

QI Emerging Markets Enhanced Indexing Equities

Beyond passive in EM with Enhanced Indexing

- Passive investing in Emerging Markets (EM) is on the rise
- Investors should be aware of the pitfalls of passive EM strategies
- These can be addressed with a proven approach: Enhanced Indexing

Despite their inefficient nature, a growing number of investors are allocating to emerging equity markets (EM) through passive strategies. In this paper, we highlight the numerous pitfalls of these strategies and how to address them with a more sophisticated approach: Enhanced Indexing.

Resisting the trend

The ongoing growth of passively managed equity strategies has disrupted the asset management industry over the past decade. And the end of this trend seems nowhere near. In the US, for example, opting for 'passive' will soon become the default option, according to Moody's.¹ But while the rise of passive has been broadbased, the market share of passively managed equity strategies still differs greatly from one region to another. In the US equity market, for example, passive strategies represent close to 45% of all fund investments according to Morningstar². Meanwhile, active

management still significantly outweighs passive index replication in EM (share of passive 31% versus 69% for active), according to Broadridge³. Although passive strategies have gained market share over the past

Article

For professional investors
December 2018

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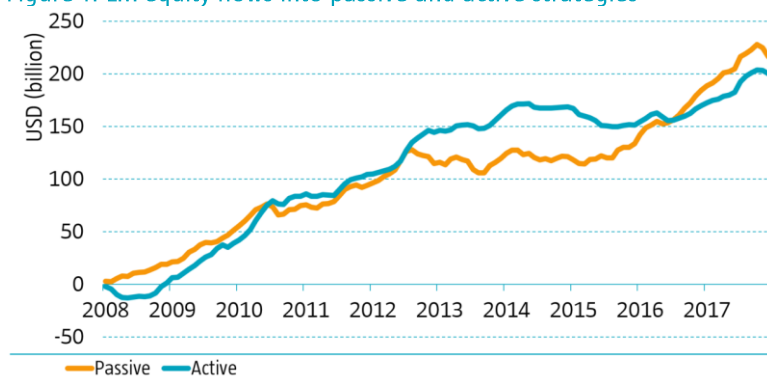
¹ Financial Times, February 2, 2017: 'Passive to overtake active in US by 2024, says Moody's'.

² Morningstar 2017 Global Asset Flows Report

³ Broadridge Global Market Intelligence, August 2018.

decade, investment flows into both active and passive strategies have been broadly similar, as Figure 1 shows.

Figure 1: EM equity flows into passive and active strategies



Source: Morningstar, Robeco. Graph displays global net flows to Emerging Markets index and non-index (active) equity funds based on Morningstar category classification.

Even though active managers have been able to resist the shift towards passive investing in EM, over USD 200 billion are currently invested in ETFs that replicate well known EM indices like the MSCI Emerging Markets Index.⁴ And while the merits of passive investing are now broadly accepted, the drawbacks and consequences of this particular investment style in EM are less well-known. In this white paper, we identify these drawbacks and explain how investors can address them.

Settling for beta?

At first sight, going for passive in EM seems like a rational choice. After all, the higher return (11.4% per year on average) that EM equities delivered compared to developed markets (DM) equities (8.0%) over the 1988-2017 period also came with much higher volatility (22.6% for EM versus 14.6% for DM).⁵ In this context, an active management approach in EM could have easily led to even higher volatility, while it remains uncertain whether active risk would have resulted in a positive excess return. Add to this the fact that passive strategies typically feature lower management fees than active ones, and the fact that tracking an index will result in a transparent portfolio with predictable characteristics, and a solid case for the passive investor seems to emerge.

