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Should U.S. Investors Hold Foreign Stocks?

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U.S. investors have traditionally been reluctant to acquire foreign securities—in part, perhaps, because they fear that restrictions on trading in foreign markets will sharply limit any gains they might realize from diversifying their portfolios. An analysis of the effects of one type of restriction, short-sale constraints, on stock returns between 1976 and 1999 suggests that investing in emerging market stocks offers substantial benefits even when a ban on short sales is in place.

Economists have long maintained that U.S. investors can benefit by diversifying their portfolios to include stocks from developed and emerging market countries. International diversification brings gains, the argument goes, because returns on foreign securities do not correlate exactly with those of U.S. securities—that is, when U.S. markets perform poorly, foreign markets are likely to fare better. Thus, an investor who holds both U.S. and foreign stocks may achieve a better combination of risk and return than an investor who holds a purely domestic portfolio. This argument has acquired new force in light of the weak performance of the U.S. stock market in the last two years. Indeed, some portfolio managers are suggesting that, in the current environment, emerging market assets may be a sound alternative investment.¹

But while economists and market professionals favor diversification, U.S. investors have clung to domestic stocks, typically allocating less than 10 percent of their portfolios to foreign equities. This strong preference for domestic stocks, so clearly at odds with the prevailing economic wisdom, is known as the “home bias puzzle.”²

In this edition of *Current Issues*, we use historical data to examine a possible explanation for home bias—the existence of restrictions on stock trading in foreign markets that reduce or negate the benefits of diversification for U.S. investors. To assess whether such restrictions do in fact significantly limit the gains to U.S. investors from holding foreign stocks, we examine the

impact of one type of constraint, that on short sales. In a short sale, investors sell at the current market price a stock that they have borrowed from a broker in anticipation of a fall in the stock price. If the stock price does decline, then the investors will earn a profit when they buy back the stock from the market to return it to the broker.³ Investors in foreign markets regard short sales as a key means of protecting their income, especially in emerging stock markets that have seen recurrent periods of poor performance. But while short selling is valued by investors, it is either banned or difficult to implement in many emerging markets. Thus, short-sale constraints offer a useful test of the hypothesis that trading restrictions largely undercut the benefits of diversification.

Our analysis of stock returns in selected countries over the 1976-99 period suggests that investing in emerging market stocks can yield substantial benefits, even when a ban on short selling is in place. This result is true for the universe of emerging market stocks as well as for the so-called “investable” stocks—emerging market stocks that are actually available to foreign investors and meet minimum size and liquidity criteria. In contrast, the benefits of investing in developed country stocks disappear when short selling is prohibited. These benefits, however, are small from the outset, and investors in developed country stocks can easily bypass the constraints by using derivative securities.⁴

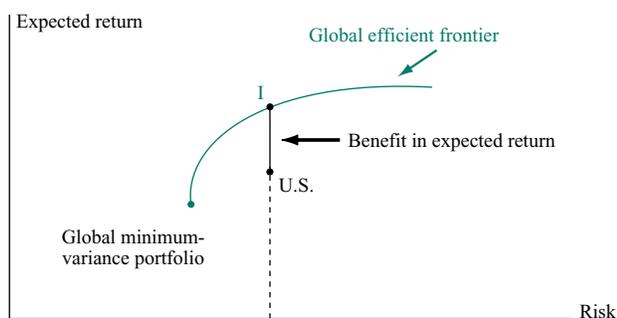
In an extension of our analysis, we compare our findings for the first and second halves of the sample period to determine whether the integration of global markets in the 1990s may have reduced the benefits of investing in foreign stocks. Our results show that while market integration decreases the diversification benefits of emerging market investments, it does not eliminate them. Thus, we conclude that emerging markets remain a valuable investment opportunity for U.S. investors even after short-sale constraints and market integration are taken into account.⁵

Measuring International Diversification Benefits

For our analysis of the effects of short-sale constraints, we use two different measures of diversification benefits. The first measure estimates the additional return that can be expected by a U.S. investor in moving from a purely domestic U.S. stock portfolio to an *efficient* international stock portfolio when the two portfolios are equally risky. By an efficient portfolio, we mean one that is located on the “global efficient frontier”—the spectrum of international portfolios that offer optimal combinations of risk and return (see diagram). Each of the portfolios on the frontier is allocated differently among domestic and foreign stocks, but it shares with all the others the property that it provides a higher return for the same risk or a lower risk for the same return as portfolios not located on the frontier. In the diagram, the diversification benefit is depicted as the length of the solid line joining the point U.S. (the domestic portfolio) to the point I (the efficient international portfolio).

