

# The International Diversification Fallacy of Exchange-Listed Securities

Judson W. Russell

*This paper reviews various investment vehicles and examines their international diversification potential. The primary focus is on the ability of U.S. exchange-listed investments such as closed-end country funds, American depository receipts (ADRs), and multinational corporations (MNCs) to provide a diversification effect similar to direct investment in foreign equity. The results show that the U.S. exchange-listed securities included in this study behave more like the host exchange than their home exchange. This result suggests that these U.S. exchange-listed securities, on average, do not perform an international diversification role for U.S. investors.*

## I. INTRODUCTION

Beginning in the 1980s and throughout the 1990s individual investors have been urged to select international securities as a portion of their investment portfolio. Even the relatively risky practice of investing in emerging markets has been viewed, by some, as a sound investment strategy for individuals. While the virtues of international investing are readily extolled in portfolio diversification literature the vehicles to facilitate the investment strategy need to be addressed. This paper investigates the individual investor's benefits gained by investing in U.S. exchange-listed, "international" securities. Specifically, this article tests whether exchange-listed securities such as American depository receipts (ADRs), closed-end country funds, and multinational corporations (MNCs) behave more like the exchange where they are listed or the market that they purportedly represent.

Two different approaches exist for investors seeking international portfolio diversification. One approach is to invest directly in the foreign securities. This involves purchasing the securities directly from the exchange where the security is listed. The alternative approach is to indirectly invest in the international security. Many investors wishing to acquire international securities have preferred to employ this more familiar, indirect method. This pursuit has led to tremendous growth in country specific investment companies (country funds), ADRs, and ultimately synthetically created diversification through

stock index futures. This paper reviews the international diversification effects from investing in U.S. exchange-listed securities.

Section II presents the various investment vehicles available for international diversification. Section III contains the data and methodology used in this study. Section IV is a synopsis of the results from the model. The final section is a concluding remark regarding investment in U.S. exchange-listed securities.

## II. INVESTMENT VEHICLES FOR INTERNATIONAL DIVERSIFICATION

Although this paper focuses on U.S. exchange-listed investment vehicles as a means of international diversification, there are many other vehicles available. The most apparent way to achieve international diversification would be through direct foreign investment. Many of the barriers to capital flows have been eliminated through the past few decades and investors are becoming more aware of the "global market." Although investors mostly agree about the benefits of international investing, few invest directly.

French and Poterba (1991) find that there is a very strong home-country bias with investors. This bias cannot be explained with capital controls, tax burdens, or transactions costs. Additionally, foreign-exchange risk from investing abroad can be mitigated through forwards or futures contracts on foreign currency. The ability for individual investors to hedge through currency contracts discounts the currency exposure risk. It would appear as though investors choose to invest domestically for the same reasons that consumers borrow from local banks, convenience and familiarity. Apart from institutions, most investors appear reluctant to invest directly in a foreign country.

Mutual funds have become wildly popular with U.S. investors. Approximately one in three Americans owns shares in a mutual fund. To satisfy the demands of investors, specialized funds have developed. One way for investors to participate in overseas markets is through international index funds. Peters (1988) suggests that investing internationally through an index fund will provide a hedge against many potential pitfalls. In addition to the potential for impressive returns, indexing allows for low trading costs due to its passive management style. Indexing also assists in international stock selection that can prove challenging to some fund managers. Buying shares in an international index fund appears to be a low-cost method to achieve diversification.

