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Comovement across international financial markets highlights U.S. equity markets' exposure to foreign markets.

Global Stock Market Linkages Reduce Potential for Diversification

by Karen K. Lewis

Recent European government debt difficulties demonstrate how linked stock markets have become. Problems in countries such as Greece and Italy have depressed stock markets not only on the continent but also in the United States. Such comovement across international financial markets highlights U.S. equity markets' exposure to foreign markets.

The apparent riskiness of this international exposure sharply contrasts with a long-standing view that exposure to foreign stock markets helps reduce portfolio volatility for American investors. This perspective holds that U.S. investors' holdings of domestic assets such as stocks and bonds should be augmented by securities in foreign markets because the two regions do not move in lockstep. When the U.S. market decreases, foreign markets may decline by a lesser amount or may even grow, thereby reducing risk.

But procuring foreign securities may be difficult, often involving a foreign broker and the institutional red tape of an unfamiliar market. Moreover, the accounting standards and legal conventions can be quite different from those in the U.S. While in principle foreign stocks can help diversify U.S. portfolios, information costs can more than offset those gains.

Putting these concerns together with the recent high correlations across stock markets prompts questions about foreign holdings. Is it still true that foreign stock markets provide diversification benefits to domestic investors? If so, might foreign stocks traded in the U.S. provide those benefits without the need to go abroad? And how do we understand these relationships in light of recent events in the global stock markets?

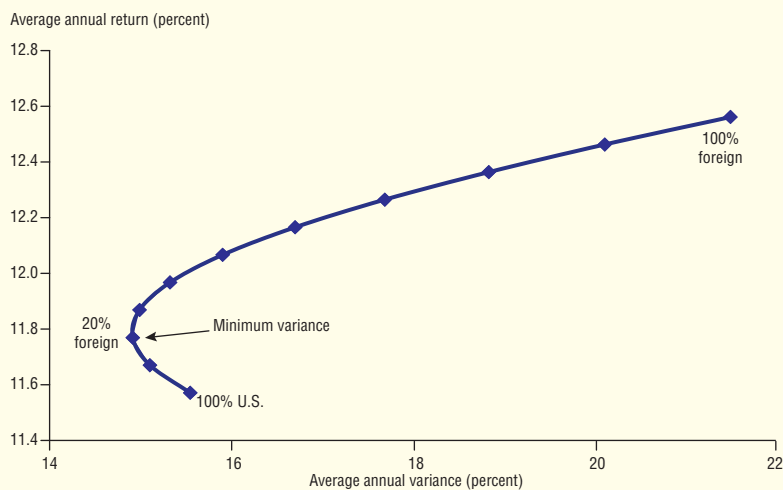
Arguing for International Diversification

The argument for foreign diversification is similar to the one for holding both bonds and stocks in a portfolio: Domestic and foreign



Chart 1

Foreign Portfolios Offer Risk-Return Trade-Off



SOURCE: Thomson Reuters.

securities do not move one-for-one. Therefore, holding foreign stocks alongside domestic U.S. stocks can reduce volatility relative to a portfolio of the U.S. market alone.

The U.S. market—as measured by the Standard & Poor’s 500 Index—and the foreign market—tracked through the Europe, Australasia and Far East (EAFE) Index, a broad collection of non-U.S. firms—are shown in Chart 1.

Using data spanning the past few decades, the chart shows the average annual mean return and variance—a measure of volatility—of different portfolios of U.S. and foreign indexes. The point labeled “100% U.S.” shows the mean return and volatility if an investor had held a portfolio entirely in the S&P 500. By contrast, the point labeled “100% foreign” shows the mean return and volatility if an investor had placed a portfolio completely in the EAFE. Clearly, these two points highlight the general perception that foreign returns are riskier; the foreign portfolio leads to annualized volatility about 6 percent greater than the U.S. portfolio alone.

On the other hand, the entirely U.S. portfolio does not generate the least volatility. As the chart shows,

a portfolio with 20 percent foreign stocks would have generated the lowest volatility and also a higher return than the U.S. market alone.

Foreign Stocks Trading in the U.S.

Foreign diversification may be achieved several ways. In a 1999 paper, Vihang Errunza, Ked Hogan and Mao-Wei Hung challenged the need to go to foreign markets to provide diversification.¹ They showed that portfolios of foreign stocks and multinational corporations trading on U.S. markets such as the New York Stock Exchange (NYSE) and Nasdaq can provide the same volatility reduction as direct investments in foreign markets.

