

Russell Research

By: Mat Lystra, Senior Research Analyst¹

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Global small cap: Defining a promising asset class

The benefits of global equity portfolio diversification have been well documented. Until recently, however, most global investors have concentrated exclusively on large cap names from developed countries (Ferreira & Matos, 2006; Kang & Stulz, 1997). This focus on large, often multinational companies with strong brand recognition benefited investors as they began to reduce the home country bias within their portfolios. Unfortunately, as often happens when a market, sector, or individual company becomes widely followed, opportunities to obtain the prospective benefits – risk reduction, greater return potential, or both – have declined. Macro global factors common to developed large cap companies now explain much of their performance, while increased analyst coverage and more transparent reporting have reduced information inefficiencies (Yan, 2009). All of this has led to more highly correlated performance and lessened the magnitude of the potential benefits investors were seeking by diversifying their portfolios away from a single country or region.

So where will investors turn next in their search for diversification and returns enhancement? Russell Indexes believes that the global small cap asset class will feature prominently as investors seek a broader equity opportunity set. But how that small cap opportunity set is defined varies among index providers – and these variations can produce significant differences in composition among the universes from which global small cap managers choose securities.

Our analysis will define and profile the global small cap asset class; review the performance and traits of global small cap managers against those of the Russell Global Small Cap

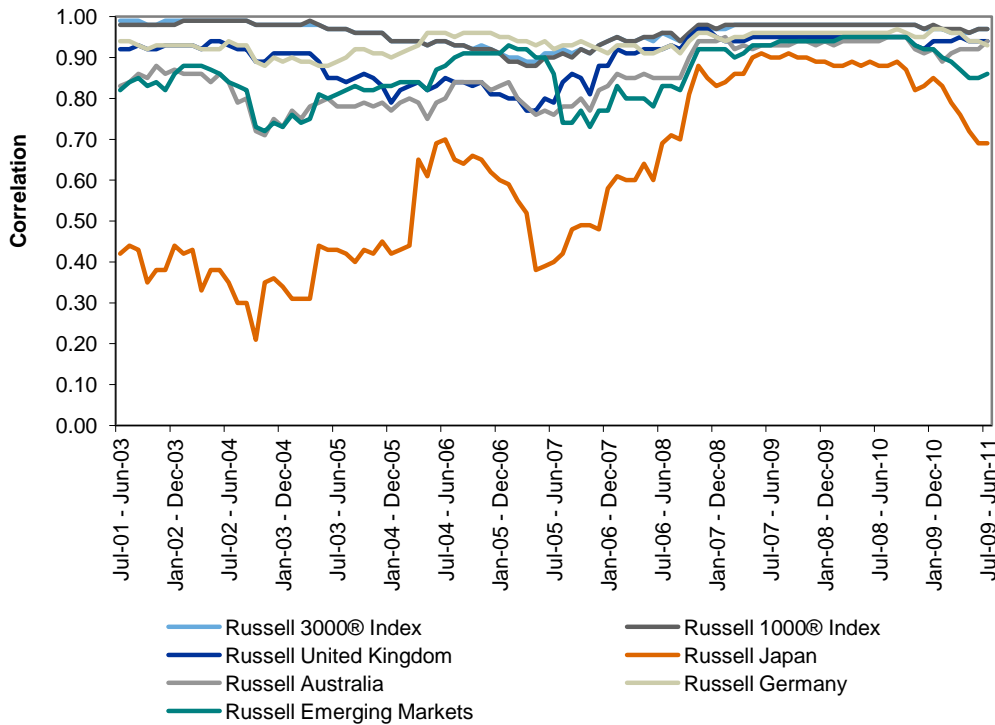
¹ The author would like to thank Matt Beardsley, Betty Kimrey, Mary Fjelstad, Kyla Roberts, and Kristin Bronoske for their contributions to this paper. A special recognition is extended to Andrew Pittman for his supporting research.

Index; contrast the methods several leading benchmark providers use in the construction of their global small cap indexes; and, finally, discuss the resulting implications for a global equity portfolio.

Defining the global small cap asset class

Global investors exposed to developed large cap stocks would have entered the last decade seeing correlations between key regions and countries spread between 0.42 (Japan) and 0.94 (Germany). As shown in Figure 1, these correlations fell as a group in the lead-up to the financial crisis, and then converged after the financial crisis. But even as correlations have continued to remain at high levels across global markets into this decade, small cap markets have consistently offered opportunities to diversify global equity portfolios.

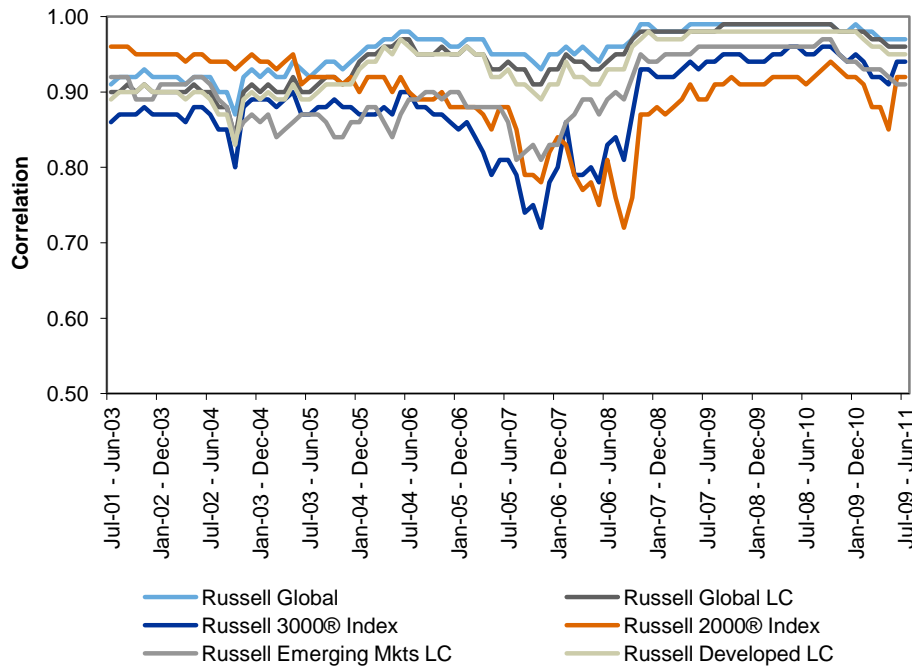
Figure 1 / 24-month correlations vs. Russell Developed Large Cap Index (July 31, 2001–June 30, 2011)



Deconstructing global small cap into U.S. and non-U.S. segments, we observe that ex-U.S. small cap exhibits the weakest corollary relationship to U.S. small cap (Figure 2) over our sample period, the 10 years ending June 30, 2011. The Brandes Institute (2007, 2008)² produced a comprehensive two-part review of the global small cap asset class that offered some possible explanations for why the U.S. small cap and ex-U.S. small cap constituencies behave differently. Brandes suggests that small cap companies outside the U.S. have higher liquidity risk, greater information inefficiencies and increased transaction costs, and that they are typically more “mature” in their business lifecycles when publicly listed. Additionally, small cap companies outside the U.S. often have some relationship to a larger parent company or industry, which can bracket their growth potential.

A few examples of companies that fit the supplier/parent model more commonly found with global small cap are Japan’s Mitsubishi Steel Manufacturing Co., Brazil’s Confab Industrial SA and Germany’s Evotec AG. Mitsubishi Steel is, as the name suggests, a steel manufacturer whose primary customers are the automotive and heavy-machinery industries. Confab Industrial is an oil and gas pipe producer controlled by the Tenaris Group via a subsidiary. Tenaris is the world’s largest petro-pipe producer.³ And Evotec is a biotech that has partnered exclusively with Roche AG to test and bring new drug solutions to market. The growth of each of these three small cap companies will depend on a parent/partner relationship, or on a specific industry.

