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RESEARCH INSIGHT

Revisiting Global Small Caps

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Summary

The small cap as a source of equity risk premia has been well documented in finance literature. The Fama and French study concluded that three empirically determined variables, i.e., market, size, and value, did a good job of explaining the bulk of the cross-sectional average return of the NYSE, AMEX, and NASDAQ equity exchanges between 1963 -1990[1]. Subsequent studies extended to other equity markets found a similar conclusion.

While small-cap stocks have earned higher returns than large-cap stocks, they also carry a higher risk of market fluctuations[2]. The trend of small-cap outperformance reversed during the 1990s, when the performance of large-cap stocks dominated small-cap performance. The outperformance of small-cap stocks over large-cap stocks returned after the bursting of the technology bubble in early 2000. During the global financial crisis of 2007-2008, while small-cap stocks suffered more than large-cap stocks, they also rebounded faster.

Although small-cap stocks are often perceived as risky relative to their large-cap counterparts, they have other characteristics that may provide an opportunity for portfolio diversification and return enhancement. In particular, moving beyond the universe of large- and mid-cap stocks into the small-cap segment triples the opportunity set in terms of number of stocks available for investors. Also, there have been pronounced performance disparities between the large- and mid-cap segments and small-cap segments of equity markets. This has motivated institutional investors to seek broader exposure and to make strategic portfolio allocations to small-cap stocks, which is evident from the growth in initial funding to small cap mandates[3].

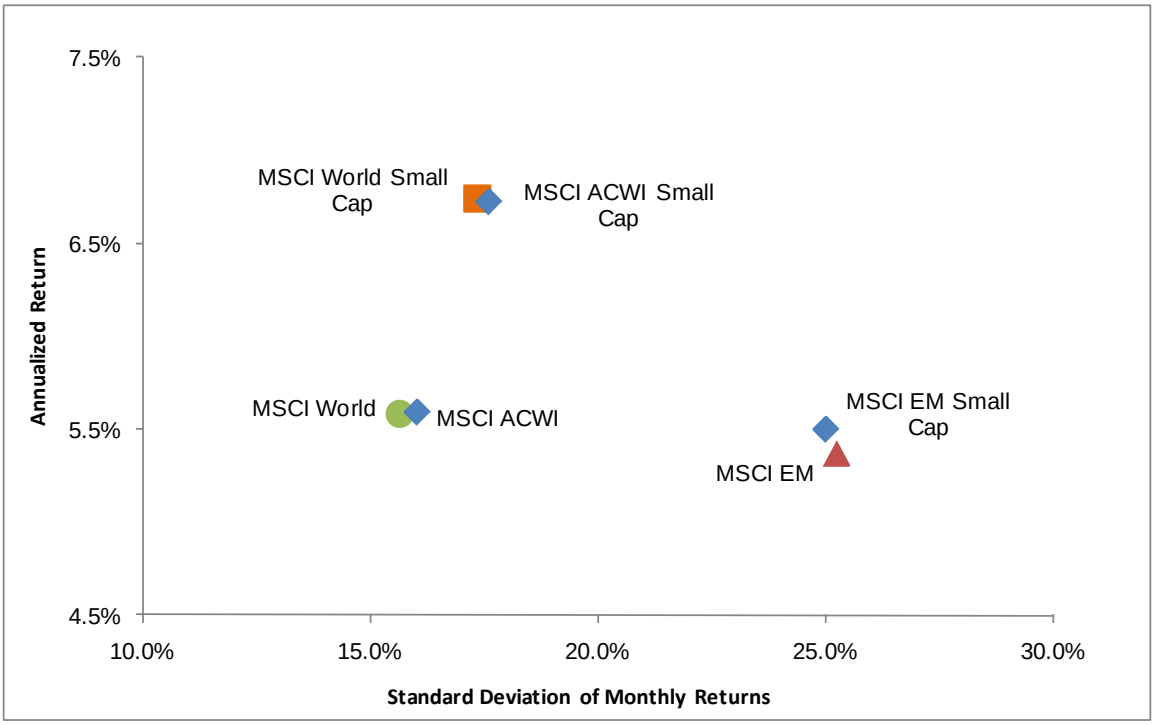
The paper is structured as follows: Section 1 presents the characteristics of global, small-cap stocks relative to large- and mid-cap stocks. Section 2 reviews global small-cap stocks for portfolio diversification and return enhancement. Section 3 examines different investment processes to capture the small-cap premium by comparing active versus passive strategies. Section 4 concludes.

[1] Fama and French (1992)
[2] Stocks, Bonds, Bills and Inflation 1926 – 2009, Ibbotson Associates. Dimson, Elroy and Paul Marsh and Mike Staunton. Triumph of the Optimists. Princeton, N.J.: Princeton University Press, 2002
[3] InterSec, US Tax-Exempt Cross Border Initial Funding, 2009 Year-End Industry Overview

1. Global Small Cap Characteristics

The existence of the small-cap premium is well documented[4]. Exhibit 1 shows the long-term outperformance of small-cap stocks relative to large- and mid-cap stocks from May 1994 to May 2010, albeit with higher volatility. During the same period, the magnitude of the small-cap risk premium was greater for developed market stocks than emerging market stocks.

Exhibit 1: Risk-Return Profile (May 31, 1994 – May 31, 2010)



[4] Banz (1981), Reinganum (1981), and Fama and French (1992)

Exhibit 2 depicts the relative performance of small-cap (proxied by the MSCI ACWI Small Cap Index) versus the large- and mid-cap stocks (proxied by the MSCI ACWI Standard Index). During the period from 1994 to 1999, the large- and mid-cap outperformed the small-cap stocks. This trend reversed in 1999, when small-cap stocks started to outperform the large- and mid-cap stocks until 2007. Again, the small-cap outperformance reversed from 2007 to 2008, when small-cap severely underperformed the large- and mid-cap stocks as the global markets were engulfed with the financial crisis. While small-cap stocks suffered more than large-cap stocks, they also rebounded much faster after the crisis. From late 2008, with the easing of the financial crisis, global small-cap stocks started to rebound and outperformed global large- and mid-cap stocks.

