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Research Insight

“Factoring” in the Emerging Markets Premium

Exploring Factor Indexes in Emerging Markets

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Executive Summary

A substantial body of research shows that factor indexes historically have generated premia in developed markets.[1] As global markets have become more correlated, however, investors have started looking to additional sources of returns within emerging markets. In the last decade, style[2] and industry factors have become significant components of returns, eroding some of the dominance of country factors. As a result, investors have started exploiting style factor premiums.

Far less research, however, has been devoted to whether factor indexes also "work" in emerging markets. This paper seeks to uncover the drivers of performance for factor indexes in emerging markets. In addition, we ask the following questions:

- *Are significant emerging markets factor premia a recent phenomenon?*
- *Are emerging markets active managers exploiting all of the opportunities presented by these factor premia?*
- *Are there ways that EM active managers can capture additional factor premia?*

To better understand what drives the performance of MSCI Emerging Markets Factor Indexes, we use the Barra Emerging Markets Equity Model (EMM1), a best-in-class risk model that is tailored for this universe. In addition we analyze the returns of active emerging markets managers to identify the factors they have exploited.

Our key findings:

- In line with our observations in developed markets, systematic factor premia exist in emerging markets. The MSCI Emerging Markets Factor Indexes have delivered superior performance relative to the broader MSCI Emerging Markets Index over the last 15 years, the analysis period for our study.
- A significant portion of active manager returns can be attributed to emerging markets beta. High Dividend Yield and Momentum factors were also significant contributors, suggesting that active EM managers have been harvesting systematic factors in their investment process.
- Other premia factors such as Value, Low Size, Quality, and Low Volatility that have demonstrated outperformance over the broader market did not appear to be significant drivers of active EM managers' returns, suggesting that these factors offer interesting opportunities as complementary investment strategies.

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[1] See Alighanbari, Aylur Subramanian and Kulkarni. "Factor Indexes in Perspective: Insights from 40 Years of Data," (2014). http://www.msci.com/resources/research_papers/research_insight_-_factor_indexes_in_perspective_insights_from_40_years_of_data_part_i_study_-_septe.html;

Aylur Subramanian, Bender, Briand and Melas. "Foundations of Factor Investing." (2013). http://www.msci.com/resources/research_papers/foundations_of_factor_investing.html ;

Aylur Subramanian, Bender, Briand, Melas and Subramanian. "Deploying Multi-Factor Index Allocation in Institutional Portfolios." (2013). http://www.msci.com/resources/research_papers/deploying_multi_factor_index_allocations.html;

Gupta, Kassam, Suryanarayanan and Varga."Index Performance in Changing Economic Environments." (2014). http://www.msci.com/resources/research_papers/index_performance_in_changing_economic_environments.html;

Briand, Melas and Urwin. "Harvesting Risk Premia with Strategy Indices." (2011). http://www.msci.com/resources/research_papers/harvesting_risk_premia_with_strategy_indices.html

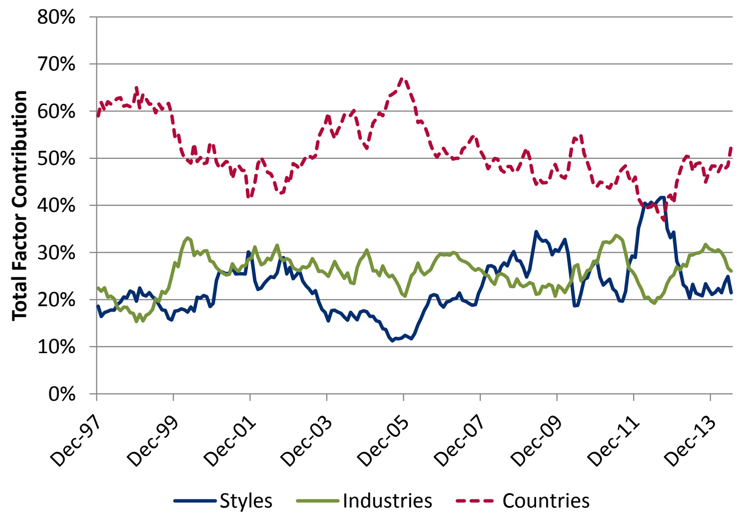
[2] Barra Model Factors represent important drivers of both risk and return in the global equity markets. Common Factors are grouped into World, Country, Industry, Style, and Currency components. Barra developed the concept of this multi-factor model in 1975.

We also examined the potential of combining selective emerging markets factors with the help of the MSCI IndexMetrics tool. Combining factors would have improved portfolio attributes such as risk-adjusted returns, information ratios, index turnover and tracking error. Historically, this approach would have provided a diversification effect and savings on transaction costs.

I. Emerging Markets Factor Returns

The country factor has been the leading determinant of risk and return in emerging markets for at least the past 25 years.[3] Over the last decade, however, the trend has been gradually shifting. The contribution from countries has decreased, as can be seen in Exhibit 1, which shows the contribution of each factor group as a percentage of the total cross-sectional volatility (CSV) contribution.[4] The country factor still explains the largest amount of volatility in emerging markets when compared to industry and style, according to the Barra Emerging Markets Equity Model (EMM1). Industry and style factors, on the other hand, have made lesser contributions, except in 2012 when the style factor's contribution briefly surpassed that of the country factor. This short-lived peak was mainly due to a sell-off of high beta emerging markets stocks, which buoyed the EM style factor contribution.

Exhibit 1: Changing Landscape of Country, Style & Industry Factors



Measured from December 31, 1997 to June 30, 2014 based on monthly cross-sectional volatility. Lines were smoothed by using 12-month moving averages.