Our second measure of diversification benefits is the reduction in risk achieved through foreign investment. Risk is defined in terms of the volatility of stock returns, where volatility is gauged by the standard deviation of returns, or the degree to which returns diverge from their mean value. We calculate the reduction in the standard deviation (as a percentage of the standard deviation of the U.S. stock portfolio) when investors switch from the U.S. stock portfolio to the least risky

Measuring the Benefits from International Diversification



international stock portfolio (the global minimum-variance portfolio in the diagram).⁶ With this second measure, we implicitly assume that investors are interested solely in minimizing risk and do not care about returns.

International Stock Returns and Market Correlations

We begin our analysis with a brief look at the performance of stock markets in developed and emerging market countries. Our data span the period from January 1976 to December 1999 and consist of dollar-denominated monthly total returns on stock indexes for the G7 group of developed countries (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) and for eight emerging market countries: four Latin American markets (Argentina, Brazil, Chile, and Mexico) and four Asian markets (Hong Kong, Singapore, South Korea, and Thailand).⁷ Table 1 lists the market capitalization in U.S. dollars of the countries in our sample as of the end of 1999.

During the 1976-99 period, emerging market countries generally showed higher mean stock returns than G7 countries, although the returns for Thailand and Singapore were on a par with those of the developed countries (Table 2). At the same time, all of the emerging markets showed a higher level of risk than the G7 countries, with standard deviations of returns often far exceeding those of the developed countries. Since the greater riskiness of emerging market stocks offsets the stocks' superior returns, these data do not allow us to draw any firm conclusions about whether emerging

Table 1
Countries and Their Market Capitalization as of 1999

Country	Symbol	Market Capitalization (Billions of Dollars)	Weight
United States	USA	16,635.11	0.5497
Canada	CAN	800.91	0.0265
Japan	JAP	4,546.94	0.1503
France	FRA	1,475.46	0.0488
Germany	GER	1,432.19	0.0473
Italy	ITA	728.72	0.0241
United Kingdom	UK	2,933.28	0.0969
Argentina	ARG	83.89	0.0028
Brazil	BRA	227.96	0.0075
Chile	CHI	68.23	0.0023
Mexico	MEX	154.04	0.0051
South Korea	KOR	308.53	0.0102
Thailand	THA	58.37	0.0019
Hong Kong	HK	609.09	0.0201
Singapore	SIN	198.41	0.0066

Note: Market capitalization in local currency is converted to U.S. dollars using exchange rates prevailing at the end of 1999.

markets offer diversification benefits to U.S. investors beyond those offered by G7 countries.

In contrast, when we compute the correlation between different countries' stock returns, we find strong evidence that U.S. investors could profit by adding emerging market stocks to their portfolios (bottom portion of Table 2). Stock returns in most emerging market countries have low correlation with those in other emerging markets and those in the G7 countries. As noted earlier, a low correlation means that investors with diversified holdings can weather a downturn in

their home market because they are likely to see stronger returns on their holdings in foreign markets. Thus, U.S. investors who buy emerging market stocks should have a significant advantage, although the stocks' relative riskiness could mitigate the gains.

U.S. investors who acquire the stocks of other G7 countries, however, will not have the same advantage. Compared with emerging market stock returns, returns for G7 countries show a fairly high correlation among themselves. The correlation between Canadian and U.S. stock returns, at more than 0.7, is especially high.

Table 2
International Stock Returns and Market Correlations, 1976-99

Country	Mean Return	Standard Deviation	Country	Mean Return	Standard Deviation
USA	16.34	14.64	ARG	53.11	89.50
CAN	13.27	19.24	BRA	25.25	56.21
JAP	15.76	23.25	CHI	29.55	36.50
FRA	17.39	22.88	MEX	24.96	42.68
GER	15.63	20.43	KOR	19.34	38.58
ITA	15.61	26.79	THA	16.24	35.04
UK	17.78	20.24	HK	23.08	33.15
			SIN	16.13	26.99

