# Performance Characteristics of Emerging Capital Markets

Christopher B. Barry, John W. Peavy III, and Mauricio Rodriguez

*Capital markets in developing countries have become an important asset class. These emerging markets are commonly associated with high returns, high volatility, and diversification benefits for investors in developed markets. We used the Emerging Markets Data Base provided by the International Finance Corporation to examine the risk and return characteristics of emerging markets. Contrary to the results often presented in the popular press, we found that these markets have not produced high levels of compound returns relative to U.S. stock markets for the 20-year time period ending in June 1995. They have experienced a high level of volatility, but they also have consistently provided diversification benefits when combined with developed market portfolios.*

Emerging markets are capital markets in developing countries.[1] The World Bank defines a developing country as one having a per capita GNP that would place it in the lower or middle-income category; at the end of 1995, a developing country had an annual per capita GNP less than $8,955.[2] Although developing countries are home to about 85 percent of the world's population, they produce only about 20 percent of the world's GNP and have only about 11 percent of the world's stock market capitalization.[3] Emerging markets are thought to have tremendous growth potential. In fact, during the past decade, these markets have experienced considerable growth. As of 1986, emerging markets accounted for only 3.6 percent of the world's stock market capitalization, but the market capitalization of emerging market stocks increased from $167.7 billion in 1985 to $1.9 trillion in 1995, an increase of nearly 12 times. Over the same time period, the stock market capitalization of developed countries increased about 3.5 times, from $4.5 trillion to $15.9 trillion.[4] The size of the emerging stock markets varies. Some emerging markets are very small; others are larger than stock markets in major developed countries.[5]

The growth of emerging capital markets has received much attention in the past few years. Investors have been attracted to the potential for high returns along with diversification benefits of such markets. Managers and trustees of U.S. pension funds have begun for the first time to commit a portion of their pension assets to emerging market debt and equity securities. The unique characteristics of emerging markets are helping academics to better understand the development of financial markets and their role in broader economic development.

## Performance of Emerging Markets

A commonly held view of emerging stock markets is that they are characterized by high returns and high volatility.[6] We used the International Finance Corporation's (IFC's) Emerging Markets Data Base (EMDB) to examine the risk and return characteristics of emerging markets and their diversification benefits for portfolios based on U.S. stocks.[7] Our sample period starts in December 1975 and ends in June 1995.

Previous studies have reported high returns and high volatility for emerging markets.[8] Figure 1 shows that emerging markets overall produced a

*Christopher B. Barry is a professor of finance and holds the Robert and Maria Lowdon Chair of Business Administration at the M.J. Neeley School of Business at Texas Christian University. John W. Peavy III, CFA, is chair of the board and chief investment officer of Founders Trust Company. Mauricio Rodriguez is an assistant professor of finance at the M.J. Neeley School of Business at Texas Christian University.*



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**Figure 1. Compound Value of a $1.00 Investment in the Emerging Market Composite Index and in U.S. Securities, June 1985–June 1995**

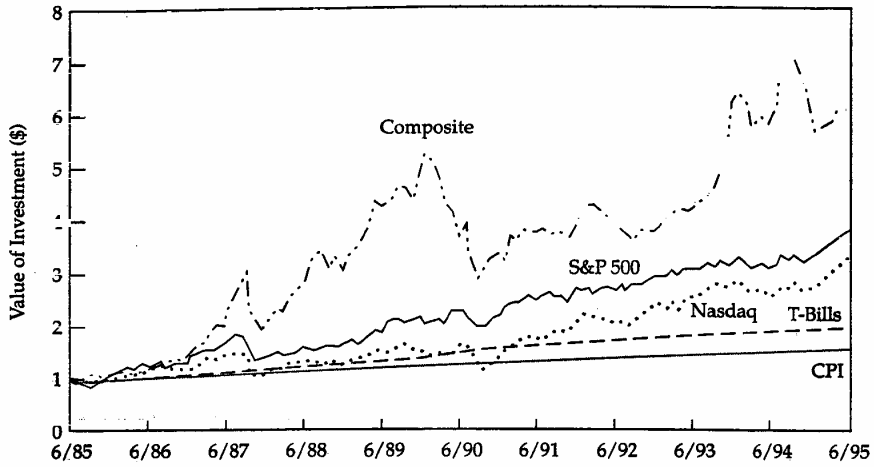


**Table 1. Risk and Return Characteristics of a Composite Index of Emerging Market Investments and Investments in Various U.S. Securities** (percent)