Exhibit 2: Performance of Global Small-Cap Stocks Relative to Global Large- and Mid-Cap Stocks (May 1994 – May 2010)

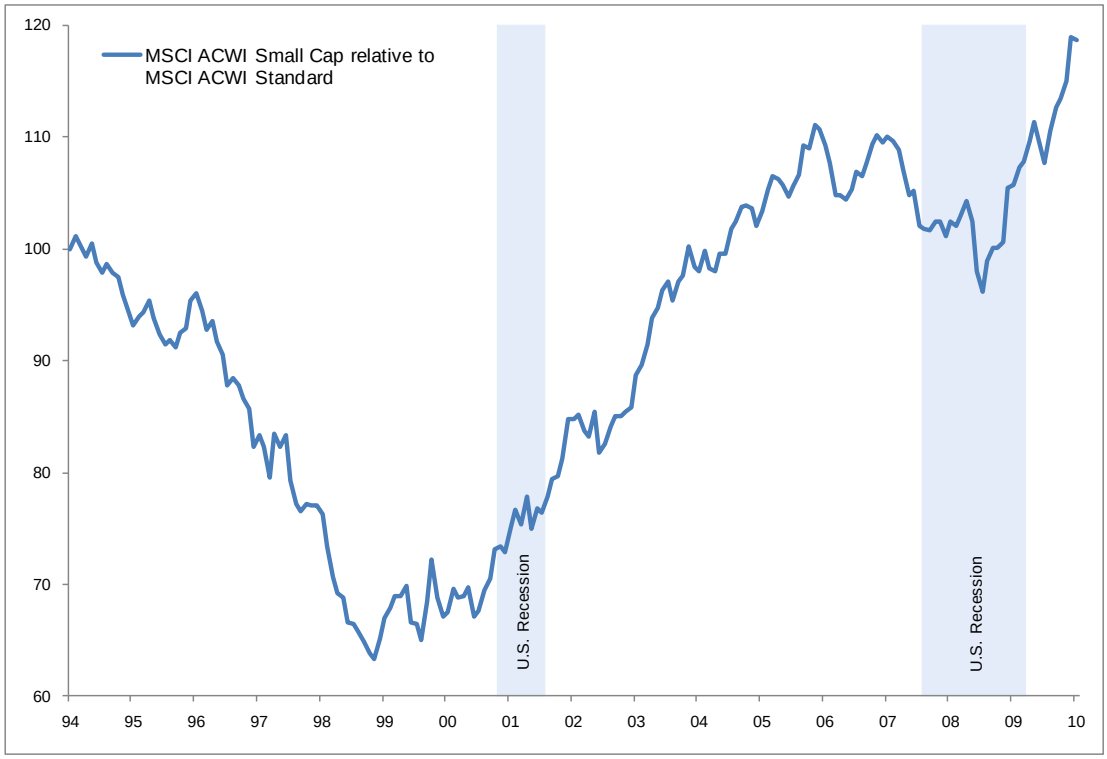


Exhibit 3 shows the riskiness of global small-cap versus large- and mid-cap stocks as measured by the standard deviation of monthly returns. Interestingly, during the run-up to the technology bubble in the late 1990s, small-cap stocks had risk comparable with large- and mid-cap stocks. However, the volatility of small caps has generally been higher than large- and mid-cap stocks over the last 10 years. To gain insight into this increased volatility, we use the Barra Global Equity Model (GEM2) to analyze the sources of risk from March 1997 to May 2010.

Exhibit 3: Rolling Annualized Standard Deviation of 3-year Monthly Returns for Global Small-Cap Stocks versus Large- and Mid-Cap Stocks (May 1997 – May 2010)

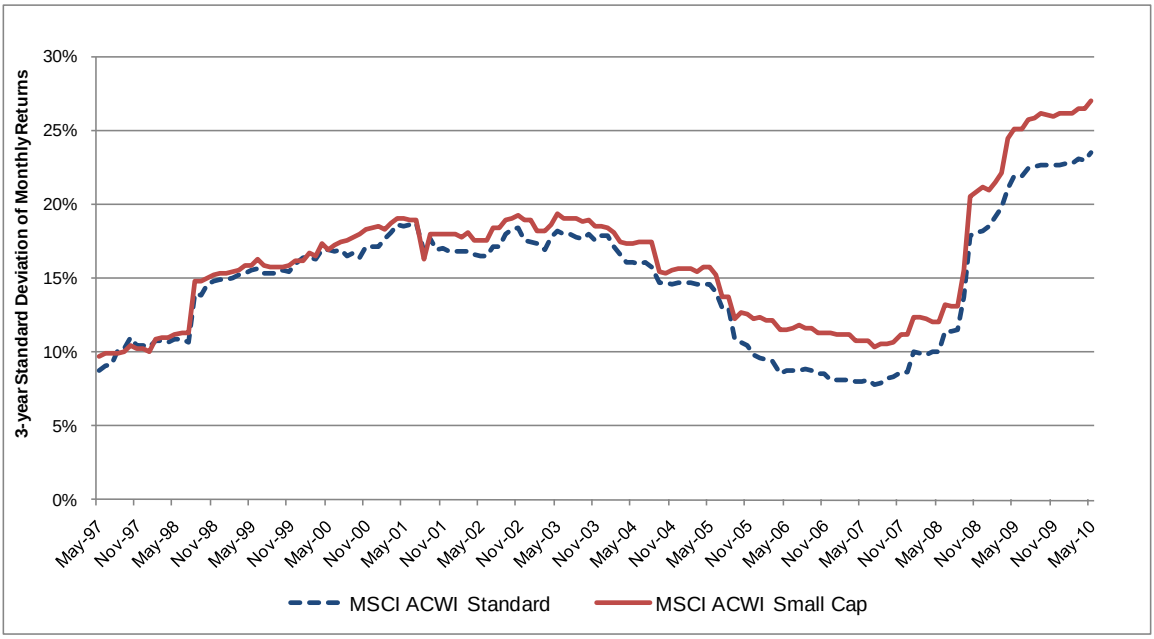


Exhibit 4 summarizes the active risk of the MSCI ACWI Small Cap Index relative to the MSCI ACWI Standard Index using the Barra Global Equity Model (GEM2). Most of the source of active risk for the small-cap index comes from and within the Risk Index (style factors). The Size factor was the largest contributor to risk. When we break down the sources of risk into two sub-periods (March 1997 to May 2001, and May 2001 to May 2010), the contribution from the Size factor declined for the period from May 2001 to May 2010, but the risk contribution from the Volatility factor increased.