Correlations							
	USA	CAN	JAP	FRA	GER	ITA	UK
CAN	0.71						
JAP	0.25	0.29					
FRA	0.44	0.43	0.42				
GER	0.37	0.33	0.33	0.61			
ITA	0.24	0.30	0.36	0.45	0.38		
UK	0.50	0.53	0.39	0.53	0.45	0.36	
ARG	0.05	0.14	0.00	0.06	0.02	0.09	-0.03
BRA	0.13	0.09	0.10	0.09	0.12	0.14	0.13
CHI	0.09	0.16	0.08	0.08	0.10	0.09	0.07
MEX	0.32	0.27	0.14	0.17	0.15	0.12	0.23
KOR	0.19	0.19	0.33	0.08	0.08	0.14	0.17
THA	0.25	0.25	0.19	0.17	0.26	0.14	0.20
HK	0.37	0.04	0.27	0.28	0.33	0.25	0.42
SIN	0.48	0.47	0.32	0.26	0.28	0.20	0.42
BRA	0.02						
CHI	0.13	0.10					
MEX	0.19	0.09	0.21				
KOR	-0.05	0.05	0.10	0.13			
THA	0.06	0.07	0.19	0.26	0.32		
HK	0.04	0.17	0.19	0.25	0.16	0.39	
SIN	0.07	0.14	0.20	0.34	0.21	0.52	0.61

Notes: Stock returns are calculated at a monthly frequency. The mean return and standard deviation of returns are both measured as a percentage per year.

Short-Sale Constraints and the Benefits of Diversification

Our preliminary findings suggest that U.S. investors may benefit when they buy emerging market stocks. But how large are the gains from diversification and how do restrictions on short sales affect these gains? To answer these questions, we use our returns data to construct four international portfolios, each consisting of the U.S. stock index and one of the following groups of stock indexes: the G7 group of countries (here denoted G); G7 and Latin American countries (GL); G7 and Asian countries (GA); and G7, Latin American, and Asian countries (GLA). For each portfolio, we estimate the benefits of diversification when no trading restrictions apply and, alternatively, when short selling is banned.⁸ In terms of our diagram, we generate the global efficient frontier for each of the four cases and then calculate the length of the line from I to U.S. The interpretation of a benefit of, say, 2 percent is that the gain in returns or reduction in risk from international diversification is at least 2 percent per year with 99 percent probability.⁹ In other words, we can have a high level of confidence that the diversification benefits are no less than 2 percent per year.

Gain in Expected Returns

With no trading restrictions in place (Table 3, top panel), U.S. investors who add G7 stocks to their portfolios (the G portfolio) see an additional return of at least 0.60 percent per year. However, when the same investors also add emerging market stocks to their portfolios (the GLA portfolio), the gain jumps to at least 4.61 percent. These results suggest that under unrestricted trading, most of the benefits of international diversification stem from investing in emerging market stocks. The magnitude of these benefits is probably large enough to justify the costs of investing in various emerging markets. Nevertheless, the short sales required to achieve these benefits may not be easy to implement.

When short selling is banned in all non-U.S. markets (Table 3, middle panel), the additional return from diversification falls in all cases. Investing in the G portfolio now yields no increase in returns. Investing in a

Table 3
International Diversification Benefits
for a U.S. Investor, 1976-99

International Portfolio	Increase in Expected Returns	Reduction in Risk
No Trading Restrictions		
G	0.60	6.72
GL	3.48	9.55
GA	1.56	7.89
GLA	4.61	11.06
Short-Sale Restrictions on All Markets		
G	0.00	6.18
GL	1.87	8.52
GA	0.00	6.67
GLA	2.28	9.05
Short-Sale Restrictions on Emerging Markets		
GL	3.32	9.25
GA	1.16	7.19
GLA	3.78	9.74

Notes: Both the increase in returns and the reduction in risk are measured as a percentage per year. The four international portfolios consist of the following groups of stocks: G, or G7 stocks; GL, the G7 and Latin American country stocks; GA, the G7 and Asian country stocks; and GLA, the G7, Latin American, and Asian country stocks.

combination of G7 and Latin American countries (the GL portfolio) boosts returns by 1.87 percent, down from 3.48 percent under unrestricted trading. The GLA portfolio returns 2.28 percent, dropping from 4.61 percent earlier. Although the GA portfolio, like the G portfolio, now produces no increase in returns, it is evident that, in this scenario, the only gains from diversification come from emerging market investments. This result underscores the importance of emerging market holdings in the international portfolio.

Finally, we estimate the diversification benefits when short-sale constraints are imposed only on emerging market stocks (Table 3, bottom panel). This scenario comes closest to actual conditions in that it is easier to short-sell G7 stocks than emerging market stocks. Significantly, we find that when the restrictions are limited to emerging market stocks, the increased returns earned by investors in the GL and GA portfolios are almost as high as those earned when trading is unrestricted. Investing in the GLA portfolio boosts returns by at least 3.78 percent per year, only about 0.8 percent per year less than when trading is unrestricted. Our results indicate that short-sale constraints on emerging market stocks have little impact on the increased returns earned by investors who can continue to short-sell G7 stocks.

