

Russell Research

By: Mat Lystra, Senior Research Analyst¹

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International small cap: Defining a promising asset class

The benefits of international equity portfolio diversification have been well documented. Until recently, however, most investors worldwide 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, the prospective benefits to be gained – risk reduction, greater return potential, or both – decline. 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 – and more specifically, the global ex-U.S. small cap universe – will feature prominently as investors seek a broader international equity opportunity set. But how the international small cap² opportunity set is defined varies among index providers – and these variations can produce

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² References to global ex-U.S./international small cap throughout the remainder of this paper are intended to be exclusive of the U.S. unless otherwise specified.

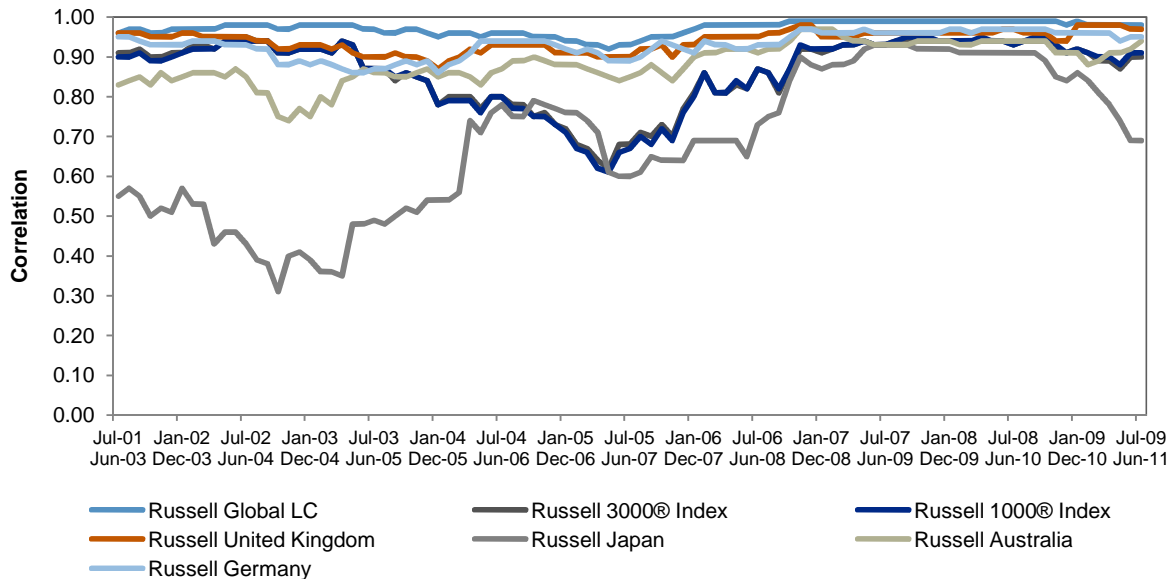
significant differences in composition among the universes from which international small cap managers choose securities.

Our analysis will define and profile the international small cap asset class; review the performance and traits of international small cap managers against that of the Russell Global ex-U.S. Small Cap Index; and, finally, contrast the methods that several leading benchmark providers use in the construction of global small cap indexes and the resulting implications for a global equity portfolio.

Defining the international small cap asset class

Global investors exposed to developed large cap stocks would have entered the last decade seeing correlations between developed ex-U.S. large cap equity markets and key regions and countries spread between 0.55 (Japan) and 0.96 (United Kingdom). 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 ex-US Large Cap Index (July 31, 2001–June 30, 2011)

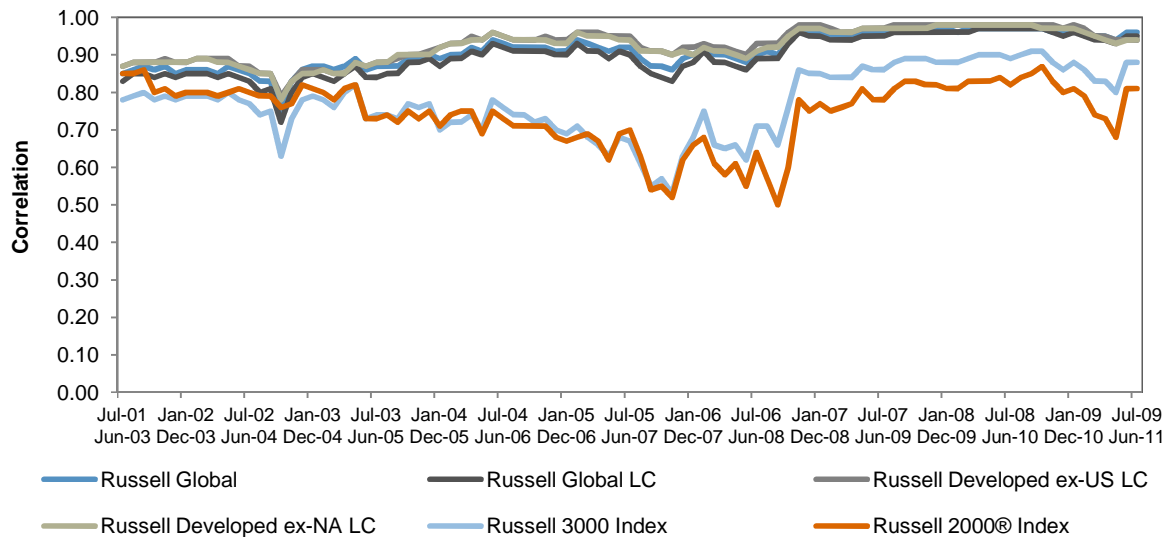


Source: Russell Indexes

Perhaps surprisingly, 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 2011. The Brandes Institute (2007, 2008)³ 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 international small cap companies 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.⁴ 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 ex-US Small Cap Index (July 31, 2001–June 30, 2011)



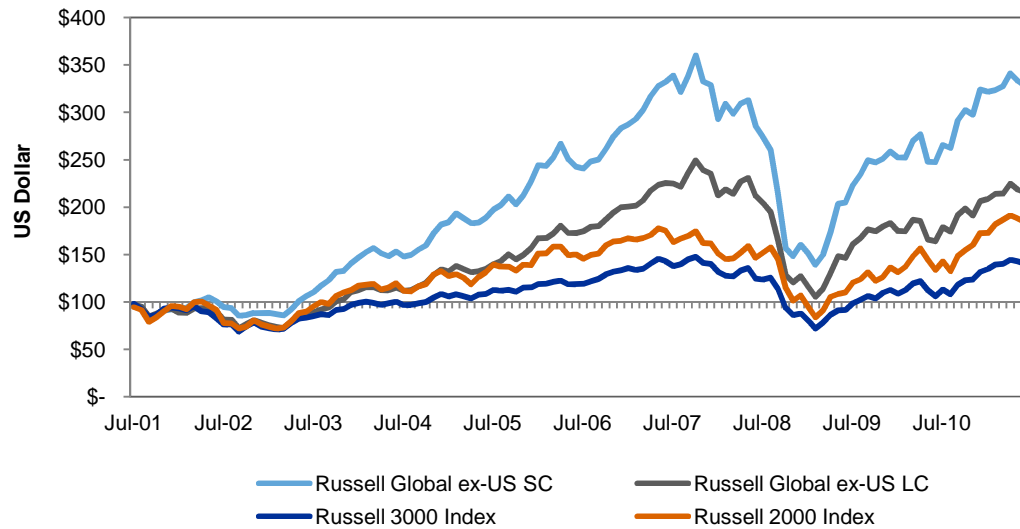
Source: Russell Indexes

³ The Brandes Institute is the research division of Brandes Investment Partners.

