The Small-Country Effect Revisited

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In an earlier study, Keppler and Traub [1993] showed that the smaller national equity markets in the MSCI Developed Markets universe returned 19.19% compounded annually during the 16 ½ years from December 31, 1975 through June 30, 1992. These results compare favorably with the 12.67% total compound return of the MSCI World Index during the same period. Moreover, the small markets had lower downside risk characteristics than the MSCI World Index.

Now, more than 18 years later, we revisit the concept of investing in national equity markets based solely on their size as measured by their respective market capitalization. We are now able to cover the 40-year period from December 31, 1969 through December 31, 2009, more than doubling the test period of the 1993 study.

METHODOLOGY AND DATA

For consistency and compatibility reasons we kept the eighteen-markets universe from the 1993 study unchanged, that is, we left out the five "newcomers" added to the MSCI World Index over the years.[1] As in the 1993 study, three portfolios—each consisting of six markets—were constructed according to their market capitalization:

1. Large-size markets (portfolio 1),
2. Medium-size markets (portfolio 2), and
3. Small-size markets (portfolio 3).

The hypothetical portfolios were constructed with equal initial investments in each market, regrouped according to their market capitalization, and rebalanced to equal investments in each national market at the end of each month.[2] All series are based on MSCI's Standard Developed Markets Total Return Indices.

RESULTS

Following are the most important findings of the study. Exhibit 1 shows risk and return characteristics in local currencies.

1. In terms of their total annual compounded returns, portfolios 1, 2, and 3 finished in the expected order. Portfolio 3—investing in the smallest markets in terms of their market capitalization—resulted in the highest total annual return (12.79%), 5.02 percentage points above the 7.77% compound annual total return of the MSCI World Index. Portfolio 2—the medium-size markets—yielded 10.35% compounded annually, and portfolio 1—the largest markets—came in at 8.89% compounded annually.[3]

Risk and Return Characteristics

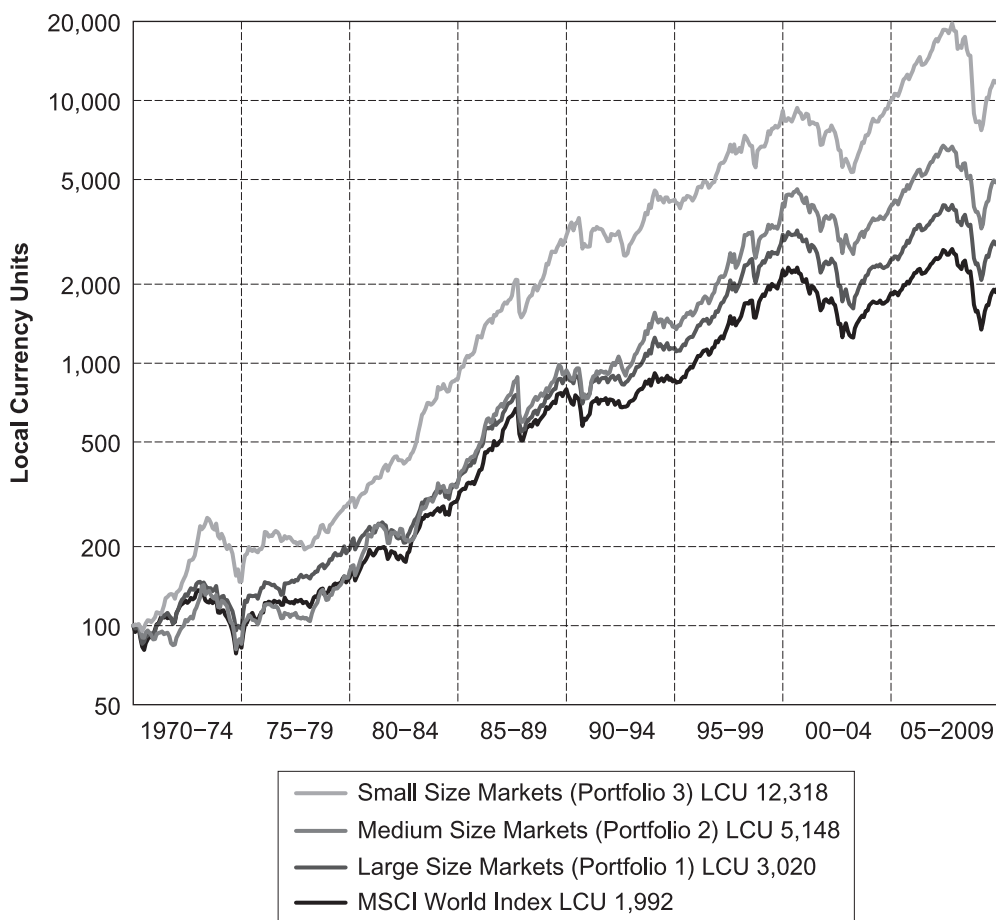Returns with Net Dividends Reinvested in Local Currencies December 31, 1969–December 31, 2009.