Reduction in Risk

Using our second measure of diversification benefits—risk reduction—we find that emerging market invest-

ments provide sizable benefits to investors both when trading is unrestricted and when short-sale constraints are in place (Table 3, right-hand column). For example, investing in the GLA portfolio reduces risk by about 11 percent with unrestricted trading and by about 9 percent with a ban on short selling in all non-U.S. markets.

Overall, short-sale constraints have less of an impact on risk reduction than on expected returns. For example, the risk reduction that stems from investing in the GA portfolio is about 8 percent without trading restrictions and about 7 percent when short selling is prohibited in all markets. In contrast, the gain in expected returns drops from 1.6 percent to zero under the same conditions. The reason for this discrepancy is that the least risky international portfolio—the global minimum-variance portfolio—requires only small short positions in foreign countries. Thus, if short sales are banned, the consequences for risk reduction are not that large. Our findings suggest that if the goal of U.S. investors is solely to minimize risk, without regard to returns, then restrictions on short sales are of little consequence.

Composition of the Efficient International Portfolio

A closer look at the composition of the efficient international portfolio sheds additional light on the effects of short-sale constraints. We have defined this portfolio as one that earns a higher return for the same degree of risk as the U.S. stock portfolio. Using the returns data for the 1976-99 period, we now calculate the share of the efficient international portfolio that would be assigned to each of the countries in the sample. Interestingly, we find that when trading is unrestricted, the only substantial short position in emerging markets is in Singapore, at about 11 percent. The short position in Canada, however, is nearly three times as large, or roughly 28 percent.

The implication is that U.S. investors wishing to maximize risk-adjusted returns must depend largely on taking short positions in developed countries such as Canada. Consequently, if short selling is prohibited in developed markets, then investors will be unable to realize these gains. By contrast, maximizing risk-adjusted returns does not require investors to take large short positions in emerging market stocks. This exercise helps explain why, in our earlier results, short-sale restrictions in developed countries significantly reduce expected returns, while restrictions that are limited to emerging markets have only a modest effect.

The exercise also provides additional evidence of the benefits of holding emerging market stocks. Our calculations suggest that Chile would hold a 14 or 15 percent share in the efficient international portfolio under all three scenarios. We conclude that optimal holdings of some emerging market stocks are substantial.

Global Market Integration and Diversification Benefits

One phenomenon that may influence our results is the increased integration of world markets in the 1990s. Many analysts have claimed that global market integration has reduced the benefits of diversification by increasing the correlation between world stock markets. If the markets move in step, then the opportunities to counter losses in one market with gains in another will be fewer. Therefore, it is reasonable to question whether the benefits of international diversification and the impact of short-sale constraints have changed as emerging markets have become more integrated. It is also natural to question whether our results are unduly influenced by the financial crises of 1997 and 1998. To investigate these issues, we measure diversification benefits separately for the period from January 1976 to December 1989 and the period from January 1990 to December 1999.

We find that diversification benefits remain evident in the post-integration period (1990-99) both with and without short-sale constraints (Table 4). However, the magnitude of the benefits is smaller and the impact of short-sale constraints on emerging markets larger than in the pre-integration period. For example, during the 1976-89 period, the benefit of investing in the GLA portfolio is 9.78 percent when there are short-

sale constraints on emerging markets, compared with 10.54 percent under unrestricted trading. For the 1990-99 period, the benefit of investing in the GLA portfolio is 4.11 percent without restrictions and 1.24 percent when short-sale constraints are imposed on emerging markets.

To understand why the impact of short-sale constraints differed before and after market integration, we studied the portfolio weights attached to different countries in the efficient international portfolio during the two subperiods (these numbers are reported in Li, Sarkar, and Wang [2002]). For the pre-integration period, the only substantial short position in emerging markets is in Singapore. In contrast, for the post-integration period, substantial short positions in emerging markets are more numerous. These short positions reflect the poor performance of emerging markets in the latter half of the 1990s, relative to developed markets, and explain the larger impact of short-sale constraints on emerging markets during the same period.

