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International Small Cap – A Distinct Asset Class? | October 2007

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Abstract***

The paper investigates if international small cap has been distinctly different from large caps and therefore deserved to be part of a policy benchmark. Our results indicated an increase in correlations between aggregated MSCI EAFE Small Cap and Standard Indexes in recent years. But the challenges in small cap investing have been different as the level of stock return dispersion has been larger than within the standard segment and decisions on country allocation had a bigger impact on portfolio performance within the small cap segment. We therefore conclude that an explicit allocation (or none at all) to international small cap would have provided additional diversification benefits during the period reviewed.

Introduction

Over the last five years, international small cap has outperformed the mid and large cap segment by 7 percent per year, as measured by the Provisional MSCI EAFE indexes. During the same period, US institutional assets invested in international small cap have more than tripled.[1] International equities have been seen by many investors as a distinct asset class offering diversification benefits combined with attractive risk and return characteristics. However, globalization and more integrated financial markets have led to an increase in correlations across developed markets, reducing the diversification benefits of international investing.[2]

As US asset owners have begun to allocate higher percentages of their assets into international small cap—either via explicit small cap mandates or mandates that opportunistically invest in small caps—one important question to ask is whether international small cap should be treated as a separate asset class in the context of the global policy portfolio. This paper attempts to address that question by looking at the differences between international small cap and mid and large cap companies. In particular, we will focus on answering three questions:

1. Have international small cap stocks exhibited systematically different performance and diversification benefits compared to larger cap stocks?
2. Does investing in international small cap suggest a fundamentally different investment process?
3. How should an international small cap benchmark be constructed?

In the first section, we compare the historical performance and diversification characteristics of the Provisional MSCI Small Cap Indices with the Provisional MSCI Standard Indices.[3] Globally, the small cap segment underperformed during the technology and large cap boom in the 1990s but started outperforming the MSCI Standard Indices in 2000. Interestingly, this behavior was observed across regions—an indication of a global size effect. During this period, the risks of the

*** A version of this article was published in the November/December issue of the Journal of Indexes. A pdf of the original article can be viewed at www.indexuniverse.com/JOI

[1] Implementation challenges in International Small Cap, InterSec, February 2006

[2] See 'In Search of Global Diversification: Developed and Emerging Markets', Frank Nielsen and Anton V. Puchkov, MSCI Barra Research Insights Spring 2006

[3] The Provisional MSCI Standard Index consists of the Provisional MSCI Mid plus Provisional MSCI Large Cap Indices

international and regional Small Cap Indexes were higher than their Standard Index counterparts. In addition, correlations between the Small Cap and Standard Indexes increased outside Asia in recent years, reducing the diversification benefits at the aggregate index level.

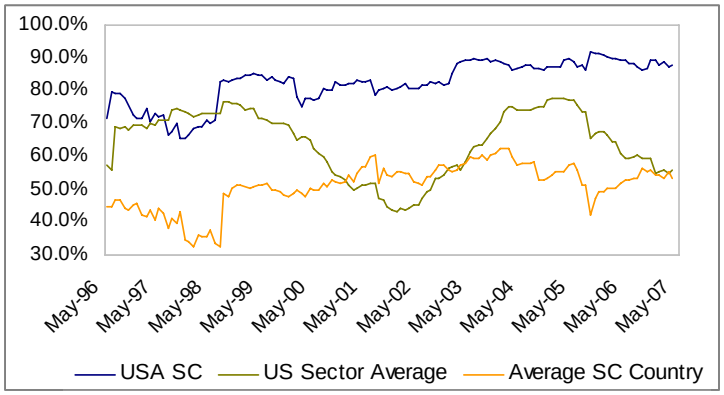
In the second section, we evaluate and compare small cap characteristics in greater detail. The focus is on understanding the relative importance of global sectors vs. countries, and analyzing the differences in return dispersion across the two segments. The characteristics are sufficiently dissimilar to consider separating the two size segments and to employ different investment processes. The consistently higher return dispersion of the Provisional MSCI Small Cap Indices, driven by idiosyncratic or company-specific returns within the segment, supports the idea that active management, and in particular fundamental stock picking, may offer more opportunities in international small cap investing than in the more homogenous large cap space.