| Series | Compound Average | Arithmetic Average | Standard Deviation |
|---|---|---|---|
| *June 1985–June 1995* | | | |
| S&P 500 | 1.13% | 1.23% | 4.38% |
| Composite | 1.50 | 1.73 | 6.65 |
| T-bills | 0.48 | 0.48 | 0.15 |
| CPI | 0.30 | 0.30 | 0.23 |
| Nasdaq | 0.96 | 1.11 | 5.31 |
| *December 1975–June 1995* | | | |
| S&P 500 | 1.11 | 1.20 | 4.25 |
| Composite | 0.99 | 1.15 | 5.61 |
| T-bills | 0.62 | 0.62 | 0.25 |
| CPI | 0.44 | 0.44 | 0.33 |
| Nasdaq | 1.07 | 1.21 | 5.26 |
| *June 1990–June 1995* | | | |
| S&P 500 | 0.93 | 0.99 | 3.30 |
| Composite | 0.84 | 1.00 | 5.66 |
| T-bills | 0.39 | 0.39 | 0.13 |
| CPI | 0.29 | 0.29 | 0.22 |
| Nasdaq | 1.18 | 1.30 | 4.89 |

higher compound rate of return than did U.S. markets during the 1985–95 time period.[9] As Table 1 shows, during that time, the emerging market composite index experienced a 1.50 percent monthly geometric mean return (monthly compound return), the S&P 500 Index produced a 1.13 percent return, and Nasdaq experienced a 0.96 percent return. Relatively high variability of returns accompanied the higher rate of return in emerging markets during this time period: Emerging markets as a group experienced a 6.65 percent monthly standard deviation of returns, compared with 4.38 and 5.31 percent for the S&P 500 and Nasdaq, respectively. Also during this time period, the correlation between emerging stock markets and the U.S. stock market was relatively low (0.34), producing diversification opportunities for investors holding U.S. equities. These statistics are consistent with the conventional wisdom that emerging markets are characterized by high risk, high return, and diversification benefits.[10]

Goetzmann and Jorion (1996a) suggested that the results that inspired the conventional view of emerging market performance may be biased. They

pointed out that some of the emerging markets have existed for much longer periods than are ordinarily examined in performance studies, and they posited that returns soon after emergence are greater than both before emergence and later after emergence.[11] Thus, conventional wisdom may be based on recently emerged markets and hence has a bias in favor of emerging markets.[12]

Figure 2 shows the performance of emerging and U.S. markets during the roughly 20-year period from December 1975 through June 1995. Over this longer time period, the performance of emerging stocks trailed that of U.S. stocks. Table 1 reports that the emerging market composite index provided a 0.99 percent monthly geometric mean return, compared with 1.11 percent and 1.07 percent for the S&P 500 and Nasdaq, respectively. This time period includes the "lost decade" (roughly 1979 to 1988) associated with the Latin American debt crisis. Figure 2 shows that emerging market stock returns performed poorly during that decade. Relatively low returns for emerging markets during this time period were still accompanied by greater variability of returns than that experienced in U.S. markets. Specifically, emerging markets experienced a 5.61 percent monthly standard deviation of returns, and the S&P 500 and Nasdaq had 4.25 percent and 5.26 percent, respectively.

Some observers argue that the unprecedented economic reforms that have swept emerging markets in recent years have made historical performance data irrelevant for the future outlook of these markets. Sweeping reforms are typical of emerging markets, however, or at least they have been in the past. Many such reforms have been replaced shortly after their enactment with equally sweeping reforms in the opposite direction. A substantial risk remains that losses may be incurred as a result of such dramatic events as market suspensions or closures, financial crises, fiscal crises, currency crises, expropriations, or political upheavals.