In addition to the numerous mutual funds there are several closed-end (country/region specific) funds. These funds provide a convenient package of securities that could be duplicated by investing in the foreign stock market directly. The funds are listed on national stock markets and trade as if they were domestic stocks. Closed-end funds would appear to be a useful vehicle for a diversification-minded investor. Bailey and Lim (1992) investigate the claim that closed-end funds provide international diversification. Their study includes 20 country funds listed on the New York and American Stock Exchanges. They find that country fund returns often resemble domestic U.S. stock returns more than returns from foreign stock portfolios. Chang, Eun, and Kolodny (1995) provide similar results in their study of 15 closed-end country funds. They find closed-end country funds tend to have significantly higher U.S. market betas and somewhat lower local market betas. Chang, Eun, and Kolodny suggest that this tends to reduce the effectiveness of closed-end

country funds in providing global risk diversification for U.S. investors. Barry, Peavy, and Rodriguez (1997) take a comprehensive look at emerging stock markets and country funds. They find that the country funds listed on the U.S. exchanges are more highly correlated with the S&P 500 than the returns for their respective benchmarks.

Another vehicle available to investors who wish to add "international" securities to their portfolios is the American depository receipt (ADR). ADRs are usually issued by United States banks, called depositories, that certify the deposit of a specific number of foreign shares with the bank's overseas branch. These shares are held as long as the ADRs remain outstanding. ADRs are listed on a national stock exchange or trade over-the-counter and can be bought or sold as easily as a domestic security.

Officer and Hoffmeister (1987) find that ADRs help simplify investment procedures, reduce costs, and provide diversification for investors. They find that there are no currency exchange risks and that investors can reduce their risk exposure by 20-25% when as few as four ADRs are combined with four domestic securities. Wahab and Khandwala (1993) find similar results as Officer and Hoffmeister, but they suggest that the optimal number of ADRs to hold is at least seven.

Webb, Officer, and Boyd (1995) agree that ADRs allow investors to circumvent currency exchange and other transactions costs, but they suggest that ADRs behave very similarly to the domestic market where they trade. Their study consists of 74 ADRs from 15 countries and estimates the relationship between the ADRs and the U.S. equity market with a leading and lagging model. Their study indicates that the international diversification benefits from investing in ADRs are minimal. This finding is consistent with the findings from several closed-end country funds studies. Both of these securities may trade as exchange-listed securities.

Stock index futures have been suggested as a synthetic international diversification approach. Foreign stock index futures have grown rapidly in the last few years. These futures are now traded in at least fifteen countries. Stock index futures offer greater liquidity and lower transaction costs when compared to the cash markets. Gastineau, Arimura, Belkin, Clausen, Kyokuta, Higashino, and Mitchinson (1988) estimate that for a large portfolio with substantial market impact, the round-trip transaction costs are about 87 basis points (bp) and 9 bp in the U.S. cash and futures markets, respectively. Jorion and Roisenberg (1993) find that through the use of stock index futures they are able to replicate international equity indices. Their five country synthetic portfolio was found to be highly correlated with the MSCI world stock index, a global benchmark.

There have been differing views on the usefulness of MNCs as a means for international diversification. A MNC is simply a portfolio of internationally diversified cash flows. These cash flows may exhibit low correlation with one another, depending upon the economic cycle in each country. Thus, by investing in a MNC an investor should theoretically achieve international diversification by acquiring foreign, as well as domestic cash flows. There have been numerous studies regarding the shareholder effects from corporate international diversification.

### III. DATA AND METHODOLOGY

This paper analyzes the diversification effect of U.S. exchange-listed securities. The data consists of 20 randomly selected closed-end country funds, ADRs, and MNCs, as well as