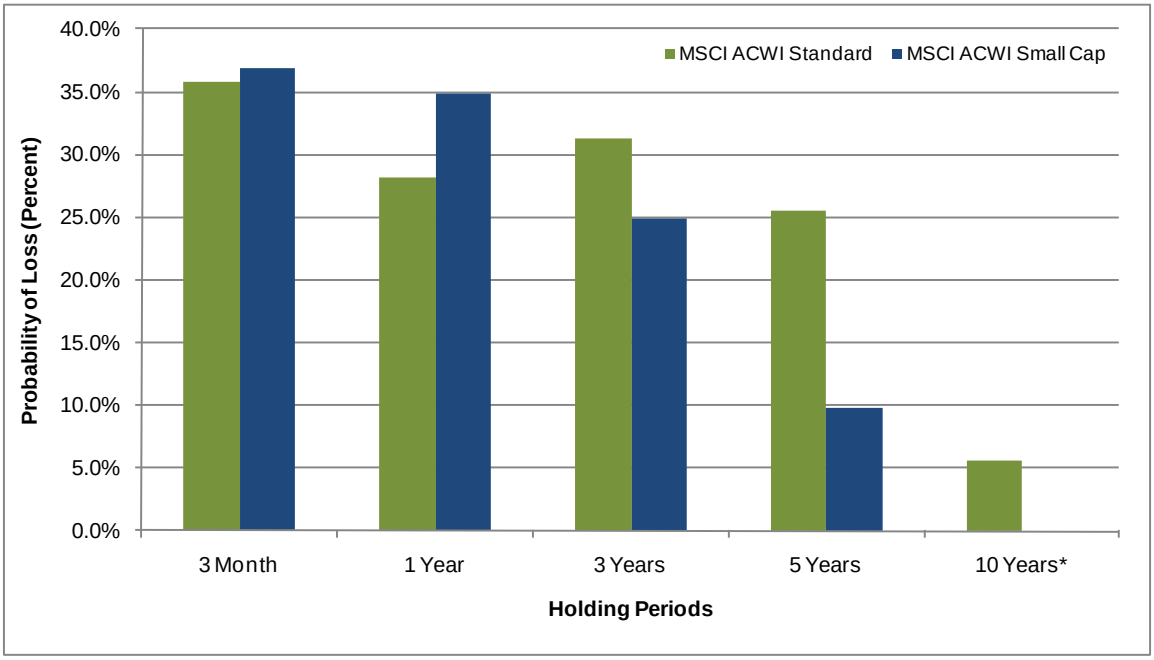
Exhibit 4: Annualized Risk Comparison (March 31, 1997 – May 31, 2010)

Risk Decomposition	March 1997 to May 2010	March 1997 to May 2001	May 2001 to May 2010
Portfolio Risk (MSCI ACWI Small Cap)	18.9%	16.6%	19.6%
Benchmark Risk (MSCI ACWI Standard)	17.1%	16.4%	17.3%
Active Risk (Tracking Error)	7.0%	8.4%	5.8%
Active Equity	6.9%	8.3%	5.8%
Active Risk Index	6.3%	7.7%	5.4%
Size	6.2%	7.9%	5.0%
Volatility	2.0%	1.0%	2.2%
Momentum	1.2%	1.5%	1.0%
Active Industries	1.4%	1.6%	1.2%
Active Countries	1.0%	1.3%	0.8%
Active Asset Selection	1.5%	1.8%	1.3%

Note: Annualized risk forecasts are based on the Barra Global Equity Model (GEM2)

Another way to assess the risk of global small-cap stocks relative to global large- and mid-cap stocks is to look at the probability of loss over varying investment horizons. Exhibit 5 shows the probability of loss over different investment holding periods (e.g., three months, one year, and three years). The probability of loss is the number of rolling holding periods with a loss divided by the total number of observed periods between May 1994 and May 2010. With an increase in the length of the investment holding period, the probability of loss declines for both global small-cap and large- and mid-cap stocks, but the decline is larger for small caps than for large caps and mid caps. Some practitioners have attributed this effect to the length of business cycles, which might explain why asset returns are less volatile over longer holding periods[5].

Exhibit 5: Probability of Loss per Holding Period for Global Small-Cap Stocks versus Large- and Mid-Cap Stocks (May 1994 – May 2010)



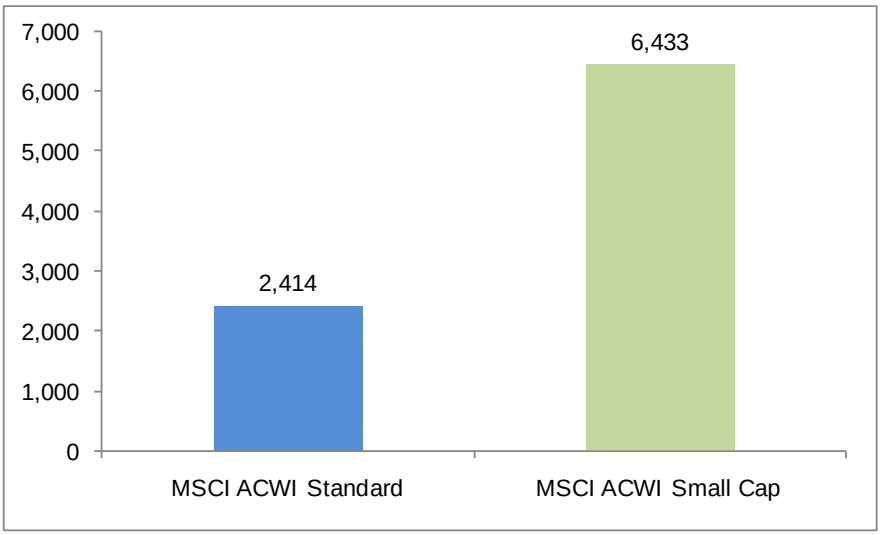
** The probability of loss for the MSCI ACWI Small Cap Index during May 1994 to May 2010 was 0%.*