Figure 2 / 24-month correlations vs. Russell Global Small Cap Index (July 31, 2001–June 30, 2011)

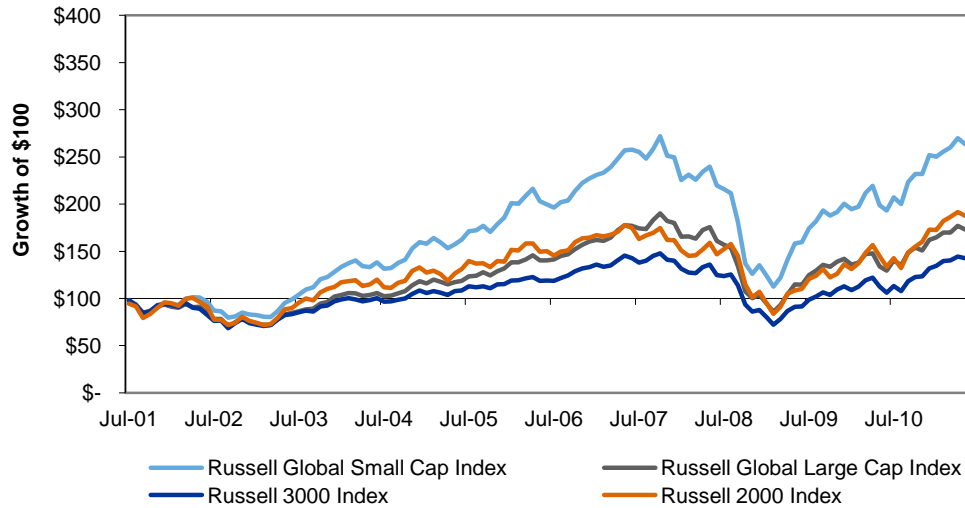


² The Brandes Institute is the research division of Brandes Investment Partners.

³ Total company market capitalization as of 5/31/2011 Russell Global Index reconstitution portfolio.

The global small cap asset class has performed remarkably well over the last 10 years. Global small cap, as measured by the Russell Global Small Cap Index, had a cumulative return of 159% through June 2011,⁴ as shown in Figure 3, below. By comparison, global large cap as measured by the Russell Global Large Cap Index returned 71% through June 2011.

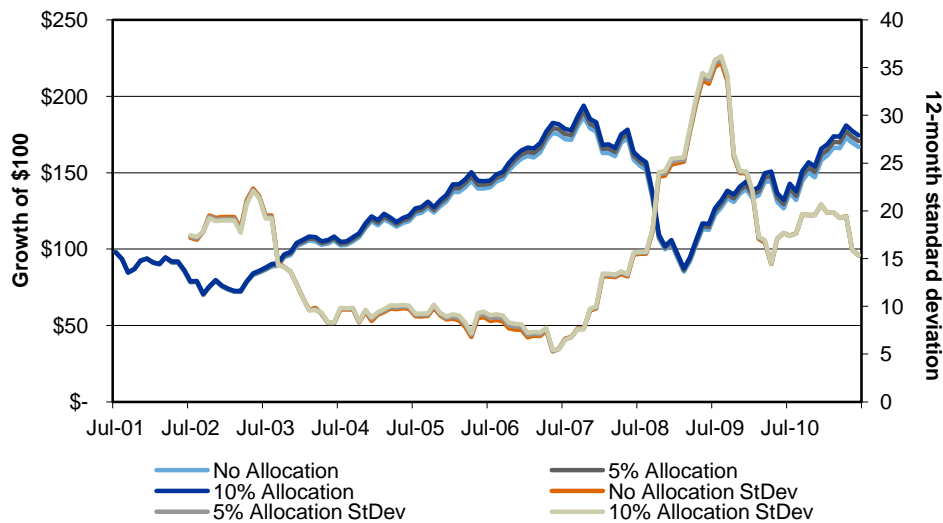
Figure 3 / Growth of \$100: Cumulative performance of the Russell Global Small Cap Index (July 31, 2001–June 30, 2011)



⁴ For annualized returns, please See Table 1 in the appendix.

This performance is particularly compelling when viewed through the lens of global equity portfolio construction. We constructed three simulated 100% equity portfolios with 0%, 5% and 10% allocations to global small cap. Had a 1B USD portfolio allocated 5% to global small cap between July 2001 and June 2011, it would have gained an additional 37.9M USD – and with a 10% allocation, 75.4M USD (Figure 4).⁵ The volatility of the global portfolio remains virtually constant with each increase in global small cap exposure; on a rolling 12-month basis, the standard deviation of returns moves from 15.35 (0%) to 15.36 (10%). The 10-year Sharpe ratio ending June 30, 2011, is marginally better with each increase in exposure: 0.26, 0.28 and 0.29 for the 0%, 5% and 10% portfolios, respectively.⁶

Figure 4 / Growth of \$100: Global small cap allocation scenarios (July 31, 2001–June 30, 2011)



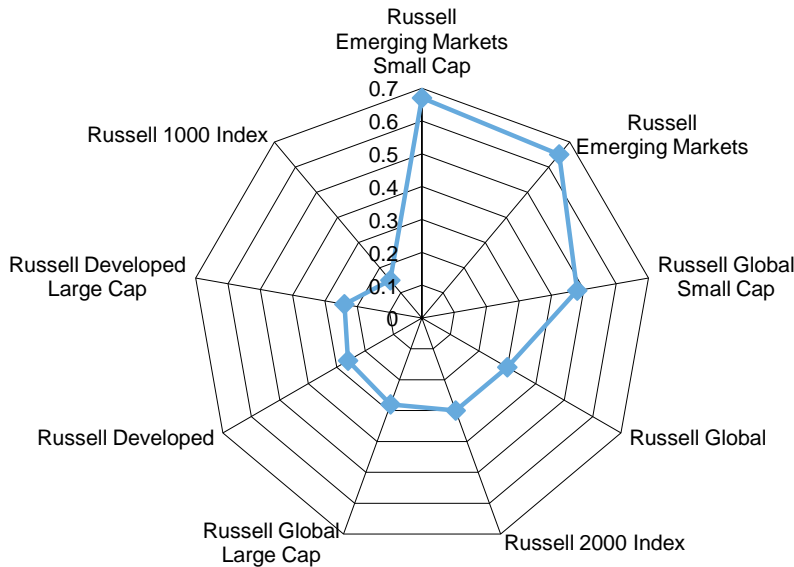
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⁵ Assumes passive management against the Russell Global Small Cap Index with no tracking error or currency impact. The three simulated portfolios represent aggregate weighted returns using the following asset combinations (0%, 5% and 10%, respectively): 95% Russell Developed Large Cap index, 5% Russell Emerging Markets Index; 90% Russell Developed Large Cap Index, 5% Russell Emerging Markets Index, 5% Russell Global Small Cap Index; 85% Russell Developed Large Cap Index, 5% Russell Emerging Markets Index, 10% Russell Global Small Cap Index.

⁶ Calculated by MPI Stylus.

As evidenced by the improvement in the Sharpe ratios of the simulated portfolios, global small cap has historically performed well on a risk-adjusted basis relative to other segments of the global market. Of the markets examined, the Russell Emerging Markets Small Cap Index (0.67) and the Russell Emerging Markets Index (0.65) were the only indexes with higher Sharpe ratios than the Russell Global Small Cap Index (0.48) over the last 10 years (Figure 5).⁷

Figure 5 / Sharpe ratios among global market segments (July 31, 2001–June 30, 2011)



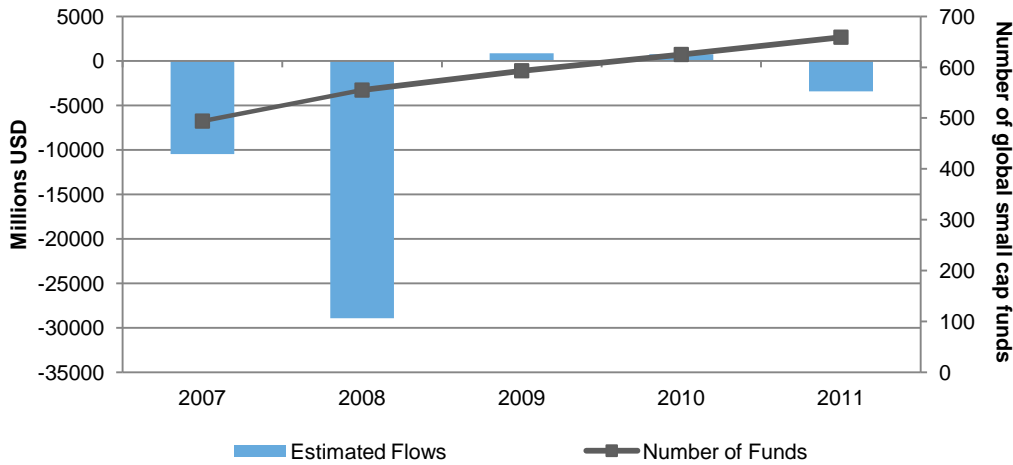
As discussed earlier, global investors have primarily diversified into well-known large cap names from developed countries. The Russell Developed Large Cap Index is the best proxy for a global investor’s historical non-domestic allocation. This index has historically offered a greater than 50-percent better risk-adjusted return⁸ than the Russell 1000® Index (Russell’s U.S.-only large cap companies index). We presume, based on Markowitz (1952), that U.S. investors began to include non-domestic developed large cap stocks in their portfolios because of the opportunity for better risk-adjusted returns. This risk-diversifying behavior could underpin any subsequent move into global small cap. Small cap provides exposure to a new segment of the global market which has historically offered double the risk-adjusted performance of the developed large cap asset class as measured by the Sharpe ratio.