In the third section of this paper, we analyze some implementation challenges of international small cap mandates and review the question of passive vs. active investing in that space. We also review the key methodology elements that need to be present in a small cap index in order to ensure that the index can serve as a relevant performance benchmark.

Historical Risk and Return Characteristics

Historically, international small cap stocks have shown attractive correlations for US investors; adding more diversification than investments in other segments within the US Equity market. Figure 1 shows the correlation from May 1996 to May 2007 between the Provisional MSCI USA Standard Index and the Provisional MSCI USA Small Cap Index, the average of the provisional small cap country indices, and the average of the USA sector indices. Investing in the aggregated US small cap segment represented by the provisional MSCI USA Small Cap Index would not have added diversification given the correlations between 80 and 90 percent. Correlations with the average US Sector index varied over time and recently exhibited similar diversification potential as the average small cap country index.

Figure 1: Rolling 36 Month Correlation between the Provisional MSCI USA Standard Index and selected MSCI Indices



Comparing the historical performance of the large and small cap segments, Table 1 exhibits the risk and return patterns over the last 10 years for global and regional Provisional MSCI Standard and Small Cap Indices over different time horizons from a USD perspective.

Table 1: Risk and Return characteristics of several Provisional MSCI Indices

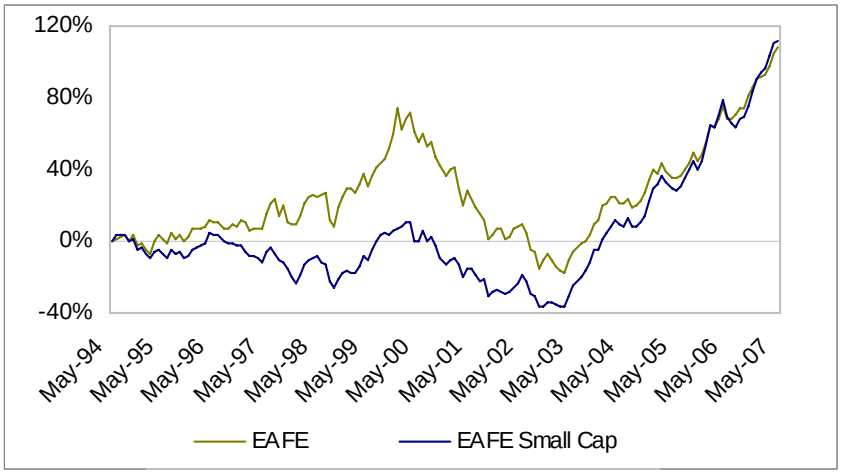
MSCI Price Index (USD) as of 5/31/2007	WORLD SC	WORLD	EAFE SC	EAFE	EUROPE SC	EUROPE	PACIFIC SC	PACIFIC	USA SC	USA
Return										
3 Year annualized	20.5%	15.6%	25.1%	19.7%	32.0%	21.7%	15.8%	15.8%	16.2%	11.4%
5 Year annualized	17.0%	10.7%	21.3%	13.7%	24.6%	14.5%	16.7%	11.8%	13.4%	7.8%
10 Year annualized	9.5%	6.2%	8.4%	6.0%	11.6%	8.1%	3.6%	2.7%	10.7%	6.1%
Risk										
3 Year annualized	10.6%	7.6%	10.7%	9.2%	12.3%	9.6%	11.2%	10.5%	11.6%	7.2%
5 Year annualized	13.5%	12.0%	13.3%	12.9%	15.8%	15.1%	13.9%	12.9%	14.7%	11.9%
10 Year annualized	15.6%	14.5%	14.8%	14.9%	16.3%	16.0%	19.4%	18.0%	18.9%	15.5%