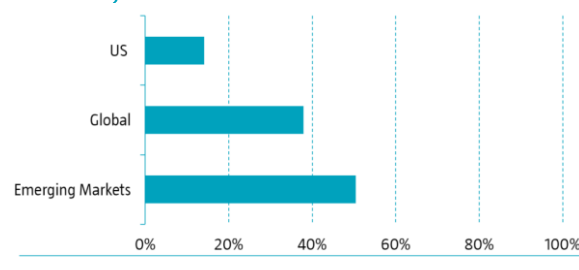
However, by settling for beta, passive investors implicitly or explicitly assume that emerging markets are fully

efficient and ignore the existence of factor premiums. They also accept the chronic underperformance that passive vehicles deliver on a net return basis and endure the consequences of index arbitrage, as well as the lack of sustainability integration⁶. At Robeco, we believe these investors can do much better.

Inefficient markets

Are EM efficient or inefficient? At first sight, given the differences in the market share of passive across regions, most investors seem to perceive EM as less efficient than developed markets, such as the US or Europe. Research by Huij and Post (2012) supports this view, as it reveals a strong performance persistence of active EM funds.⁷ The two authors document that top performing funds in EM also deliver a higher average excess return than top performing US funds. Given this inefficiency, active managers of EM equities stand a better chance to deliver outperformance, compared to active managers in the US. More recent research by S&P confirms this. It suggests that 50.5% of institutional equity managers in EM outperformed their benchmark over a period of five years, while only 38% of global DM active managers delivered a positive excess return after costs over the same period (see also Figure 2).⁸

Figure 2: Percentage of managers outperforming over five years



Source: S&P Dow Jones Indices LLC, eVestment Alliance, CRSP. Benchmark for US is S&P-500, Global is S&P Global 1200, Emerging Markets is S&P Emerging BMI. Data as of Dec. 31, 2015. Table is provided for illustrative purposes.

Harvesting factor premiums

One way to generate alpha in EM is to allocate to proven and persistent factors. Numerous academic papers – for example by Rouwenhorst (1998,⁹ 1999¹⁰), Van der Hart et

⁴ Source: Bloomberg as of October 2018.

⁵ De Groot, W., Zhou, W., 2018, 'Strategic allocation to emerging markets factor premiums', VBA Journal, Volume 135, EM equities: MSCI EM total return index, DM equities: MSCI World total return index. Related figures are annualized and in US dollars (gross, unhedged), and do not include the impact of transaction costs or management fees.

⁶ Expense ratio of Emerging Markets Equities ETFs for US investors is between 0.11% and 1.64% (on average 0.54%), according to <https://etfdb.com/etfdb-category/emerging-markets-equities/> as of January 14, 2019.

⁷ Huij, J., Post, T., 2011, 'On the performance of emerging market equity mutual funds', Emerging Markets Review, Volume 12, Issue 3, Pages 238-249.

⁸ S&P Dow Jones Indices, 2016, SPIVA® Institutional Scorecard, 'How Much Do Fees Affect the Active Versus Passive Debate?'

⁹ Rouwenhorst, K., 1998, 'International Momentum Strategies', Journal of Finance, vol. 53 nr. 1: 267-284.

¹⁰ Rouwenhorst, K., 1999, 'Local Return Factors and Turnover in Emerging Stock Markets', Journal of Finance, vol. 54 nr. 4: 1439-1464.

al. (2003¹¹) and Van der Hart et al. (2005¹²) – demonstrate that allocating based on well-known factors, such as value and momentum can add value.

Table 1 shows the added value of allocating to the value and momentum premiums in EM over the January 1988-December 2017 period, as documented by De Groot and Zhou (2018). Also shown is a balanced multi-factor portfolio allocating to both premiums (V+M).

Table 1: Factor premiums in emerging markets

Factor premiums in emerging markets				
	Market	V+M	Value	Momentum
Total return	11.4%	16.7%	16.5%	16.6%
Excess return	8.0%	13.3%	13.1%	13.1%
Volatility	22.6%	22.3%	22.2%	23.8%
Sharpe ratio	0.36	0.59	0.59	0.55
Downside risk	17.1%	15.5%	15.5%	16.6%
Maximum drawdown	-64.4%	-60.2%	-62.5%	-64.3%