Which style factors performed the best over this period? According to the EMM1 model,[5] which covers 21 emerging markets and 44 frontier markets, Momentum exhibited the greatest performance, albeit with periods of significant drawdown, as can be seen in Exhibit 2. Factors such as Earnings Yield and Book-to-Price, which represent the Value premium, performed relatively well. In particular, the Earnings Yield factor achieved superior performance throughout the period while Dividend Yield factor returns jumped significantly after the financial crisis. The latter could be interpreted as a renewed preference for dividends over price returns. Earnings Quality performance also rose after the crisis, once again highlighting a defensive side to investor behavior.

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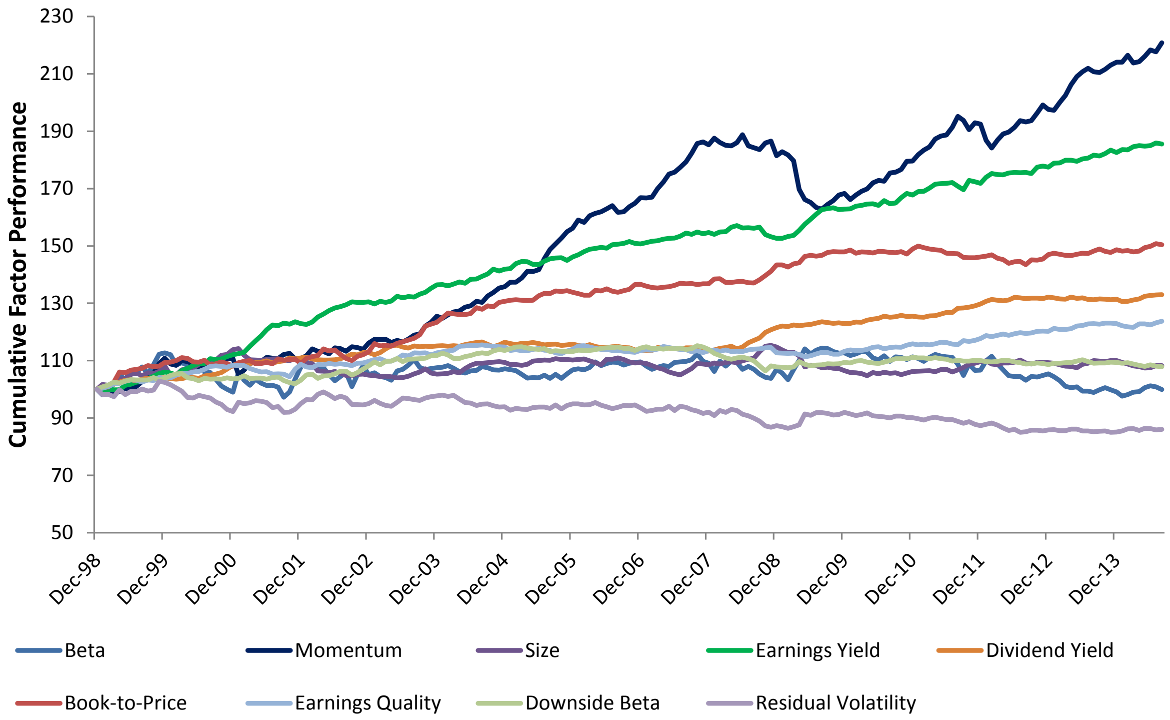
[3] Menchero and Morozov (2012) used the Barra Global Equity Model (GEM2) to analyze the relative strength of countries versus industries in emerging markets. "The Relative Strength of Industries Versus Countries in Global Equity Markets," Journal of Investment Management, Vol. 10, No. 3: 75-87.

[4] Cross-sectional volatility (CSV) is given by the standard deviation of a set of asset returns over a single time period.

[5] The model covers 18 style factors to allow more granular attribution. We have highlighted those factors that correspond to the MSCI Factor Indexes which have provided a consistent and long term premium historically. For more information on the model, see Morozov, Balint, Borda, Ward and Bayraktar. "Barra Emerging Markets Equity Model." (2014) https://support.msci.com/docs/DOC-8565

Exhibit 2: Momentum, Value & Dividend Yield Factors Show Striking Performance



Cumulative performance from December 31, 1998 to August 29, 2014, based on monthly returns of select factors from EMM1 model.

II. Performance of MSCI EM Factor Indexes

In the Barra Equity Risk models, several equity factors are significant in explaining the risk and return of equity markets, but only a few of these have earned a premium over reasonably long horizons. MSCI has identified six key factors that have historically provided a premium and can be harvested through MSCI’s factor indexes – rules-based indexes that provide exposure to these premia factors while maintaining transparency, investability and replicability.[6] A critical aspect of index construction is to maintain the balance between pure factor exposure and investability. In general, the purer the factor exposure, the lower the investability of the index.

We have analyzed the outperformance of factor indexes in developed markets over the past 40 years.[7] Now, we examine the performance of the MSCI Emerging Markets Factor Indexes (albeit over a shorter period) with pure factor returns. Our key findings, which can be seen in Exhibit 3, reveal:

- All MSCI Emerging Markets Factor Indexes outperformed the parent index over time, but with significant variability.

