sup>3</sup> See for example the views of Robeco Investment Solutions & Research in "Expected returns 2016-2020".

<sup>4</sup> The volatility of emerging market equities has been around 10% higher than the volatility in developed markets in the period 1988 - 2000, while in the period after 2000 this was around 7%.

# Dynamic allocation

Due to the recent underperformance of emerging markets both absolutely and relative to developed markets<sup>5</sup>, investors might be tempted to dynamically allocate between the two, by allocating less to the asset class that underperformed recently (momentum) or allocating more to the cheapest asset class, based on price-to-book value or earnings (valuation). But is this strategy profitable? We tested the predictive power of many factors and find little to no predictive power (e.g. for valuation or indicators such as interest rates, credit spreads and commodity prices). Only for momentum do we find some evidence in predicting whether emerging markets will outperform developed markets or vice versa.

A way to look at dynamic allocation is that if momentum works, this implies that the weights of EM and DM equities in the portfolio should not be rebalanced back to fixed target weights too regularly. If the momentum of emerging markets is strong, its weight in the portfolio automatically increases, and an investor does not need to be concerned about that. If momentum is weak its weight decreases accordingly, which is also fine. This also naturally occurs in an All Countries World Index, where the weights of DM and EM change based on their recent performance. If an investor would have allocated 10% of his equity portfolio to emerging markets at the end of 1987 and would not have rebalanced back to this weight every month, allocations would have evolved as in Exhibit 3.

**Exhibit 3 | Buy-and-hold portfolio weights starting from a 90/10% DM/EM allocation**



Source: Robeco. Sample period: January 1988 until September 2015.

If an investor prefers to give even more risk budget to the dynamic allocation decision, moving in and out of DM and EM equity funds is probably not the most cost efficient way to do so. Allocating across markets could be interesting as part of a GTAA (global tactical asset allocation) strategy, where dynamic timing can be implemented efficiently with futures, and where the investor is not limited to just the developed versus emerging markets trade, but can also take positions in individual countries.

<sup>5</sup> Emerging markets showed a negative excess return of -23% over the period May to September 2015, while developed markets performed -10%.

# Allocating to factor premiums

Not only can investors allocate to the emerging market equity premium, they can also do this to other premiums which are known to exist in the equity market. In this paper we consider the well-known momentum and value premiums.<sup>6</sup> These two factors form the foundation of Robeco's Core and Active Quant Emerging Market strategies. Note that we focus here on factors aimed to obtain a high return, which is why we do not take the low-risk factor into account, as it is designed to obtain low portfolio volatility.

## Allocating to an EM multi-factor portfolio has even more added value

We construct a value and momentum index by considering each month the equally-weighted returns of the 33% most attractive stocks on respectively the earnings-to-price ratio and its 12-1 month momentum, assuming a 6-month holding period.<sup>7</sup> In the top panel of Exhibit 4 we show an emerging markets multi-factor quant portfolio consisting of a 50/50% allocation to these value (V) and momentum (M) factor premiums (V+M). This portfolio exhibits a significantly better risk-adjusted performance than a passive emerging markets portfolio. Specifically, we observe that the return of this portfolio is over 6% higher than the passive market portfolio with similar volatility. The Sharpe ratio is almost twice as high as that of the market index, namely 0.57 compared with 0.30 for the market index. Note that returns do not include transaction costs, which could have a large impact on returns.

