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Growing Sector Momentum in Emerging Markets

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Introduction

The increasing importance of global sector influences on international equity returns has been well documented. As markets have become increasingly integrated, investors have become more focused on investment opportunities that arise from mispricing among global sectors as opposed to mispricing among markets. By and large, the research into sector influences has been concentrated on developed markets. Over time, however, it is plausible that global sector influences will also provide important investment opportunities in the emerging markets.

This note examines the importance of global sectors in emerging markets, focusing specifically on a strategy that has performed quite well in the developed markets, investing on the basis of global sector momentum. Overall the results are very encouraging. Although global sector momentum is currently less effective for forecasting stock returns in the emerging markets than in the developed markets, sector momentum strategies in the emerging markets still appear to add value. Furthermore, the usefulness of global sector momentum for forecasting emerging market stock returns is increasing. Part of the recent success of global sector momentum strategies in emerging markets can be attributed to the technology-media-telecom (TMT) bubble. Even so, the increased effectiveness of global sector momentum for forecasting returns in the emerging markets is evident across a wide range of sectors from the "old economy" as well as the new economy. We believe that the increased effectiveness of global sector momentum is part of a broader trend toward global integration, a trend that naturally pervades the emerging markets later than the developed markets.

The Traditional View

Events such as the Asia crisis of 1997-1998 regularly remind investors of the importance that regional risks play in emerging equity markets. Exposure to political risk, devaluation risk, and corruption risk, while present to some degree in the developed markets, are much more pronounced in the emerging markets. For this reason, managers have traditionally taken the view that top down macroeconomic influences are relatively more important than global sector influences for determining emerging market stock returns.

What Do We Mean By Global Sector Momentum?

Momentum investing is based on the idea that stocks which have performed well over some interval in the past will tend to perform well in the future. The tendency for individual stocks to outperform after periods of past outperformance has been well documented in several market settings. In general, the effect seems highly pronounced when momentum is measured over a period of several months to a few years.

To understand why momentum investing should prove effective, it is useful to think of momentum as the counterpart to another market inefficiency, namely value. A behavioral explanation for why value investing works over long periods is that investors pay excessively for companies that have exhibited signs of "success", such as high long term profit growth, or high long term price growth. This overpayment for success often takes the form of high valuation ratios. Value investing works because investors overestimate the extent to which past success can be extrapolated into future success,

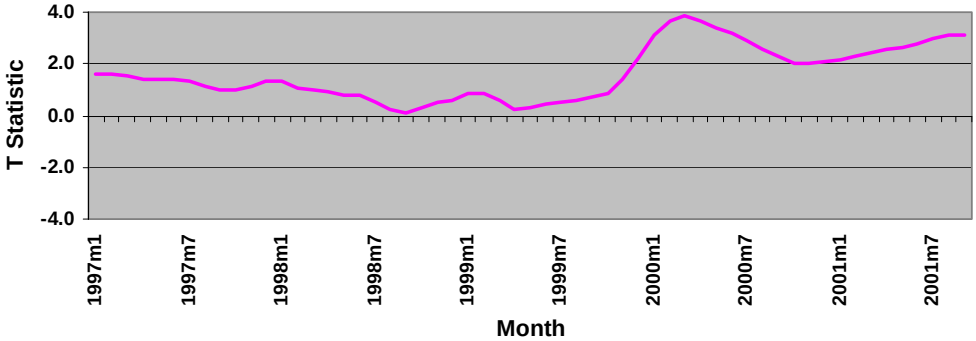
leading to an eventual price correction. The counterpart to this story is that, over some period, investors continue to bid up prices of firms which display past success, thus leading to the pattern of momentum.

The same concept which applies for individual stocks applies for aggregate groups of stocks. Global sector momentum is based on the idea that global sectors which have performed well over some interval in the past will tend to perform well in the future. To the extent that investors evaluate securities on a top down basis, we expect them to make behavioral mistakes when valuing groups of stocks similar to those made when valuing individual stocks. In the case of the emerging markets, the concept of global sector momentum has an additional wrinkle. Because the emerging markets comprise a small fraction of any global sector's market capitalization, the success of a global sector momentum strategy in the emerging markets presumes that price performance in the developed markets spills over into similar sectors of the emerging markets. Since the emerging markets are often considered to be "downstream" of information that first influences the developed markets, the presence of such a spillover effect seems very plausible.