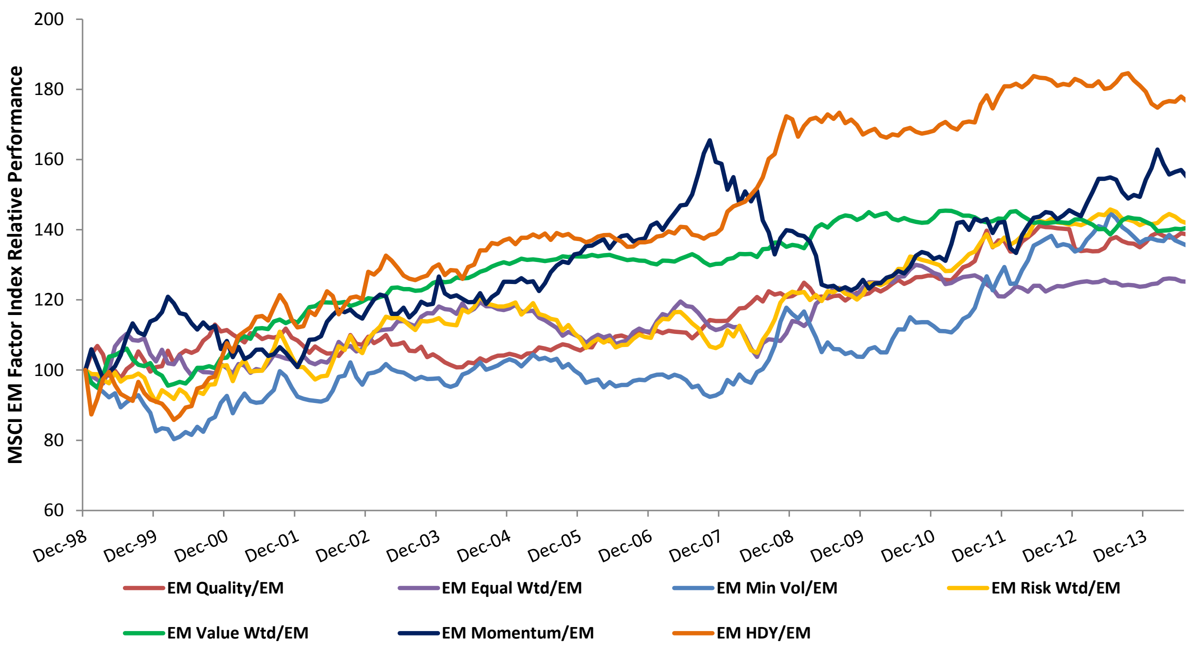
[6] Aylur Subramanian, Bender, Briand and Melas, *op cit,* http://www.msci.com/resources/pdfs/Foundations_of_Factor_Investing.pdf

[7] See Alighanbari, Subramanian and Kulkarni. “Factor Indexes in Perspective.” (2014). http://www.msci.com/resources/research/articles/2014/Research_Insight_Factor_Indexes_in_Perspective_Part_I_Study_September_2014.pdf

- The MSCI EM High Dividend Yield Index had the best performance over the analysis period, followed by the MSCI EM Momentum Index, with a significant increase in performance during the global financial crisis, mirroring the return of the Dividend Yield factor in the Emerging Markets Model.
- The MSCI Emerging Markets Value Weighted Index performed well throughout the period, echoing the behavior of the Earnings Yield and Book-to-Price factors.

Because the Factor Indexes are constrained by investability and liquidity concerns, and some capture exposures to multiple factors, their returns differ from those of pure factors. However, we do see similar patterns across both Factor Indexes and pure factors, confirming that the indexes are representative of the underlying factors.

Exhibit 3: MSCI Emerging Markets Factor Indexes Performance



Net monthly returns in USD from December 31, 1998 to August 29, 2014

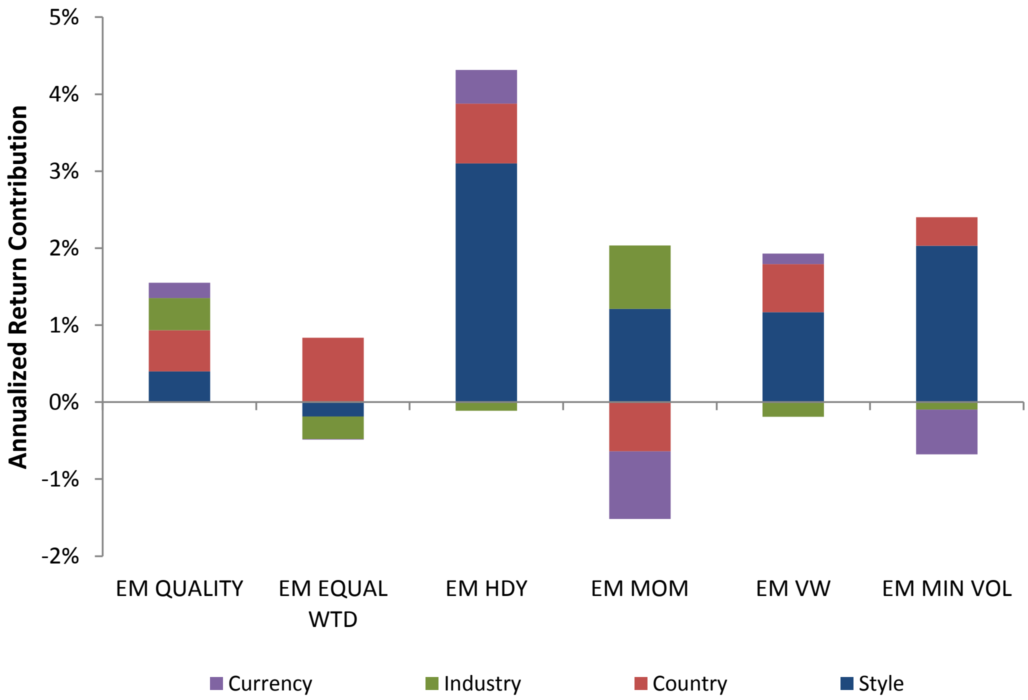
Performance Attribution

As the MSCI Emerging Markets Factor Indexes do not exactly match the underlying factors, we conducted a performance attribution to evaluate the contribution of the entire set of factors to the total return. Factor Index returns from 2002 onwards were studied, using monthly holdings and the Barra Emerging Markets Model in Barra Portfolio Manager.