Source: De Groot & Zhou (2018). Returns shown do not represent past performance of Robeco managed accounts in Emerging Markets. Excess returns shown are on top of the one-month US Treasury bill rate. All return related figures are annualized and in US dollars (gross, unhedged), and do not include the impact of transaction costs or management fees. Average returns are calculated using geometric averaging. The market portfolio represents the MSCI Emerging Markets total return index. The value portfolio is a combination of earnings-to-price ratio and dividend yield criteria. The momentum portfolio is a combination of 12-1 month price momentum and earnings revisions over the latest 3 months. The monthly return of the value portfolio is the equally-weighted return of the 33% most attractive stocks in terms of earnings-to-price ratio, assuming a 6-month holding period. The same applies for dividend yield and then, the two portfolio returns are equally-weighted. The momentum portfolio is constructed in a similar fashion. V+M is 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 V+M portfolio exhibits a materially better risk-adjusted performance than a passive emerging markets portfolio. These results indicate that emerging equity markets are far from efficient, as the return of this portfolio is over 5% higher than the return of the passive market portfolio, with similar volatility. The downside risk and maximum drawdown are also lower for the factor portfolio, compared to the broader market. The Sharpe ratio is around 65% higher than for the market index: 0.59 compared to 0.36 for the index.

Passive investors don't reap the rewards of these factor premiums, as they settle for the market premium only. The market portfolio is made up of a variety of stocks. Some score very well on proven factors, while others score very poorly on these drivers of returns. According to Blitz and Vidojevic (2018)¹³, quantitative models could help identifying stocks that outperform. Therefore, they argue that passive investors choose – not necessarily consciously – to invest in stocks that are expected to deliver negative returns. In other words: passive investors choose to lose money in the long-run.

Efficient security selection

In our opinion, passive EM managers not only assume that markets are efficient, we also believe they assume that all index constituents provide an optimal exposure to each particular EM company. To illustrate: a passive vehicle that seeks exposure to an EM index by investing in all its constituents. As a result, an investor in such a passive vehicle gets exposure to the locally listed stocks of companies, as these stocks are included in the index. However, locally listed stocks don't always provide the most efficient exposure to a company. For investors willing to get exposure to EM index companies, more efficient options are often available, such as ADRs (American Depositary Receipts) or GDRs (Global Depositary Receipts). These instruments are widely available for EM index-aware investors. For example, some 70% of Russia's equity universe can be replicated by investing in these instruments that offer at least ten advantages:

1. **Access:** Investors access ADRs and GDRs on regulated markets. These instruments are listed on exchanges in developed markets (London, New York), not on local exchanges in emerging countries, such as Russia and India. This has important implications in terms of liquidity. For example, while the Moscow stock exchange had to be shut down many times during the 2008 crisis, Almost all Russian receipts listed in London could still be traded with sufficient trading volumes.
2. **Capital Controls:** Because emerging countries occasionally impose capital controls, withdrawing cash out of these markets can prove to be challenging. Recently, investors in Argentina and Egypt were faced with this kind of situation. When this occurs, the ADRs and GDRs usually lose their ability to be converted into local shares (also known as fungibility) and often trade at a discount relative to the local stock. But they often remain liquid and can be sold. Sellers of ADRs and GDRs receive US dollars instead of local EM currencies that may not be transferred out of the country due to the capital controls in place.
3. **Exchange taxes:** Stamp duty taxes are common in DM (in Ireland and the UK, for example) as well as in EM (South Africa). However, no stamp duty tax applies to ADRs and GDRs listed in New York and on the London International exchange,

¹¹ Van der Hart, J., Slagter, E. and Van Dijk, D.C., 2003, 'Stock selection strategies in emerging markets', Journal of Empirical Finance, vol. 10: 105-132.

¹² Van der Hart, J., Van Dijk, D.C. and De Zwart, G. J., 2005, 'The Success of Stock Selection Strategies in Emerging Markets: Is it Risk or Behavioral Bias?', Emerging Markets Review, vol. 6 nr. 3: 238-262.