⁴ Total company market capitalization as of 5/31/2011 Russell Global Index reconstitution portfolio.

The international small cap asset class has performed remarkably well over the last 10 years. While U.S. equities as measured by the Russell 3000 Index suffered through “the lost decade” (during which returns were essentially zero between June 2001 and July 2010), international small cap had a cumulative return of 166% over the same period and 227% through June 2011,⁵ as shown in Figure 3, below. By comparison, U.S. small cap as measured by the Russell 2000 Index returned 43% through July 2010 and 84% through June 2011.

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

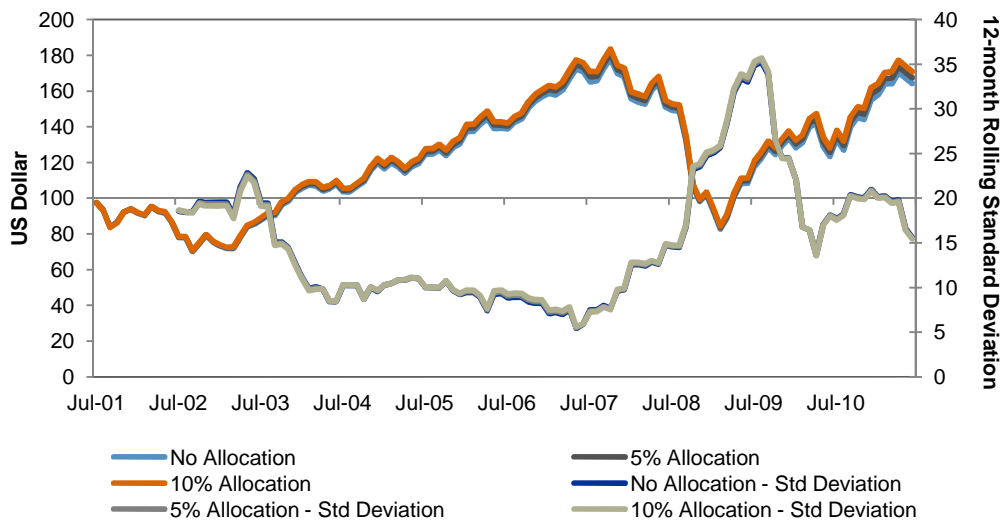


Source: Russell Indexes

⁵ 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 ex-U.S. small cap. Had a 1B USD portfolio allocated 5% to global ex-U.S. small cap between July 2001 and June 2011, it would have gained an additional 31.7M USD – and with a 10% allocation, 65.5M USD (Figure 4).⁶ The volatility of the global portfolio is incrementally reduced with each increase in international small cap exposure; on a rolling 12-month basis, the standard deviation of returns moves from 15.6 (0%) to 15.51 (5%) and 15.42 (10%). The 10-year Sharpe ratio ending June 30, 2011, is marginally better with each increase in exposure: 0.25, 0.26 and 0.27 for the 0%, 5% and 10% portfolios, respectively.⁷

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



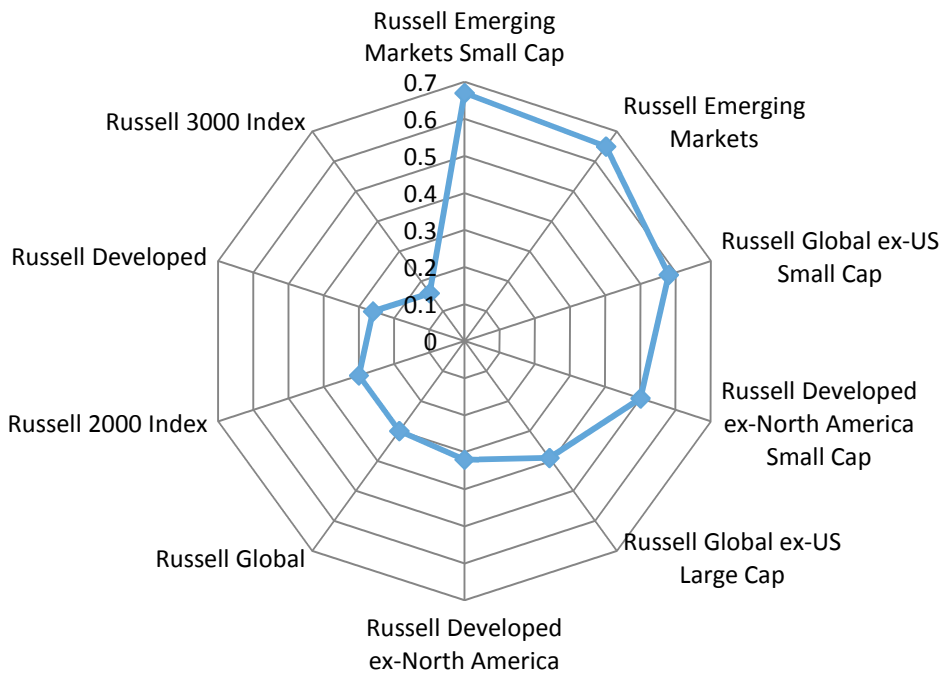
Sources: Russell Indexes, Created with MPI Stylus™

⁶ Assumes passive management against the Russell Global ex-U.S. 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): 40% Russell 1000 Index, 20% Russell 2000 Index, 40% Russell Developed ex-U.S. Large Cap Index; 40% Russell 1000 Index, 20% Russell 2000 Index, 35% Russell Developed ex-U.S. Large Cap Index, 5% Russell Global ex-U.S. Small Cap Index; 40% Russell 1000 Index, 20% Russell 2000 Index, 30% Russell Developed ex-U.S. Large Cap Index, 10% Russell Global ex-U.S. Small Cap Index.

⁷ Calculated by MPI Stylus.