**TABLE 1**  
**Securities Used in Study**

<u>Country funds</u>	<u>ADRs</u>
First Australia Fund	National Australia Bank (Australia)
Austria Fund	Broken Hill Properties (Australia)
Brazil Fund	Barclays Plc (UK)
Chile Fund	Shell Transport (UK)
France Growth Fund	British Airways (UK)
Germany Fund	Bass Plc (UK)
India Fund*	Hanson (UK)
Indonesia Fund	Banco Central Hispano (Spain)
Italy Fund	Empresa Nacional Elec. (Spain)
Korea Fund	CIA Telecom (Chile)
Malaysia Fund	Novo-Nordisk A/S (Denmark)
Mexico Fund	Philippines Long Distance (Philippines)
Portugal Fund*	Norsk Hydro A/S (Norway)
Singapore Fund	Philips Electronics (Netherlands)
ASA, Ltd (South Africa)	Unilever NV (Netherlands)
Spain Fund	Kyocera Corporation (Japan)
Swiss Helvetia	Bank of Tokyo (Japan)
Taiwan Fund	Honda Motor Company (Japan)
Thai Fund	Hitachi Ltd (Japan)
United Kingdom Fund	Benetton Group*
<u>MNC</u>	<u>Domestic</u>
Colgate-Palmolive	Sierra Pacific Resources
DuPont	Southern Company
Merck & Company	Bally Entertainment
Dow Chemical	Minnesota Power & Light
General Motors	Reliance Group
TRW Inc.	Quick & Reilly Group
IBM	Student Loan Marketing A
Coca-Cola	Alex Brown Inc.
Union Carbide Corp	Fingerhut Companies
Ralston-Purina	URS Corp.
HJ Heinz	Russell Corp.
3M	Kansas City Southern
Ford Motor Company	Lands' End Inc.
Eastman Kodak Company	Cincinnati Bell Inc.
General Electric Company	Westvaco Corp.
Caterpillar Inc.	Toil Brothers Inc.
Deere & Company	PanEnergy Corp.
Proctor & Gamble Company	Central Louisiana Electric
Johnson & Johnson	Inter-Regional Financial
Kimberly-Clark Corp.	KU Energy Corp.

*Note:* \*Insufficient data for inclusion in study

20 "purely domestic" firms resulting in the 80 firms listed in Table 1. Purely domestic firms are defined as those companies that receive the vast majority of the sales and cash flows from domestic sources. All of the securities in Table 1 are listed on the New York Stock Exchange. Weekly returns were calculated over a five-year period from January 1991 to December 1995 amounting to 260 observations per security. The return data were compiled from *The Bloomberg* pages. The market chosen as the U.S. benchmark was the New York Stock Exchange Composite Index.

The sample chosen in this study differs from that used in previous work (Bailey & Lim, 1992; Jacquillat & Solnik, 1978; Wahab & Khandwala, 1993) in several respects: (1) weekly data, as opposed to monthly, is used; (2) the time period investigated is more recent; (3) the securities are all New York Stock Exchange listed; (4) a combined data set including country funds, ADRs, MNCs, and purely domestic firms is analyzed.

Twenty securities from each category above were chosen, resulting in 20,800 weekly observations. During the period under investigation the majority of ADRs traded in the over-the-counter market and relatively few country funds traded on the New York Stock Exchange. Since the focus of this study is on New York Stock Exchange-listed securities a smaller set of securities is available from which to choose. A natural extension of this analysis would be to compare exchange-listed and over-the-counter "international" securities. Despite the smaller set of securities available for this study the sample size compares favorably with previous published studies.

Barry, Peavy, and Rodriguez (1997) and Akdogan (1995) suggest that U.S. and emerging market foreign indices are less positively correlated today than they were in the recent past. Akdogan finds that there is integration in world capital markets, but that much of this integration takes place regionally. Espitia and Santamaria (1994) conclude that a high level of correlation exists between daily return time series for all the European markets. Byers and Peel (1993) suggest that there is no convincing evidence that international stock markets were cointegrated in the period from 1979–1989. This study presents the correlation coefficients for various indices with the New York Composite Index in the tables, but it does not attempt to test a cointegration hypothesis. Although it is possible that the results reflect the integration of global markets during the sample period, 1991–1995, cointegration analysis is not explicitly employed.