Data as of May 31, 2007

The Provisional MSCI Small Cap Indices outperformed their Standard Index counterparts at higher risk levels, resulting in higher risk adjusted performance for most small cap indexes over the three time periods.[4]

A closer look at the performance over the last 10 years reveals that timing seems important when allocating assets between small and large cap investments. Figure 2 plots the cumulative performance over the last 10 years for the Provisional MSCI EAFE Small Cap Index and the Provisional MSCI EAFE Standard Index. The recent performance explains why demand in international small cap has increased dramatically over the last five years. It is also worth mentioning that the two indexes moved up in lock step over the last four years, suggesting an increase in correlation.

Figure 2: Provisional MSCI Standard and Small EAFE Indices: Cumulative Return 5/1994 to 5/2007



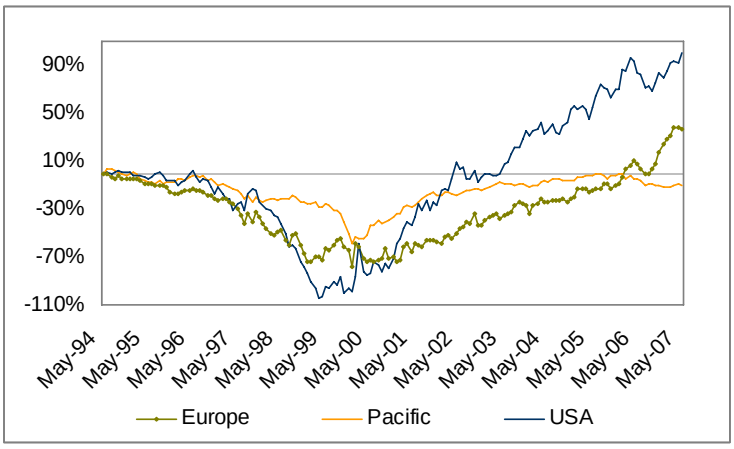
This historical risk and return comparison indicates that small caps offer a different return profile at a higher level of risk. The increased risk relative to the standard index is highlighted by the extended underperformance in the late 1990s as well as the out-performance during the recent bull market. This return pattern also existed at the regional level.

Figure 3 plots the performance of the USA, Asia Pacific and Europe Provisional MSCI Small Cap Indices relative to their respective Provisional MSCI Standard Indices. In this comparison, both the US and Europe show a significantly different performance profile relative to their Standard

[4] The exception being the recent three year period for the MSCI World and MSCI Asia Pacific Indices where the risk adjusted returns of the standard indices were superior

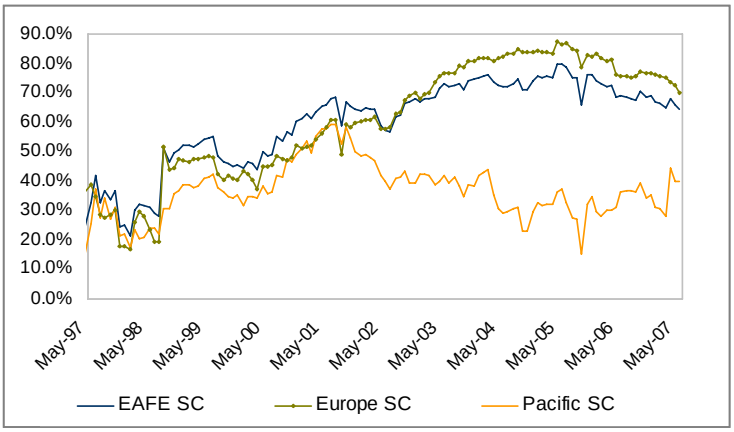
Indexes. The chart also highlights a global size effect across regions as all three Small Cap Indexes underperformed their Standard counterpart in the 1990s and outperformed in the 2000s.