¹³ Blitz, D., and Vidojevic, M., 2018, 'The Characteristics of Factor Investing', Working paper (SSRN: 3206798).

as long as they remain traded on these exchanges and are not cancelled.

4. **Foreign Exchange (FX) conversion costs:** EM currencies are typically costly to trade, compared to major DM currencies. Converting Colombian and Chilean pesos, as well as Brazilian reals and Indian rupees into US dollars or euros, back and forth, proves especially expensive. Investing in ADRs or GDRs (with direct settlement in US dollars) instead of the local stocks can be cheaper. After all, in most cases settlement in local currencies will eventually result in an exchange of major DM currencies.
5. **Capital gains taxes:** Investing in local stocks may involve paying capital gain taxes. However, if ADRs are exchanged between non-Emerging Markets based investors, it is virtually impossible for local authorities in Emerging Markets to claim these capital gains taxes.
6. **Trading at premium:** ADRs and GDRs can start trading at a premium if, for example, the level of foreigners investing in the depositary receipts exceeds a certain threshold. Premiums may also arise from index inclusion. In some rare cases, MSCI can include these instruments into its EM indices, for example when they prove much more liquid than the underlying local stock. It is important to monitor these price differences, and perhaps lock-in potential premiums by switching to local shares at the right time.
7. **Lower custody and broker costs:** In our experience, ADRs and GDRs tend to have lower custody fees (safekeeping fees) than local shares, especially in countries like Chile and Colombia. Local stocks can also be expensive to trade, while trading costs on the London and New York stock exchanges are usually lower.
8. **Liquidity:** ADRs and GDRs may offer more liquidity than local listings resulting in lower transaction costs for these receipts compared to local listings.
9. **Cancellation option:** If investors, despite the advantages of ADRs and GDRs, prefer to own local shares, they can choose to swap their receipts for the underlying local stocks.
10. **Better data coverage:** According to our experience, ADRs or GDRs feature better data quality and analyst coverage than their local counterparts. This can lead to better informed investment decisions. To illustrate, the analyst coverage for Russian GDRs is on average three times higher than the coverage of their local shares.

Despite all the benefits of ADRs and GDRs, it is also important to underscore some drawbacks of these instruments. One disadvantage has to do with dividend payments, as ADR and GDR holders are paid after withholding any dividend taxes. Because it is impossible to reclaim these taxes, these instruments can deliver a lower income than locally listed shares. This is especially the case for those investors located in countries with favorable dividend tax treaties. Also, in the case of corporate actions, local listings can offer advantages compared to ADRs and GDRs, although this kind of situation is rare and might only happen a few times a year. From a risk perspective, investing in ADRs and GDRs may result in a small increase of the tracking error, as these instruments trade in different time zones compared to their local counterparts. This small increase will worry the passive index manager that has no room (that is tracking error budget) to deviate from the index. However, an active portfolio manager will turn this leeway into an investment opportunity, by selecting local stocks or ADR/GDR, on a case by case basis.

Costs

Proponents of passive investing like to point out the low-cost nature of these strategies, compared to actively managed ones. And we agree with them: because active investing is a zero-sum game before costs and a negative sum game after costs, it makes sense to choose low costs over high costs. It is reasonable for investors to opt for passive when their relatively expensive active manager has underperformed for a prolonged period. However, these passive investors may forget that passive strategies, from a theoretical point of view, also inevitably underperform their benchmarks when costs are considered. This matters for EM investors, as the total expense ratio of the ten biggest ETFs, with a total market capitalization of USD 160 billion, is 27 basis points on average.¹⁴ These costs are explicit and result in a significant underperformance of passive vehicles versus EM indices.