⁷ The higher risk-adjusted returns of certain global regions should be considered time period–dependent and may not persist in the future.

⁸ The Sharpe ratio is defined as portfolio return minus the return of a risk-free asset, divided by the standard deviation of the portfolio excess return over the risk-free asset. Here the risk-free asset is defined as the return of the Merrill Lynch 3-Month T-Bill Total Return Index.

The potential benefits of including small cap as part of a global equity allocation have not gone unnoticed. Net flows into global small cap funds exceeded 1.6B USD in 2009–2010, although upheavals in the global market environment put pressure on flows in 2011.⁹ The number of mutual funds with assets linked to global small cap has also increased, moving from 494 to 659 over the last five years (Figure 6). However, small cap is subject to disproportionate sell-offs during high-volatility periods, which we observed in 2011, and recessions (Fargher and Weigand, 1998) – which may linger as a concern in 2012.

Figure 6 / Net global small cap fund flows¹⁰ (period ending 12/31/2011, mutual fund data only)



Sources: Russell Indexes, Morningstar

⁹ Morningstar data. Separately managed account flows data availability was limited, which necessitated the narrow scope of the fund flows analysis to mutual funds only. After the large outflows during the financial crisis, fund flows into global small cap recovered.

¹⁰ Mutual fund flows calculated using Morningstar data from 2006–2011. Separately managed account flows data availability was limited, which necessitated the narrow scope of the fund flows analysis to mutual funds only. After the large outflows during the financial crisis, fund flows into global small cap recovered.

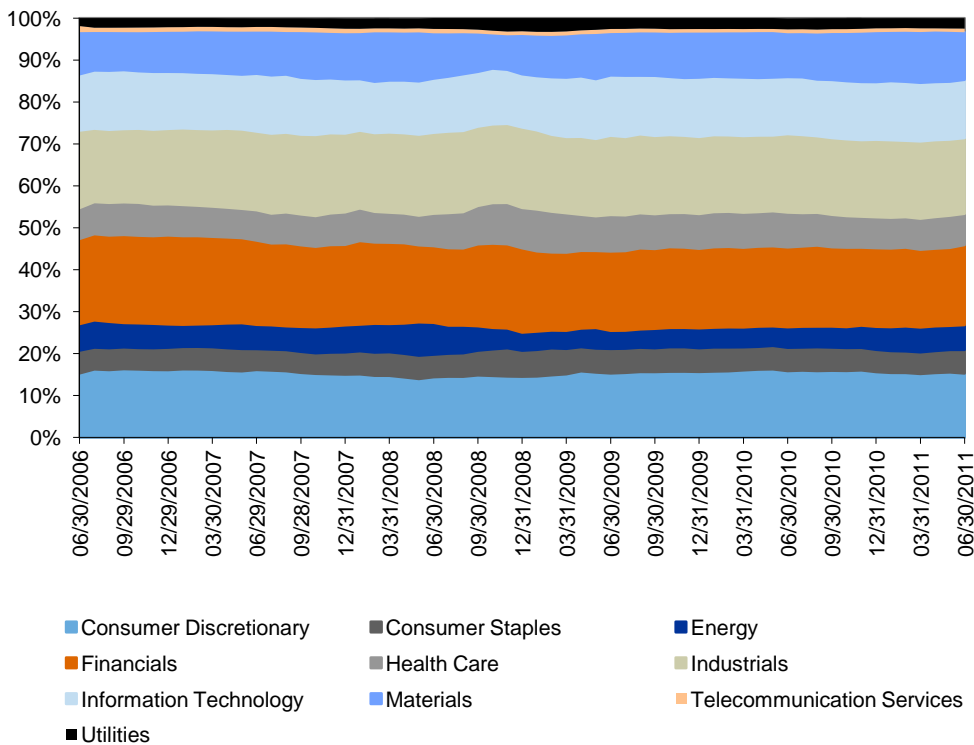
Profiling the global small cap asset class

Thus far in our analysis of the global small cap asset class we have identified some of its performance-related characteristics, as well as flows into related funds over the last five years. Next we examine some of the more granular elements of the Russell Global Small Cap Index as the asset class proxy: sector weights, number of holdings over time, market capitalization, representation by regions, and liquidity.

Sectors

Sector representation within global small cap shows a relatively stable and diversified allocation. Two of the larger exposures are to Materials and Industrials,¹¹ with a combined 5-year average weighting of 29% within the Russell Global Small Cap Index. A study by Eaton et al (2009) suggests that small cap manufacturers were disproportionately impacted by the global recession, although Industrials and Materials sector weights remained relatively stable throughout the five years evaluated (Figure 7). Materials did, however, experience the largest contraction of any sector – 106 basis points – pre- versus post-recession.¹²

Figure 7 / Russell Global Small Cap Index monthly GICS¹³ sector weightings (June 30, 2006–June 30, 2011)



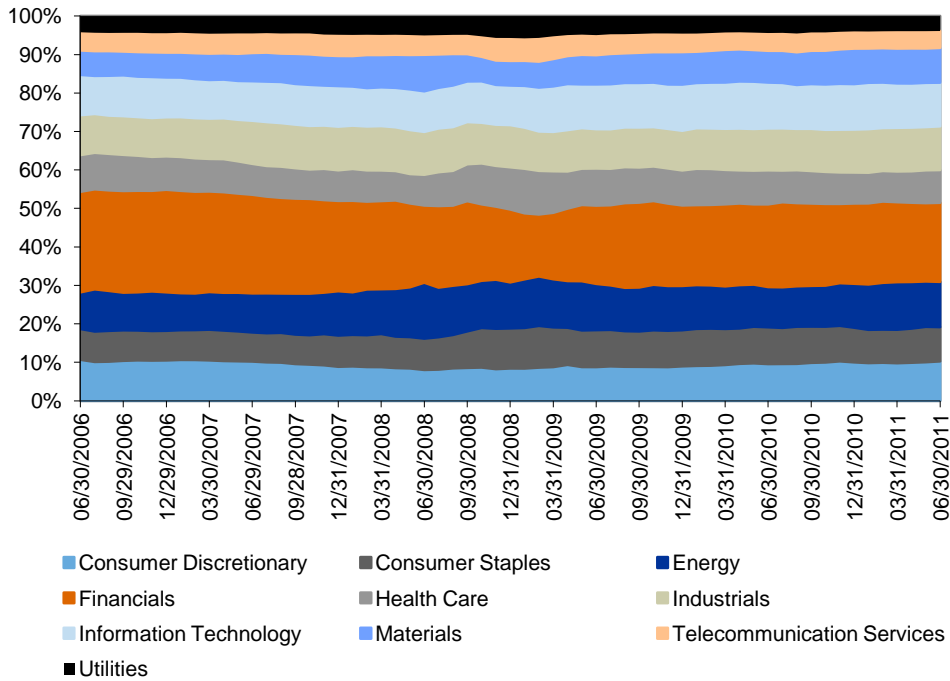
¹¹ Sectors under the Global Industry Classification Standard (GICS) sector classification system.

¹² Average monthly weight of the sector from 6/30/2006–8/31/2009, minus the average monthly weight from 9/30/2009–6/30/2011. While there is no single recognized source for global recession data, the IMF issued a series of reports in third-quarter 2009 declaring the start of a global economic recovery: see <http://www.imf.org/external/pubs/ft/gfsr/2009/02/pdf/text.pdf>.

¹³ Sectors under the Global Industry Classification Standard (GICS) sector classification system.

The Materials and Industrials sectors also represent the largest combined difference between large cap and small cap sector allocation: 10.4% greater than the 5-year average weighting within the Russell Global Large Cap Index (Figure 8).¹⁴ The sector representations underscore some of the differences in company types found in the large cap and small cap opportunity sets. Global small cap Consumer Discretionary companies are also more heavily represented relative to global large cap by an average weight of 6%.¹⁵

Figure 8 / Russell Global Large Cap Index monthly GICS sector weightings (June 30, 2006–June 30, 2011)



¹⁴ The Russell Global Large Cap Index Materials and Industrials combined sector average quarterly weight from June 2006–June 2011 was 18.59%.