Figure 3 depicts the relative performance of emerging and U.S. stock markets during the 1990–95 period. As in the longer period, emerging market stocks produced lower returns than U.S. stocks. Table 1 reports that the emerging market composite index produced a 0.84 percent monthly geometric mean return compared with 0.93 percent and 1.18 percent for the S&P 500 and Nasdaq, respectively. As in other time windows, stocks in emerging markets experienced higher volatility than did U.S. stocks. The standard deviation of the composite index was 5.66 percent, compared with 3.30 percent for the S&P 500 and 4.89 percent for Nasdaq. All three time periods in Table 1 include the December 1994 Mexican peso crisis, which reminded investors that stock investment losses related to financial crises can still occur today.

Conventional wisdom suggests that emerging stock markets provide diversification opportunities for global investors whose portfolios are concentrated in developed markets. The correlation of 0.34 between emerging and U.S. stock markets during

**Figure 2. Compound Value of a $1.00 Investment in the Emerging Market Composite Index and in U.S. Securities, December 1975–June 1995**

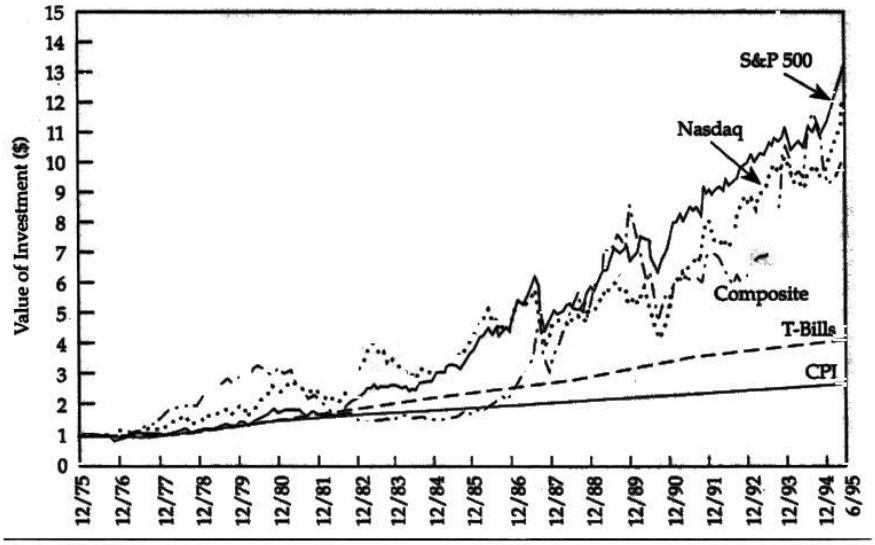



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**Figure 3. Compound Value of a $1.00 Investment in the Emerging Market Composite Index and in U.S. Securities, June 1990–June 1995**

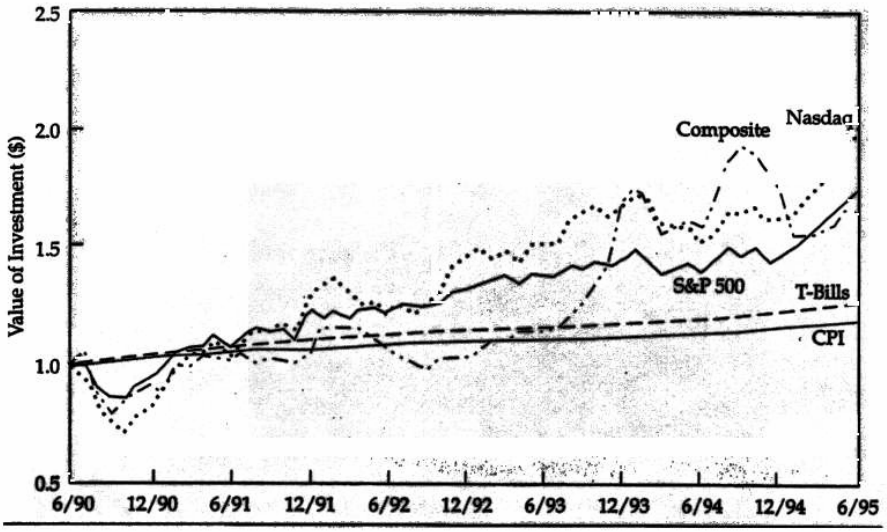
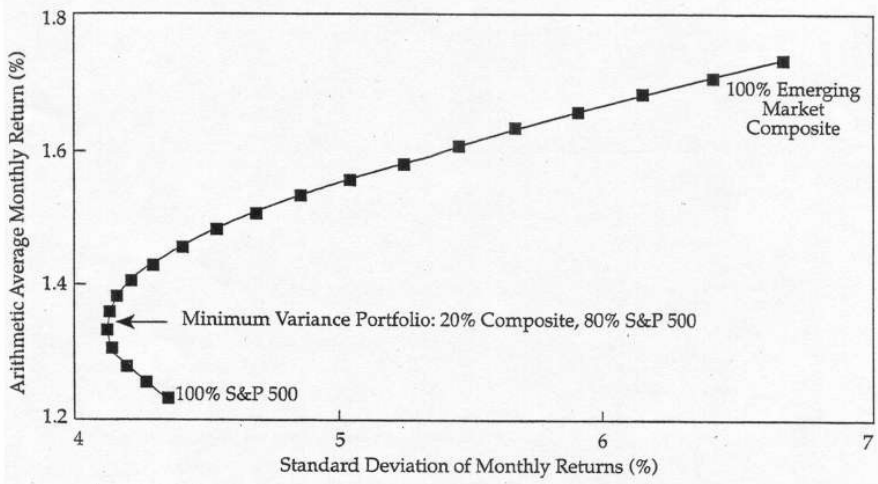