As evidenced by the improvement in the Sharpe ratios of the simulated portfolios, global ex-U.S. 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 ex-U.S. Small Cap Index (0.58) over the last 10 years (Figure 5).⁸

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



Source: Russell Indexes

As discussed earlier, global investors have primarily diversified into well-known large cap names from developed countries. The Russell Developed ex-NA (North America) Large Cap Index is the best proxy for a global investor’s historical international allocation.⁹ This index has historically offered double the risk-adjusted return of the Russell 3000 Index (U.S. broad market index). We presume based on Markowitz (1952) that investors began including developed ex-NA 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 international small cap. International small cap provides exposure to a new segment of the global market which has historically offered nearly double the risk-adjusted

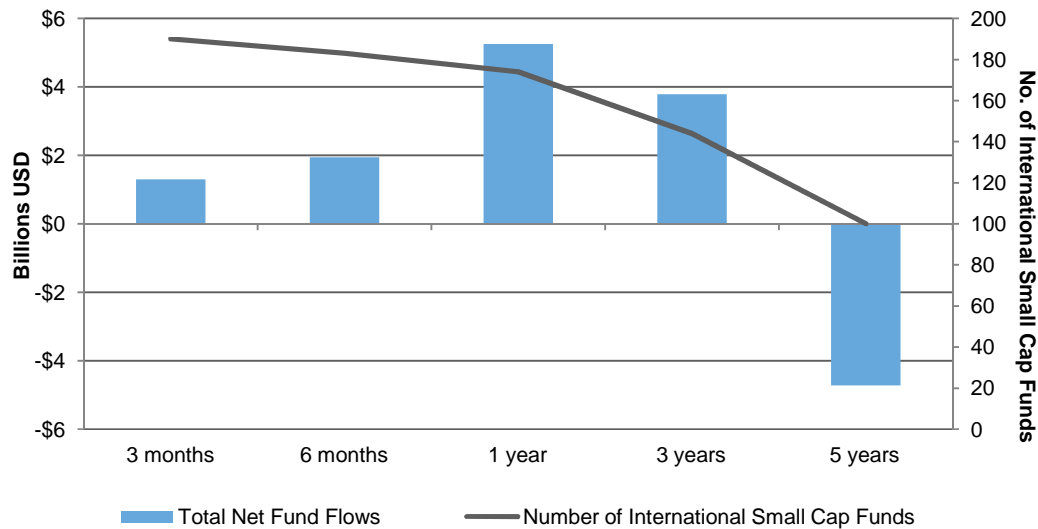
⁸ The higher risk-adjusted returns of certain global regions should be considered time period–dependent and may not persist in the future.

⁹ Russell Investments believes Canada is firmly a part of the non-U.S. opportunity set. Canada may have been overlooked historically by investors tracking the MSCI EAFE Index, which does not include Canadian companies.

performance of the developed ex-NA large cap asset class as measured by the Sharpe ratio.¹⁰

The potential benefits of including non-U.S. small cap as part of a global equity allocation have not gone unnoticed. North American net flows into international small cap funds exceeded 5B USD in 2010, although upheavals in the global market environment may put pressure on flows for at least the remainder of 2011.¹¹ The number of North American funds with assets linked to international small cap has also increased, nearly doubling over the last five years (Figure 6). However, small cap is subject to disproportionate sell-offs during high-volatility periods and recessions (Fargher and Weigand, 1998) – concerns for the remainder of 2011 and at least into 2012.

Figure 6 / North American net international small cap fund flows¹² (period ending 9/30/2011)



Sources: Russell Indexes, Morningstar

¹⁰ 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.

¹¹ Morningstar data. Ex-North America fund flows data availability was limited, which necessitated the narrow regional scope of the fund flows analysis. After the large outflows during the financial crisis, fund flows into international small cap recovered.

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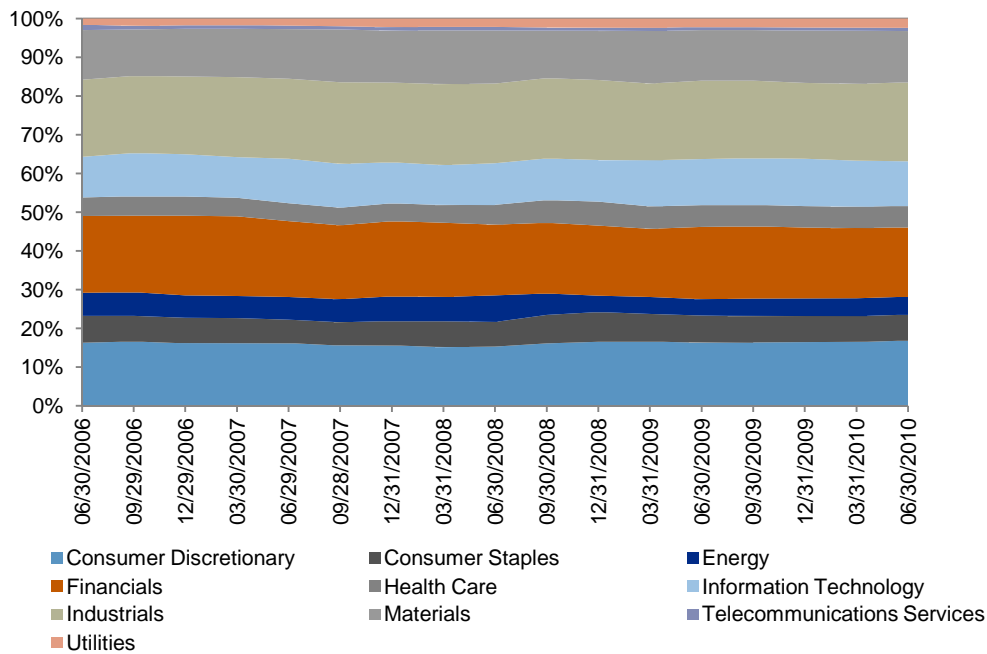
Profiling the global ex-U.S. small cap asset class

Thus far in our analysis of the global ex-U.S. 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 ex-U.S. 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 international small cap shows a relatively stable and diversified allocation. Two of the larger exposures are to Materials and Industrials,¹³ with a combined 10-year average weighting of 33.6% within the Russell Global ex-U.S. Small Cap Index. Although a study by Eaton et al (2009) suggests that small cap manufacturers were disproportionately impacted by the global recession, Industrials and Materials sector weights remained stable throughout the five years evaluated (Figure 7).