**Exhibit 4 | Factor premiums in emerging and developed markets**

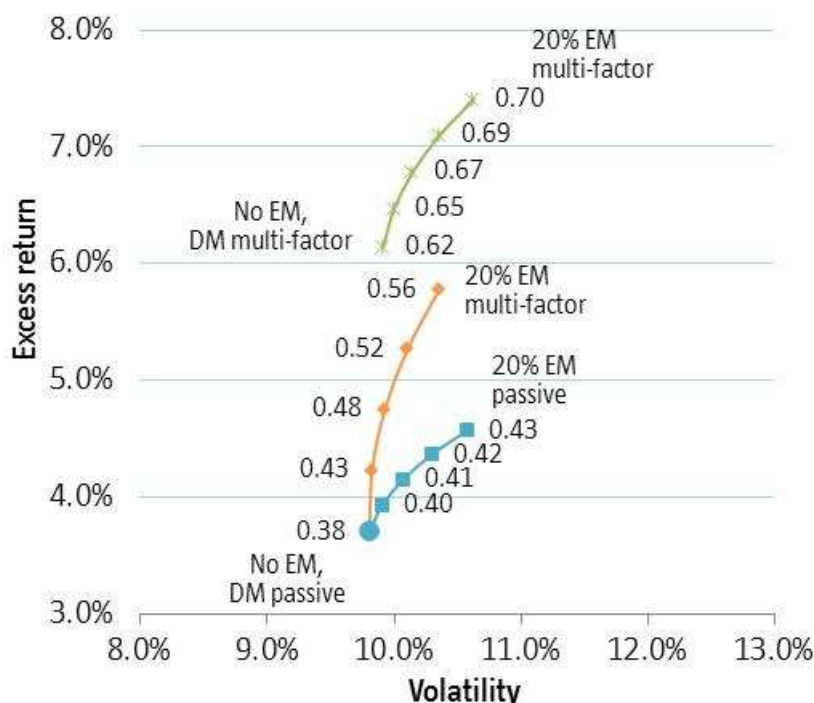
	<i>Market</i>	<i>V+M</i>	<i>Value</i>	<i>Momentum</i>
<b><i>Emerging markets</i></b>				
Total return	10.6%	17.0%	17.5%	16.1%
Excess return	7.1%	13.3%	13.8%	12.4%
Volatility	23.2%	23.2%	23.8%	24.1%
Sharpe ratio	0.30	0.57	0.58	0.52
<b><i>Developed markets</i></b>				
Total return	7.4%	11.6%	11.7%	11.3%
Excess return	4.0%	8.1%	8.2%	7.8%
Volatility	14.9%	15.1%	16.4%	14.8%
Sharpe ratio	0.27	0.54	0.50	0.53

Source: Robeco. Sample period: January 1988 until September 2015. V+M is a multi-factor quant portfolio consisting of a 50/50% allocation to the momentum and value factor premiums. Excess returns are on top of the one-month US Treasury bill rate. All figures are in US dollars and do not include the impact of transaction costs. Average returns are calculated using geometric averaging.

Subsequently, allocating to an emerging markets multi-factor portfolio has even more added value in the strategic asset allocation than allocating to only the market portfolio. The middle line with diamonds in Exhibit 5 shows an excess return enhancement from 3.7% to 5.8% with Sharpe ratios ranging from 0.38 to 0.56.

<sup>6</sup> See e.g. Van der Hart, Slagter, and Van Dijk, 2003, "Stock selection strategies in emerging markets", Journal of Empirical Finance, 10, 105-132.

<sup>7</sup> In 2015 we use, due to data availability, the equally-weighted top 20% most attractive stocks on respectively the earnings-to-price ratio and its 9-1 month momentum for respectively the valuation and momentum factor with a one-month holding period.

**Exhibit 5 | Strategic allocation to factor premiums in emerging markets**

Source: Robeco. Sample period: January 1988 until September 2015. The Sharpe ratios of the portfolios are shown next to each data point in the graph. Excess returns are on top of the one-month US Treasury bill rate. All figures in US dollars and do not include the impact of transaction costs. Average returns are calculated using geometric averaging.

In case investors are interested in allocating to emerging market factor premiums it is possible that the developed markets equity portfolio is already organized to factor premiums. We show the factor premiums in developed equity markets in the bottom panel of Exhibit 4. Also here we observe that the value and momentum portfolio performs substantially better than the market, with an additional return of over 4%. Investors may wonder whether in this case there is still added value in allocating to emerging market factor premiums.