The Evidence

How strong is the predictive power of sector momentum effect in the emerging markets? Figure 1 plots the statistical significance of 12 month sector momentum in explaining relative emerging markets returns. Here we measure sector momentum by the average monthly return over the prior 12 months of a capitalization weighted sector index. The sector index is produced from Datastream index data, using information from 38 countries and 10 industrial sectors. The returns used to construct the momentum indicator are measured in local currency to distinguish equity momentum from currency momentum. Underlying this graph is a regression model generating historically a sequence of optimal weights for global sector momentum, as produced by Arrowstreet's emerging markets equity model. The model generates factor weights for a range of predictive factors pertaining to value, momentum, and earnings growth. The regression model relates relative returns among 140 emerging market country/sector baskets to these factors. The model is estimated over the period December 1989 to the month indicated on the graph, and the contribution of sector momentum is measured by its T-statistic in the regression. The graph shows the significance of global sector momentum, as we roll through time, starting in January 1997.

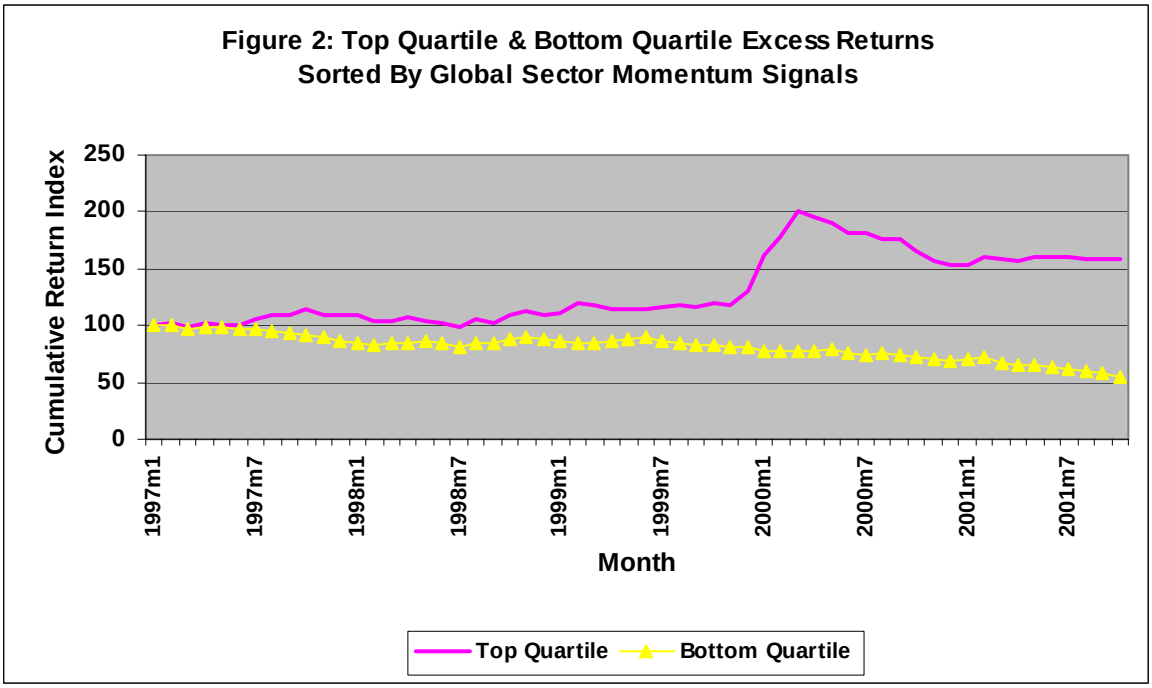
Figure 1: Significance of 12 Month Sector Momentum in Forecasting Relative EMK Equity Returns