Index arbitrage

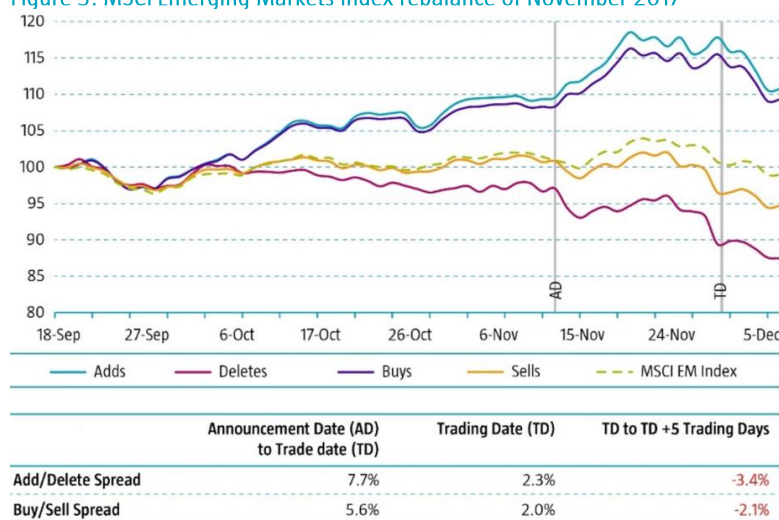
In addition, passive EM investors also must bear the implicit costs of index arbitrage. The transparency that passive investing offers comes at a price, as opportunistic market participants actively arbitrage index additions and deletions. Petajisto (2011)¹⁵ studied the impact of these index changes on the returns of equities added to or removed from one of the most liquid developed market indices: the S&P 500 Index. Stocks in this index show abnormal return patterns: in the run-up to their addition (deletion) these stocks tend to advance (decline) in price,

¹⁴ Source: Bloomberg. Total expense ratio is calculated as the asset weighted average fee of the ten biggest ETFs available for global investors as of October 2018.

¹⁵ Petajisto, A., 2011, 'The Index Premium and Its Hidden Cost for Index Funds', Journal of Empirical Finance, 2011, 18(2): 271-288.

while after the rebalancing date these new additions (deletions) tend to lose (gain) in price. In other words: indices include stocks at inflated prices and sell them at depressed prices. According to Petajisto, this costs passive investors 25 basis points per year on average. But this impact is implicit and hardly visible for passive investors, as it is included in the index return. An example of such arbitrage activity for the MSCI Emerging Markets Index is shown in Figure 3.

Figure 3: MSCI Emerging Markets Index rebalance of November 2017



Source: MSCI, Bloomberg, Credit Suisse Index Analytics

The graph and table highlight the performance of index additions and deletions, as well as the difference between the two (add/delete spread) for the November 2017 rebalancing process. Also shown is the impact of rebalancing existing index constituents (buys, sells and buy/sell spread). It should be noted that stocks that were about to be in- or excluded already showed an abnormal price move even before the index provider announced (AD, or announcement date in the graph) the composition changes.

Directly after the announcement, share prices of new additions (the 'adds') and of those constituents about to see their weight in the index increase (the 'buys') advanced further in price. The opposite holds true for index deletions and 'sells'. The difference between index additions and deletions (the spread) is 7.7% during this brief period, while the difference between 'buys' and 'sells' is 5.6%. Abnormal price behavior could also be spotted on the day of rebalancing for additions, deletions, 'buys' and 'sells'. The negative figures for both spreads during the five trading days after the rebalancing date indicate that a reverse price moves took place: new

additions fell in value and former constituents appreciated.

What happened in November 2017 was not an isolated case. Table 2 shows the effect of index arbitrage for the MSCI Emerging Markets index over the period November 2013-November 2017. During this period, the MSCI Emerging Markets Index was rebalanced eight times. The figures in the table confirm that passive EM investors buy new entrants at inflated prices and sell former constituents at depressed prices. Although the implicit costs of this arbitrage are borne by the index and thus hardly visible for the passive investor, Figure 3 and Table 2 make them visible and very explicit.