The model employed in this paper is similar to the Johnson, Schneeweis, Dinning (1993) model. The weekly return for dollar-denominated securities (indices) was derived from:

$$R = \ln (P_t / P_{t-1}) * 100 \quad (1)$$

where

$R$  = weekly return

$P_t$  = the price of the security at time  $t$ , in dollars

$P_{t-1}$  = the price of the security at time  $t - 1$ , in dollars

The dividend component of total return has been eliminated. The dividend yields across the categories of investment vehicles were very similar. This treatment of dividends is comparable to other studies such as Officer and Hoffmeister (1987).

The weekly returns for foreign currency denominated indices were derived from:

$$R = [\ln (P_t / P_{t-1}) - \ln (S_t / S_{t-1})] * 100 \quad (2)$$

where

$R$  = weekly return

$P_t$  = the price of the security at time  $t$ , in foreign currency

$P_{t-1}$  = the price of the security at time  $t - 1$ , in foreign currency

$S_t$  = the spot exchange rate against the dollar at time  $t$

$S_{t-1}$  = the spot exchange rate against the dollar at time  $t - 1$

After calculating the return on all securities and indices in dollar terms this study presents the regression analysis. To isolate the pure diversification effect in this study the foreign index returns, in dollars, were first regressed on the New York Composite Index return. The residuals from these regressions were the portion of the foreign index return not explained, or related to, the New York Composite Index. The two-factor model employed to illustrate each security's diversification effect was:

$$R_{i,t} = \alpha_i + \beta_{r,i} R_{r,t} + \beta_{n,i} R_{n,t} + \alpha_{i,t} \quad (3)$$

where

$R_{i,t}$  = Dollar-denominated return on security  $i$  at time  $t$

$R_{r,t}$  = Residual from a regression of the dollar-denominated foreign stock index for security  $i$  on the New York Composite Index returns

$R_{n,t}$  = dollar-denominated return on the New York Composite Index.

Using this model the correlation effect between foreign indices and the New York Composite Index was removed, i.e., the returns are orthogonal. This approach isolates the diversification benefits for the individual security. This method is used to compare the security return with its home index "pure" return and the New York Composite Index. Pure return is defined as the return unexplained by the New York Composite Index or the true return of the index if held in isolation from U.S. market influence.

To substantiate the results from the orthogonal, multifactor model above, simple regressions were also analyzed of the form:

$$R_{i,t} = \alpha_i + \beta_{f,i} R_{f,t} + \alpha_{i,t} \quad (4)$$

where

$R_{i,t}$  = Dollar-denominated return on security  $i$  at time  $t$

$R_{f,t}$  = Dollar-denominated return on the foreign stock index corresponding to security  $i$ 's "home" country

and

$$R_{i,t} = \alpha_i + \beta_{n,i} R_{n,t} + \alpha_{i,t} \quad (5)$$

where

$R_{i,t}$  = Dollar-denominated return on security  $i$  at time  $t$

$R_{n,t}$  = dollar-denominated return on the New York Composite Index.

This study is interested in testing the null hypothesis that the beta coefficient on the independent variable is one versus the alternative that the beta coefficient is not one, i.e.,