[5] Satya Dev Pradhuman (2003)

2. Small Cap vs. Large Cap and Mid Cap: Opportunity for Portfolio Diversification and Return Enhancement

Moving beyond the universe of global large- and mid-cap stocks into the global small-cap segment nearly triples the opportunity set for investors (Exhibit 6). Also, the small-cap segment has characteristics that are quite different from the large- and mid-cap segment of the market, which may provide diversification benefits and an opportunity to enhance performance.

Exhibit 6: Universe of Global Small-Cap Stocks versus Large- and Mid-Cap Stocks (May 2010)



Global small-cap stocks exhibit a regional country and sector weight profile different from large- and mid-cap stocks, giving a potential opportunity for portfolio diversification. Exhibit 7 shows the regional weight differences between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index. The MSCI ACWI Small Cap Index is overweight in North American securities and underweight in European stocks.

Exhibit 7: Regional Weight Difference between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index

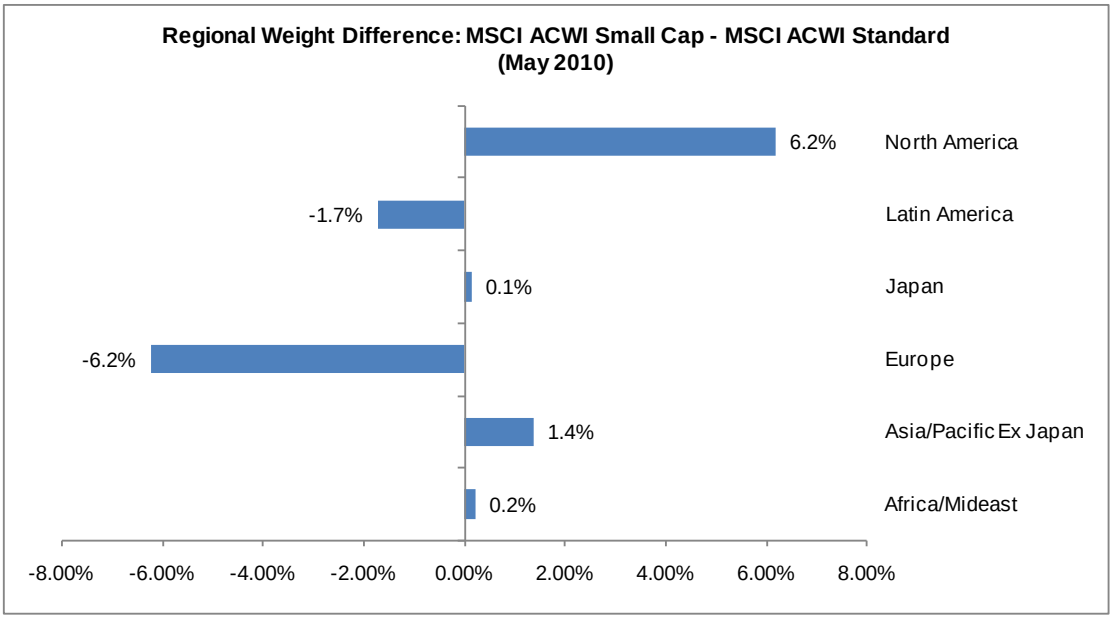


Exhibit 8 shows the top ten country-level weight differences (over- and underweights) between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index. Not surprisingly, the more concentrated and top-heavy markets are underweight in the small-cap index, whereas the US, which is more granular and with a larger small-cap segment, is overweight in the small-cap index.

Exhibit 8: Top 10 Countries with Overweights and Underweights in the MSCI ACWI Small Cap Index relative to the MSCI ACWI Standard Index (May 31, 2010)

Country	Overweight	Country	Underweight
United States	6.4%	France	-2.3%
Taiwan	1.0%	Switzerland	-1.6%
Norway	0.5%	United Kingdom	-1.3%
India	0.5%	Brazil	-1.2%
Austria	0.3%	Germany	-1.1%
Ireland	0.3%	Spain	-0.8%
Denmark	0.2%	Russia	-0.6%
Greece	0.2%	Netherlands	-0.3%
Singapore	0.2%	Australia	-0.3%
Belgium	0.2%	Mexico	-0.3%

One important implication of the underlying country weight differences is the opportunity to take country- or regional-level bets using the global small-cap indices. This aspect can be seen from the country / regional performance differences between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index (Exhibit 9). During the period from May 1994 to May 2010, some countries and regions, like the US and Pacific ex Japan, showed a positive small-cap premium, whereas others, like Canada and EM Europe, had small-cap underperformance relative to the large- and mid-cap segment.