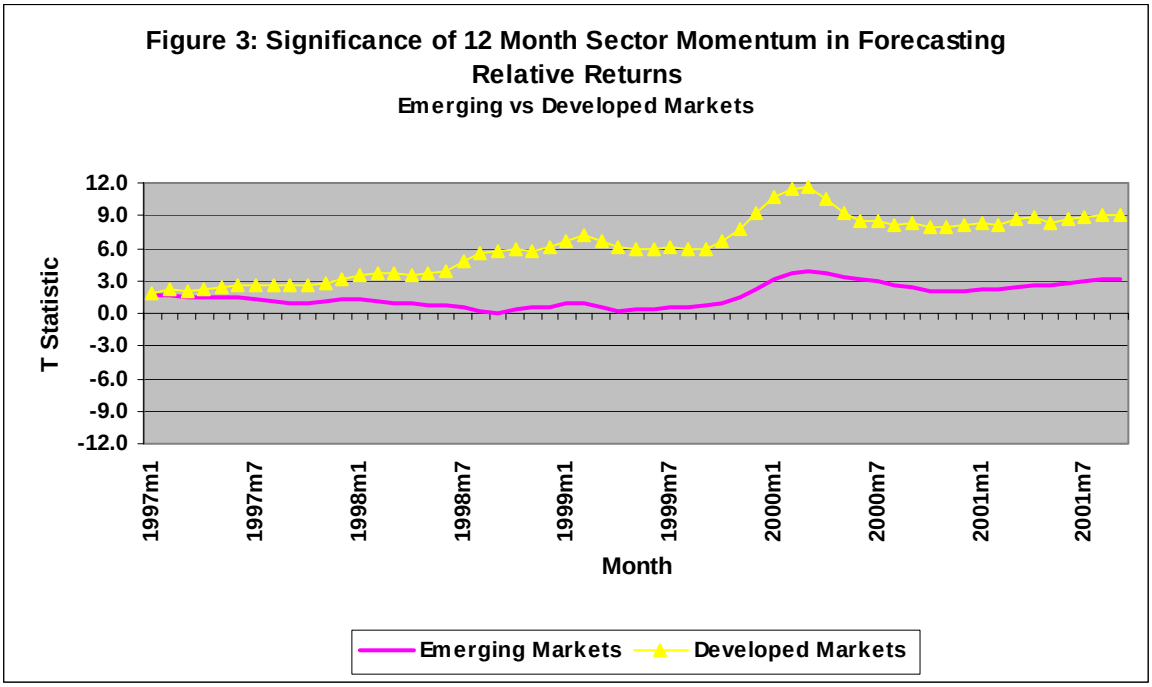
Although the model has always found a positive relationship between global sector momentum and relative emerging market equity returns, the factor adds little to the model prior to the middle of 1999. It is interesting to note that during late1997 and 1998, the height of the Asia crisis, there is a noticeable decline in the significance of sector momentum. This is a period in which sector influences are overshadowed by regional ones. By mid 1999, however, we witness a strong increase in the factor's forecast power. Sector momentum begins to wane as the tech bubble begins to burst in early 2000, but the upward trend resumes in 2001.

Another way to see the increased importance of sector momentum in emerging markets is to examine quartile return spreads. Figure 2 is based on the returns from the same sample of 140 country/sector baskets used to generate Figure 1. Instead of using a regression model, Figure 2 simply ranks the baskets according to the prior twelve month average monthly return of the global sector to which the basket belongs. For example, the rank of Mexican resource stocks is determined by the prior 12 month return of global resource stocks relative to other global sectors. The top line shows the cumulative excess return index of the average basket in the top quartile minus the average basket in the middle two quartiles. The bottom line shows the cumulative excess return index of the average basket in the bottom quartile minus the average basket in the middle two quartiles.

Figure 2 shows a pattern much like that of Figure 1. In particular, we see little advantage to holding sectors with past return momentum early in the sample. In early 1999, the return spread begins to pick up, with a sudden spike during the height of the tech bubble. As the tech bubble begins to burst, the return spread narrows, but it widens again during 2001.



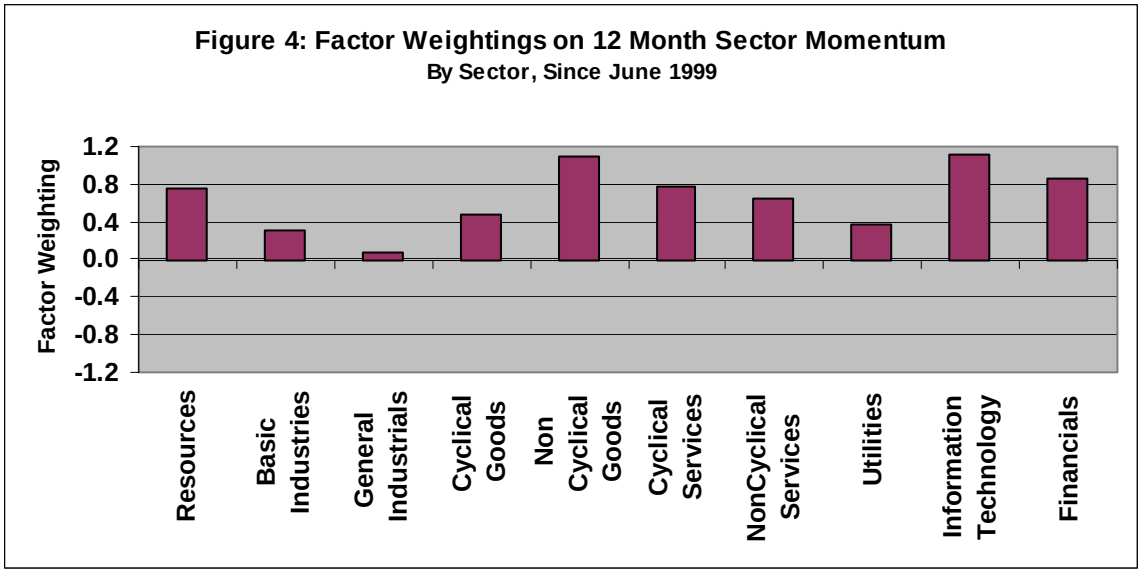
How does the experience of the emerging markets compare with that of the developed markets? In the developed markets, sector influences are more pronounced and they appear earlier in the data. This can be seen in Figure 3, where we repeat the line graph from Figure 1, and overlay the same graph taken from the developed markets. Here the yellow line represents the level of statistical significance (T-Statistic) on the 12 month global sector momentum term in a model of relative returns on developed market equities, estimated over the same time interval as the emerging markets model. Sector influences appear in a pronounced way in the developed markets by early 1998.