Figure 7 / Russell Global ex-US Small Cap Index quarterly GICS¹⁴ sector weightings (June 30, 2006–June 30, 2011)



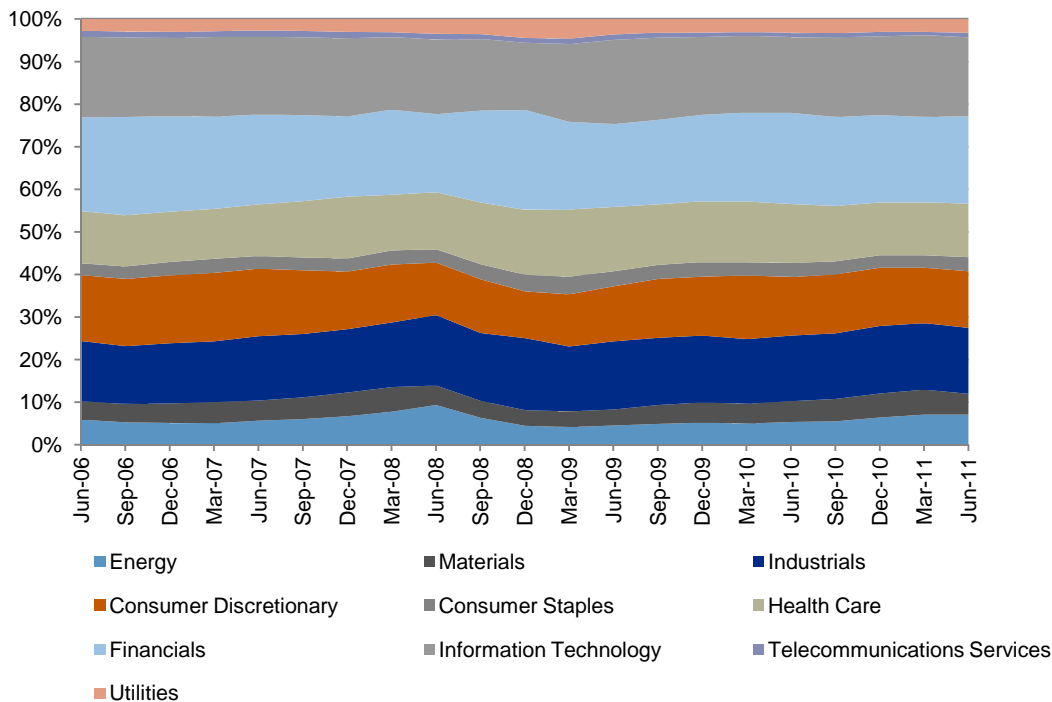
Source: Russell Indexes

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

¹⁴ Sectors under the Global Industry Classification Standard (GICS) sector classification system.

The Materials and Industrials sectors also represent the largest combined difference between U.S. and non-U.S. small cap sector allocation: 13.57% greater than the 10-year average weighting within the Russell 2000 (Figure 8).¹⁵ The sector representations underscore the differences in company types found in the U.S. and non-U.S. small cap opportunity sets. A relatively easier path to capital via public listings has led to more financials, tech and health care within U.S. small cap, while the larger exposures to materials and industrials in non-U.S. small cap reflect traditions of private lending, often as part of the “parent/partner” relationship noted earlier. The Russell Global ex-U.S. Small Cap Index sector most impacted by the recent recession was Energy; as oil prices fell along with demand, the sector contracted by 112 basis points.¹⁶

Figure 8 / Russell 2000 quarterly GICS sector weightings (June 30, 2006–June 30, 2011)



Source: Russell Indexes

¹⁵ The Russell 2000 Materials and Industrials combined sector average quarterly weight from June 2006–June 2011 was 20.036%.

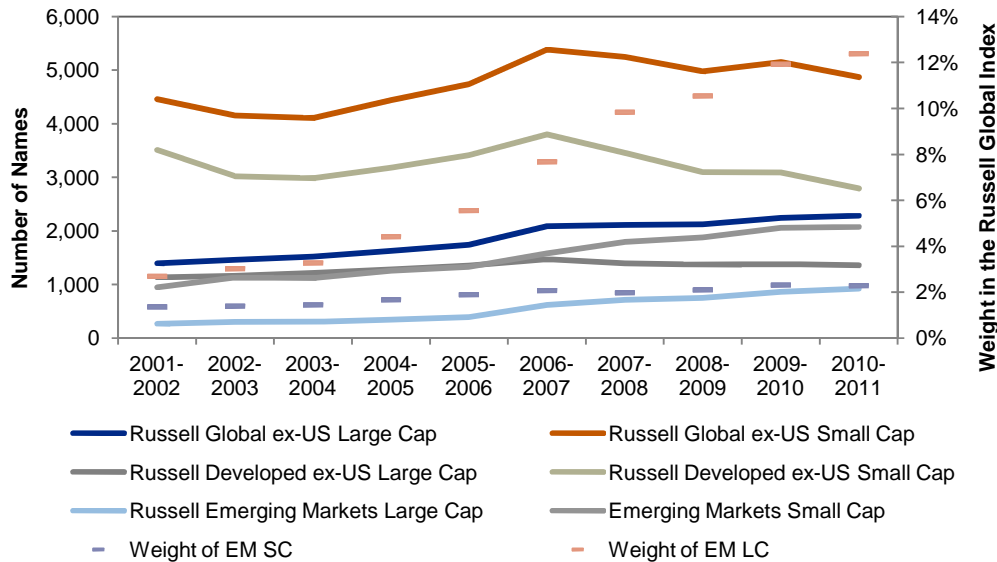
¹⁶ Average quarterly weight of the sector from 6/30/2006–12/31/2008, minus the average quarterly weight from 3/31/2009–6/30/2011.

Growth of the emerging markets opportunity set

The international 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 non-U.S. equity opportunity set (Global ex-U.S. Large Cap + Global ex-U.S. 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.¹⁷

Figure 9 / Global ex-U.S. equity market growth by segment (as of June 30 each reconstitution year)¹⁸



Source: Russell Indexes

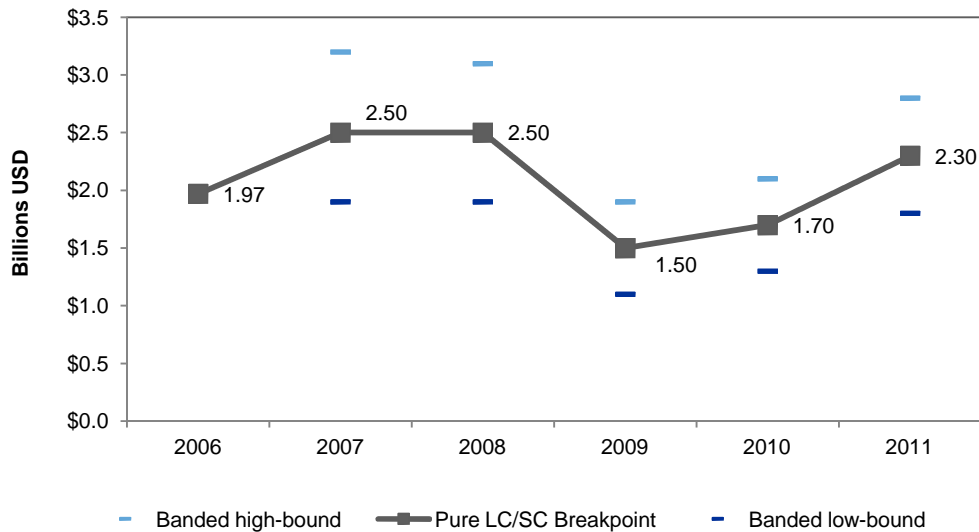
¹⁷ The large cap opportunity set is expected to be inherently more stable as the high-bound is established by the largest capitalized company in a market or region and then a target market capture rate by percentile is applied. The high-bound for the small cap opportunity set is established after the 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).