$H_0$ :  $\beta_{f,i} = 1$  and  $H_0$ :  $\beta_{n,i} = 1$

$H_1$ :  $\beta_{f,i} \neq 1$  and  $H_1$ :  $\beta_{n,i} \neq 1$

**TABLE 2**  
Country Fund Return Results, January 1991-December 1995, Weekly Data

Country Funds	Multifactor Beta with Home Index	Single factor Beta with Home Index	Beta with New York Composite Index	U.S. Dollar Correlation w/ Index
First Australia Fund	0.332 (-6.60)*	0.450 (-5.57)*	0.692 (-2.23)**	0.313
Austria Fund	0.008 (-69.59)*	0.013 (-73.21)*	0.823 (-0.62)	0.130
Brazil	0.379 (-18.55)*	0.388 (-18.68)*	-0.983 (-0.62)	-0.211
Chile Fund	0.743 (-3.13)*	0.778 (-2.58)*	1.110 (0.59)	0.081
France Growth Fund	0.446 (-7.45)*	0.510 (-6.81)*	0.730 (-1.81)**	0.303
Germany Fund	0.481 (-6.12)*	0.589 (-4.85)*	1.040 (0.25)	0.275
Indonesia Fund	0.612 (-3.07)*	0.604 (-3.11)*	0.653 (-1.24)	-0.025
Italy Fund	0.517 (-5.55)*	0.521 (-5.53)*	0.267 (-2.58)	0.092
Korea Fund	0.240 (-13.59)*	0.248 (-13.37)*	0.519 (-2.25)**	0.065
Malaysia Fund	0.607 (-4.34)*	0.700 (-3.18)*	1.300 (1.62)***	0.181
Mexico Fund	0.045 (-62.45)*	0.052 (-59.07)*	1.390 (1.54)***	0.082
Singapore Fund	1.130 (0.40)	1.160 (0.51)	0.627 (-0.83)	0.286
ASA Ltd	0.608 (-4.27)*	0.600 (-4.35)*	-0.112 (-6.85)*	0.093
Spain Fund	0.433 (-6.53)*	0.537 (-5.52)*	0.948 (-0.31)	0.330
Swiss Helvetia	0.228 (-8.74)*	0.324 (-7.84)*	0.672 (-2.23)**	0.302
Taiwan Fund	0.470 (-8.54)*	0.488 (-8.09)*	0.813 (-0.93)	0.081
Thai Fund	0.569 (-6.43)*	0.629 (-5.43)*	1.090 (0.53)	0.193
United Kingdom Fund	0.231 (-10.79)*	0.341 (-9.22)*	0.919 (-0.57)	0.295

Notes: t-statistics in parentheses

\*significantly different from one at  $\alpha = 0.01$  level

\*\*significantly different from one at  $\alpha = 0.05$  level

\*\*\*significantly different from one at  $\alpha = 0.10$  level

This study investigates the hypothesis of whether these exchange-listed securities appear to mimic their home country index or the New York Composite Index more closely. A beta of one would indicate that the security moves exactly with the market on average. A beta of one with the foreign index would indicate significant diversification possibilities are present through trading in these exchange-listed securities. A beta of one with the New York Composite Index would indicate that the security behaves as the host index and international diversification is limited to the covariance between the U.S. and foreign index since the two indices are not orthogonal in practice.

The level of significance of the slope coefficients is investigated by performing t-tests. Small t-values indicate that the slope coefficient is not significantly different from one, i.e., fail to reject the null hypothesis that the beta is equal to one. This would signal that the security returns are similar to the index returns. Large values of the t-statistic indicate that the slope coefficient is significantly different from one, i.e., reject the null hypothesis that the beta is equal to one. That is, the security does not respond closely to the index.

#### IV. RESULTS

Table 2 shows the results for the closed-end funds in this study. The beta coefficients of the funds included in this study suggest that the funds behave more like the New York Composite Index than their respective indices overall. The only country fund that demonstrated return patterns indicative of the home country was the Singapore Fund. In each case, both the multifactor and single factor models produced results leading to the same decision in regards to the hypothesis. Of the 18 funds in this study for which there were sufficient data, 13 lead to a conclusion that the return patterns are not statistically different from the returns to the New York Composite Index, i.e., the beta is relatively close to one with the market at standard levels of confidence. The results are robust and suggest that closed-end fund returns, from funds listed on the New York Stock Exchange, are significantly linked to the U.S. market.

Similar to Bailey and Lim (1992), the findings from this study cast doubts upon the ability of closed-end funds to provide a diversification effect similar to investing in the foreign market. Since a closed-end fund can trade at a discount or premium to its net asset value (NAV) the host market, New York Stock Exchange, appears to have a significant impact on fund returns, as it would a purely domestic common stock.