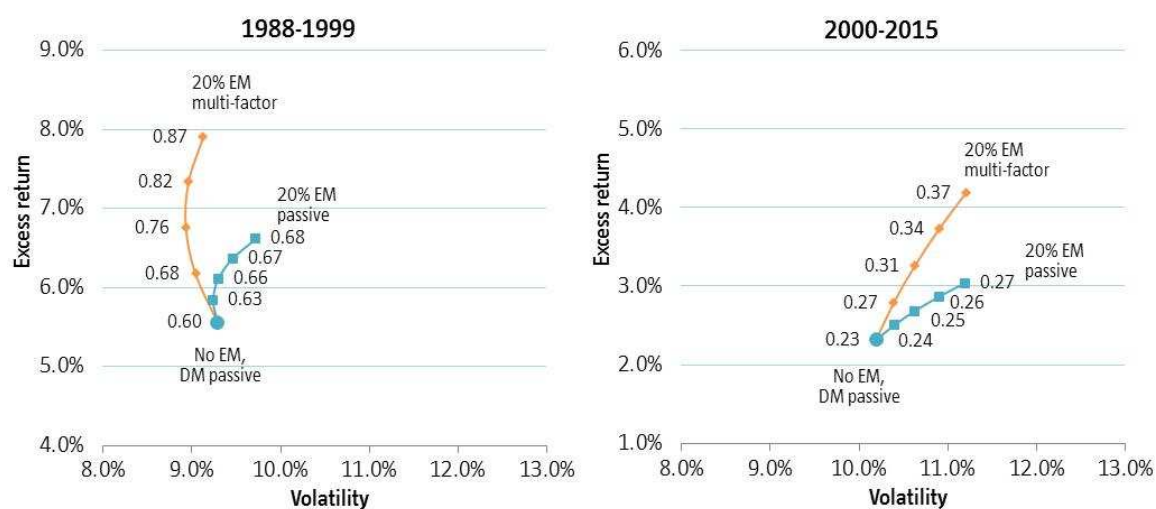
We show this with the top line in Exhibit 5. The 60% allocation to equities in the starting portfolio now consists of a developed markets multi-factor portfolio with a 50/50% allocation to a valuation and momentum portfolio, constructed in similar fashion as in emerging markets. As this multi-factor portfolio is already much stronger than a passive market portfolio, the starting portfolio has a higher Sharpe ratio of 0.62 compared with 0.38 for the passive portfolio.<sup>8</sup> The figure shows that allocating to an emerging markets multi-factor portfolio still provides a clear improvement. Another view on this is to investigate the correlation between the value and momentum premiums in the two markets. We find that the outperformances of the 50/50 multi-factor portfolios have a historical correlation of only 23%, which is another argument to allocate also to factors in emerging markets.

<sup>8</sup> See also Blitz, D. "Strategic Allocation to Premiums in the Equity Market." *Journal of Index Investing*, 2 (2012), pp. 42-49.

### Subsample results confirm our findings

As until now we have looked at the complete sample period, we conclude our analyses by showing the added value in two sub-samples. In particular, we split our sample into the period from January 1988 until the end of 1999 and from 2000 until September 2015. Exhibit 6 shows that the results in both sample periods are in line with our findings over the complete sample. We find that allocating to emerging markets improves the Sharpe ratio of the portfolio in both sub-periods. In addition, we find that allocating to the value and momentum factor further improves the Sharpe ratios significantly by about 45-65%.

**Exhibit 6 | Subsample analysis of allocating to factor premiums in emerging markets**



Source: Robeco. The left graph is based on the period January 1988 until December 1999; the right graph is based on the period January 2000 until September 2015. The Sharpe ratios of the portfolios are shown next to each data point in the graph. Excess returns are on top of the one-month US Treasury bill rate. All figures in US dollars and do not include the impact of transaction costs. Average returns are calculated using geometric averaging.



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## Concluding remarks

We find that allocating part of an investor's portfolio to emerging markets equity increases the portfolio's risk-adjusted return and even more when value and momentum factors in this asset class are taken into account. We therefore recommend investors to allocate part of their portfolio to factor premiums in emerging equity markets. In this paper, we have only investigated the added value of relatively straightforward generic factors. Logically, investors may consider allocating to enhanced factor strategies, where for example more powerful factor definitions are used and more sophisticated portfolio optimization. Our paper 'Robeco quant EM equities outperforms generic factor indices'<sup>9</sup> shows the added value of Robeco's Core and Active Quant Emerging Market strategies on top of generic value and momentum factors.



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<sup>9</sup> See: David Blitz and Wilma de Groot, Robeco quant EM equities outperforms generic factor indices, December 2014.

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