Table 2: MSCI EM Index rebalancing November 2013-2017

	Impact
Performance from announcement date (AD) to trade date (TD)	
Add/Delete Spread	5.3%
Buy/Sell Spread	3.8%
Performance trade date (TD)	
Add/Delete Spread	1.2%
Buy/Sell Spread	0.9%
Performance from trade date (TD) to (TD + 5 Trading Days)	
Add/Delete Spread	-1.8%
Buy/Sell Spread	-1.5%

Source: MSCI, Bloomberg, Credit Suisse Index Analytics, Robeco

Toothless tigers

Besides passive investing, investors have witnessed over the last twenty years another strong trend: the rise of sustainability investing. Sustainability investing is becoming mainstream and there are many ways to integrate it in a portfolio, ranging from basic exclusions to best-in-class approaches, and from impact investing to contributing to UN Sustainable Development Goals (SDGs). Where does this leave passive investors? Blitz and De Groot (2018) argue that it leaves them far behind,¹⁶ as passive investing cannot accommodate the needs of sustainable investors. Excluding stocks or putting more advanced sustainability integration methods to work, such as reducing the carbon footprint or incorporating SDGs, would mostly result in a high tracking error. Meanwhile, from a corporate governance perspective, passive investors can be seen as 'toothless tigers' as they cannot vote with their feet. As the index must be replicated rigorously, they can not exclude any specific stock, even when they disagree with the management of the company.

This is particularly relevant for passive investors in emerging markets, since EM listed companies are not always at par with their DM counterparts from a corporate

¹⁶ Blitz, D., De Groot, W., 2018, 'Passive investing and sustainability are incompatible', Robeco article.

governance perspective. Recent examples of troubled companies are Steinhoff International (South-Africa), China Huishan Dairy (China) and Hanergy Thin Film Power Group (China). Share prices of these companies plummeted when informed market participants raised red flags after studying trading patterns and accounting reports. Active investors can act on this information and anticipate potential governance issues. But passive managers, even if they know about potential irregularities, usually cannot. Would tracking a sustainable emerging market index be a better option for these investors? From a sustainability perspective, this certainly would be a step in the right direction. However, this would also mean giving up passive investing, as sustainable indices imply active investment decisions. Moreover, most aforementioned issues with passive investing in EM would still remain unaddressed and probably a more concentrated portfolio would be the result.

Beyond passive: Enhanced Indexing

How can these pitfalls of passive investing in EM be addressed while offering the benefits of passive? The answer is simple: by allowing some tilts in the portfolio without completely moving to highly active strategies. By investing in an index-aware portfolio, that has a low tracking error with its respective benchmark, all the pitfalls of passive can be addressed. Since these portfolios offer an improved exposure to the market premium, we refer to this approach as Enhanced Indexing.

Enhanced Indexing approaches do not settle for beta, but rather actively tilt the portfolio towards proven factors, such as value, quality and momentum. To achieve this, the starting point is to score all EM index constituents based on their factor characteristics. Next, all constituents are ranked from top (good score) to bottom (bad score). Finally, a portfolio is built taking the benchmark as a starting point and then slightly overweighting top-ranked stocks and underweighting bottom-ranked ones. In order to maintain a low tracking error (ranging between 0.5% and 2.0% for mandates and 0.5% or 1.2% for investment funds), these portfolios deviate maximum 0.3% from the benchmark with respect to country weights and 1% for sector weights¹⁷. Although country and sector allocation can provide additional returns, these come along with a relatively high relative risk. In order to keep tracking error low, we believe it is more efficient to take many small active positions in individual stocks rather than a few large active country bets.

This rules-based approach enables the portfolio manager of an Enhanced Indexing strategy to process vast amounts of data. The manager can further improve security selection through the inclusion of ADRs and GDRs in the portfolio, or by replacing ordinary shares with preferred stocks, for example. Governance screens can also be applied. Furthermore, allowing a limited inclusion of off-benchmark stocks may help to reap the rewards of index rebalancing, instead of bearing the consequences of this phenomenon. Client-specific exclusion lists, positive screening and other sustainability criteria, such as targeting a reduced carbon footprint, can also be applied. Moreover, stocks of companies for which Robeco applies enhanced engagement efforts will not receive an overweight position in the Enhanced Indexing portfolios at the moment of rebalancing.