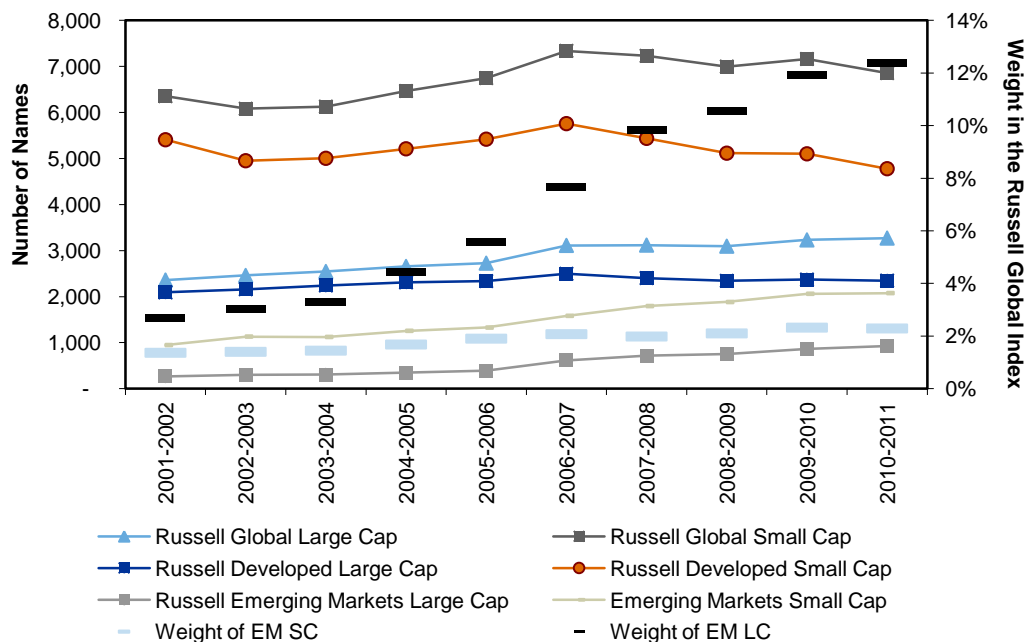
¹⁵ The Russell Global Large Cap Index Consumer Discretionary sector average monthly weight from June 2006–June 2011 was 9.4%; the Russell Global Small Cap Index Consumer Discretionary sector average monthly weight over the same period was 15.5%.

Growth of the emerging markets opportunity set

The global small cap landscape has changed dramatically over the last 10 years. An axis shift has occurred, as company representation from developed countries within the index has remained flat relative to marked growth from developing countries. In Figure 9, below, the lines chart the number of constituent names in the different indexes over time, while the series of purple and orange bars measure the changing weights of emerging markets large and small cap components in the Russell Global Index (RGI). The grey line shows emerging markets small cap company representation surging 119% from the 2001 baseline through June 2011, and the purple bars show the weight of the asset class within the RGI also doubling over the last 10 years. Emerging markets large cap companies – the light-blue line in the graph below – have shown even more robust growth in numbers of names, jumping 246% over 10 years. The orange bars in Figure 9 chart the weighting growth of the emerging markets large cap asset class within the RGI as it increased by more than 10% between July 2001 and June 2011. Indeed, the growth of the global equity opportunity set (Global Large Cap + Global Small Cap) in the last 10 years has been almost exclusively concentrated in emerging markets companies. This growth has effectively produced a proportion of large to small cap names that mirrors the United States as represented by the Russell 3000® Index: 876 large cap names, and 2,111 small cap names.

It should be noted that there is a tendency toward less movement in large cap than in small cap by number of names vis à vis the process of ranked market capitalization weighting.¹⁶

Figure 9 / Global equity market growth by segment. Average number of names (as of June 30 each reconstitution year)¹⁷



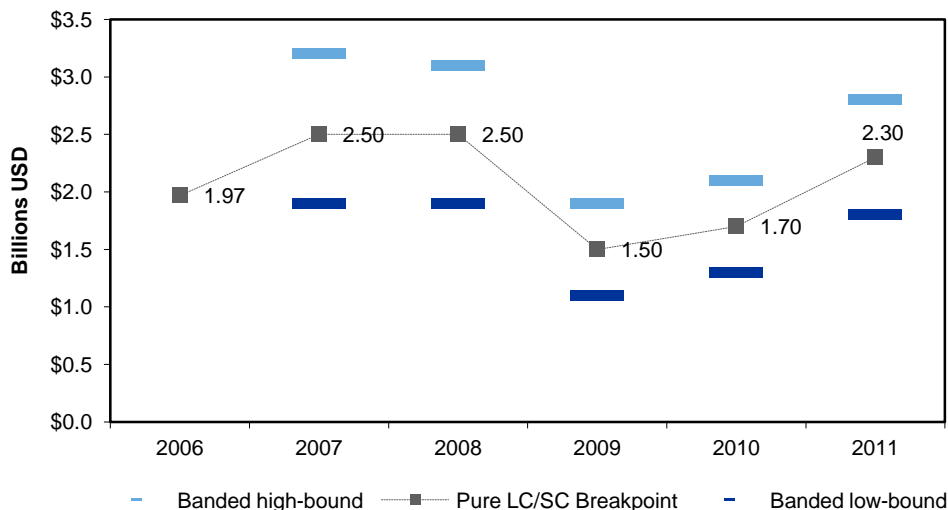
¹⁶ The large cap opportunity set is expected to be inherently more stable, as the high-bound is established by the largest-capitalized company in a market or region and then a target market capture rate by percentile is applied. The high-bound for the small cap opportunity set is established after the large cap target has been met and could result in an expansion or contraction of the universe, given market conditions and the rules applied by an index provider (for example, a minimum size requirement).

¹⁷ A "Recon Year" for the Russell Indexes is typically July 1 in Year 1 through June 30 in Year 2.

Capitalization: large versus small

Russell defines large companies and small companies on a global-relative basis (a process we explore in greater detail below, in the section highlighting various index providers’ small cap construction). Figure 10 highlights the change to Russell’s large/small boundary line over the last five years, including the range created by capitalization banding, which is a turnover-reducing mechanism Russell applies to its existing membership at index reconstitution.¹⁸ Over the past five years, the breakpoint between large cap and small cap companies has moved from a 2007–2008 high of 2.5B USD to a 2009 low of 1.5B USD; the 1B USD decline in the cap size boundary reflected the aggregate decline in global equity markets near the trough of “the great recession.”¹⁹ Since the 2009 trough, the large/small breakpoint has experienced a strong recovery, climbing back to 2.3B USD as of the Russell Indexes’ reconstitution in June 2011.

Figure 10 / Russell Global Index large/small breakpoint (at Reconstitution each year)



Source: Russell Indexes

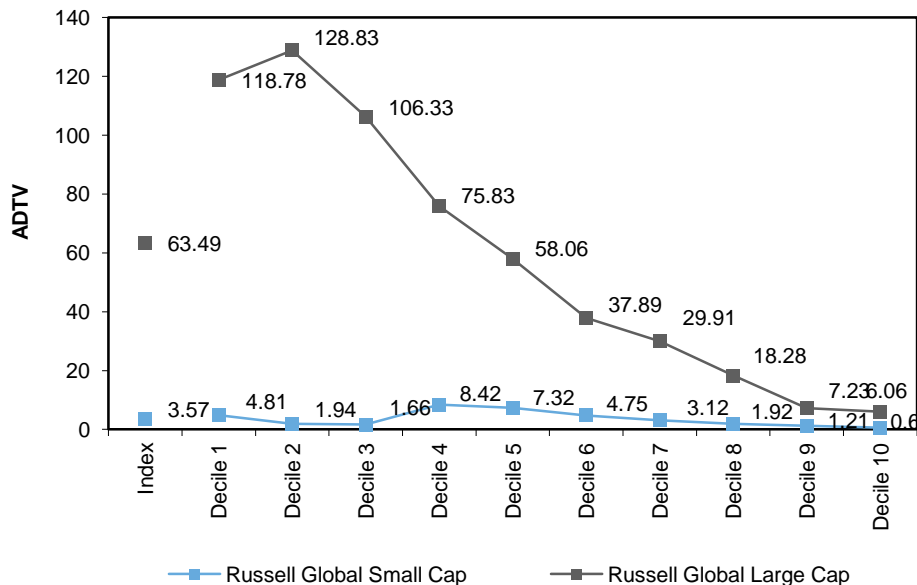
¹⁸ For more information, reference Agather, R., & S. McCarthy (2007), “Capitalization Banding: Russell Indexes,” available online at http://www.russell.com/indexes/documents/Capitalizationbanding_reconstitution2007.pdf.

¹⁹ Business Cycle Dating Committee, National Bureau of Economic Research report: <http://www.nber.org/cycles/sept2010.html>.