Figure 3: Active Performance of Selected Provisional MSCI Small Cap Indices Relative to their MSCI Standard Counterparts from 5/1994 to 5/2007



Beyond the risk return characteristics of the small cap segment, it is also important to understand how much diversification the small cap allocation provided during this period. Figure 4 exhibits the 36-month rolling correlations between the Provisional MSCI USA Standard Index and select regional Provisional MSCI Small Cap Indices. Since the late 1990s, the correlation between the Provisional MSCI Europe Small Cap Index and the Provisional MSCI USA Standard Index has risen from a low of around 20% in 1998 to almost 85% in 2005, settling in May 2007 slightly above 70%. The MSCI Pacific Small Cap Index has moved in the opposite direction since 2000, offering significant diversification benefits at recent levels of 15% to 35%.

Figure 4: Rolling 36 Month Correlation Between Provisional MSCI USA Standard Index and Select Regional MSCI Small Cap Indices

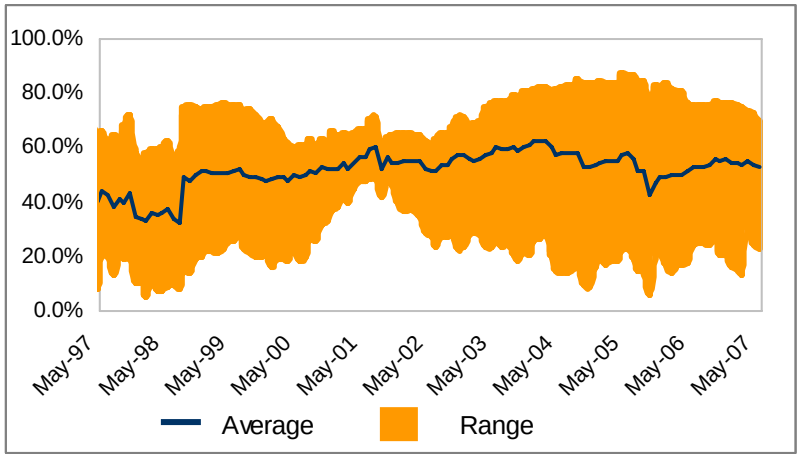


By analyzing the relationships across individual markets, we have shown in previous research that country correlations have not increased as much as they have at the regional and global level.[5] We looked at the trend in small cap country correlations to the Provisional MSCI USA

[5] See 'In Search of Global Diversification: Developed and Emerging Markets', Frank Nielsen and Anton V. Puchkov, MSCI Barra Research Insights Spring 2006

Standard Index over the last 10 years.[6] Figure 5 shows the average small cap country index correlation with the MSCI USA Standard Index and the range of small cap country index correlations around the average from May 1997 to May 2007.

Figure 5: Rolling 36 Month Provisional Small Cap Country Indices Correlations with Provisional MSCI USA Standard Index



Based on the chart above, the average individual country correlation has not changed significantly over the last ten years and moved around 50%, however the gap between the highest (Europe) and lowest (Japan) correlation widened from around 15% in 2001 to close to 60% in May 2007. These results indicate that country allocation played a significant role in achieving diversification benefits during this period.

However, the diversification benefits at the aggregate index level were limited, with the exception of Asia and, in particular, Japan.

Drivers of Returns in International Small Cap

Understanding the source of return in international investing is an important element in deciding on the type of investment process one might implement. In case the variation in return is driven by differences in country weights, the asset owner may want to select an asset manager who pays significant attention to country allocation. If, on the other hand, the majority of the difference in returns can be explained by a larger dispersion of idiosyncratic or company-specific returns across the small cap universe, stock selection may be more relevant. In such an environment, the country and sector allocation decision may be secondary to a bottom-up investment process.