This can be achieved by buying foreign stocks traded on U.S. exchanges typically in the form of “American depositary receipts” (ADRs). These represent underlying shares in the company’s home market that are held by U.S. custodian banks. While some ADRs are traded in an over-the-counter market among brokers, these stocks tend to be of small market values compared with those available on U.S. exchanges. Moreover, foreign companies listing their stocks on U.S. exchanges must

produce accounting statements meeting U.S. standards, thereby making company information more transparent to Americans. Thus, much of the attention for foreign diversification has focused on the exchange-traded ADRs.

Over the past few decades, listing stocks across international borders has increased significantly (Chart 2). Until the late 1980s, a negligible number of companies listed their shares on exchanges outside their home markets. That began changing in the 1990s and 2000s, peaking just before the financial crisis. The number of new listings has remained near 2007 levels during the past two years, retreating from highs in 2008.

While these figures give a sense of the increase in cross-border equity listings, they do not indicate the shares of foreign companies that U.S. investors could purchase in their home markets. At the end of 2011, there were 401 foreign companies trading as ADRs on the NYSE and Nasdaq and another four on the American Stock Exchange.² A few of these have been in the U.S. for many years. For example, Royal Dutch Shell PLC of the Netherlands has traded on the NYSE since the 1950s. However, most companies entered the U.S. market much later.

The proportion of foreign stocks in each exchange by U.S. listing date is shown in Chart 3, which is notable for two features. First, the tenure of companies on the exchanges mirrors the general trend in Chart 2—most companies came to be traded in the U.S. market in the mid-1990s and later. Second, the proportions of foreign stocks listed in the 2000s experienced sharp drops after the stock market declines of 2001 and 2008.

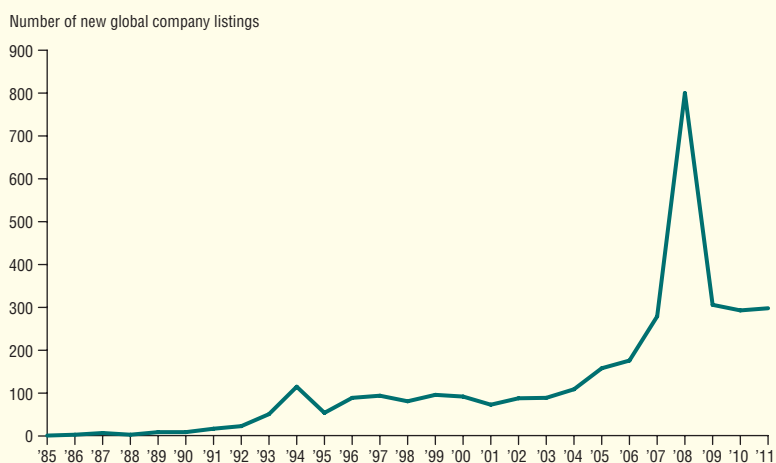
Diversification Using Foreign Stocks

Even with U.S. investors’ increased ability to diversify with foreign stocks, how have these shares fared during the recent financial events?

Because the benefits to diversification depend on how tightly foreign and domestic stocks move together, we start

Chart 2

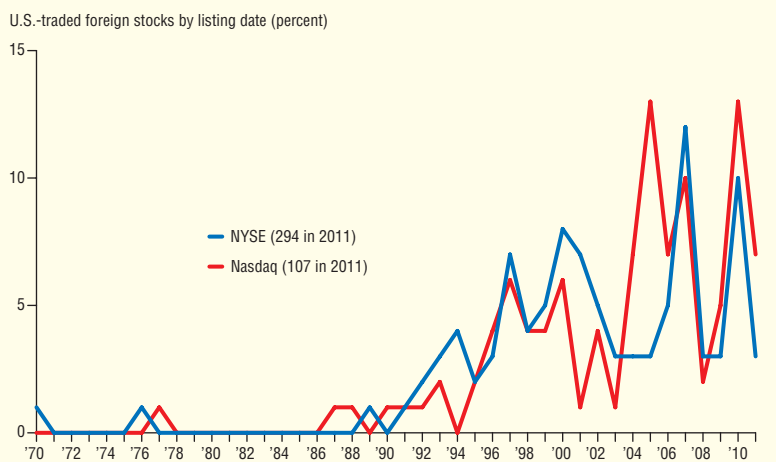
Foreign Stock Listings in Global Markets Trend Higher



SOURCE: Citibank.

Chart 3

Proportion of Foreign Stocks Falls After Market Declines



SOURCE: Bank of New York Mellon.

by examining this comovement over time.³ Interestingly, we find that foreign stocks provide a better hedge against the U.S. market before they begin trading on U.S. exchanges. Once that occurs, they move more closely with the American market. This behavior is consistent with the view that more Americans hold these foreign stocks,

thereby inheriting similar risk factors.

We then study the behavior of an index of these foreign stocks on the NYSE and Nasdaq together with the U.S. market index. We ask how much risk within the U.S. portfolio could be reduced by holding these foreign stocks.