The annualized contribution of the main factor groups to the performance of the MSCI EM Factor Indexes can be seen in Exhibit 4. Style plays an important role in explaining index performance.[8] MSCI EM High Dividend Yield and MSCI Minimum Volatility in particular show significant contributions from the style factors.

[8] The Barra EMM1 model uses the term "factors" to refer to industry, country, style and strategy factors. For the purposes of this paper, we will use "factors" solely to refer to style factors.

Exhibit 4: Annualized Active Return Contribution to MSCI EM Factor Indexes



Data from December 31, 2002 to August 29, 2014

The grouping of factor returns can mask offsetting returns from individual factors. As a result, we present a more detailed analysis of the style factor group to see which ones are contributing to Factor Index performance.

The average active exposures and annualized return contribution of each factor in the EMM1 model to the MSCI EM Factor Indexes from December 2002 to August 2014 are listed in Exhibit 5. For example, the Emerging Markets HDY Index, the best performing index over the period, has its highest average active exposure (a z-score of 0.66) to the Dividend Yield factor, which is the basis of the index. However, in terms of annualized return contribution, we notice that Dividend Yield (1.09%) is followed very closely by Earnings Yield (0.97%). Even though the exposure of the HDY Index to the Earnings Yield factor is small (0.27) relative to its exposure to Dividend Yield, the contribution of Earnings Yield to performance is significant because the Earnings Yield factor provided superior returns during this period, as we saw in Exhibit 2.

Exhibit 5: Style Factor Contributions and Exposures

EMM1 Factors	EM HDY Active Exposure (z)	EM HDY Return Contribution	EM Momentum Active Exposure (z)	EM Momentum Return Contribution	EM Minimum Volatility Active Exposure (z)	EM Minimum Volatility Return Contribution	EM Quality Active Exposure (z)	EM Quality Return Contribution	EM Value Weighted Active Exposure (z)	EM Value Weighted Return Contribution	EM Equal Weighted Active Exposure (z)	EM Equal Weighted Return Contribution
Beta	-0.25	0.22%	-0.06	-0.34%	-0.69	0.92%	-0.15	0.45%	0.00	-0.06%	-0.24	0.18%
Book-to-price	0.02	0.15%	-0.21	-0.25%	-0.06	-0.05%	-0.34	-0.71%	0.22	0.57%	0.21	0.65%
DM Sensitivity	0.03	0.16%	-0.05	-0.23%	-0.06	-0.01%	0.01	-0.03%	-0.03	0.05%	-0.13	-0.27%
Dividend Yield	0.66	1.09%	-0.18	-0.28%	0.24	0.43%	0.18	0.26%	0.12	0.20%	-0.01	0.01%
Downside Beta	0.01	-0.02%	0.07	-0.13%	-0.01	-0.08%	0.01	-0.02%	0.01	0.08%	0.05	-0.06%
Earnings Quality	0.05	0.01%	-0.16	-0.19%	-0.10	-0.17%	-0.13	-0.17%	0.15	0.17%	0.06	0.06%
Earnings Yield	0.27	0.97%	-0.15	-0.49%	-0.10	-0.25%	-0.01	-0.02%	0.16	0.54%	-0.06	-0.17%
Growth	-0.22	-0.16%	0.20	0.12%	-0.14	-0.12%	0.03	0.00%	-0.11	-0.09%	-0.06	-0.08%
Ind Momentum	0.02	0.04%	-0.01	-0.04%	0.01	0.04%	-0.01	-0.05%	0.01	0.03%	0.02	0.06%
Leverage	-0.20	0.16%	-0.06	0.14%	-0.16	0.07%	-0.40	0.26%	0.14	-0.08%	0.12	-0.14%
Liquidity	-0.07	0.14%	0.08	-0.29%	-0.25	0.30%	-0.09	0.14%	0.01	0.06%	0.11	-0.10%
Momentum	-0.01	-0.02%	0.63	4.46%	0.11	0.88%	0.09	0.43%	-0.09	-0.36%	-0.08	0.01%
Non-linear Size	-0.04	-0.03%	0.05	-0.01%	0.16	0.03%	-0.11	-0.04%	0.03	-0.01%	0.51	0.14%
Oil Sensitivity	0.10	0.05%	-0.04	-0.40%	-0.09	0.00%	0.09	-0.11%	-0.01	0.04%	-0.15	0.06%
Residual Volatility	-0.13	0.29%	0.42	-0.91%	-0.10	0.14%	0.08	-0.23%	-0.02	0.10%	0.09	-0.09%
Seasonality	-0.03	-0.05%	0.01	0.00%	-0.01	-0.09%	0.02	0.04%	-0.01	0.00%	-0.01	-0.02%
Short-term Reversal	-0.02	0.04%	0.24	0.02%	0.05	0.10%	0.00	0.13%	-0.04	-0.04%	-0.03	0.06%
Size	0.05	0.05%	-0.05	0.04%	-0.22	-0.10%	0.15	0.09%	-0.05	0.02%	-0.81	-0.47%