To get a sense of the different return characteristics of international small cap and the standard cap segment, we compare the cross sectional return dispersion (CSV) across the Provisional MSCI EAFE Standard Index and the Provisional MSCI EAFE Small Cap Index constituents.[7]

[6] Note that MSCI Barra treats Europe as one region

[7] A discussion on cross sectional volatility can be found in 'Dynamic Volatility and Its Implications for Portfolio Management', Frank Nielsen, MSCI Barra Horizon Newsletter, Summer 2006

Cross-sectional volatility measures the dispersion of stock returns at one point in time:

$$\sigma_{\text{cross sectional}} = \sqrt{\sum_i w_i (r_i - \bar{r})^2}$$

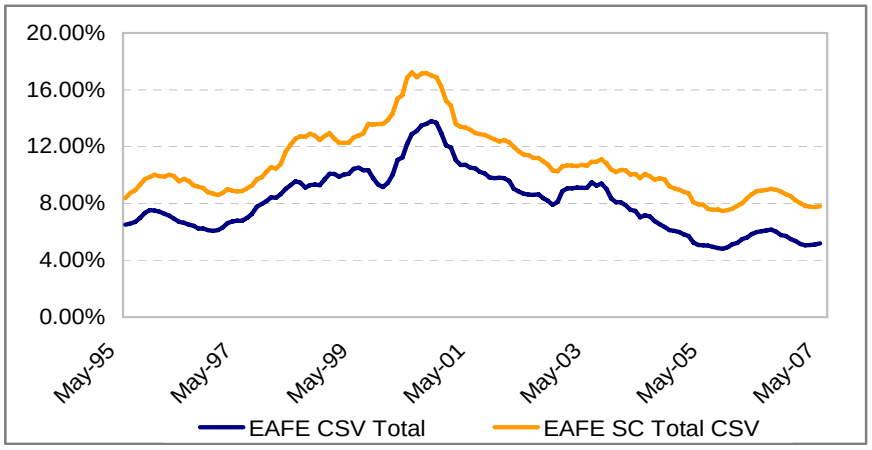
$\bar{r}$ = Average return across all assets

r_i = Return of asset i

w_i = Weight of asset i in the MSCI Index

The level of return dispersion within a segment or asset class suggests certain investment processes may be more appropriate for some managers than others. For example, managers investing in an asset class with high return dispersion may argue for active management. On the other hand, an asset class with little return dispersion may be better served with an effective passive investment process, as it is much harder to generate active performance over the benchmark.[8] Figure 6 displays the rolling 12-month cross sectional volatility of the constituents of the Provisional MSCI EAFE Standard and MSCI EAFE Small Cap Indices from May 1995 to May 2007. The Small Cap Index constituents experienced a level of return dispersion 50 to 90% higher than the Standard Index constituents.

Figure 6: Provisional MSCI EAFE and EAFE SC Rolling 12 Month Total Cross Sectional Volatility



This result shows the impact that picking the right (or wrong) stocks can have on the performance of small cap portfolios. However, more factors can be considered before deciding on the investment process for an international small cap manager.

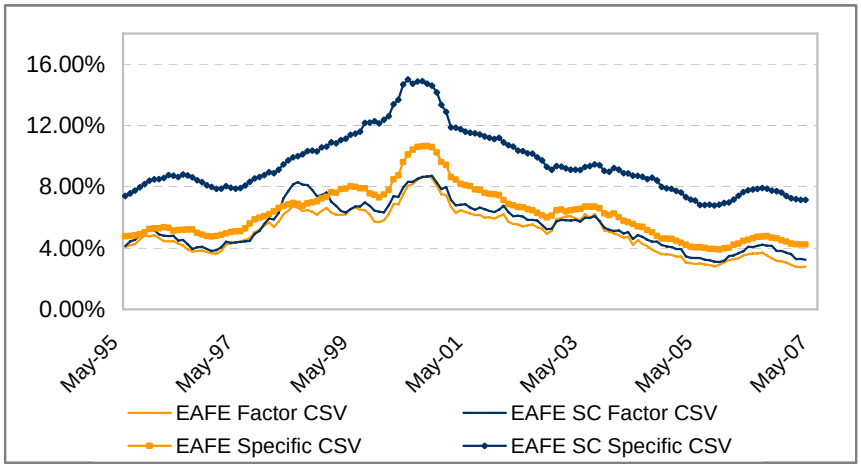
Next, as part of this analysis, we identify where the significant difference in stock level CSV is coming from, as this will provide an indication of the main drivers of returns. Potential reasons include varying exposures to common sources of return, e.g., country, sectors, and styles such as Size, Value, or Growth. In contrast, the difference may also come from company-specific or idiosyncratic variations between the two size segments.