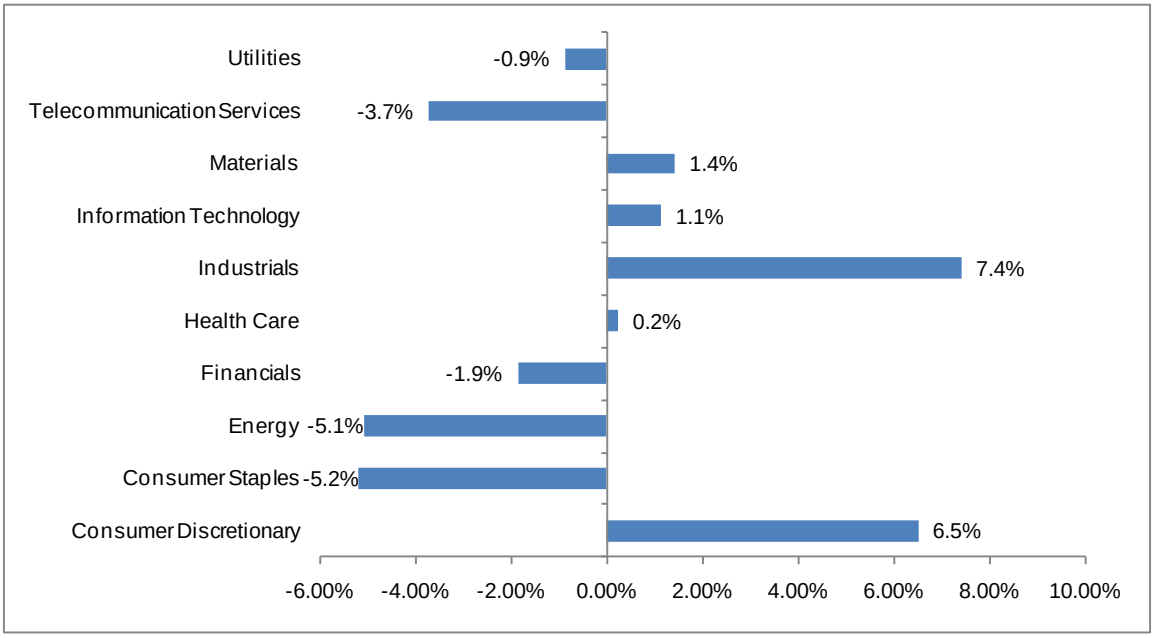
Exhibit 9: Country/ Regional Performance Difference between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index (May 1994 – May 2010)

Country/ Region	Small - Standard
USA	2.38%
Pacific ex Japan	0.60%
Europe	-0.02%
Japan	-0.64%
Canada	-1.29%
EM Latin America	0.16%
EM Asia	-1.03%
EM Europe	-2.26%

Note: The performance differences for EM Latin America and EM Europe are for the period 1996 to 2010.

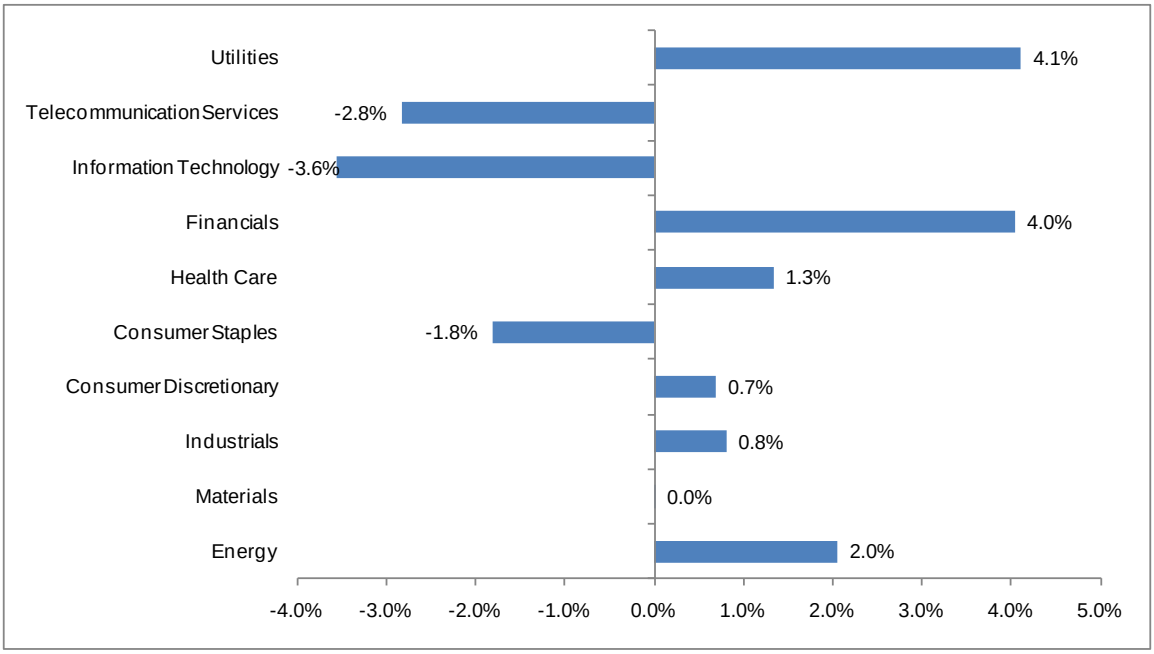
Exhibit 10 shows the sector weight differences between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index. The MSCI ACWI Small Cap Index is overweight in the Industrials and Consumer Discretionary sectors, which are more oriented toward domestic demand, and underweight in Consumer Staples, Energy, and Telecommunication Services. In general, the Energy and Telecommunication Services sectors are dominated by larger companies, due to the capital-intensive nature of their businesses and the need to achieve economies of scale in their operations. Similarly, the Consumer Staples sector has large enterprises that cater to markets across the globe. Again, these sector-weight differences can provide investors with the opportunity to diversify their portfolios further and to take sector-level bets.

Exhibit 10: Sector Weight Differences between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index (May 2010)



These opportunities are illustrated in Exhibit 11, which shows the sector-level performance differentials between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index from May 1994 to May 2010. During this period, some of the small-cap sectors that were underweight compared to the large- and mid-cap sectors (Energy, Financials, and Utilities) showed relative outperformance.