The relatively low correlation coefficients for returns on the New York Composite Index and the foreign market indices indicate that diversification benefits may be present by combining securities from these foreign markets with U.S. securities. Closed-end funds appear to lack this diversification benefit for U.S. investors.

Barry, Peavy, and Rodriguez (1997) find that 18 of their 20 emerging market country funds were more highly correlated with the S&P 500 than with their respective benchmarks. They conclude that emerging market closed-end country funds did not provide as substantial diversification benefits as would have direct investments in the securities underlying the country funds.

Table 3 shows the ADR results. Many of the ADRs included in this study have a beta coefficient that more strongly mimics the New York Composite Index. The ADRs trade on



**TABLE 3**  
**ADR Return Results, January 1991-December 1995, Weekly Data**

ADR	Multifactor Beta with Home Index	Single factor Beta with Home Index	Beta with New York Composite Index	U.S. Dollar Correlation Coefficient w/ Index
National Australia Bk	0.365 (-6.38)*	0.433 (-5.96)*	-0.475 (-10.90)*	0.313
Broken Hill Properties	0.636 (-4.29)*	0.712 (-3.52)*	-0.631 (-14.11)*	0.313
Barclays Plc	0.124 (-10.10)*	0.228 (-9.11)*	0.811 (-1.10)	0.295
Shell Transport	-0.056 (-20.04)*	0.034 (-18.18)*	0.602 (-3.79)*	0.295
British Airways	0.073 (-9.48)*	0.186 (-8.49)*	0.835 (-0.85)	0.295
Bass Plc	0.037 (-11.87)*	0.074 (-11.76)*	0.280 (-4.42)*	0.295
Hanson	0.088 (-14.13)*	0.216 (-11.80)*	0.952 (-0.38)	0.295
Banco Central Hisp.	0.521 (-6.85)*	0.561 (-6.61)*	0.604 (-2.89)*	0.33
Empresa Nacional El.	0.820 (-2.96)*	0.839 (-2.80)*	0.682 (-2.67)*	0.33
CIA Telecom	0.785 (-2.68)*	0.809 (-2.33)*	0.823 (-0.98)	0.081
Novo-Nordisk A/S	0.485 (-10.17)*	0.500 (-10.08)*	0.385 (-5.54)*	0.212
Philippines Long Dist	0.740 (-3.79)*	0.762 (-3.31)*	1.150 (0.72)	0.067
Norsk Hydro A/S	0.060 (-39.48)*	0.074 (-36.79)*	1.030 (0.17)	0.101
Philips Electronics	1.210 (1.47)***	1.254 (1.89)**	0.735 (-1.43)***	0.344
Unilever N V	0.765 (-2.45)*	0.833 (-1.84)**	0.632 (-2.98)*	0.344
Kyocera Corp	0.014 (-85.13)*	0.016 (-81.80)*	0.573 (-2.31)**	0.05
Bank of Tokyo	0.005 (-77.90)*	0.006 (-81.18)*	0.55 (-2.25)**	0.05
Honda Motor Comp.	0.020 (-80.53)*	0.022 (-77.80)*	0.751 (-1.28)	0.05
Hitachi Ltd	0.017 (-102.21)*	0.020 (-96.53)*	0.719 (-1.83)**	0.05