Intuitively, one might expect company-specific CSV across small caps to be significantly larger, as small caps commonly only offer a limited number of products or services. In these cases, the success or failure of a single product will have a larger impact on the company's success. Figure 7 confirms the intuition: The majority of the difference in return dispersion between the constituents of the Standard and Small Cap Indexes comes from company-specific performance.

[8] Ankrim and Ding (2002) found a very strong relationship between cross-sectional volatility of asset returns and the dispersion of portfolio managers' performances.

These results provide a quantitative explanation for why the small cap space has been traditionally associated with fundamental stock picking. As a consequence of the higher CSV within small caps, asset managers might consider a potentially different investment process for the international small cap segment.

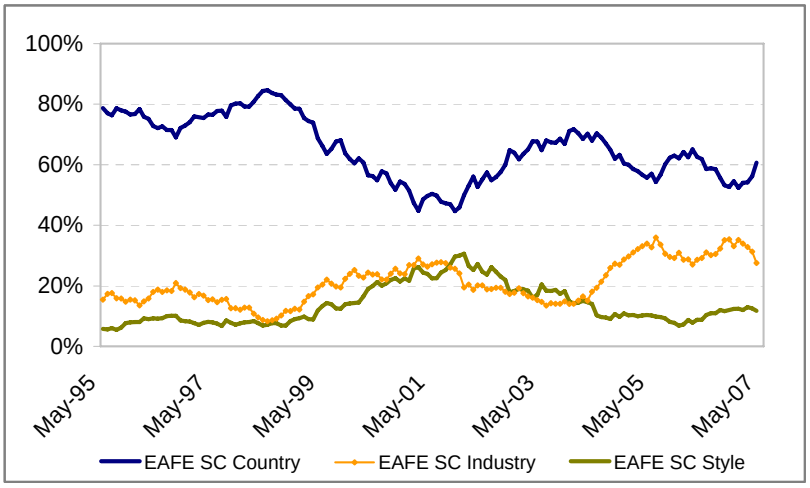
Figure 7: Provisional MSCI EAFE and EAFE SC Rolling 12 Month Factor and Specific CSV



So far we have looked at CSV across individual securities and have seen that the return differences within the Provisional MSCI Small Cap universe are significantly higher than within the Provisional MSCI Standard universe. However, in a diversified portfolio, company-specific variations diversify away and systematic return factors, such as countries, global sectors, and styles, become more dominant. We therefore want to understand the contribution of the different global components to the global CSV of the small cap segment. If return differences across countries are significantly larger than differences across global industries, the country allocation decision ought to play a bigger role in portfolio performance relative to global sector allocation decisions.