¹⁸ 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.¹⁹ 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.”²⁰ 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

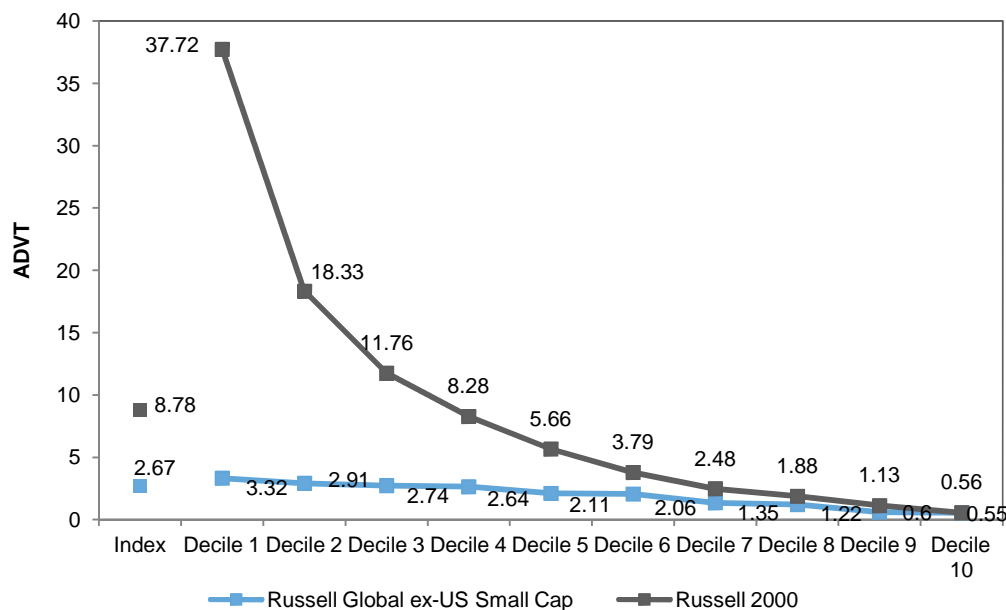
¹⁹ For more information, reference Agather, R., & S. McCarthy (2007), “Capitalization Banding: Russell Indexes,” available online at http://www.russell.com/indexes/documents/Capitalizationbanding_reconstitution2007.pdf.

²⁰ 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 international small cap may have been over the recent period, one cannot ignore what is perhaps its largest drawback: significant liquidity risk. Global ex-U.S. 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 traded²¹ at each market cap decile for the Russell 2000 and Russell Global ex-U.S. Small Cap indexes. The first decile of the ex-U.S. small cap index fails to reach the liquidity levels found in the sixth decile of the Russell 2000. It should be noted, however, that liquidity risk tends to create a classic “chicken and egg” scenario: volumes will only increase – and liquidity risk decrease – if more participants enter a market; but would-be participants require better liquidity. Eun, Huang and Lai (2008) suggest that the accessibility of international small cap stocks would not support large allocations and would limit an international small cap product’s capacity. In 2009, InterSec Research estimated that international small cap product capacity would most likely fall between 1–3B USD, depending on the sizes and resources of the firms.

Figure 11 / Small cap average daily dollar value traded by deciled market capitalization based on the Russell Global ex-US Small Cap and Russell 2000 indexes (liquidity scenario as of June 30, 2011)²²



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 ex-U.S. Small Cap Index and its constituent weightings as of 6/30/2011, we made a hypothetical 1B USD investment. We 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

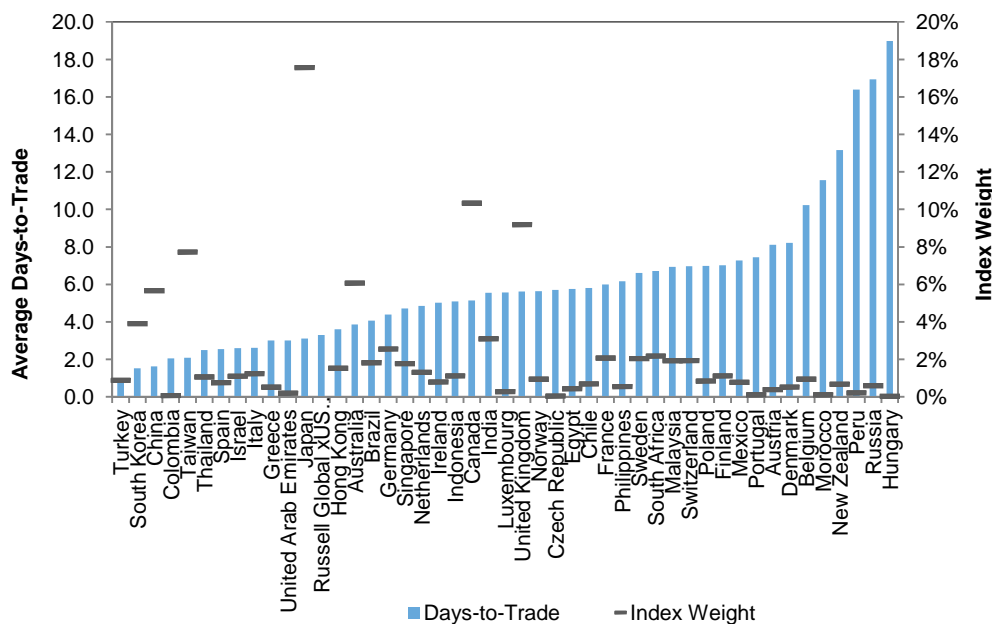
²¹ The average daily dollar value traded uses a 30-day average from June 2011.

²² Liquidity should be considered time period dependent and may vary over time.

results, we then used a weighted harmonic average of the days-to-trade into the positions held by the index in each country.²³ (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 ex-U.S. 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 19 days-to-trade; the Russell Global ex-U.S. Small Cap Index itself had an average of 3.3 days-to-trade.