Data from December 31, 2002 to August 29, 2014

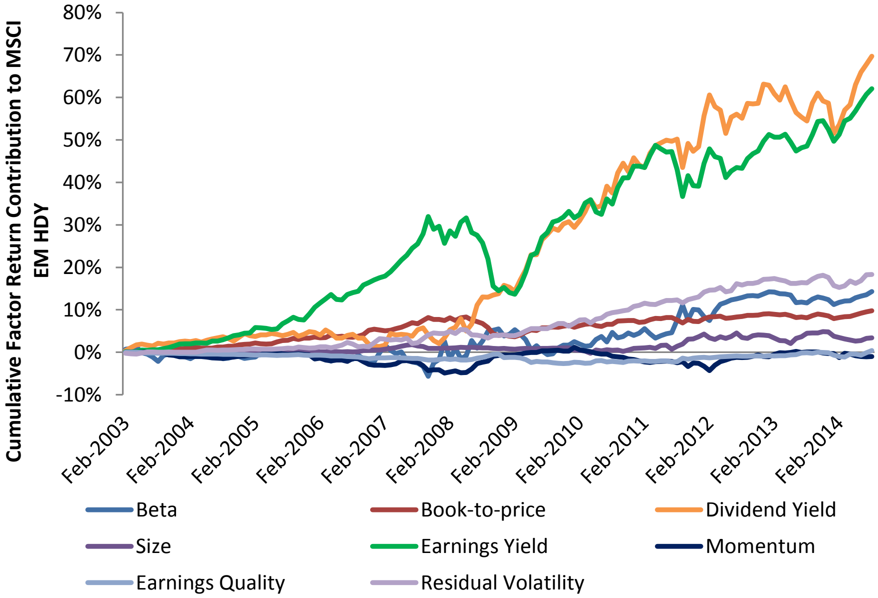
Similarly, the MSCI Minimum Volatility Index picked up a significant portion of its returns from its negative exposure to Beta, but its return also reflected a sizeable return contribution from its positive exposure to the Momentum factor. Once again, even though the exposure to the Momentum factor is small, the return contribution is significant since the Momentum factor itself has performed well during the period studied.

In general, performance for each factor index was explained to a large extent by the intended exposures of each index, and unintended factor exposures were secondary.

MSCI EM High Dividend Yield: Return Contributions and Exposures

We will take a closer look at the factors driving the performance of the MSCI EM High Dividend Yield Index, given its superior performance during the December 2002 to August 2014 period. The MSCI EM HDY Factor Index harvested both Earnings Yield and Dividend Yield factors, as can be seen in Exhibit 6. Pre-crisis, Earnings Yield performed strongly; post-crisis, both Dividend Yield and Earnings Yield were rewarded. Most of the index's positive relative performance was realized during the post-crisis period.

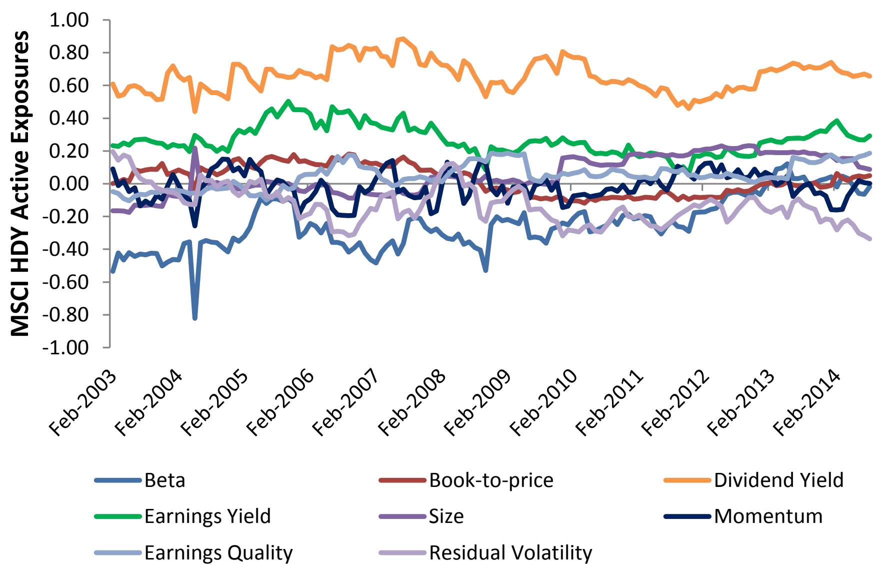
Exhibit 6: Dividend Yield and Earnings Yield Contribute Significantly to the MSCI EM HDY Index



Data from December 31, 2002 to August 29, 2014

We now analyze the exposures of the index to these factors over time. The MSCI Emerging Markets HDY Index maintained a high exposure to the Dividend Yield factor over the sample period, with a much smaller but similarly consistent exposure to the Earnings Yield factor. These exposures can be viewed in Exhibit 7.

Exhibit 7: MSCI EM HDY Index Has High Exposures to Dividend Yield and Earnings Yield

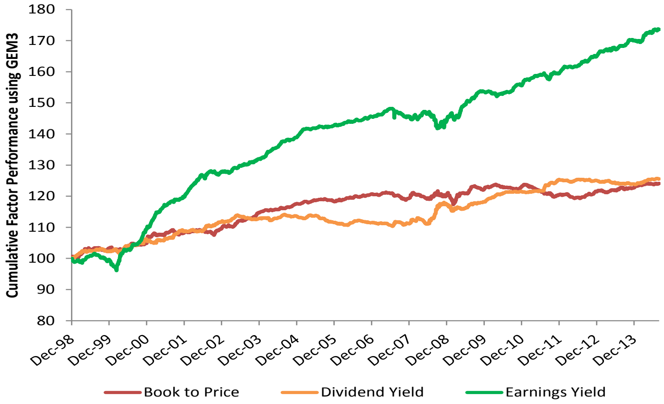


Data from December 31, 2002 to August 29, 2014

So far, we have seen that Earnings Yield is a powerful factor in emerging markets. But is it powerful in developed markets as well or is this only an emerging market phenomenon? We use our Barra Global

Equity Model (GEM3) factor model[9] to plot the global Earnings Yield factor alongside the global Dividend Yield and global Book-to-Price factors, as seen in Exhibit 8. The clear outperformance of this factor globally when compared to the other two factors indicates investor preference for earnings valuation during the period studied.