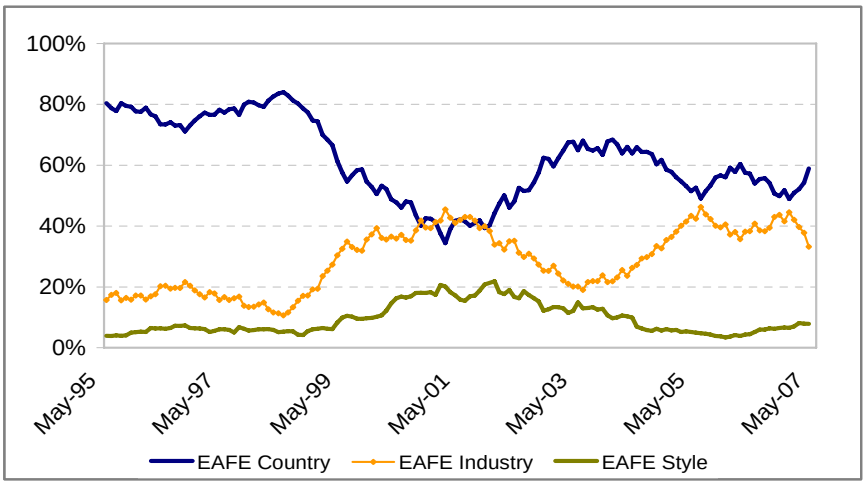
Figure 8 shows that the country dimension of the Provisional MSCI EAFE Small Cap Index dominates industry and style dispersion with roughly 60% as of May 2007 of the global CSV component explained by return dispersions across countries.

Figure 8: MSCI Provisional EAFE Small Cap Index: Factor Contribution to Global CSV



This result highlights yet another difference from the large and mid cap segment where the sector allocation decision is seen by many as equally (if not more) important than country allocation. Figure 9 illustrates this point showing that industry contribution to global CSV for the constituents of the Provisional MSCI EAFE Standard is recently equally important to the country contribution. [9]

Figure 9: MSCI Provisional EAFE Standard Index: Factor Contribution to Global CSV



Going beyond the initial results on correlation at the aggregate index level, the CSV analysis exposes the main difference between size segments during this period and supports the argument to have treated small cap as a separate asset class. The small cap segment exhibited significantly larger return dispersion with direct implications for the investment management process. A study by Callan Associates confirms our findings: 'Observed risk and return behavior within the Callan International Small Cap style group has varied widely. In fact, this asset class produces more dispersion in historical performance than even emerging market equities.'[10]

Active vs. Passive – Some Practical Considerations

In this section, we consider some implementation challenges within international small cap and balance the arguments for active and passive investing. So far, international small cap mandates have largely been active and managers were expected to consistently outperform their respective benchmarks. As always, the question remains whether it can be done consistently on an ongoing basis.

Recent surveys by InterSec state that many active strategies have run into capacity constraints and a number of the historically successful international small cap products have been closed to new investors. Another noteworthy point of InterSec's study is that almost 60% of the open small cap funds have performed below the median product over the last three years.[11]

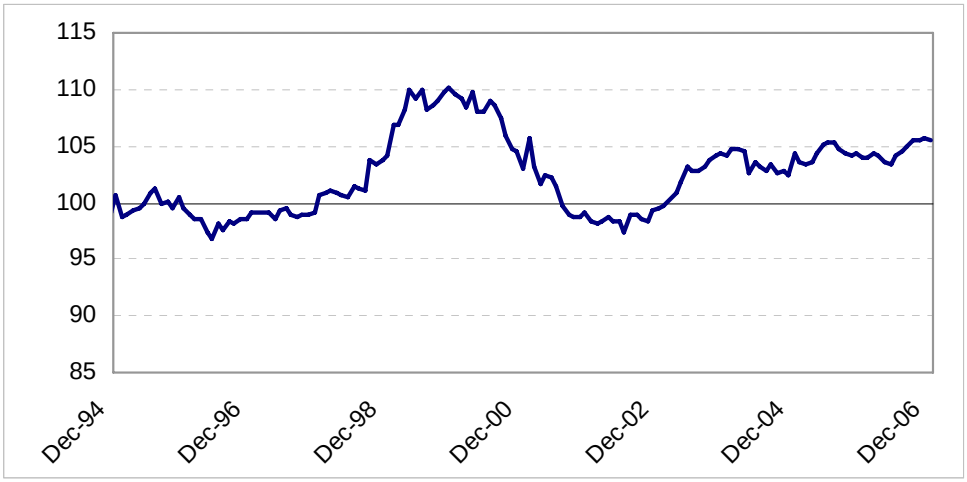
The majority of small cap products have been closed for new investors when assets under management reached between $500 million and $2 billion USD. An alternative to overcoming capacity constraints within the small cap segment is discussed in a research paper by Vanguard.[12] They report that the typical out-performance of active US small cap funds is an