Each country's liquidity, as measured by day's necessary for full replication, is time period dependent and is also impacted by the country's size. Some developed markets, such as Japan, Australia, and the U.K., might generally be more liquid than 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 non-U.S. small cap is currently most appropriate for actively managed portfolios. 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 international 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 Global ex-US Small cap Index weight by country
(liquidity scenario as of June 30, 2011)



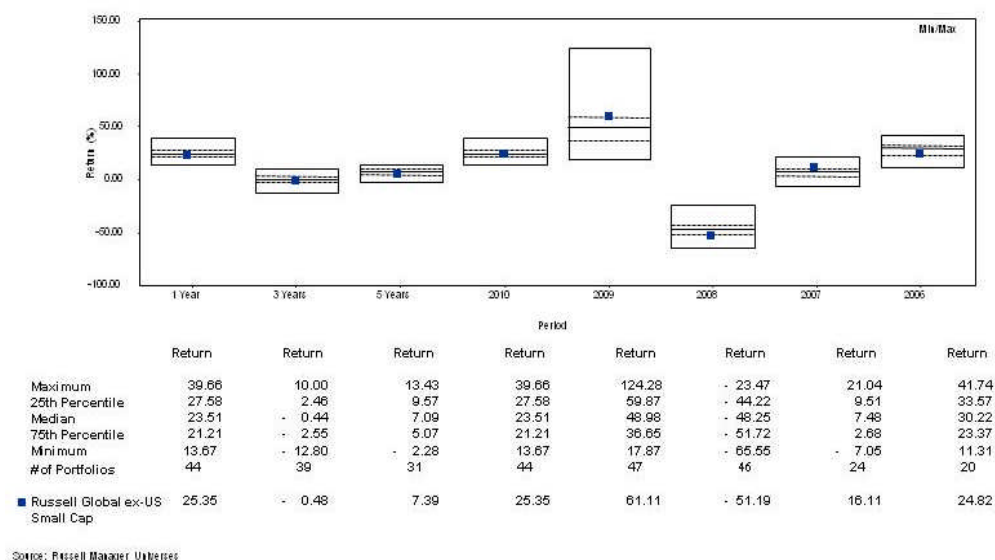
Sources: Russell Indexes, FactSet

²³ 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., Cariño, D.R., and Ferson, W.E; Portfolio Performance Measurement and Benchmarking, 2009, pgs. 251–52.

International small cap active management

As we observed in the previous section, addressing liquidity risk, global ex-U.S. 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 Russell Ex-U.S. Small Cap Manager Universe²⁴ we evaluated the performance of first-, median- and third-quartile managers on a 1-, 3- and 5-year annualized basis. Additionally, to control for survivorship bias, we included the frozen calendar year performance for the last five years. Frozen calendar years reflect the manager universe membership as it existed at that time, while the annualized data may exclude underperforming accounts that closed or that left the universe. Using the annualized data shows that nearly half of the active managers beat the Russell Global ex-U.S. Small Cap benchmark (“RG X US SC” in Figure 13) across the three time periods. However, using the frozen calendar year data (2006–2009) shows a mixed performance history: nearly two-thirds of the active managers beat the index in 2006 and 2008, but nearly the same proportion underperformed in 2007 and 2009 (Figure 13).²⁵

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



To further our insights into international small cap, Russell Indexes also worked with the third-party firm InterSec Research to survey asset managers about their views on international small cap. When asked what the dollar-weighted average market capitalization of an international small cap benchmark should be, the majority of respondents said

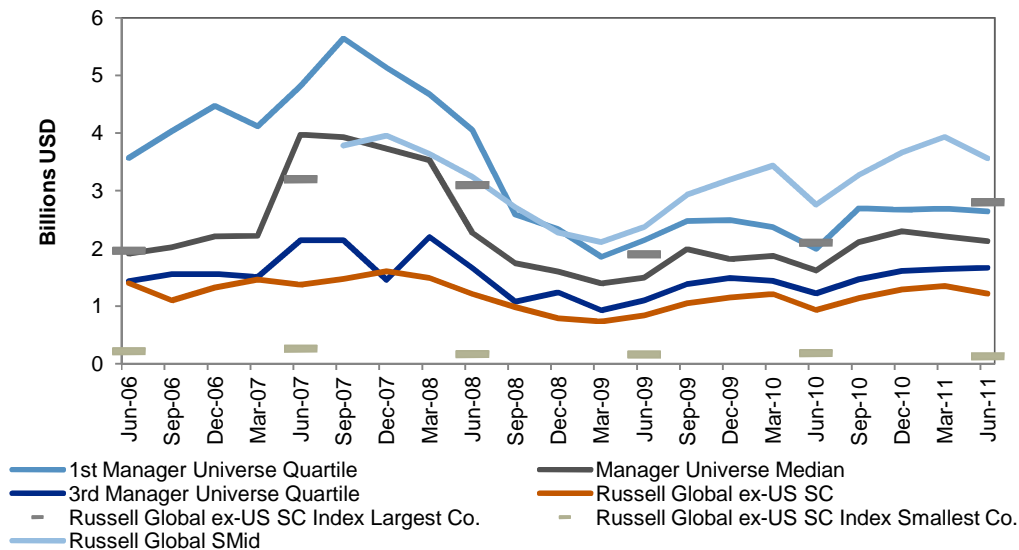
²⁴ This universe includes manager portfolios that are limited to small cap securities outside the United States. U.S. exposure is only permitted using U.S. dollar short-term investments. On average, the portfolios hold approximately 90% of the assets in small or medium-small securities. Accounts must be at least \$3 million in size.

²⁵ Gross of any fees. It goes beyond the scope of this research to further define survivorship bias, but for additional 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.

between 1B and 2B USD²⁶. 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' expectations²⁷ for cap size range in an international small cap benchmark.

Manager notions of an appropriate international 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 international small cap manager portfolio.²⁸ 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; 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 companies, which would be more familiar to traditional large/mid cap international 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 international small cap managers, the evaluation of 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 x-US Small Cap Equity Portfolio active manager universe quartiles and high/low Russell Global ex-US Small Cap Index cap range at reconstitution (June 30, 2006–June 30, 2011)²⁹



Source: Russell Indexes

²⁶ Russell Indexes and InterSec Research survey June 30, 2011. 32 global asset manager respondents.

²⁷ A majority of the Russell-InterSec Research survey respondents stated an international small cap size range expectation of between 100M USD and 4.99B USD.

²⁸ Global ex-U.S. Small Cap Manager Universe, June 30, 2006– June 31, 2011.

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

International small cap index construction – global-relative, country-relative, or something in between?

While the notion of international 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 international 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.³⁰ Each provider's methodology is different, and the following simulations are simplified applications of their rules; the actual composition of the various providers' indexes may vary.

Russell and S&P take the two most differentiated approaches to global ex-U.S. small cap portfolio construction. Russell uses a purely global-relative approach, meaning that the entire non-U.S. opportunity set is evaluated consistently and that the break between large and small cap is consistent internationally.³¹ 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,³² which MSCI also used exclusively until the launch of the MSCI IMI 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 15, 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 and small cap stocks is the same in every country (at this point in time, 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.