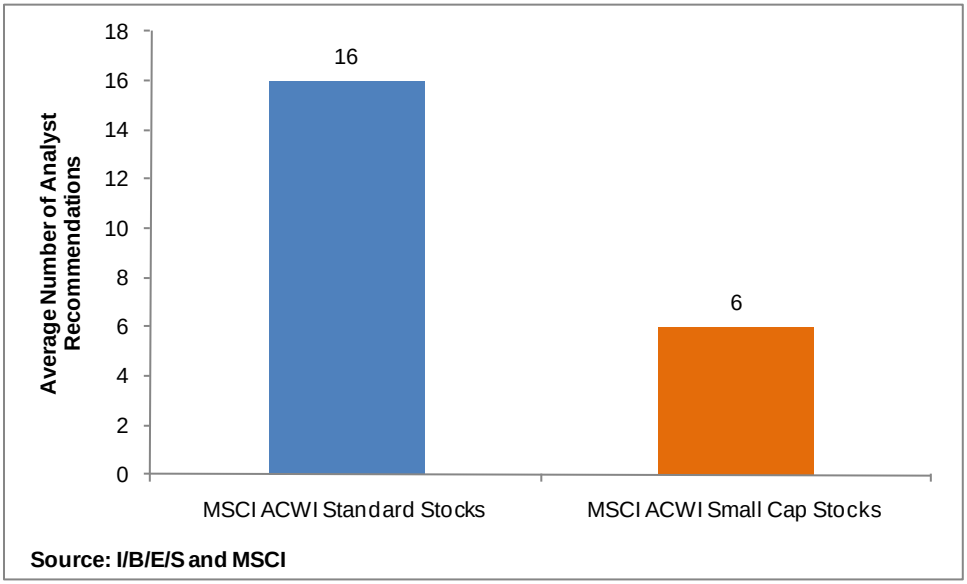
Exhibit 11: Sector Performance Differences between the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index (May 1994 – May 2010)



3. Capturing the Small Cap Risk Premium

Traditionally, investors have adopted an active investment approach to small-cap investing. Since most small-cap companies are under researched and neglected, there is often a disconnect between their stock prices and their fundamentals. Exhibit 12 shows that sell-side analyst coverage of global small caps is considerably less than that of global large and mid caps. Academicians have postulated that, due to fewer analysts covering small cap stocks, their prices are less likely to reflect their true value, which in turn creates investment opportunities for active managers[6].

Exhibit 12: Average Analyst Coverage by Size Segments



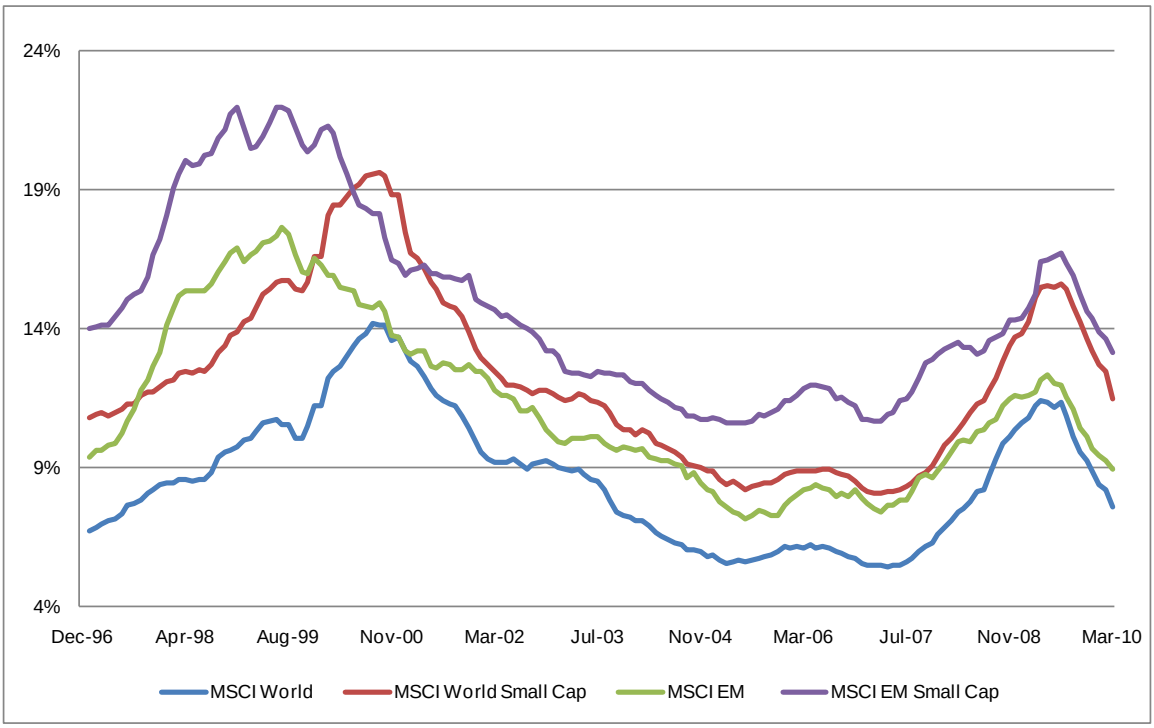
Source: I/B/E/S and MSCI

Looking at the level of return dispersion within a segment or asset class suggests that certain investment processes may be more appropriate for some managers than others. For example, managers investing in an asset class with a high return dispersion may argue for active management. An asset class with little return dispersion may be better served with a passive investment process, as it is much harder to generate active performance over its benchmark.

[6] Arbel and Strebel (1983)

Exhibit 13 displays the 12-month trailing average of the total cross-sectional volatility of the constituents of the MSCI World Standard, MSCI World Small Cap, MSCI EM Standard, and MSCI EM Small Cap Indices from December 1996 to February 2010 The small-cap index constituents experienced an average level of return dispersion 30% higher than the large- and mid-cap index constituents, indicating an increased opportunity for active management in the small-cap space.