Risk and Return Characteristics	Large Size Markets Portfolio 1	Medium Size Markets Portfolio 2	Small Size Markets Portfolio 3	MSCI World Index
Number of Months	480	480	480	480
Average Monthly Return (%)	0.80	0.93	1.12	0.71
Compound Annual Return (%)	8.89	10.35	12.79	7.77
100 Local Currency Units Grow to ... LCU	3,020	5,148	12,318	1,992
Number of Winning Months	306	298	310	301
Highest Monthly Return (%)	16.6	18.5	16.7	14.0
Probability of Monthly Gain (%)	63.8	62.1	64.6	62.7
Average Gain in Winning Months (%)	3.09	3.61	3.64	3.08
Expectation of Monthly Gain (%)	1.97	2.24	2.35	1.93
Number of Losing Months	174	182	170	179
Lowest Monthly Return (%)	−21.0	−27.7	−24.5	−19.6
Probability of Monthly Loss (%)	36.3	37.9	35.4	37.3
Average Loss in Losing Months (%)	3.24	3.45	3.46	3.27
Expectation of Monthly Loss (%)	1.17	1.31	1.23	1.22
Longest Losing Streak (# Months)	6	8	6	7
Largest Drawdown from Previous High (%)	49.5	51.6	60.8	50.8
Standard Deviation of Monthly Returns (%)	4.11	4.64	4.73	4.07
Monthly Risk-Adjusted Return (Keppler Ratio)	0.68	0.71	0.92	0.58
Monthly Volatility-Adjusted Return	0.19	0.20	0.24	0.17

2. In terms of their cumulative total returns during the 40-year period ending on December 31, 2009, an investment of 100 local currency units in portfolios 1, 2, and 3 grew to 3,020; 5,148; and 12,318, respectively, while the same investment in the MSCI World Index grew least, to only 1,992. Thus, as a consequence of the power of compounding, the Small Country Portfolio beat the MSCI World index by a factor of 6.2. Exhibit 2 illustrates graphically the development over the last 40 years of the cumulative total return of the three size portfolios and the MSCI World Index.

3. The arithmetic average monthly total returns achieved with portfolios 1, 2, and 3 also negatively correlated with their size rankings. With a return of 1.12%, portfolio 3 again beat portfolio 2 (0.93%), portfolio 1 (0.80%), and the MSCI World Index (0.71%).

4. In terms of various upside performance measures, portfolio 3 compared favorably with the alternatives. The highest number of winning months (310/480) and the resulting highest probability of a monthly gain (64.6%) combined with the highest average gain in winning months (3.64%) leads to the highest expectation of a monthly gain (2.35%) compared to portfolios 1 and 2 and the MSCI World Index. The expectation of gain for portfolios 1, 2, and the MSCI World Index were 1.97%, 2.24%, and 1.93%, respectively.

5. With the exception of the largest drawdown, which was 60.8% for portfolio 3, 51.6% for portfolio 2, 49.5% for portfolio 1, and 50.8% for the MSCI World Index, the other downside risk measures for

Cumulative Total Returns

Returns with Net Dividends Reinvested in Local Currencies December 31, 1969–December 31, 2009.