Table 3: Realized returns for the Robeco EM Enhanced Indexing strategy

Composite: Emerging Enhanced Indexing Equities as of December 31, 2018 (in USD)

Annualized performance							12/31/2018
	QTD	1 Year	3 Year	5 Year	7 Year	10 Year	Inception*
Emerging Enhanced Indexing Equities (net)	-7.66%	-14.15%	10.41%	2.01%	3.72%	9.47%	2.71%
Emerging Enhanced Indexing Equities (gross)	-7.56%	-13.81%	10.85%	2.41%	4.14%	9.91%	3.12%
MSCI Emerging Markets (net return)	-7.47%	-14.58%	9.25%	1.65%	3.23%	8.02%	1.52%
Relative performance (net)	-0.18%	0.43%	1.16%	0.36%	0.49%	1.45%	1.18%
Calendar year performance							12/31/2018
	2018	2017	2016	2015	2014	2013	2012
Emerging Enhanced Indexing Equities (net)	-14.15%	39.38%	12.49%	-16.07%	-2.23%	-1.87%	19.17%
Emerging Enhanced Indexing Equities (gross)	-13.81%	39.93%	12.94%	-15.74%	-1.84%	-1.48%	19.65%
MSCI Emerging Markets (net return)	-14.58%	37.28%	11.19%	-14.92%	-2.19%	-2.60%	18.22%
Relative performance (net)	0.43%	2.09%	1.30%	-1.15%	-0.05%	0.73%	0.95%

*Inception date July 1, 2007

Source: Robeco. Figures longer than one year are annualized. The value of your investments may fluctuate. Results obtained in the past are no guarantee for the future. Net performance reflects the deduction of all fees and expenses. For further information on indices please see disclosure.

The low degree of activeness of the strategy is reflected in the magnitude of the management fee, which make Enhanced Indexing – according to our belief – a very compelling alternative to passive from a fee perspective. What's more, Enhanced Indexing portfolios can offer a net return that is consistently higher than the index return. Table 3 shows the net realized returns for the Robeco Emerging Markets Enhanced Indexing strategy (expected long-term tracking error 1.2%).

Robeco has been managing Enhanced Indexing portfolios in EM since 2007. Besides aiming to improve the return of Emerging Markets portfolios the Enhanced Indexing strategies also aim to improve the sustainability profile of an Emerging Markets investment. Because sustainability

¹⁷ Relative sector and country deviate mentioned is for Emerging Markets Enhanced Indexing strategies with an expected tracking error of 1.2%. The maximum relative country and sector deviation may differ for Enhanced Indexing strategies with lower or higher levels of tracking error.

is integrated in the portfolio construction phase, the Robeco Enhanced Indexing RobecoSAM Sustainability is mostly higher than the same score for the respective benchmark.