Exhibit 8: Earnings Yield is a Global Phenomenon



Data from December 31, 1998 to August 29, 2014

Dividend Investing

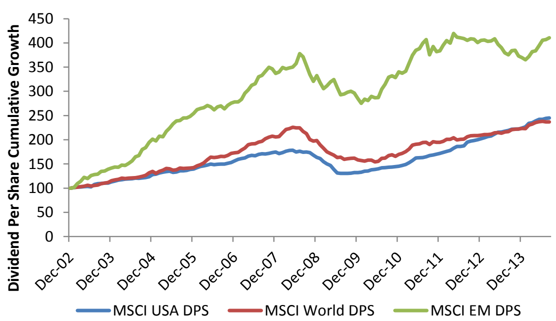
Given the strong performance of earnings yield and dividend yield in emerging markets, we turn to earnings and dividend *growth* in emerging markets to understand whether valuations alone are attractive or corporate profits (and dividend payouts) have in fact increased over time. We compare this growth to that of the rest of the world.

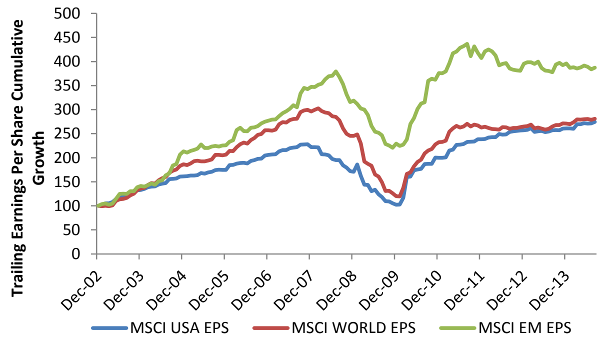
In emerging markets, both dividend per share (DPS) growth and earnings per share (EPS) growth have exceeded those exhibited by the MSCI World and USA indexes during the January 2003 to August 2014 period, as can be seen in Exhibit 9. Indeed, dividend growth in the emerging markets, on average, has been more robust than in developed markets; within developed markets, dividend growth has been more dramatic in non-U.S. markets.

These solid trends in earnings growth and income are attractive to EM investors. This trend is synchronous with the performance attribution of the MSCI EM HDY index where both Dividend Yield and Earnings Yield contributed significantly to performance post crisis.

[9] GEM3 is a global multi-factor risk model that provides a foundation for investment decision support tools via a broad range of analytics for developed, emerging and frontier markets portfolios.

Exhibit 9: Dividend and Earnings Growth





Data from December 31, 2002 to August 29, 2014

III. Which Factors Have EM Managers Harvested?

High Dividend Yield and Momentum factors have been the best performers among the MSCI EM Factor Indexes. Which factors have active emerging markets managers harvested?

Filtering the eVestment database to examine active emerging markets managers, we select those funds with at least $100 million in assets under management and returns going back to 1998 to capture varying business cycles. This filtering results in a universe of 63 funds. We equally weight the monthly return streams of the funds and run a returns-based regression against the MSCI Emerging Markets Index (representing the EM market) and the MSCI Emerging Markets Factor Indexes (representing EM factors).

The majority of the active manager returns can be explained by the market and factor exposures—primarily the Dividend and Earnings Yield premium and the Momentum premium.[10] Beta to the MSCI Emerging Markets Index explained the majority of active manager returns, as seen in Exhibit 10. In addition, the Dividend Yield and Earnings Yield factors as represented by the MSCI Emerging Markets HDY Index and the Momentum factor (as represented by the MSCI Emerging Markets Momentum Index) are significant in explaining manager returns during the December 1998 to June 2014 period. The coefficients indicate that the manager portfolios had a positive exposure to both the High Dividend Yield and Momentum factors; p-values of less than 5% confirm their significance.

[10] The adjusted R squared of the regression is 98.5%.

Exhibit 10: EM Beta, HDY and Momentum Explain Most of Active Manager Returns[11]

	Coefficients	*t-Stat*	*P-value*
Intercept	0.002	2.612	0.010
MSCI EM - RF	0.986	61.900	0.000
MSCI HDY - MSCI EM	0.094	2.295	0.023
MSCI EW - MSCI EM	(0.030)	(0.648)	0.518
MSCI Min Vol - MSCI EM	(0.023)	(0.387)	0.699
MSCI VW - MSCI EM	0.031	0.348	0.728
MSCI Mom - MSCI EM	0.069	2.312	0.022
MSCI Qual - MSCI EM	0.008	0.149	0.881

Source: Evestment

Data from December 31, 1998 to June 30, 2014

In our prior research,[12] we have demonstrated that broad-based emerging markets investing is as relevant as ever. We reach the same conclusion here.

While active managers in aggregate have been focused on the Dividend Yield, Earnings Yield and Momentum factors, there may be opportunities to capture other factor premia, such as Value, Quality, Minimum Volatility and Size (small cap). All MSCI Emerging Markets Factor Indexes have outperformed the parent index over time; they can be useful tools in helping investors and active managers manage and monitor their portfolios. They can also provide the basis for passively managed portfolios.

For those investors who would simply like to capture emerging markets beta through the broad emerging markets universe, the MSCI Emerging Markets Index is a very useful tool. For those who want to take a step further and harvest factors — particularly those which do not appear to be captured by active managers — portfolios based on individual MSCI Emerging Market Factor Indexes may provide that exposure.