Liquidity issues

As attractive as the risk-adjusted returns to global small cap may have been over the recent period, one cannot ignore what is perhaps the asset class's largest drawback: significant liquidity risk. Global small cap collectively has a liquidity profile that limits the ability of money managers to effectively deploy or raise capital – to buy and sell – within relatively short time periods. Figure 11, below, shows the average daily dollar value traded²⁰ at each market cap decile for the Russell Global Large Cap and Russell Global Small Cap indexes. The global small cap index fails to reach the liquidity levels found in any decile of the Russell Global Large Cap Index. It should be noted, however, that liquidity risk tends to create a classic “chicken and egg” scenario: volumes will increase – and liquidity risk decrease – only if more participants enter a market; but would-be participants require better liquidity. Eun, Huang and Lai (2008) suggest that the accessibility of global small cap stocks would not support large allocations and would limit a global small cap product's capacity. In 2009, InterSec Research estimated that global small cap product capacity – excluding the U.S. – would most likely fall between 1B and 3B USD, depending on the sizes and resources of the firms. Including U.S. companies as part of a true global small cap portfolio would expand product capacity beyond the estimated 3B USD upper bound.

Figure 11 / Small cap average daily dollar value traded by deciled market capitalization, based on the Russell Global Small Cap and Russell Global Large Cap indexes (liquidity scenario as of June 30, 2011)²¹



Source:

Russell Indexes, FactSet

Beyond analyzing liquidity at the aggregate index deciles, we also simulated the days-to-trade into a fully replicated 1B USD position. Using the Russell Global Small Cap Index and its constituent weightings as of 6/30/2011, we made a hypothetical 1B USD investment. We

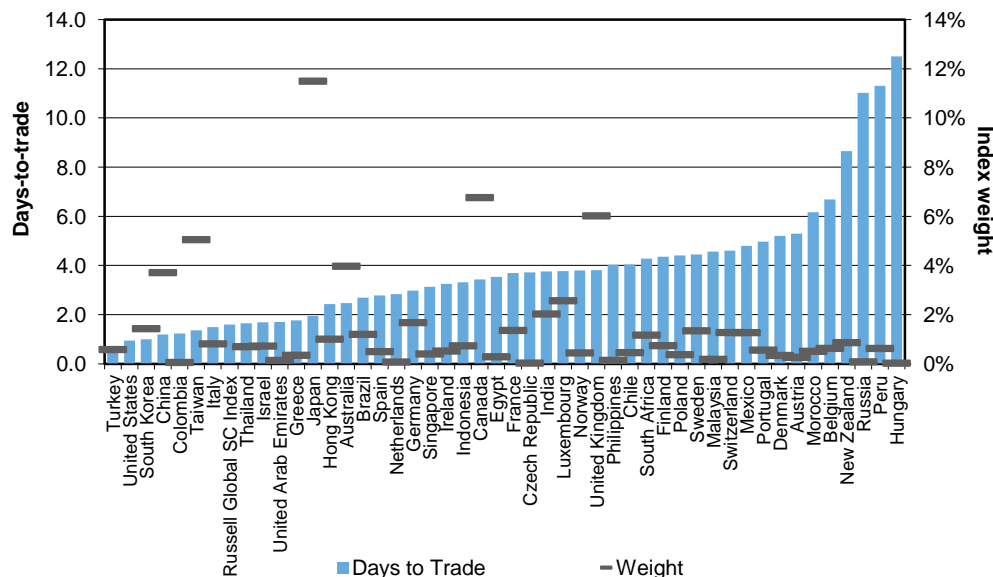
²⁰ The average daily dollar value traded uses a 30-day average from June 2011.

²¹ Liquidity should be considered time period dependent and may vary over time.

applied a 30-day average volume from June 2011, but placed an additional constraint that only 25% of that average volume would be available. From those initial results, we then used a weighted harmonic average of the days-to-trade into the positions held by the index in each country.²² (Taking the weighted harmonic average lessens the impact of the larger liquidity outliers found in some countries' small cap universes.) The final results are shown in Figure 12, below. The light-blue columns represent the average days-to-trade for each country in the simulation, and the grey bars show the weight of each country within the Russell Global Small Cap Index. Turkey had the best small cap liquidity profile, taking less than a day to assume fully replicated index positions; Hungary was the most problematic, at 12.5 days-to-trade; the Russell Global Small Cap Index itself had an average of 1.6 days-to-trade.

Each country's liquidity, as measured by days necessary for full replication, is time-period-dependent and is also impacted by the country's size. Some developed markets, such as those of Japan, Australia and the U.K., might generally be more liquid than, say, the markets of Turkey or Colombia, but would take longer to replicate, given their sizes and numbers of constituents. These findings support the Eun, Huang and Lai suggestion that global small cap is currently most appropriate for actively managed portfolios.²³ Active management may provide greater flexibility for selecting those securities whose liquidity profiles are best suited to the objectives of a specific fund or account. Any passive global small cap solutions would likely be comprised of highly optimized portfolios representing a relatively small number of liquid securities.

Figure 12 / Simulated liquidity risk and Russell Global Small Cap Index weight by country²⁴ (liquidity scenario as of June 30, 2011)



Sources: Russell Indexes, FactSet

²² The weighted harmonic average, H, of a set of values X1, X2, ..., Xn is the reciprocal of the arithmetic average of reciprocals. For more information on the application of weighted averages, please consult Christopherson, J. A., D. R. Cariño and W. E. Ferson (2009): *Portfolio Performance Measurement and Benchmarking*, pp. 251–52.

²³ Excluding U.S. companies.

²⁴ For purposes of scale, the U.S. index weight is not represented on the graph, but it constituted 34.6% of the Russell Global Small Cap Index as of 6/30/2011.

Global small cap active management

As we observed in the previous section, addressing liquidity risk, global small cap may, at present, be most appropriate for inclusion in actively managed portfolios, as skilled active managers may be able to navigate the sometimes difficult liquidity conditions. Active managers may also offer the potential of adding value. Within the eVestment Alliance Small Cap Equity Manager Universe²⁵ we evaluated the performance of managers on a 1-, 3-, 5-, 7- and 10-year annualized basis. The median manager beat the Russell Global Small Cap benchmark in the 1-year, 3-year and 7-year periods, but underperformed in the 5- and 10-year periods; all periods end December 2010 (Figure 13).²⁶

Figure 13 / Global small cap manager performance. Global Small Cap Equity Universe (January 1, 2006–December 31, 2010); periodic and frozen calendar years shown

Rank	1 year	3 years	5 years	7 years	10 years
5th percentile	-1.44	28.53	0.91	6.73	10
25th percentile	-8.22	21.3	-0.21	5.3	9.09
Median	-9.46	18.77	-1.09	4.93	8.46
75th percentile	-14.7	16.56	-2.22	3.3	7.61
95th percentile	-27.41	9.69	-3.19	1.63	5.83
# of observations	32	29	22	21	16
Russell Global Small Cap Index	-13.7	17.17	-0.89	4.52	8.76

Source: eVestment Alliance, Russell Indexes

To further our insights into global small cap, Russell Indexes also worked with the third-party firm InterSec Research to survey asset managers about their views. When asked what the dollar-weighted average market capitalization of a global small cap benchmark should be, the majority of respondents said between 1B and 2B USD.²⁷ As seen in Figure 14, below, the Russell benchmark typically lies within that range – the exception being a dip below 1B USD during the height of the global recession. The high/low market cap range of the Russell benchmark also fits with managers' expectations²⁸ for cap size range in a global small cap benchmark.

Manager notions of an appropriate global small cap benchmark may not align, however, with the size characteristics of their own portfolios. The quartiles in Figure 14 show the dollar-weighted average market capitalization of the first-, median- and third-quartile global small cap manager portfolio. We observe that on average, non-U.S. small cap managers appear to hold in their portfolios greater concentrations of the companies that would be found in the top market cap deciles of the benchmark. There are several possible reasons for this behavior, the first being a tendency for active managers to hold winning names and the second being defensive rotation into larger stocks during down market cycles (Lystra, 2011). Another possible explanation is that there is a potential bias toward smaller mid cap

²⁵ Global Small Cap Equity Percentile Ranking Universe trailing periods from 12/31/2011.