Chart 4A shows the holdings for foreign securities that would yield the

lowest variance in each year. In the early 1970s through the 1990s, the lowest volatility would generally have been obtained with a relatively high proportion of 50 percent or more in foreign stocks. However, after the market decline in 2001, this relationship changed sharply. To get the lowest volatility in equity markets, the proportion in the foreign stocks would be negative. That is, an American investor would have to bet against the foreign market by selling these securities, commonly called “short selling.” Since short sales are difficult for small investors, the lowest practical volatility strategy would have been to hold no foreign stocks.

The impact of these foreign stock positions on reducing volatility relative to the U.S. market alone is shown in Chart 4B. With the exception of a few years, such as 1983, diversification into foreign cross-listed stocks would have lowered volatility by 1–2 percent over many years through 2001. After 2001, American investors would have benefited from positions in foreign stocks in the U.S. only if they could have bet against them.

Lessons Learned

In general, foreign stocks should provide diversification potential because they are influenced more strongly by events in their own markets. However, equity returns from foreign companies listed on American exchanges move much more closely with U.S. market returns. As such, they lose their diversification potential. Moreover, when global markets are affected by common sources of risk, such as the European debt crisis, these comovements are exacerbated. In these times, the foreign diversification potential is indeed diminishing.

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Notes

¹ See “Can the Gains from International Diversification Be Achieved Without Trading Abroad?” by Vihang Errunza, Ked Hogan and Mao-Wei Hung, *Journal of Finance*, 1999, vol. 54, no. 6, pp. 2075–2107.

² Companies from Canada and Israel may directly list on these markets by agreement with the U.S. government. Including these companies would significantly increase the total number of foreign

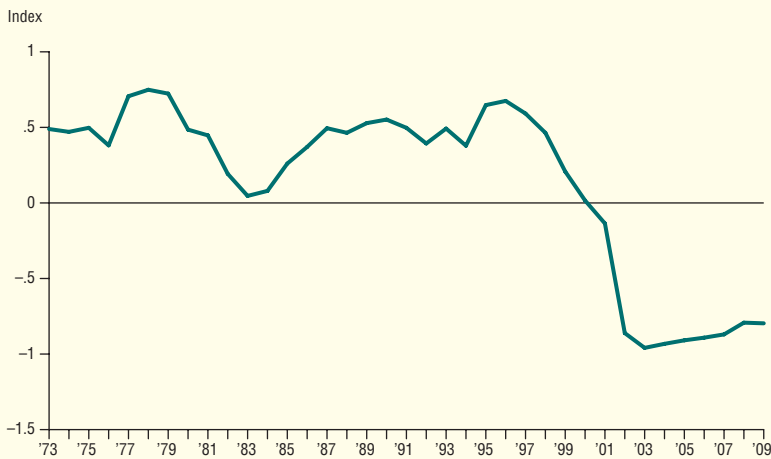
companies, primarily due to the quantity of Canadian stocks.

³ See “Are the Gains from Foreign Diversification Diminishing? Assessing the Impact with Cross-Listed Stocks,” by Choong Tze Chua, Sandy Lai and Karen K. Lewis, University of Pennsylvania, Wharton School, Weiss Center for International Financial Research, Working Paper no. 10-1, February 2010.

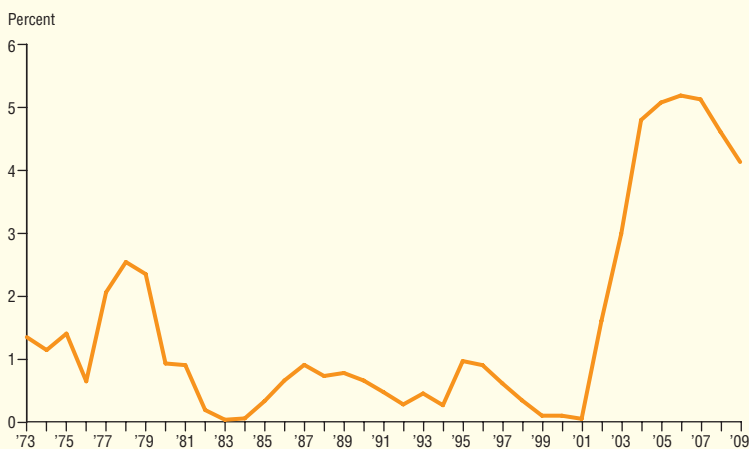
Chart 4

Ability of Foreign Stocks to Reduce Volatility Is Limited After 2001

A. Portfolio Share of Foreign Stocks with Lowest Volatility



B. Volatility Increases After 2001



SOURCE: Thomson Reuters.