Small Size Markets (Portfolio 3) LCU 12,318
Medium Size Markets (Portfolio 2) LCU 5,148
Large Size Markets (Portfolio 1) LCU 3,020
MSCI World Index LCU 1,992

portfolio 3 were similar to those of the alternatives. In particular, the expectation of a monthly loss, which we consider to be most important because it combines the probability and the magnitude of a monthly loss, was about average for portfolio 3 at 1.23%. The expectation of a monthly loss for portfolios 2, 1, and the MSCI World Index were 1.31%, 1.17%, and 1.22%, respectively. In general, arithmetic risk measures that are usually based on many small time intervals have a generic character as compared to time-specific geometric concepts, which are based on two observations only. As an example, the largest drawdown—which is always time-specific—only applies to the unluckiest indi-vidual who managed to buy and sell at the worst

points possible during the last 40 years. The largest drawdown is, however, very important for specula-tors and investors who use leverage.

6. Given the far above-average total returns, the risk and volatility-adjusted returns (i.e., the return per unit of loss expectation (Keppler ratio) and the return per unit of volatility, which corresponds with the Sharpe ratio without taking a risk-free rate into account) were very favorable for port-folio 3. The Keppler ratio, which discriminates better than the volatility-adjusted return, because it does not consider upside volatility as risk, was 0.92 for portfolio 3, 0.71 for portfolio 2, 0.68 for portfolio 1, and 0.58 for the MSCI World index. Portfolio 3 thus beat portfolio 2, portfolio 1, and

the MSCI World Index by factors of 1.3, 1.4, and 1.6. The same factors based on the volatility-adjusted returns were 1.2, 1.3, and 1.4. This indicates that the return differences were positively skewed in favor of portfolio 3. Had the return differences been normally or symmetrically distributed, the factors would be the same. This is another piece of empirical evidence that the assumption of a normal distribution of investment returns—a cornerstone of modern portfolio theory—is, at best, flawed. Regardless of how risk is measured statistically, however, investors would have been rewarded handsomely over the past 40 years for being invested in the small stock markets of our Developed Markets universe.[4]

7. To further demonstrate the stability of our findings, we show eight 5-year subperiod results (Exhibit 3). Portfolio 3 beat portfolio 2 in five of the eight subperiods (62.5% of the subperiods), portfolio 1 in six of the eight sub-periods (75% of the subperiods), and the MSCI World Index in seven out of the eight sub-periods (87.5% of the sub-periods). The only 5-year subperiod over the last 40 years when portfolio 3 did not beat the MSCI World Index was the 5-year period ending in December 1999. Knowing that the equity investment world went topsy-turvy during that period,[5] there was no reason to despair for our Small-Country investors. They were compensated handsomely in the following decade, gaining 34.57% cumulatively, while an MSCI Index Investor would have lost 11.90%.[6]

8. With regard to fluctuation of their constituents, there was more stability in both portfolio 1 and in portfolio 3 as compared to portfolio 2. Japan, the United Kingdom, and the United States were always considered "large" and thus never left portfolio 1 during the entire 40-year period; similarly, the small markets Austria, Denmark, and Norway were constituents of portfolio 3 from beginning to end. No specific medium-size market remained in portfolio 2 during the entire period. The average holding period for any market was 53, 32, and 67 months for portfolios 1, 2 and 3, respectively. Accordingly, the average annual portfolio turnover ratio was 19.5%, 34.9%, and 15.4% for portfolios 1, 2, and 3. This indicates a potential significant implementation cost advantage for portfolio 3.

Though the value of the U.S. dollar fluctuated widely against most foreign currencies over the 40-year test period, the risk and return characteristics of the strategies tested follow similar patterns when measured in U.S. dollar terms. Portfolio 3 had a compound annual average return of 13.53%, portfolio 2 yielded 10.86% annually, portfolio 1 yielded 10.60%, and the MSCI World Index returned 8.68%. In terms of their arith-

E X H I B I T 3
Sub-Period Results

Returns with Net Dividends Reinvested in Local Currencies.