Exhibit 13: 12-Month Trailing Average of Total Cross-Sectional Volatility for MSCI Indices

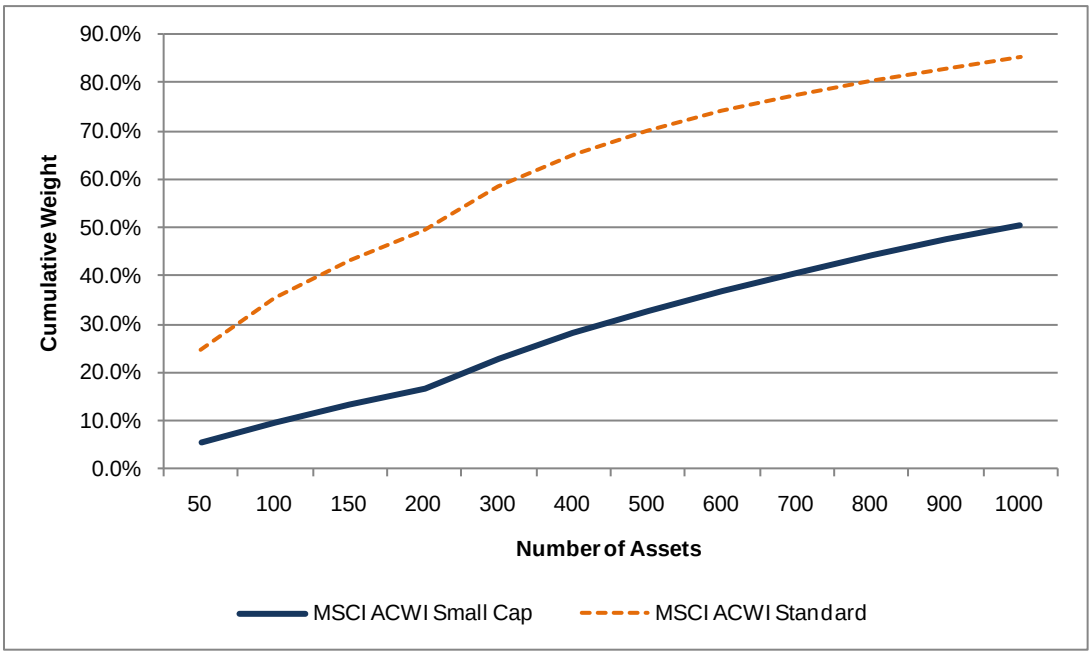


While the conventional wisdom may suggest that an active investment approach is appropriate for small-cap investing, it is important to understand that a huge amount of resources is required for effective implementation of a comprehensive small-cap investment process. This can be particularly challenging in the context of a global, small-cap investment process, as the number of securities is three times larger than that of large- and mid-cap stocks.

However, if the objective is to capture the small-cap risk premium in general, investors potentially could consider applying a passive indexing strategy to global small cap. Here, we look at various indexing strategies, ranging from fully replicating the small-cap segment to tracking it through an optimized version of the index.

The main advantage of the full replication portfolio is that it has little active risk relative to the index it is tracking. But full replication of a global small-cap index, which contains a large number of constituents, can be quite challenging. Exhibit 14 shows the cumulative weight of the top securities in the MSCI ACWI Small Cap Index. A simple tracking portfolio that selects the largest stocks in the MSCI ACWI Small Cap Index needs to hold at least 1000 stocks to capture approximately 50% of the index market capitalization. By contrast, in the MSCI ACWI Standard Index, which has around 2400 securities, the top 200 securities cover approximately 50% of the index market, and a smaller number of securities are required to create tracking portfolios.

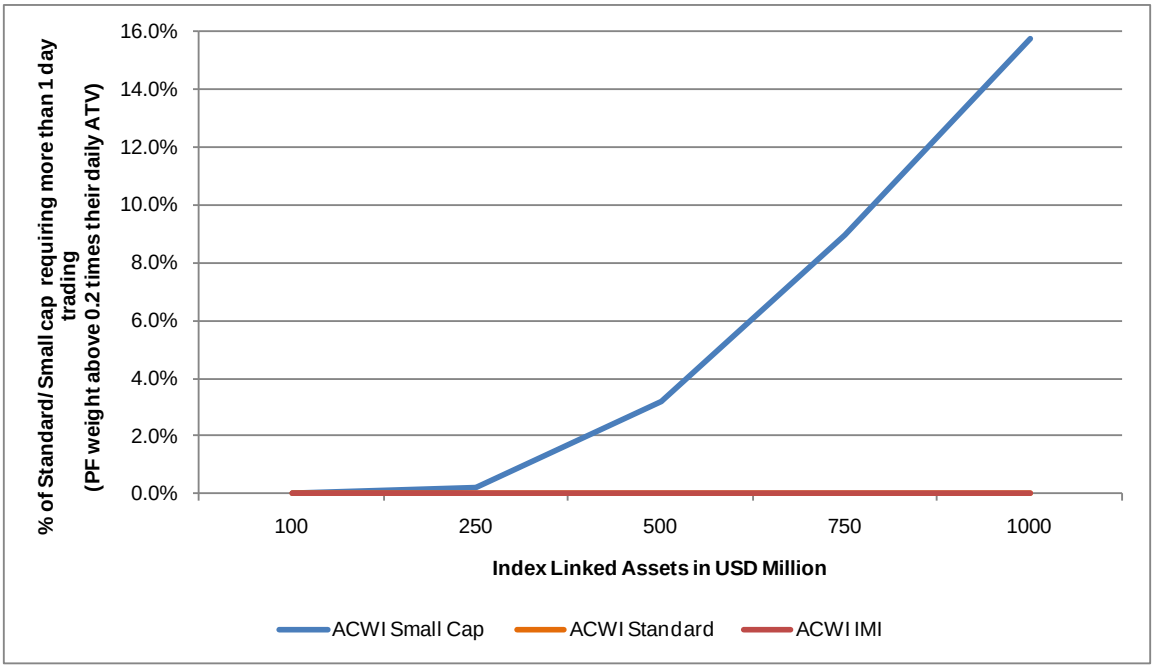
Exhibit 14: Cumulative Weight of the Top *N* Constituents in the MSCI ACWI Small Cap Index and the MSCI ACWI Standard Index (May 2010)



Another consideration for the passive replication of global small caps is the liquidity of the securities. For this analysis, we assumed only 20% of the average trading volume of a given security can be traded on the day of creating the replicating portfolio.