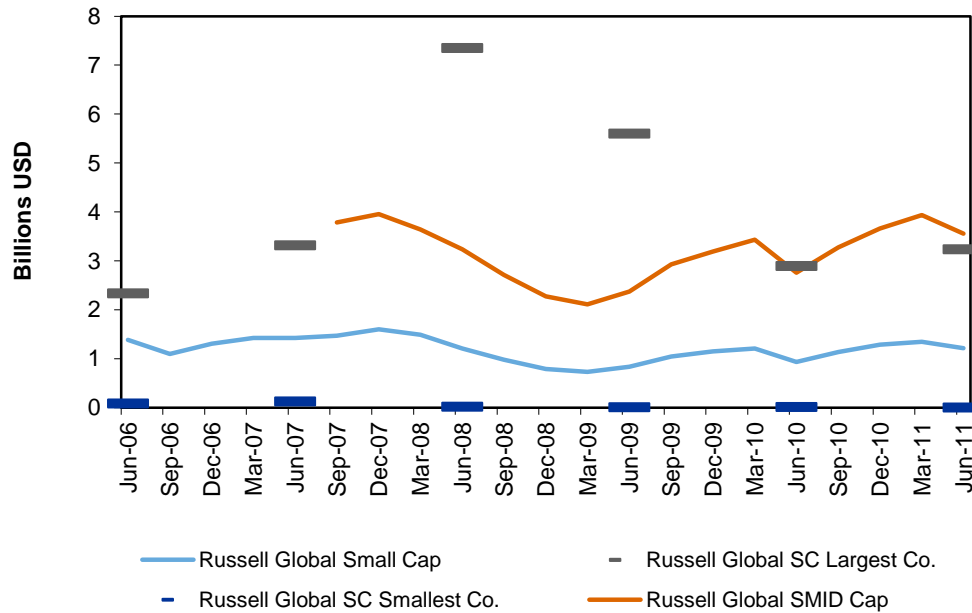
²⁶ Gross of any fees. We should note that peer group universe data are subject to survivorship bias and may exclude underperforming accounts that closed or that left the universe. It goes beyond the scope of this research to define survivorship bias, but for details readers may reference Brown, S. J., W. Goetzmann, R. G. Ibbotson & S. A. Ross (1992): "Survivorship Bias in Performance Studies," *The Review of Financial Studies*, 5, 553–80.

²⁷ Russell Indexes and InterSec Research survey June 30, 2011; 32 global asset manager respondents.

²⁸ A majority of the Russell–InterSec Research survey respondents stated a global small cap size range expectation of between 100M USD and 4.99B USD.

companies, which would be more familiar to traditional large/mid cap global managers who are venturing into small cap. Additionally, successful managers who continue to attract assets may have the need to hold larger names as a way of enhancing product capacity. Therefore, in order to measure the performance of global small cap managers, evaluating developed countries' small cap (excluding emerging country exposures) and global "SMid" (small/mid) cap benchmarks, in addition to standard global small cap offerings, may be warranted in instances where a manager is expected to have a higher cap concentration.

Figure 14 / Dollar-weighted average market cap for the Global Small Cap Index cap range at reconstitution (June 30, 2006–June 30, 2011)²⁹



²⁹ The Russell Global SMID Index began July 1, 2007.

An example of small cap evolution: the Russell Europe SMID 300 Index.

In December 2011, we published research on international (non-domestic) small cap from the perspective of the U.S. investor.³⁰ Subsequently, several Russell clients expressed interest in a Europe small cap product. After an intensive research effort, Russell Indexes – in consultation with Goldman Sachs, Deutsche Bank and UBS – determined that an index comprised of small and mid cap companies, screened for liquidity, was most suitable. The innovative features of this new index³¹ – which we review in more detail below – are designed to bridge the gaps between traditional large cap exposures and opportunities for investment in mid and small cap companies and thus to allow for easier transitioning across the cap and liquidity spectrums. We expect customized benchmarks like the Russell Europe SMID 300 Index to lead the way in providing entry points to the under-served small cap segment of the global equity market.

The Russell Europe SMID 300 Index is created by selecting the 300 most liquid companies in Russell's Developed Europe SMID Index. Liquidity is determined in a two-step process. First, a stock must have a minimum average daily euro value traded of 2M; and, second, each company passing the first screen is given a liquidity factor score determined by adjusted market cap (ticket size) divided by the average daily euro value traded. The 300 companies with the best (lowest) liquidity factor scores become members of the index. As seen in Figure 15, below, the market cap profile increases to over €2.2M, while time-to-transact decreases quite dramatically. The use of the liquidity factor method allows for selection of companies across the cap range of the eligible universe, which ensures an adequate mix of small cap and midsize companies.

Figure 15 / Russell Europe SMID 300 size and liquidity characteristics

	Existing Russell Developed Europe Small Cap	Russell Developed Europe SMID Benchmark	Russell Europe SMID 300
Number of stocks	1,056	751	300
Average adjusted market cap	€626,977,329	€1,785,764,282	€2,293,597,269
Maximum days-to-trade, assuming \$100M portfolio	122.9%	204%	6.9%
Largest company	€2,712,320,448	€7,196,587,067	€7,175,533,381
Smallest company	€27,760,174	€134,565,184	€230,793,607

³⁰ For more information on the U.S. version please visit:
<http://www.russell.com/indexes/documents/research/international-small-cap-defining-promising-asset-class.pdf>

³¹ For more information on the Russell Europe 300 SMID Index, including full construction and methodology, please visit: <http://www.russell.com/indexes/documents/russell-europe-smid-300-index-construction-methodology.pdf>.

Global small cap index construction: global-relative, country-relative, or something in between?

While the notion of “global small cap” is seemingly straightforward, the definition of the asset class varies among index providers, in some cases substantially. Currently, the major global index providers – FTSE, MSCI, S&P and Russell – use four distinct methods to define global small cap. We have analyzed the application of each provider’s set of rules, using the reconstituted 2011 Russell Global Index portfolio as the basis for our simulations. Russell and S&P have, in our opinion, the most replicable processes, while FTSE and MSCI use more opaque means. As demonstrated below, the implications for portfolio construction and management can be significant. Readers are best served if we review the Russell and S&P methodologies first, given that they are used by FTSE and MSCI in different combinations to produce their own large cap and small cap indexes.³² Each provider’s methodology is different, and the following simulations are simplified applications of rules; the actual composition of the various providers’ indexes may vary.

Russell and S&P take the two most differentiated approaches to global small cap portfolio construction. Russell uses a purely global-relative approach, meaning that the entire opportunity set is evaluated consistently and that the break between large cap and small cap is consistent worldwide.³³ This approach produces a clearly defined grouping of like-size companies, but may result in some countries having greater or lesser concentrations of small cap names. S&P employs a country-relative approach,³⁴ which MSCI also used exclusively until the launch of its MSCI IMI index series in May 2007. A country-relative approach, as the term suggests, determines the break between large and small cap within each individual country, which can prevent countries from having different proportions of large and small cap stocks. However, employing a country-relative approach creates some significant size inconsistencies across countries whereby a company size can be classified as large cap in one country but small cap in another (Feldman & Haughton, 2008).

Figure 16, below, contrasts the simulated differences in small cap size definitions that are created by country- and global-relative methodologies. The Russell global-relative approach is shown in orange: the level that separates large cap and small cap stocks is the same in every country (at time of this writing, 2.3B USD). Grey shows the large/small cap dividing line in each country based on a country-relative methodology. In Russia, the country-relative cutoff is 7.7B USD; in Egypt, the large/small cap dividing line is USD 671K – a difference of more than 7.1B USD.

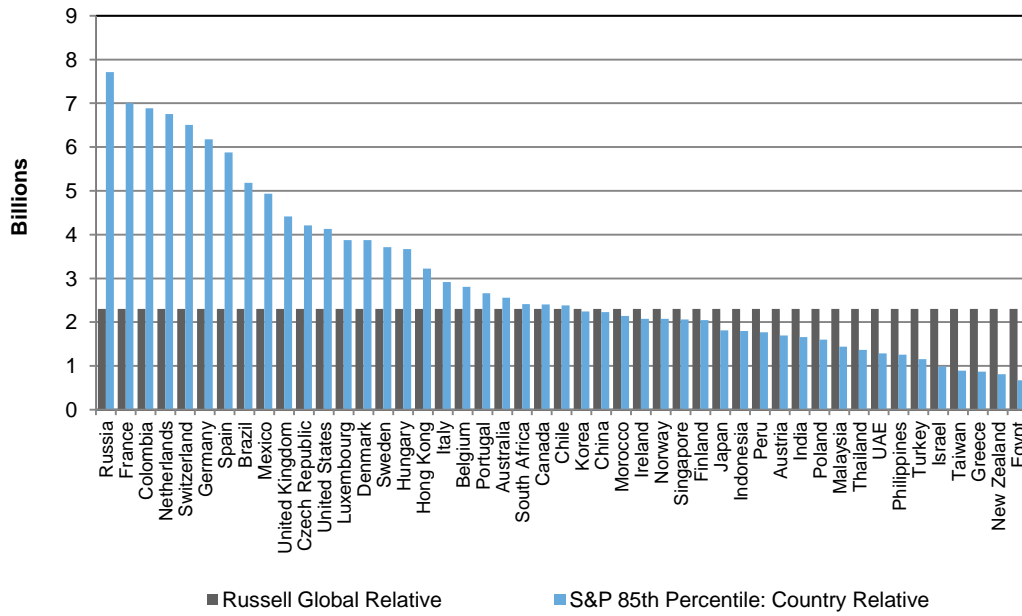
³² The Russell Global Index methodology can be viewed at http://www.russell.com/indexes/documents/Global_Indexes_Methodology.pdf.