**Figure 4. Portfolio Combinations of the Emerging Market Composite Index and the S&P 500, 1985–95**




the 1985–95 period presented opportunities for beneficial diversification. Although emerging markets experienced high volatility relative to U.S. markets, Figure 4 shows that for the same period, a portfolio mix of approximately 20 percent invested in emerging market stocks and 80 percent in the S&P 500 produced the minimum-risk combination of those two classes of investments. Thus, the addition of higher risk, emerging market securities created a less risky portfolio than one composed entirely of the S&P 500. In fact, a portfolio containing only U.S. stocks (as represented by the S&P 500) is not on the efficient frontier for this time period.

Similar diversification opportunities existed during the other two time windows examined. For the full sample period, 1975 to 1995, the correlation between the composite index and the S&P 500 was 0.27; for the 1990 to 1995 period, it was 0.41. The minimum-variance portfolio combination required about a 30 percent investment in emerging market stocks during the longer period and about a 10 percent investment in emerging market stocks for the 1990–95 period. Emerging markets experienced a lower compound rate of return than U.S. markets during these two time intervals, yet they offered diversification benefits to the U.S. investor.

The results show that relative performance changes over time and that optimal investment allocations also change. Asset allocations based on historical returns often do not produce optimal performance for future portfolios. Figure 5 illustrates the change that took place in *ex post* risk–return trade-offs between the composite index and the S&P 500 for two 10-year periods of our data.[13] Harvey (1994) suggested that emerging markets have a degree of return predictability. He argued that conditioning information that reflects such predictability can be used to improve inputs for portfolio optimization over merely using historical return statistics. Harvey showed that *ex post* performance is enhanced when conditional information for emerging markets is used in the optimization process.