IV. Combining Emerging Market Factor Indexes

Combining factor indexes historically has yielded strong diversification effects because of low correlations among the individual indexes as well as other benefits, such as lower turnover from internal crossing of trades.[13] Does combining factor indexes make sense within emerging markets too?

The MSCI Emerging Markets High Dividend Yield Index, the MSCI Emerging Markets Momentum Index and the MSCI Emerging Markets Value Weighted Index all performed well over the long term and have low correlations to each other, which can be seen in Exhibit 11.

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[11] A large t-statistic implies that the coefficient was able to be estimated with a fair amount of accuracy. If the t-stat is more than 2, one can generally conclude that the variable in question has a significant impact on the dependent variable. The smaller the p-value, the more significant are the results.

[12] Chia, Bambaci and Ho. "Built to Last." (2012). http://www.msci.com/resources/research/articles/2012/built_to_last.pdf

[13] Bender, Briand, Melas, Subramanian, Subramanian, *op cit.*
"http://www.msci.com/resources/pdfs/Deploying_Multi_Factor_Index_Allocations_in_Institutional_Portfolios.pdf

Exhibit 11: Select EM Factor Indexes Display Low Correlations

	MSCI Emerging Market HDY Index	MSCI EM Momentum Index	MSCI EM Value Weighted Index
MSCI Emerging Market HDY Index	1.00		
MSCI EM Momentum Index	0.08	1.00	
MSCI EM Value Weighted Index	0.14	-0.34	1.00

Based on monthly returns for the 05/31/1999 - 08/29/2014 period

Using the IndexMetrics tool,[14] we simulate performance of three different equally weighted multi-factor indexes, as can be seen in Exhibit 12:

- The MSCI Emerging Markets High Dividend Yield Index and the MSCI Emerging Markets Momentum Index;
- The MSCI Emerging Markets Momentum Index and the MSCI Emerging Markets Value Weighted Index; and
- The MSCI Emerging Markets HDY, the MSCI Emerging Markets Momentum and the MSCI Emerging Markets Value Weighted indexes.

Exhibit 12: Key Metrics of Factor Index Combinations

	MSCI EM Index	MSCI EM HDY/Momentum/Value-Wtd (Equal Wtd)	MSCI EM HDY/Momentum (Equal Wtd)	MSCI EM Momentum/Value-Wtd (Equal Wtd)	MSCI Emerging Market HDY Index	MSCI EM Momentum Index	MSCI EM Value Weighted Index
Total Return* (%)	10.1	13.8	14.5	12.9	15.4	13.3	12.3
Total Risk* (%)	23.1	22.5	22.3	23.6	21.0	24.5	23.7
Return/Risk	0.44	0.61	0.65	0.55	0.73	0.54	0.52
Sharpe Ratio	0.34	0.51	0.55	0.45	0.62	0.45	0.42
Active Return* (%)	0.0	3.7	4.4	2.8	5.2	3.1	2.2
Tracking Error* (%)	0.0	3.4	5.2	3.6	6.4	7.6	3.1
Information Ratio	N/A	1.08	0.85	0.78	0.82	0.41	0.72
Historical Beta	1.00	0.96	0.94	1.01	0.87	1.01	1.02
Turnover** (%)	8.4	40.8	55.5	47.1	40.9	81.9	25.0
Price to Book***	1.8	1.7	2.0	1.7	1.8	2.4	1.3
Price to Earnings***	14.0	12.5	12.7	13.9	10.3	16.6	12.0
Div. Yield*** (%)	2.5	3.2	3.3	2.5	4.7	2.0	2.9

* Gross returns annualized in USD for the 05/31/1999 to 08/29/2014 period
** Annualized one-way index turnover for the 05/31/1999 to 08/29/2014 period
*** Monthly averages for the 05/31/1999 to 08/29/2014 period

On a risk-adjusted basis, the MSCI Emerging Markets HDY Index was the best performing index from May 1999 to August 2014; none of the multi-factor indexes achieved a higher return. This result is not surprising given that each multi-factor index represents an average of multiple factors.

However, some of the combinations displayed improved active return/risk profiles. For example, the MSCI Emerging Markets Momentum Index, when combined with a defensive factor like Dividend Yield, exhibited a far low tracking error (and a smoother return stream) than the Momentum Index alone. Elsewhere, equally weighting the Emerging Markets High Dividend Yield and Momentum indexes produced an information ratio that is higher than for any of the individual factors indexes.

Similarly, exposure to the Value Weighted Index decreased the return of any of the above multi-factor indexes, but the addition of the Value Weighted Index provided the best information ratio across strategies, due to the strong negative correlation between the Value Weighted and Momentum indexes. The information ratio of the strategy combining High Dividend Yield, Momentum and Value Weighted is 1.08, which made this trio a very powerful combination — especially when compared to an equivalent

[14] Indexmetrics is an analytical framework that provides insights on performance, exposure and investability. For more details about the tool, see "Introducing MSCI IndexMetrics: An Analytical Framework for Factor Investing," (2013) http://www.msci.com/resources/pdfs/Introducing_MSCI_IndexMetrics.pdf

combination in developed markets (Appendix I). By combining these three strategies, we also achieved the lowest tracking error compared to other combinations — a key consideration given the limited active risk budgets that many institutional investors have.

Turnover of the overall strategy was substantially reduced by combining these three factor indexes in a multi-factor index versus implementation in separate mandates. The annualized one-way index turnover for the combination of the MSCI Emerging Markets HDY Index & MSCI Emerging Markets Momentum Index is 55.5%; by adding the MSCI Emerging Markets Value Weighted Index to the mix, we are able to reduce the turnover to 40.8%. This reduction in turnover directly translates into a lower cost index replication vehicle. Different levels of cost savings from internal crossing are displayed in Exhibit 13.