The S&P Global Broad Market Index methodology can be viewed at <http://www.standardandpoors.com/indices/articles/en/us/?articleType=PDF&assetID=1245304767971>.

³³ The Russell U.S. Index series is calculated separately; the U.S. large/small unbanded breakpoint at Reconstitution 2011 was 2.2B USD.

³⁴ S&P also offers a separate set of global indexes, the Cap Range Index Series, which uses a global-relative approach.

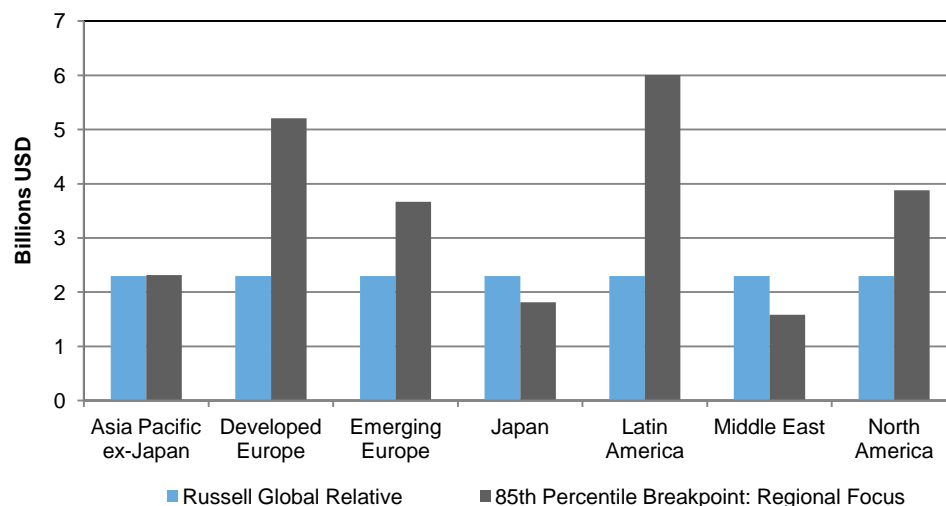
Figure 16 / Simulated global- vs. country-relative small cap size definitions by country, based on May 31, 2011 Russell data³⁵



³⁵ Simulated breakpoints were computed by sorting companies in descending order by capitalization and then summing. The 85th capitalization percentile is the capitalization of the company whose cumulative capitalization equals, or exceeds but is nearest to, the 85th percentile. The 2011 Russell Global Index reconstitution portfolio as of 5/31/2011 was used as the starting universe.

The FTSE and MSCI methodologies cannot be described as being distinctly country-based or distinctly globally based. Rather, FTSE and MSCI have created varied combinations that use elements of both disciplines. FTSE’s process might best be described as regionally focused; it uses seven groupings of countries (Japan is the one exception as a standalone) to determine cap tier. For the purposes of our simulation, we applied a standard 85:15 large cap/small cap split in evaluating the market capitalizations of each region.³⁶ Unfortunately, although this approach mitigates some of the country-by-country small cap size mismatch, there are still significant differences by region; the cap-tier difference between Latin America and the Middle East is the most pronounced (Figure 17).

Figure 17 / Simulated global vs. regional small cap size definitions, based on May 31, 2011 Russell data³⁷



MSCI uses a process of interpolation that we will describe as “X&Y,” with both country- and global-relative approaches referenced. MSCI calculates both a series of global minimum size ranges and a series of intra-country large/small cap breakpoints. If the country-relative large/small cap breakpoint falls within the predetermined global cap size range, the large cap/small cap boundary remains unchanged. However, if the country-relative size is outside the applicable global minimum size range, the large/small cap breakpoint is forced down until it reaches the predetermined level. Additionally, MSCI sets the large/small cap demarcation line differently than it does for emerging market countries: the emerging markets’ boundary line is set to 50% less than for developed.³⁸

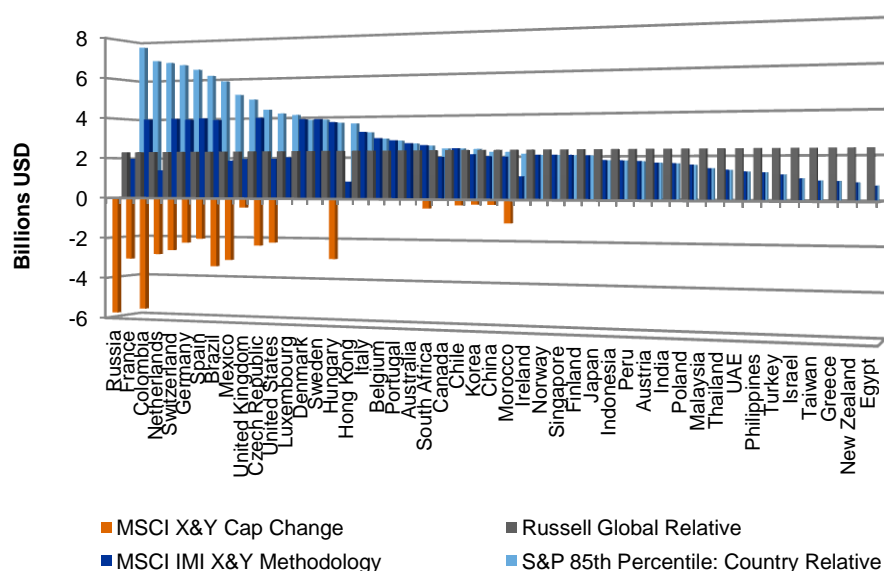
³⁶ FTSE uses a market capitalization banding range, or “zone,” to define large cap and small cap companies within each region, which may not result in an 85:15 large/small cap split in every region.

³⁷ Simulated breakpoints were computed by grouping countries by regions as defined by FTSE; see http://www.ftse.com/Indices/FTSE_Global_Equity_Index_Series/Downloads/FTSE_Global_Equity_Index_Series_Ind ex_Rules.pdf. Then sorting companies within each region in descending order by capitalization and then summing. The 85th capitalization percentile is the capitalization of the company whose cumulative capitalization equals, or exceeds but is nearest to, the 85th percentile. The 2011 Russell Global Index reconstitution portfolio as of 5/31/2011 was used as the starting universe.

³⁸ See “MSCI Global Investable Market Indices Methodology” at: http://www.msci.com/eqb/methodology/meth_docs/MSCI_Aug11_GIMIMethod.pdf.

As seen in Figure 18, below, MSCI begins with the country-relative small cap size ranges shown in light blue. Then their global minimum size references are applied to roll back the small cap breakpoints in certain countries as shown in orange. Developed countries like France, Germany and Switzerland have their small cap cutoffs lowered to meet the April 2011 developed size reference of 4.040B USD. Emerging countries such as Russia, Colombia and Mexico similarly have their small cap cutoffs reduced to meet the emerging size reference of 2.020B USD.³⁹ The beige bars denote the total magnitude of the cap reductions necessary for certain countries to satisfy the MSCI global size references.

Figure 18: Simulated MSCI adjustments⁴⁰ to small cap size definitions, based on May 31, 2011 Russell data



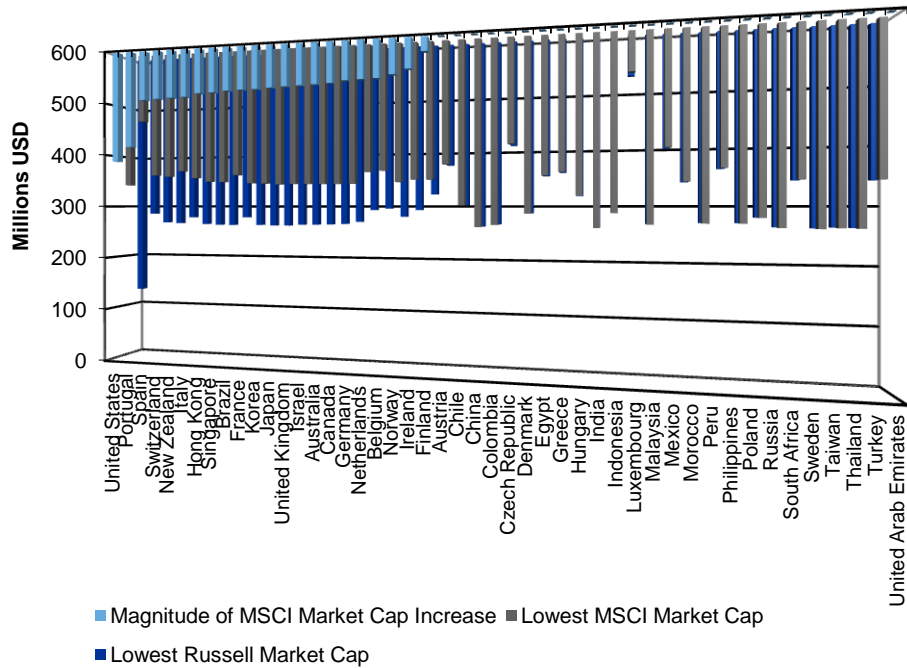
MSCI also establishes a floor for the minimum acceptable market capitalization, which is calculated for developed markets and then applied with a 50% reduction for the emerging countries.⁴¹ In practice, although MSCI targets 99% market coverage worldwide, our estimate is that application of the minimum size requirement rules eliminates companies from the bottom of its small cap universe in nearly half of the countries MSCI covers. (Figure 19). FTSE has no such minimum cap size requirement, and while S&P and Russell do maintain minimums, they are lower than MSCI's barriers to inclusion. In our simulation, applying the MSCI minimum size requirements to the global small cap universe impacts Japan the most, with 132 names dropped; and on a global basis, the U.S. loses the most companies, with 682 names removed from the small cap opportunity set.⁴²