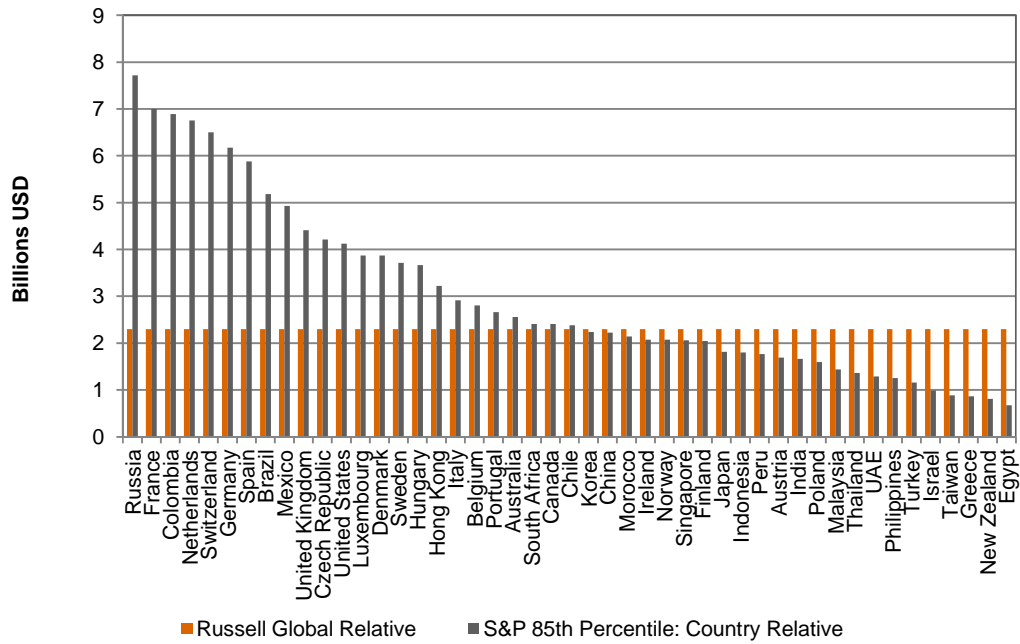
³⁰ The Russell Global Index methodology can be viewed at http://www.russell.com/indexes/documents/Global_Indexes_Methodology.pdf.

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

³¹ The Russell U.S. Index series is calculated separately; the U.S. large/small unbanded breakpoint at Reconstitution 2011 was 2.2B USD.

³² S&P also offers a separate set of global indexes, the Cap Range Index Series, which uses a global-relative approach.

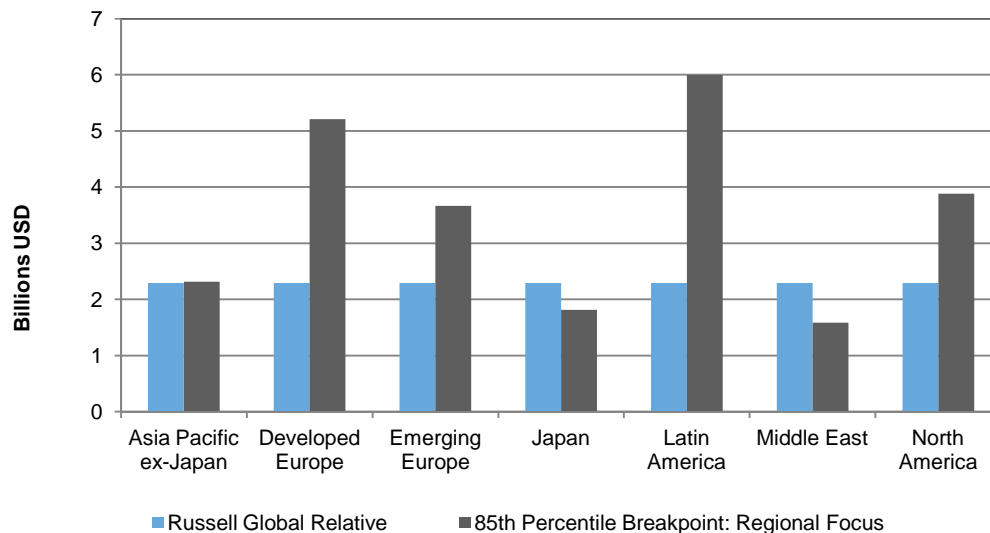
Figure 15 / Simulated global- vs. country-relative small cap size definitions by country, based on May 31, 2011 Russell data³³



³³ 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.³⁴ Unfortunately, although this approach moderates 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 16).

Figure 16 / Simulated global vs. regional small cap size definitions based on May 31, 2011 Russell data³⁵



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 breakpoints. If the country-relative large/small breakpoint falls within the predetermined global 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 breakpoint is forced down until it reaches the predetermined level. Additionally, MSCI defines developed countries’ large/small demarcation line differently than it does for emerging market countries: the emerging markets’ boundary line is set to 50% less than developed³⁶.

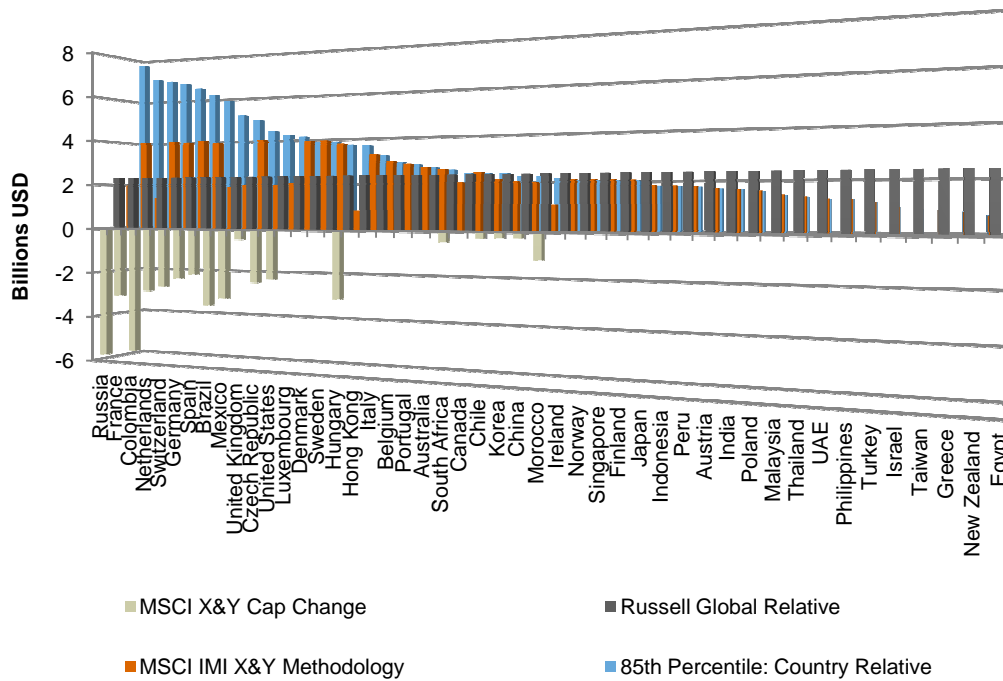
³⁴ FTSE uses a market capitalization banding range or “zone” to define large and small companies within each region, which may not result in an 85:15 large/small split in every region.

³⁵ 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.

³⁶ See “MSCI Global Investable Market Indices Methodology” at: http://www.msci.com/eqb/methodology/meth_docs/MSCI_Aug11_GIMIMethod.pdf.

As seen in Figure 17, 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 market 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 market countries such as Russia, Colombia and Mexico similarly have their small cap cutoffs reduced to meet the emerging size reference of 2.020B USD³⁷. The beige bars denote the total magnitude of the cap reductions necessary for certain countries to satisfy the MSCI global size references.