[9] See Puchkov, Anton V., Dan Stefek, and Mark Davis. 2005. "Sources of Return in Global Investment", The Journal of Portfolio Management (Winter).
[10] Brian Zeiler and Gregory C. Allen, International Small Cap: Implementation issues, Callan Associates, April 2004
[11] Implementation challenges in International Small Cap, InterSec, February 2006
[12] See Davis, Joseph H., Sheay, Glenn, Tokat, Yesim, and Wicas, Nelson, Evaluating Small-Cap Active Funds, Vanguard Investment Counseling & Research, April 2007

artifact of the particular benchmarking method and conclude that 'indexing is a powerful strategy among small cap stocks, as it is in any market'. How should an international index be created to satisfy the characteristics of a representative benchmark?

One important characteristic of a good benchmark is to represent the average performance of all active managers within a segment. Figure 10 displays the MSCI Provisional USA Small Cap index relative to the Lipper Small Cap Core Funds Average index.[13]

Figure 10: MSCI Provisional USA Small Cap Index Relative to Lipper Core Funds Average Index



The MSCI Provisional USA Small Cap Index has stayed close to the Lipper Funds Average.

For passive products to become an attractive alternative, the underlying indexes have to be replicable, liquid, and offer comprehensive coverage of the investable opportunity set. Furthermore, index turnover and maintenance rules are critically important as transaction costs are significantly higher within the international small cap space compared to the large and mid cap segment.

The enhanced MSCI Global Investable Market Indices family is designed with those goals in mind.[14] Its focus on investability is emphasized by the systematic application of liquidity screens, minimum free float requirements in absolute US Dollar terms as well as minimum free float percentages per security. Such criteria ensure that index constituents are tradable and liquid. The buffer zones applied at rebalancing not only limit reverse turnover but also aim to reflect the investment process of small cap managers. A small cap manager will not immediately sell a stock just because its market value has appreciated beyond the maximum target range for the market capitalization of the small cap mandate. Instead, managers hold on to the stock until they feel it has clearly moved into the mid cap space.

The MSCI Provisional Small Cap Index offers comprehensive coverage of the small cap segment, complementing the Standard Indexes in a non-overlapping fashion. Its size segmentation along country and regional (for Europe) lines reflects current investment processes.

[13] The Lipper Small-Cap Core Funds Average represents the average return of all small cap core funds tracked by Lipper

[14] See 'MSCI Global Investable Market Indices Methodology' at www.mscibarra.com for a detailed description of the index construction methodology

Conclusion

International small cap investing has attracted significant attention over the last few years and is following the example of the US equity market segmentation. Dedicated small cap mandates are no longer the exception and many products based on MSCI EAFE allow for an opportunistic allocation towards small caps.

The challenges in small cap investing are different as the level of stock return dispersion is larger than within the standard segment. Although correlations between small and large caps have increased at the index level, international small caps offer a very different risk and return profile. Furthermore, small cap portfolios have likely been less correlated to the Provisional MSCI EAFE or similar large and mid cap portfolios since company-specific bets have likely been more significant. This would have lowered the correlations between the returns of a typical small cap funds and international standard equity benchmarks.

So far, the majority of small cap products have been based on active bottom-up investment strategies and many outperformed their respective benchmarks. But, if money inflow continues to increase and if capacity and liquidity concerns amplify, international small cap indexing may become more popular.

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