³⁹ Simulated breakpoints were computed by sorting companies in descending order by capitalization and then summing. The 85th capitalization percentile is the capitalization of the company whose cumulative capitalization equals, or exceeds but is nearest to, the 85th percentile. In countries where this process resulted in market capitalization exceeding the stated MSCI April 2011 global size references, the market capitalization was reduced until reaching the first company market capitalization falling within the applicable global size reference. The 2011 Russell Global Index reconstitution portfolio as of 5/31/2011 was used as the starting universe.

⁴⁰ Refer to footnote 38 for reference to an explanation of the simulation.

⁴¹ The global minimum size references used by MSCI as of April 2011 were: developed high-bound, 4.040B USD; developed low-bound, 342M USD; emerging high-bound, 2.020B USD; emerging low-bound, 171M USD. See

Figure 19 / Simulated impact of minimum size requirements⁴³ on depth of small cap coverage by country, based on May 31, 2011 Russell data



“MSCI Global Investable Market Indices Methodology” at: http://www.msci.com/eqb/methodology/meth_docs/MSCI_Aug11_GIMIMethod.pdf.

⁴² See Table 2 in the appendix for the numbers of securities deleted, by country.

⁴³ Simulated impacts to the global small cap universe were computed by sorting companies in descending order by capitalization. In countries where the MSCI minimum cap size boundary was crossed, the remainder of companies represented by the RGI and the total market cap differences were summed. The MSCI developed country minimum cap size was 342M USD, and the emerging minimum cap size was 171M USD, as of April, 2011. See “MSCI Global Investable Market Indices Methodology” at: http://www.msci.com/eqb/methodology/meth_docs/MSCI_Aug11_GIMIMethod.pdf.

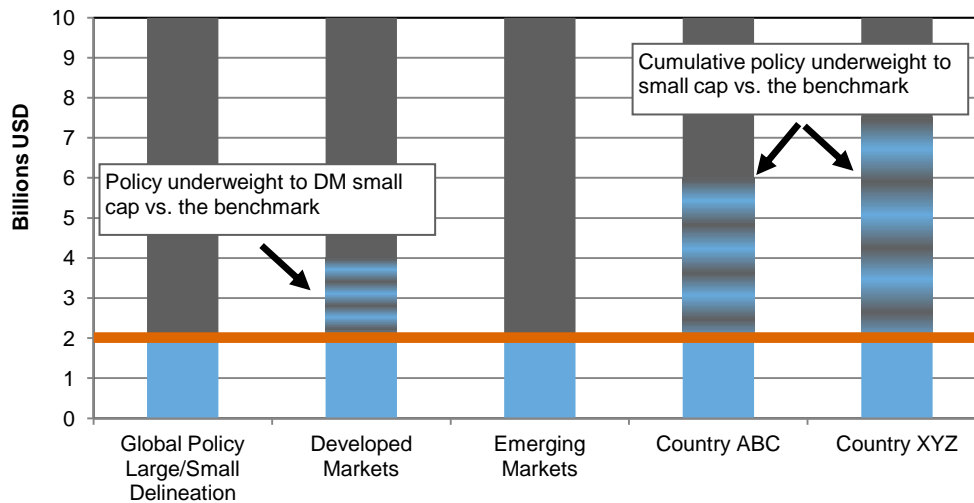
The 2011 Russell Global Index reconstitution portfolio (as of 5/31/2011) was used as the starting universe.

Importance of index construction methodologies for investors

How index providers define global small cap can have wide-ranging implications. Global small cap managers using an S&P or FTSE mandate would have an extreme range of company sizes to choose from within a given cap tier; they may question the appropriateness of a \$7 billion company being classified as “small cap.” MSCI seeks to mitigate these large differences between one country’s cap size boundary and another’s by applying global size references, but maintains an explicit size difference expectation between developed and emerging countries. The developed/emerging divide that is created makes the evaluation of global small cap more difficult, particularly when considering company sizes in the leading emerging markets relative to those in smaller developed countries. A basic example of the implications of size mismatch is provided below, in Figure 20. The task of accurately replicating the MSCI process also seems potentially burdensome, given the multiple layers of calculation required to derive the composition of the index.

Let us assume that a plan sponsor or global asset manager has a notion of the global large/small cap breakpoint of 2B USD. Let us further assume that the index provider does not use the consistent size definition. In such case, a relative underweight to the developed countries small cap index may be created (by use of a separate developed/emerging size classification construct). This mismatch can occur country-by-country as well, with the index-defined cap size breakpoints of the largest developed and emerging countries falling well above the assumed 2B USD large/small cap constant boundary. These size mismatches create the potential for a global underweight to small cap relative to the benchmark.

Figure 20 / Example of size mismatch within a global equity portfolio



Source: Russell Indexes

Conclusion

Global small cap is a promising asset class, just beginning to be considered for inclusion in a broadened global equity portfolio. While developed large cap and mid cap companies will continue to constitute the bulk of allocations outside an investor's home country, investors are expected to slowly integrate small cap over the next decade, as they move toward fully realized global equity portfolios (Collie, 2010). In particular, the historical lower correlation between U.S. and non-U.S. small cap stocks would seem to make the potential diversification benefits especially attractive. As suggested by the Brandes Institute research discussed above, differential performance may be derived from the relative business maturity of typically "younger" U.S. small cap and typically "older" non-U.S. small cap companies. Non-U.S. small caps are also associated with more idiosyncratic risks, which present opportunities for active managers, though low liquidity will remain a challenge.

Each index provider we have reviewed has a different approach to the process of defining global small cap. The S&P country-relative method is straightforward in its application, but it results in a highly disjointed definition of small cap, as individual countries are grouped into regions. FTSE is a step removed from the individual-country process, grouping countries into world regions before defining small cap/large cap boundaries. Unfortunately, the FTSE process does little to reduce the size disparities produced by constructing small cap indexes on a regional basis. MSCI's process uses the same country-relative method as does S&P, but then uses global size ranges to restrict the variability across countries. However, MSCI still maintains separate notions of small cap for developed and emerging countries, and that makes true global evaluation of the asset class difficult – a problem further exacerbated by an arguably onerous set of construction rules.

Russell's global-relative approach maintains consistent evaluation of small cap in each country, eliminating the peaks and valleys in small cap definition that characterize the other methodologies. When asked if they define the global small cap opportunity set via a country-by-country perspective, 26 of our 32 InterSec survey respondents said no. Russell's methodology offers the clearest picture of global small cap, and does so in a manner that is highly transparent and replicable. No other index provider allows a global equity mandate to be effectively divided and allocated among managers without explicit size mismatches.

We expect to see more global and small cap products launched in the next few years, primarily by existing global large cap/mid cap managers and a smaller number of dedicated boutique firms. But the greatest potential for initial exposure may be through either global equity portfolios or customized portfolios such as the Russell Europe SMID 300, which can make tactical allocations to small cap and concentrate on the more liquid listings. However the evolution occurs, we expect small cap to become an increasingly important consideration within a global equity allocation framework.

Appendix

Table 1 / Annualized returns

Index	July 31, 2001–July 30, 2010 10-year annualized return	July 31, 2001–June 30, 2011 10-year annualized return
Russell 3000 [®]	-0.07	3.44
Russell 2000 [®]	4.03	6.27
Russell Global Small Cap	6.64	9.97
Russell Global Large Cap	1.57	5.49

Table 2 / Deleted securities, by country (also refer to Figure 18)

Country	Number of companies cut
United States	682
Japan	132
Canada	72
Korea	44
Australia	43
United Kingdom	37
Hong Kong	22
France	14
Israel	13
Italy	12
Germany	11
Singapore	10
Brazil	10
Switzerland	9
Norway	6
Spain	5
New Zealand	4
Netherlands	4
Belgium	3
Ireland	2
Finland	2
Portugal	1

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