Subperiod	Large Size Markets Portfolio 1	Medium Size Markets Portfolio 2	Small Size Markets Portfolio 3	MSCI World Index
December 31, 1969−December 31, 1974	−0.55	−3.17	8.06	−3.80
December 31, 1974−December 31, 1979	14.97	13.59	14.85	13.10
December 31, 1979−December 31, 1984	12.52	16.65	24.24	14.83
December 31, 1984−December 31, 1989	21.04	21.96	28.58	21.19
December 31, 1989−December 31, 1994	4.51	8.01	6.46	1.58
December 31, 1994−December 31, 1999	21.99	24.01	16.93	21.31
December 31, 1999−December 31, 2004	−4.28	−0.39	1.87	−3.98
December 31, 2004−December 31, 2009	4.04	5.35	4.17	1.54
December 31, 1969−December 31, 2009	**8.89**	**10.35**	**12.79**	**7.77**

metic average monthly returns, portfolios 3 (1.20%), 2 (1.00%), 1 (0.94%), and the MSCI World Index (0.79%) were also negatively correlated with their size rankings.

CONCLUSION

This study suggests that market size as measured by the respective market capitalization of national equity markets has predictive power with respect to the relative performance of broadly diversified global equity investments. Global equity investors with a 5-year or longer investment horizon can achieve excess risk-adjusted returns by concentrating their investments in a combination of smaller national equity markets. The size of national equity markets is thus a useful selection criterion for enhancing the returns of global equity portfolios.

ENDNOTES

[1]Our universe contains the eighteen national markets which were included in the MSCI World Index before 1988: Australia, Austria, Belgium, Canada Denmark, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Five additional markets were later added to the MSCI World Index: Finland and New Zealand on January 1, 1988; Ireland on May 3, 1993; Portugal on December 1, 1997; and Greece on June 1, 2001. Israel, the sixth and most recent addition to the MSCI World Index, was added on May 27, 2010 (after our 40-year test period).
[2]The 1993 study was based on quarterly observations. Consequently, portfolios were rebalanced quarterly. Also, in the 1993 study, total returns were calculated with gross dividends reinvested. Monthly data and total returns based on reinvestment of net dividends were not available to us at that time.

[3]Readers may be surprised that each of the three size portfolios beat the MSCI World Index. The size portfolios are equally weighted, whereas the MSCI World Index is capitalization weighted. It indicates that a small-country effect seems to exist also within each size portfolio. An equal-weighted world index of our eighteen markets universe had a compound annual total return of 10.85%—1.96 percentage points more than portfolio 1 (the large-size portfolio) and 1.94 percentage points less than portfolio 3 (the small-size portfolio) during our 40-year test period—almost perfectly centered between the two size portfolios.
[4]Developed, Emerging, and Frontier Markets should be considered different asset classes with specific risk and return characteristics. They shall not be analyzed simultaneously.
[5]According to several standard valuation measures, the MSCI World Index reached its all-time high in December 1999 with a price-to-book ratio of 4.2, a price-to-earnings ratio of 35.7, and a dividend yield of only 1.3%. The 5-year period from 1995 through 1999 may be best described by the fact that not only did large-cap stocks outperform small-cap stocks; "super" caps also outperformed large-caps. Even cabdrivers around the world were happily providing the names of those companies to anybody who would listen to them.
[6]These are total returns with net dividends in local currencies. In U.S. dollar terms, the small-size markets gained 70.8% last decade (2000–2009) versus a loss of 2.4% for the MSCI World Index. In euros, the small-size markets gained 19.3% versus a loss of 31.8% for the MSCI World Index, reflecting the 43.1% gain of the euro versus the U.S. dollar during that 10-year period.

REFERENCE

Keppler, M., and H. Traub. "The Small-Country Effect: Small Markets Beat Large Markets." *The Journal of Investing*, Vol. 2, No. 3 (1993), pp. 17–24.