Is It All Due To Tech Stocks?

An increased role of sector influences can be rationalized as the result of greater integration across markets by investors who have an increasingly global outlook. According to this view, the increased importance of sector momentum is a secular trend that will continue. An opposing view sees the sector momentum phenomenon as the result of an isolated event, the TMT bubble. Since we find that the effectiveness of sector momentum reaches its height during the bubble, this opposing view should give one pause. Anecdotally, recall that some of the best performing emerging market countries in 1999 were Asian countries with relatively large concentration of computer related shares, such as Taiwan and India.

To examine the role of information technology, we re-estimate the emerging market return model, beginning in the middle of 1999, and allowing for the factor weight on global sector momentum to differ across each of the 10 sectors. If the effect arises entirely from TMT stocks, we would expect to find the weightings on the other stocks to fluctuate randomly around zero. The results, shown in Figure 4, do suggest that momentum effects are strongest for the high tech sector. However, the effects are positive for all sectors.



How to Proceed: Cautiously

Since market integration is a process that evolves over time, it makes sense to focus on recent history when trying to measure the impact of global sector influences. From this perspective, a sensible way to incorporate sector momentum into an emerging markets strategy might be to ignore data from before 1999, when global sector influences first begin to appear. This approach would give sector momentum even greater weight than we see in Figure 1.

On the other hand, the non-recurring nature of the TMT bubble suggests that placing too much weight on the recent data could be hazardous. One cautious compromise is to estimate factor weights from data that extend back in time before 1999, recognizing that doing so will naturally downweight the importance of global sectors. This approach balances two kinds of risk. It runs the risk of underestimating some sector opportunities that may arise, but it also mitigates the risk of over-reacting to a phenomenon that may not be repeated in the future with the same magnitude that we saw during the past three years.

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[i] For references on the increased role of sectors see: Baca, Garbe, and Weiss (2000), Cavaglia, Brightman, and Aked (2000), Rouwenhoorst (1998b), and Urias (1997).

[ii] Along the same lines, Morck, Yeung, and Yu (2000) find that local market factors, as opposed to global factors, explain a larger share of the return variation for emerging markets than for developed markets.

[iii] See Jegadeesh and Titman (1993), Rouwenhoorst (1998a) and Chan, Hameed, and Tong (2000) for examples of empirical studies on momentum investing.

[iv] A country sector basket is a cap weighted portfolio that includes all stocks which are located in the same country market and belong to the same industrial sector. These serve as the basis for Arrowstreet's emerging markets forecast model.

[v] The T-Statistic is the ratio of the estimated factor weight to its estimated standard error. This statistic provides an indicator of statistical significance, since it compares the magnitude of the factor weight to the degree of imprecision with which the factor weight is estimated. A common threshold for measuring statistical significance is a T-value of 1.96.

[vi] Returns are standardized by the historic volatility of the sector's excess return for ease of comparison. Note also that sector returns are the same for all baskets in the same sector. When ranking, we ensure that all baskets in the same sector are assigned to the same quartile.

[vii] Because these results are based on returns in *excess* of a cap weighted emerging markets benchmark, it is conceivable that the appearance of sector momentum in the non tech sectors is due entirely to the impact of technology on the cap weighted emerging markets index. To see how sensitive the results are, we reran these results dropping technology from the emerging markets index all together. We still find positive effects for sector momentum in all sectors.

[viii] The results displayed in Figure 1 use data back to 1989 for purposes of estimating factor weights.