

Parametric has long asserted that the country allocation decision in emerging-market portfolios is the primary driver of returns. We've also differentiated this from the case of investing in developed international markets, where correlations between developed countries are generally higher than those between emerging-market countries, making sector and style decisions more meaningful. These assertions are based on several publications found in academic literature, as well as Parametric's own research. In this paper, we examine the contributions of various factors to the cross-sectional volatility (CSV) of stock returns in an index. Our aim is to show that allocation among countries continues to be the primary source of return in emerging markets.

## Key takeaways

- » We can think of CSV as the dispersion of stock returns within an index, showing how varied such returns can be among an index's constituents.
- » Over the first 15 years of the time period analyzed, style and industry factors each experienced periods of being the most material contributor to dispersion among stock returns in the developed markets, with different periods showing the dominance of one over the other.
- » Countries have been, by far, the most significant contributors to CSV in emerging markets and have consistently remained the primary source of dispersion of stock-level returns.
- » This indicates that an investment process in the emerging markets that focuses on actively reweighting countries should have a high level of potential excess returns versus the index.



## What is cross-sectional volatility (CSV)?

We can think of CSV as the dispersion of stock returns within an index, showing how varied such returns can be among an index's constituents. The decomposition of an index's CSV gives insight into the major factors that cause stock returns within an index to differ from one another, as well as the relative magnitude of these factors. It also has the theoretical advantage of allowing us to compare country, industry, and style factors on a common basis and then provide a time series for how these factors' contributions have changed over time. A number of academics have documented the task of decomposing the sources of CSV, notably Parametric research director Vassilii Nemtchinov in "The Relative Importance of Countries and Industries in Emerging Markets," available upon request.

CSV is important because it indicates which part of an investment process we can expect to produce the most differentiated result. That is, if CSV for an index is driven primarily by countries and very little by industry sectors, an investment process that focuses on actively weighting industry sectors while leaving country-level exposures unchanged should be expected to generate very index-like return patterns. Conversely, a process that focuses on actively weighting countries but leaves industry sector exposures intact should result in a return pattern with the potential to be very different from the index.

In the following discussion, we provide a historical decomposition of CSV for the developed and emerging markets, as represented by the MSCI EAFE IMI and Emerging Markets IMI indexes. Note that we use IMI versions of the two MSCI indexes, which also include small-cap securities, in order to increase the opportunity set and uncover broader sources of CSV within developed and emerging markets. The resulting analysis finds evidence that country allocation is dominant in its contribution to CSV in emerging markets, while the impact of country allocation is less pronounced for developed markets, instead producing a similar impact as industry and style.

# Decomposition of CSV for developed and emerging markets

We can break an index's CSV into the contributions arising from various risk factors, as measured by an underlying risk model. In figure 1 we use the Barra Global Equity Model to generate a decomposition of CSV into three groupings: country (including currency), industry, and style (size, value, etc.). Estimates are based on the Barra Global Equity Model, which dates back to 1997 and includes 55 country factors, 34 industry factors, eight style factors, and 55 currency factors. In this way we can measure the impact of each of these three factors to explain dispersion among stock-level returns.

We start by examining the decomposition of CSV for the MSCI EAFE IMI Index as a proxy for the investable universe in the international developed markets. In figure 1 we show the decomposition of this index's CSV over the past 24 years.



FIGURE 1: CONTRIBUTIONS OF RISK FACTORS TO CSV IN THE MSCI EAFE IMI INDEX, 1997-2021

Source: MSCI Barra, 12/31/2021. For illustrative purposes only. Not a recommendation to buy or sell any security. It is not possible to invest directly in an index.

Figure 1 shows that over the first 15 years, style and industry factors each experienced periods of being the most material contributor to dispersion among stock returns in the developed markets, with different periods showing the dominance of one over the other. Given this, it would appear that an investment process that had emphasized both styles and industries would have had larger expected excess returns than one that relied only on countries. It appears in more recent years that there's no single dominant factor, with styles, industries, and countries showing a roughly equal contribution to CSV. We now turn to providing a similar decomposition for the emerging markets. Figure 2 shows a dramatically different dynamic for this asset class compared with the developed markets.

We can draw several conclusions from figure 2. Countries have been, by far, the most significant contributors to CSV in emerging markets and have consistently remained the primary source of dispersion of stock-level returns. In fact, countries have accounted for more than 50% of the CSV over 70% of the time in the emerging markets. Industries are a distant second, contributing roughly half the level of dispersion as countries. Styles, which have represented a growing portion of CSV since 2017, remain the smallest contributing source of dispersion among stock-level returns.

It's clear that figures 1 and 2 represent very different market dynamics. In developed markets, we observe that countries, styles, and industries are in a three-way tie for explaining stock-level return dispersion. In contrast, countries are indisputably the primary CSV driver for emerging markets. One explanation for this is that emerging-market countries, unlike their developed counterparts, are still largely segmented from global capital markets. Furthermore,

in sharp contrast to many developed-market countries, most emerging-market countries have historically experienced higher levels of political risk; varying levels of inflation, market regulations, corporate governance, and credit risk; and different demographic profiles. These characteristics are related to the country itself, as opposed to the industry, and they carry greater weight on return differentials in emerging markets than in developed markets. This indicates that an investment process in the emerging markets that focuses on actively reweighting countries should have a high level of potential excess returns versus the index, as opposed to an emerging-markets investment process that focuses on styles (such as size and value) or industry sectors.

### Conclusion

The results above confirm that allocation among countries continues to be the primary source of returns in emerging markets, as measured by contribution to CSV. This has been true historically, and it appears to be relatively stable over time, remaining at a consistently high level over the past 20 years. Styles and industries both appear to be less important in explaining CSV in emerging markets. Our results also indicate the contrasting situation in the developed markets, namely that country, industry, and style are roughly commensurate, with each having periods of dominating total CSV but none showing a persistent advantage in explaining differences in stock-level returns. We conclude that much of the value from an active investment process in emerging markets comes from its country-weighting process and much less from how it weights industry or style.



FIGURE 2: CONTRIBUTIONS OF RISK FACTORS TO CSV IN THE MSCI EM IMI INDEX, 1997-2021

Source: MSCI Barra, 12/31/2021. For illustrative purposes only. Not a recommendation to buy or sell any security. It is not possible to invest directly in an index.

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