Exhibit 13: Natural Crossing Benefits

	MSCI Emerging Market HDY Index	MSCI EM Momentum Index	MSCI EM Value Weighted Index	Separate Mandates (A)	Combined Mandates (B)	Reduction (A) - (B)
Turnover(%)	40.89	81.93	25.01	51.94	40.78	11.15
Performance Drag in bps (at 25 bps)*	20.44	40.97	12.50	25.97	20.39	5.58
Performance Drag in bps (at 50 bps)*	40.89	81.93	25.01	51.94	40.78	11.15
Performance Drag in bps (at 75 bps)*	61.33	122.90	37.51	77.91	61.18	16.73

Annualized for the 05/31/1999 to 08/29/2014 period

Investors who have long-term horizons and may not want to be actively involved in choosing or dynamically timing factors might be interested in an equal-weighted index of all the six Factor Indexes. This approach would have offered superior risk-adjusted returns (higher information ratios) than either the parent or the individual single-Factor Indexes, as can be seen in Exhibit 14. This "balanced mix" further highlights the diversification effects that can be harvested by combining factors that have different performance cycles.

Exhibit 14: Balanced Mix

	MSCI EM Index	MSCI EM Balanced Mix	MSCI EM Momentum Index	MSCI Emerging Market HDY Index	MSCI EM Value Weighted Index	MSCI EM Minimum Volatility USD Index	MSCI EM Quality Index	MSCI EM Equal Weighted Index
Total Return* (%)	10.1	13.1	13.3	15.4	12.3	13.0	12.5	11.3
Total Risk* (%)	23.1	21.5	24.5	21.0	23.7	17.8	22.0	23.1
Return/Risk	0.44	0.61	0.54	0.73	0.52	0.73	0.57	0.49
Sharpe Ratio	0.34	0.50	0.45	0.62	0.42	0.60	0.46	0.39
Active Return* (%)	0.0	3.0	3.1	5.2	2.2	2.9	2.4	1.2
Tracking Error* (%)	0.0	3.1	7.6	6.4	3.1	7.2	4.8	5.0
Information Ratio	N/A	0.99	0.41	0.82	0.72	0.40	0.50	0.24
Historical Beta	1.00	0.92	1.01	0.87	1.02	0.75	0.93	0.98
Turnover** (%)	8.4	28.6	81.9	40.9	25.0	26.5	29.8	23.7
Price to Book***	1.8	1.8	2.4	1.8	1.3	1.9	3.0	1.4
Price to Earnings***	14.0	13.9	16.6	10.3	12.0	15.0	12.7	21.5
Div. Yield*** (%)	2.5	3.1	2.0	4.7	2.9	3.3	2.9	2.8

* Gross returns annualized in USD for the 05/31/1999 to 08/29/2014 period
** Annualized one-way index turnover for the 05/31/1999 to 08/29/2014 period
*** Monthly averages for the 05/31/1999 to 08/29/2014 period

Conclusion

Factor investing has become increasingly popular in developed markets. Historical data show that six factors identified by MSCI have provided excess returns over the cap-weighted benchmark over long time periods.

In this paper, we have shown that factor indexes have historically worked in emerging markets too. All MSCI Emerging Markets Factor Indexes outperformed the parent index over a 15-year plus period, according to our simulations; of these, the High Dividend Yield, Momentum and Value Weighted indexes have shown particularly strong performance. For investors seeking premia in addition to broad emerging market beta, factor investing through MSCI Emerging Markets Factor Indexes can be a powerful tool.

Active EM managers can also benefit from these tools. From December 1998 to June 2014, active managers in aggregate mainly harvested emerging market beta, along with Dividend and Earnings Yield and Momentum factors. In the future, active managers might also look to other factors in MSCI's full suite of Factor Indexes such as Value, Quality, Minimum Volatility and Size (small cap).

Finally, combining factors in emerging markets provides investors with valuable diversification effects by mitigating variability in returns and cutting replication costs through reduced turnover. These combinations can be used either by managers actively managing portfolios or via passively managed mixes for investors who have long time horizons and do not want to actively select or dynamically manage factor index-based portfolios.

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Appendix I

Key Metrics: MSCI World HDY-Momentum-Value Weighted (Equal Weighted Combination)

	MSCI World Index	MSCI World HDY Momentum Value Wtd (Equal Wtd)	MSCI World Momentum Index	MSCI World HDY Enhanced Index	MSCI World Value Weighted Index
Total Return* (%)	5.0	7.2	7.5	7.7	6.1
Total Risk* (%)	15.9	15.0	16.4	14.5	16.8
Return/Risk	0.31	0.48	0.45	0.53	0.36
Sharpe Ratio	0.16	0.32	0.31	0.37	0.22
Active Return* (%)	0.0	2.2	2.5	2.7	1.1
Tracking Error* (%)	0.0	3.6	8.8	6.3	3.5
Information Ratio	NaN	0.61	0.28	0.43	0.33
Historical Beta	1.00	0.91	0.88	0.83	1.03
Turnover** (%)	3.2	40.5	94.0	23.9	17.9
Price to Book***	2.2	2.2	3.0	2.3	1.7
Price to Earnings***	18.4	17.2	21.6	13.9	17.8
Div. Yield*** (%)	2.3	2.7	1.7	3.9	2.6

* Gross returns annualized in USD for the 05/31/1999 to 08/29/2014 period

** Annualized one-way index turnover for the 05/31/1999 to 08/29/2014 period

*** Monthly averages for the 05/31/1999 to 08/29/2014 period

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[1]*As of March 31, 2014, as reported on June 25, 2014, by eVestment, Lipper and Bloomberg* *October 2014*