Liquidity enables the creation of a passive portfolio with a minimal impact on the price of its securities. Exhibit 15 shows that a USD 500 million passive, full-replication portfolio that tracks the MSCI ACWI Small Cap Index can be created almost within a single day, and only around 3% of the index linked portfolio will be required to be traded over one trading day. For a USD 1 billion passive, full-replication portfolio that tracks the MSCI ACWI Small Cap Index, around 16% of the index-linked portfolio will not be available for trade within a single trading day. In contrast, a USD 1 billion passive, full-replication portfolio that tracks the MSCI ACWI IMI, which includes the small caps, will not face any issues related to liquidity, since small caps represent a smaller proportion of the broad index.

Exhibit 15: Liquidity of Index Portfolio



Note: Data as of April 22, 2010

To avoid the challenge of the full replication of such a broad, global, small-cap index, a number of techniques can be employed passively to track the index by creating portfolios with low tracking errors and transaction costs. These tracking portfolios can be constructed either by choosing the most liquid and largest constituents or by using optimization techniques. Exhibit 16 illustrates the relationship between the forecast active risk (tracking error) and portfolios with different numbers of assets formed as of May 31, 2010 to track the MSCI ACWI Small Cap Index. The forecast active risks in the exhibit are for portfolios constructed using optimization techniques and the Barra Global Equity Model (GEM2). It is not surprising to note that the forecast active risk decreases as the number of assets in the tracking portfolio increases.

Exhibit 16: Forecasted Tracking Error of Tracking Portfolios of the MSCI ACWI Small Cap Index as of May 31, 2010

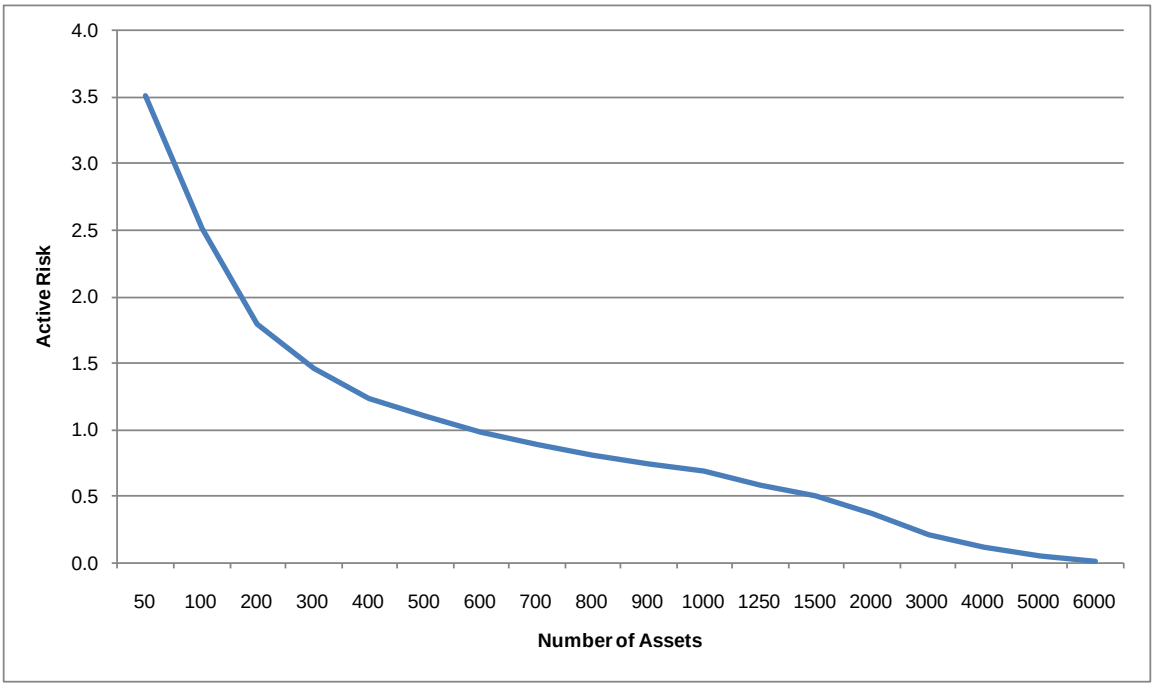


Exhibit 17 provides the realized tracking errors of two tracking portfolios: one formed by selecting the top 600 stocks by index market capitalization; the other formed using the Barra Optimizer (and GEM2), which employs optimization to target 600 stocks. A 600-stock portfolio was selected because 600 stocks were approximately 1/10th of the total number of small-cap constituents in the MSCI ACWI Small Cap Index during the period from May 2002 to May 2010. Both portfolios were rebalanced quarterly without the application of any turnover constraints or transaction costs. The optimization produces lower tracking error over the entire sample and within each sub-period, which shows how optimization techniques coupled with an appropriate risk model can be used to track a broad, small-cap benchmark.

Exhibit 17: Realized Tracking Error for Tracking Portfolios of the MSCI ACWI Small Cap Index

Period	Top 600 Stocks	600 Securities Derived from Optimization
March 1997 to May 2010	5.42%	2.67%
March 1997 to May 2002	6.99%	3.53%
May 2002 to May 2008	2.77%	1.30%
May 2008 to May 2010	5.42%	1.78%

4. Conclusions

Global small-cap-stock investing gained significant attention after the bursting of the technology bubble in early 2000. After a considerable run-up in the early and mid 2000s, global small caps underwent severe stress during the recent financial crisis. Since the easing of credit markets, the small-cap segment has rebounded. More importantly, relative to international large- and mid-cap stocks, small caps still exhibit distinct characteristics that may provide opportunities for portfolio diversification and active management. Passive investors looking to track small-cap indices can employ optimization techniques to build tracking portfolios, with reasonable tracking error and transaction costs, that overcome the challenge of the high number of index constituents.

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