Investable Stocks and Diversification Benefits

The stock index data used in our analysis thus far have included stocks that may not be available to foreign investors for legal or practical reasons. Some countries limit foreign holding of general classes of shares or exclude foreign investment in particular sectors. Even if a stock is available for investment, foreign investors may find it difficult to trade because the stock is too small and illiquid. To examine the effect of these limitations on diversification benefits, we use returns on the International Finance Corporation's investable indexes, available for all emerging markets in our sample except Hong Kong and Singapore. The investable indexes are calculated similarly to the total return indexes used in our earlier analysis but cover a subset of index constituents that are available to foreign investors and meet minimum size and liquidity requirements. The returns data for the investable indexes are, however, available only since 1989.

Using the investable index returns, we calculate the diversification benefits of international portfolios under various scenarios (Table 4, right-hand column). All the earlier results hold qualitatively. However, the impact of short-sale constraints is greater for investable indexes than for total return indexes. Since most of the data on investable indexes are from the 1990s, this finding is consistent with our earlier result that the impact of short-sale constraints on emerging markets is greater during the post-integration period. For example, the investable index data show that the benefit of investing in the GLA portfolio is 2.49 percent with short-sale restrictions on emerging markets only, down from

Table 4
International Diversification Benefits for a U.S. Investor before and after Market Integration, and Benefits from Investable Stocks, 1976-99

International Portfolio	Diversification Benefit		
	Pre-Integration 1976-89	Post-Integration 1990-99	Investable Stocks
No Trading Restrictions			
G	2.19	0.52	0.59
GL	7.12	1.78	2.65
GA	5.99	2.29	1.85
GLA	10.54	4.11	4.60
Short-Sale Restrictions on all Markets			
G	0.13	0.00	0.00
GL	4.96	0.00	0.96
GA	3.00	0.00	0.00
GLA	7.35	0.00	1.25
Short-Sale Restrictions on Emerging Markets			
GL	6.85	1.13	2.28
GA	5.41	0.78	0.86
GLA	9.78	1.24	2.49

Notes: The diversification benefit is the increase in expected returns, measured as a percentage per year. The four international portfolios consist of the following groups of stocks: G, or G7 stocks; GL, the G7 and Latin American country stocks; GA, the G7 and Asian country stocks; and GLA, the G7, Latin American, and Asian country stocks.

4.60 percent under unrestricted trading; the total return indexes show a reduction from 4.61 percent to 3.78 percent (see Table 3).

Conclusion

U.S. investors have been slow to acquire foreign stocks, despite economists' claims that diversification is beneficial. Our analysis provides new evidence that this reluctance to invest abroad is short-sighted, at least for the period analyzed in our study. Using data on stock returns in fifteen G7 and emerging market countries, we show that restrictions on short sales—often thought to negate the benefits of international diversification—in fact have a much more modest effect. The benefits of investing in developed countries, small from the outset, do disappear when short sales are prohibited. Nevertheless, investing in emerging market stocks continues to offer substantial benefits under a ban on short sales. Moreover, these benefits persist even in the face of the growing integration of world equity markets.

Notes

1. See, for example, "Emerging Markets' Unlikely Allure," *Investment Dealers' Digest*, October 15, 2001, pp. 11-12, and Craig Karmin and Peter A. McKay, "U.S. Reign atop Markets May Be Over," *Wall Street Journal*, March 25, 2002, p. C1.
2. See, for example, French and Poterba (1991).
3. In our analysis, we implicitly assume that short-sale proceeds earn the risk-free rate and are available to finance the purchase of stocks subsequently. Since, in practice, short-sale proceeds are likely to earn less than the risk-free rate, short-sale restrictions in our analysis may appear more onerous than otherwise. However, our conclusion is unaffected by this assumption since we find that diversification benefits exist even with such onerous restrictions.

4. Derivatives based on stock market indexes are widely available for developed markets, but not for many emerging markets.

5. An important caveat is that our analysis is static, and pertains only to the specific sample period we study. As economic conditions change, the diversification benefits are likely to change as well. In particular, our analysis cannot predict the future diversification benefits of emerging market investments.

6. Details of the Bayesian procedure used to obtain our two measures of diversification benefits can be found in Wang (1998) and Li, Sarkar, and Wang (2002).

7. The returns data for the G7 countries and for Hong Kong and Singapore are available at the Morgan Stanley Capital International web site, <<http://www.msci.com>>. The data for the remaining countries are from the International Finance Corporation.

The dollar-denominated returns are calculated using the end-of-the-month exchange rate between the local currency and the U.S. dollar.

8. We are concerned with the problem of short selling the index, preferably by taking a position in a futures contract written on the index.

9. Technically, we are reporting the one percentile of the posterior distribution of benefits obtained from the Bayesian procedure. Other moments of this distribution are reported in Li, Sarkar, and Wang (2002).

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