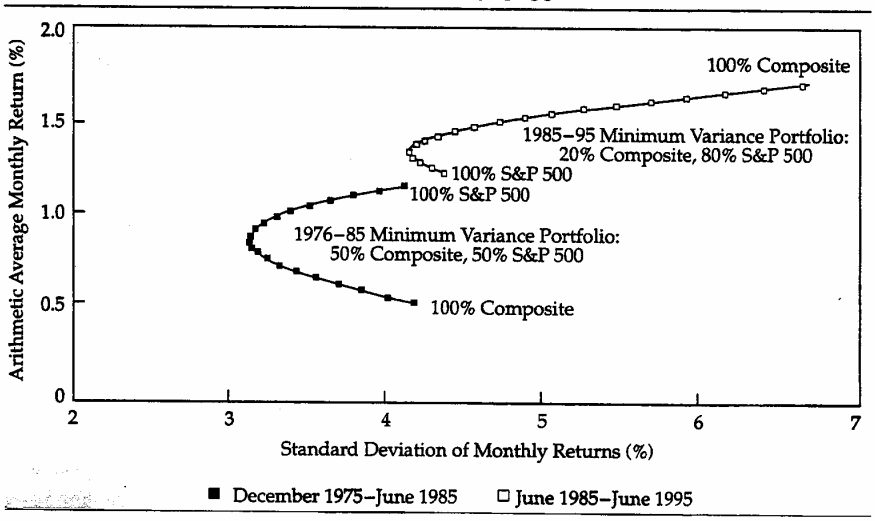
The results reported in this article are limited to the broad category of emerging markets based on our emerging market composite index. Performance for individual emerging markets and regions varies considerably. For example, the monthly compound rate of return for the 1985–95 period was only 0.02 percent for Nigeria and 3.51 percent for Chile. The composite index is broadly diversified, and accordingly, the volatility of individual emerging markets can be much higher than that of the composite index. For example, Argentina, Brazil, and Turkey each experienced standard deviations of monthly returns greater than 20 percent during the 1985–95 period. The fact that volatility is much lower for the composite index than for individual emerging markets demonstrates the diversification benefits available among emerging markets themselves.[14]

Some individual emerging markets provide especially powerful diversification opportunities for U.S. domestic investors. For example, allocating 20 percent of a portfolio to Thai stocks and the remainder to the S&P 500 would have allowed U.S. domestic investors to earn a higher rate of return at substantially lower variability than the S&P 500 alone would have given them during the 1975–95 period. Some of the smaller and newer emerging markets, however, do not provide meaningful diversification benefits for U.S. stock portfolios. The correlations between those markets and the U.S. market are not low enough to offset the effects of high variability within individual emerging markets.

Overall, we have shown that emerging market performance may or may not reflect high average returns, depending on the time period examined. Regardless of the time period analyzed, however, these markets have experienced a high level of volatility. Nevertheless, when combined with developed market assets, emerging market stocks have consistently provided diversification benefits.

Do emerging markets provide diversification benefits during times of crisis, when diversification is most valuable? Anecdotal evidence casts doubt on the availability of diversification benefits at such times. For example, for a few months following the December 1994 Mexican peso devaluation, emerging markets throughout Latin America moved in the same negative direction.[15] The equity markets in Mexico, Argentina, and Brazil experienced sharp

**Figure 5. Portfolio Combinations of the Emerging Market Composite Index and the S&P 500: 1985–95 and 1975–85**



combinations with the S&P 500. The investment opportunity set was dramatically better with investables than with the composite index, which includes smaller, less-liquid firms. The difference in performance between the investable index and composite index may have been caused by foreign demand for investable issues and the associated inflow of portfolio capital into those issues. The causes of the difference in performance, however, remain open for further study, and the conclusion that superior historical performance predicts similar future comparisons between these two groups would be premature. More evidence is needed.

Several practical issues beyond investment restrictions may impede investment in emerging market stocks. Investors may find barriers to information even for investable firms. Investors may not be familiar with the languages, accounting systems, or taxation systems found in emerging markets. Restrictions on the repatriation of funds and the imposition of withholding taxes may also impede investment in some emerging markets. Overall, information costs are high because the legal requirements for disclosure of financial information are often less stringent in emerging markets than in the United States.[21]

Given the practical problems, investors may prefer to buy shares of professionally managed funds that invest exclusively in desired markets. Several funds invest in emerging markets. Barry, Peavy, and Rodriguez (1997a) compared investment performance of closed-end funds with the performance of the composite index. Consistent with the results for the investable index, broadly diversified emerging market funds provided higher returns than the composite index. Most of the country funds, however, produced lower returns than those reported for the corresponding market index and offered less diversification benefit than direct investment in emerging market securities.[22]

## Concluding Remarks

Emerging markets are an asset class of growing importance. Their historical performance, however, is inconsistent with the common assertion that these markets consistently produce high average returns. The evidence supports the notion that emerging markets consistently offer diversification opportunities to global investors. The optimal asset allocations to these markets, however, change from period to period. Emerging markets will continue to be an important component of well-diversified portfolios, and some of today's emerging markets will become some of tomorrow's developed markets. But some of today's emerging markets may also become some of tomorrow's "submerged" markets.[23]