Figure 17: Simulated MSCI adjustments³⁸ to small cap size definitions based on May 31, 2011 Russell data

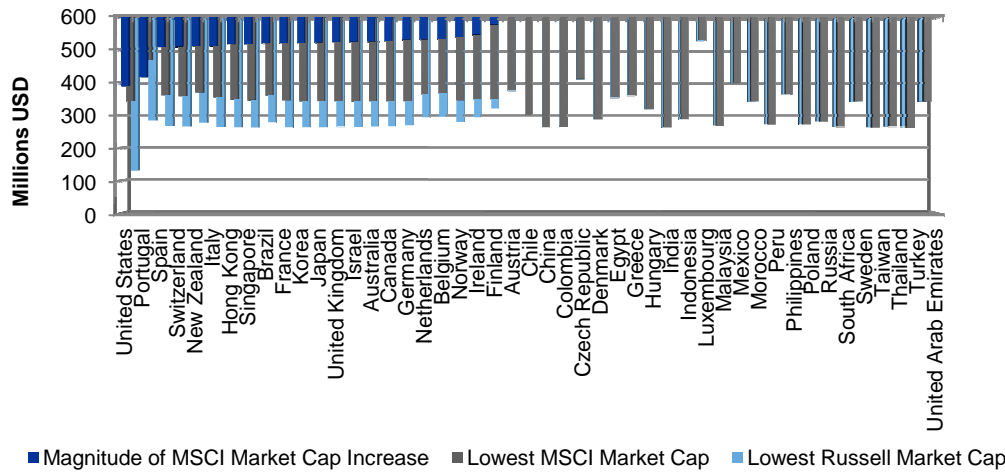


³⁷ Simulated breakpoints were computed by sorting companies in descending order by capitalization and then summing. The 85th capitalization percentile is the capitalization of the company whose cumulative capitalization equals, or exceeds but is nearest to, the 85th percentile. In countries where this 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.

³⁸ Refer to footnote 38 for an explanation of the simulation

MSCI also establishes a floor for the minimum acceptable market capitalization, calculated for developed markets and then applied with a 50% reduction for the emerging countries.³⁹ In practice, although MSCI targets 99% market coverage worldwide, our estimate is that the application of the minimum size requirement rules eliminates companies from the bottom of its small cap universe in nearly half of the countries they cover (Figure 18). FTSE has no such minimum cap size requirement, and while S&P and Russell do maintain minimums, they are lower than would become barriers for inclusion. In our simulation, applying the MSCI minimum size requirements to the international 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.⁴⁰

Figure 18 / Simulated impact of minimum size requirements⁴¹ on depth of small cap coverage by country based on May 31, 2011 Russell data.



³⁹ 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 “MSCI Global Investable Market Indices Methodology” at http://www.msci.com/eqb/methodology/meth_docs/MSCI_Aug11_GIMIMethod.pdf.

⁴⁰ See Table 2 in the appendix for the numbers of securities deleted, by country.

⁴¹ 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.

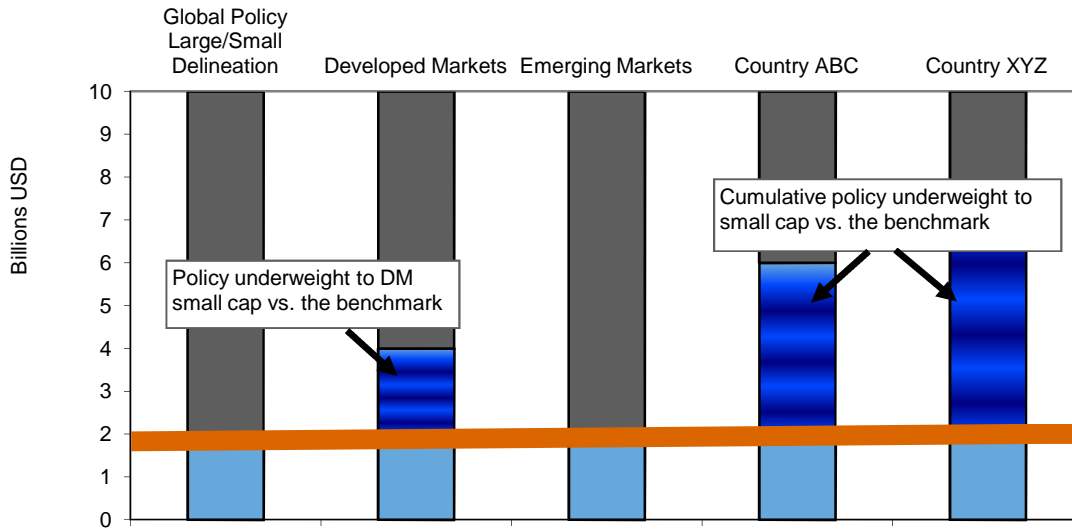
The 2011 Russell Global Index reconstitution portfolio as of 5/31/2011 was used as the starting universe.

Importance of index construction methodologies for investors

How index providers define international small cap can have wide-ranging implications. International 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 ex-U.S. 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 implication of size mismatch is provided below in Figure 19. The ability to accurately replicate the MSCI process also seems potentially burdensome, with multiple layers of calculation required to derive the composition of the index.

Let us assume a plan sponsor or global asset manager has a notion of the global large/small breakpoint of 2B USD. Let us further assume the consistent size definition is not used by the index provider; a relative underweight to the developed countries small cap index may be created (using a separate developed/emerging size classification construct). This mismatch can occur country-by-country as well, with the index-defined 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 19 / Example of size mismatch with a global equity portfolio



Source: Russell Indexes

Conclusions

International small cap is a promising asset class, just beginning to be considered for inclusion in a broadened global equity portfolio. While developed large and mid cap companies will continue to constitute the bulk of international allocations, in the next decade investors are expected to slowly integrate non-U.S. small cap 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 possible diversification benefits particularly attractive. As suggested by the Brandes Institute research, 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.

The process of defining international small cap is approached differently by each index provider we reviewed. The S&P country-relative method is straightforward in its application but 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 international small cap opportunity set using a country-by-country perspective, 26 of our 32 InterSec survey respondents answered “no.” Russell’s methodology offers the clearest picture of non-U.S. 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 global ex-U.S. small cap products launched in the next few years, offered 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 global equity portfolios that can make tactical allocations to small cap and concentrate on the more liquid listings. However the evolution occurs, we expect international 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-yr annualized return	July 31, 2001–June 30, 2011 10-yr annualized return
Russell 3000	-0.07	3.44
Russell 2000	4.03	6.27
Russell Global ex-U.S. Small Cap	8.20	12.59
Russell Global ex-U.S. Large Cap	3.53	7.98

Source: Russell Indexes

Table 2 / Deleted securities, by country (also refer to Figure 18 on page 20)

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

Source: Russell Indexes

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