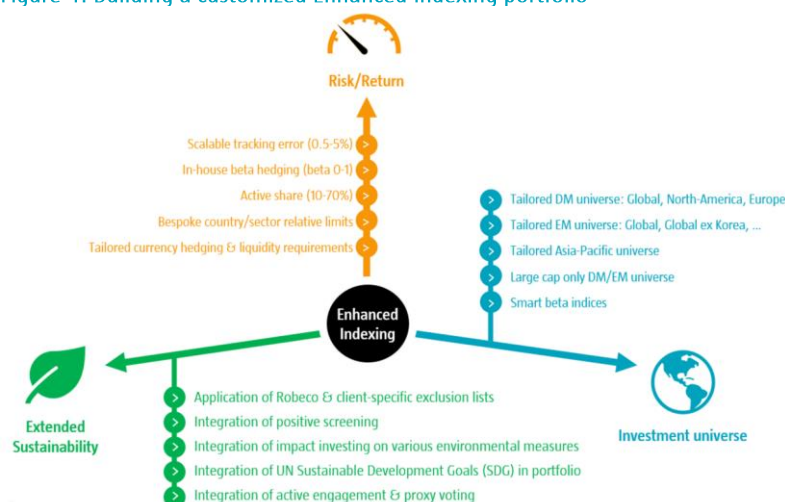
Possible customization

Another benefit of the Robeco Enhanced Indexing capability is the possibility to manage fully customized portfolios in DM or EM, on behalf of our clients. The investment process allows us to scale the tracking error of the strategy to any desired level between 0.5% and 5%. Strategies featuring a tracking error between 0.5% and 2% are simply called 'Enhanced Indexing'. Those with a tracking error between 2% and 5%, are called 'Active Quant'. In fact, since 2006 we have been managing portfolios and offering EM funds with a variety of tracking error limits and based on many different benchmarks (regional, customized, etc). The strategy also allows for bespoke sustainability integration as Figure 4 illustrates.

For investors looking for a specific universe, that would exclude certain countries or regions, for example, our strategies can also be further customized. We can also adjust to the needs of investors that are looking for ways to improve their passive allocation to DM equities. Robeco has been managing Enhanced Indexing portfolios in developed stock markets since 2004, delivering strong investment results in these markets as well (information ratio since inception above 1.0).

To summarize, Enhanced Indexing may offer EM investors an alternative to passive investment strategies. By allowing a very low amount of active risk in the portfolio we believe investors can harvest proven factor premiums, make use of efficient security selection, integrate sustainability and many other client specific portfolio requirements at the same time.

Figure 4: Building a customized Enhanced Indexing portfolio



Source: Robeco

A good example of the many dimensions of sustainability that can be integrated in these strategies is demonstrated by the Robeco QI Emerging Markets Sustainable Active Equities strategy. This strategy, that aims to deliver a stable alpha of at least 2% (gross annualized) per year excludes many controversial listings (close to 6% of the MSCI Emerging Markets Index universe) like tobacco, thermal coal, (controversial) weapons and gambling. Next to that a environmental footprint reduction of 20% is obtained on four different dimensions (green house gasses / carbon, water use, waste consumption and energy use) as well as improving the aggregate sustainability profile of the portfolio versus the MSCI Emerging Markets Index by at least 20%.

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Additional Information for investors with residence or seat in the United Arab Emirates

Some Funds referred to in this marketing material have been registered with the UAE Securities and Commodities Authority (the Authority). Details of all Registered Funds can be found on the Authority's website. The Authority assumes no liability for the accuracy of the information set out in this material/document, nor for the failure of any persons engaged in the investment Fund in performing their duties and responsibilities.

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Robeco is subject to limited regulation in the UK by the Financial Conduct Authority. Details about the extent of our regulation by the Financial Conduct Authority are available from us on request.

Additional Information for investors with residence or seat in Uruguay

The sale of the Fund qualifies as a private placement pursuant to section 2 of Uruguayan law 18,627. The Fund must not be offered or sold to the public in Uruguay, except in circumstances which do not constitute a public offering or distribution under Uruguayan laws and regulations. The Fund is not and will not be registered with the Financial Services Superintendency of the Central Bank of Uruguay. The Fund corresponds to investment funds that are not investment funds regulated by Uruguayan law 16,774 dated September 27, 1996, as amended.

Additional Information concerning RobecoSAM Collective Investment Schemes

The RobecoSAM collective investment schemes ("RobecoSAM Funds") in scope are sub funds under the Undertakings for Collective Investment in Transferable Securities (UCITS) of MULTIPARTNER SICAV, managed by GAM (Luxembourg) S.A., ("Multipartner"). Multipartner SICAV is incorporated as a Société d'Investissement à Capital Variable which is governed by Luxembourg law. The custodian is State Street Bank Luxembourg S.C.A., 49, Avenue J. F. Kennedy, L-1855 Luxembourg. The prospectus, the Key Investor Information Documents (KIIDs), the articles of association, the annual and semi-annual reports of the RobecoSAM Funds, as well as the list of the purchases and sales which the RobecoSAM Fund(s) has undertaken during the financial year, may be obtained, on simple request and free of charge, via the website www.robecosam.com or www.funds.gam.com.