We have much to learn about emerging markets. For example, how do economic reforms affect the performance of these markets? Emerging markets often have a large concentration of economic wealth in the hands of large family-owned or -controlled holding companies. What are some advantages and disadvantages of those organizational structures? Finally, little is known about the corporate financial policies for firms in emerging markets and their effects on market values.[24]

## Appendix: Data Used in the EMDB and Return Calculations

Table A1 shows the markets included in the composite index. This stock portfolio includes all companies from 26 emerging markets with avail-

**Table A1. Markets Included in the Composite Index**

| Market | Date Data Available |
|---|---|
| Emerging Markets Composite Index | |
| *Europe* | |
| Greece | December 1975 |
| Hungary | December 1992 |
| Poland | December 1992 |
| Portugal | January 1986 |
| Turkey | December 1986 |
| *Latin America* | |
| Argentina | December 1975 |
| Brazil | December 1975 |
| Chile | December 1975 |
| Colombia | December 1984 |
| Mexico | December 1975 |
| Peru | December 1992 |
| Venezuela | December 1984 |
| *Middle East* | |
| Jordan | January 1978 |
| *East Asia* | |
| China | December 1992 |
| Taiwan | December 1984 |
| Korea | December 1975 |
| Philippines | December 1984 |
| *South Asia* | |
| India | December 1975 |
| Indonesia | December 1989 |
| Malaysia | December 1984 |
| Pakistan | December 1984 |
| Sri Lanka | December 1992 |
| Thailand | December 1975 |
| *Africa* | |
| Nigeria | December 1984 |
| South Africa | January 1994 |
| Zimbabwe | December 1975 |

[a]An Emerging Markets global index and regional indexes are available from the IFC starting December 1984. Value-weighted portfolios can be constructed, however, based on the IFC data (as discussed in this appendix) dating back to December 1975.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able data from the IFC.[25]

**Construction of Emerging Market Composite Index.** The composite index was developed by first calculating individual stock returns after adjusting the EMDB for certain timing problems in the reporting of dividends, stock dividends, splits, and other recapitalizations. The adjusted returns were used to calculate index value changes.

**Individual Return Calculations.** Individual local returns were calculated for each company that had data available from the IFC. Similar to firm returns found in CRSP files, prices for return calculations are adjusted to reflect stock splits, stock dividends, new issues, and rights issues. The reported return series includes dividends paid during the return period. The return calculation for stock $i$ in month $t$ can be expressed as follows:

$$R_{it} = \frac{S_t P_t [1 - (RIS_t SP_t) / (S_{t-1} PRIS_t + RIS_t SP_t)]}{S_t P_{t-1}} + \frac{D_t S_t - P_t S_{new}}{S_t P_{t-1}} - 1,$$

where

$S_t$ = number of shares outstanding at time $t$ (including new shares from stock splits and stock dividends)

$P_t$ = price per share at time $t$

$RIS_t$ = number of new shares from rights issues during period $t$

$SP_t$ = subscription price for the right issue

$PRIS_t$ = prerights issue price per share at time $t$

$S_{new}$ = number of other new shares issued during period $t$

$D_t$ = cash dividends paid during period $t$

Given that subscription prices for new issues are not available, the current value associated with new issues is subtracted in the return calculation.

In several cases, the IFC recorded dividend, stock split, and rights issue information at a date later than their associated ex-dates. This delay may result from late notification to the IFC. For this study, all information of this nature was backdated to the correct ex-date. Local returns were converted to U.S. dollar-based returns based on exchange rate information available in the IFC data files.

**Composite Index Construction.** The composite index is based on returns for a value-weighted portfolio. The value-weighted portfolio returns are calculated as the weighted average of the returns of the individual stocks in the portfolio, as follows:

$$R_{pt} = \sum_{i=1}^{N} W_{it-1} R_{it},$$

where $W_{it-1}$ is the market value weight of security $i$ at the end of Period $t-1$.

As is common in value-weighted returns, such as those available on the CRSP tapes, the weight assigned to a security's return is its percentage of total market capitalization from the end of the previous period. Given that new companies appear as the emerging markets grow (and some disappear), the number of firms in the index is not constant. The number of firms in the composite index at a given point in time depends on the number of firms with valid returns.

The process of calculating individual rate-of-return data and then computing value-weighted returns resulted in returns very much like those reported by the IFC Global Index.[26]

## Notes

1. This article summarizes some of the findings in Barry, Peavy, and Rodriguez (1997b).
2. See International Finance Corporation (1996).
3. This amount is down from 1994, when emerging markets had 13 percent of the world's stock market capitalization.
4. The growth in emerging market capitalization reflects appreciation of stock values, the inclusion of new markets in the total, and privatizations and other new stock issues in these markets.
5. Colombia, Portugal, and Turkey are examples of relatively small stock markets with market capitalizations less than $21 billion each as of the end of 1995. South African and Malaysian stock markets, however, each had capitalization exceeding $220 billion, which was greater than the capitalization of stock markets in Italy and Spain.
6. Barry and Lockwood (1995) reviewed recent research on emerging capital markets and suggested directions for future research.
7. The appendix provides details regarding markets covered and the calculation of the stock returns and index returns used in this analysis. Further details are provided in Barry, Peavy, and Rodriguez (1997b).
8. For example see Divecha, Drach, and Stefek (1992), Stanley (1995), and Price (1994).
9. Emerging markets are represented by the Emerging Markets Composite Value-Weighted Index (the composite), which is based on our calculations of the EMDB. See the appendix for more discussion.
10. Previous studies use similar time periods to the one discussed thus far (1985 to 1995).

11. Emergence occurs when available information shows market capitalization has grown large enough to capture the attention of global investors.
12. Goetzmann and Jorion (1996b) suggested how insights can be gained by examining long time series in a variety of markets.
13. Actually, the first period depicted in Figure 5 is the nine-and-a-half year period from the start of the sample period through June 1985, and the second period is the subsequent 10 years.
14. Barry, Peavy, and Rodriguez (1997b) reported relatively low correlations between individual emerging markets and between individual emerging markets and developed market portfolios.
15. In January 1995, one of the authors gave a talk for business executives in Santiago, Chile, after the Chilean market had fallen. One of the attendees asked, "Why do you Americans paint all of Latin America with the same brush?" A Brazilian finance ministry official commented, "We don't even speak Spanish!" The market did distinguish among the markets, however. Brazil and Argentina both had currencies that were under assault, and their markets reacted sharply to the Mexican peso crisis. Chile, in contrast, was running government budget surpluses, a strong trade surplus, and experienced a high savings rate. The Chilean market fell far less sharply than the other Latin American markets and recovered faster.
16. The figures for market turnover ratio come from the International Finance Corporation (1996). The ratio is calculated by dividing the average market capitalization for the year by the total value traded.
17. Size and liquidity are criteria applied in identifying securities for membership in the EMDB.
18. The IFC also includes smaller firms if necessary to achieve broad coverage across industries.
19. The IFC's publication *IFC Index Methodology* describes the investable indexes.
20. The IFC's data on investability begin in December 1988.
21. Bekaert (1995) reported barriers to global stock market integration, including poor credit ratings, high and variable inflation, exchange rate controls, the lack of a high-quality regulatory and accounting framework, the lack of sufficient country funds, the lack of sufficient cross-listed securities, and the limited size of some stock markets. Bekaert and Harvey (1995) reported that some markets appear segmented even though foreigners have relatively free access to their stock markets.
22. Bekaert and Urias (1994) provide further evidence of the reduced diversification benefits from closed-end funds.
23. Submerged markets are markets that were once active and then more or less disappeared. For example, Central European countries had active markets before becoming a part of the Soviet sphere of influence, then disappeared, and have recently reappeared. Performance statistics often ignore the losses that occurred when those markets submerged.
24. The authors are grateful to the IFC for providing access to the EMDB, which forms the basis for this study.
25. Some companies have multiple classes of shares. Each class of shares a company issues is treated as if it were a separate company.
26. IFC Global indexes try to capture market movements by including 60–75 percent of the total capitalization of all shares listed on a given stock market.

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