Notes: t-statistics in parentheses

\*significantly different from one at  $\alpha = 0.01$  level

\*\*significantly different from one at  $\alpha = 0.05$  level

\*\*\*significantly different from one at  $\alpha = 0.10$  level

**TABLE 4**  
MNC Return Results, January 1991-December 1995, Weekly Data

MNC	EAFE Beta	All Beta	Beta with New York Composite Index
Colgate-Palmolive	0.090 (-9.10)*	0.131 (-5.31)*	1.04 (0.31)
DuPont	0.063 (-9.82)*	0.114 (-5.67)*	1.24 (1.96)**
Merck & Co	0.004 (-4.98)*	0.085 (-2.26)**	0.923 (-0.25)
Dow Chemical	0.081 (-8.74)*	0.151 (-4.89)*	0.954 (-0.34)
General Motors	0.020 (-6.86)*	0.051 (-3.91)*	1.43 (2.29)**
TRW Inc	0.014 (-9.86)*	0.019 (-6.20)*	1.04 (0.32)
IBM	0.114 (-6.37)*	0.244 (-3.35)*	0.837 (-0.92)
Coca-Cola	0.075 (-9.74)*	0.14 (-5.53)*	0.974 (-0.21)
Union Carbide Corp	-0.043 (-8.00)*	-0.063 (-4.89)*	1.34 (2.01)**
Ralston-Purina	-0.151 (-10.60)*	-0.261 (-7.10)*	0.696 (-2.18)**
HJ Heinz	-0.136 (-11.44)*	-0.225 (-7.57)*	0.761 (-1.88)**
3M	0.005 (-13.93)*	0.025 (-7.80)*	0.948 (-0.52)
Ford Motor Company	0.029 (-7.03)*	0.036 (-4.28)*	1.45 (2.52)*
Eastman Kodak Co.	-0.023 (-8.90)*	-0.023 (-5.34)*	0.698 (-2.04)**
General Electric Co.	-0.063 (-14.00)*	-0.099 (-8.77)*	1.27 (2.76)*
Caterpillar Inc	0.058 (-6.98)*	0.092 (-4.15)*	1.12 (0.69)
Deere & Company	-0.017 (-8.97)*	-0.03 (-5.15)*	1.3 (1.97)**
Proctor & Gamble Co.	-0.157 (-13.12)*	-0.244 (-8.62)*	1.09 (0.79)
Johnson & Johnson	-0.270 (-1.18)	-0.006 (-6.71)*	1.07 (0.51)
Kimberly-Clark Corp	-0.099 (-11.43)*	-0.17 (-7.43)*	1.02 (0.16)

Notes: t-statistics in parentheses

\*significantly different from one at  $\alpha = 0.01$  level

\*\*significantly different from one at  $\alpha = 0.05$  level

\*\*\*significantly different from one at  $\alpha = 0.10$  level

the New York Stock Exchange and appear to resemble the composite index more closely than their respective home indices.

Only Philips Electronics offers a chance to obtain results similar to the foreign market. The hypothesis that the beta coefficient is equal to one with the New York Composite Index cannot be rejected for most of the ADRs in this study. This suggests a relatively strong link to the U.S. index. The ADRs from the United Kingdom and Japan display an especially robust relationship with the New York Composite Index and very little relation with their respective home indices. The results indicate that ADRs may not be good tools for international diversification. This confirms the findings of Webb, Officer, and Boyd (1995). There appears to be minimal international diversification benefits from investing in either closed-end country funds or ADRs. Rather, these securities typically display a significant relationship with the New York Composite Index.

Table 4 shows the results from the MNC returns. The MNCs were regressed using the Morgan Stanley Europe, Asia, and Far East (EAFE) index and the Morgan Stanley All Countries (All) index as the home index. Each of these indices was presented in dollar returns. The MNC beta coefficients are very indicative of the New York Composite Index. Of the 20 MNCs in this study, 13 display beta coefficients that lead to the conclusion that they behave as the New York Composite Index while none of the MNCs display "multinational" diversification benefits. There is little indication to suggest that any international diversification benefit is present when investing in MNCs.

**TABLE 5**  
Domestic Firm Return Results, January 1991-December 1995,  
Weekly Data

<i>Firm</i>	<i>Beta with New York Composite Index</i>
Sierra Pacific Resources	0.452
Southern Company	0.504
Bally Entertainment	1.18
Minnesota Power & Light	0.467
Reliance Group	1.36
Quick & Reilly Group	2.07
Student Loan Marketing A	1.35
Alex Brown Inc	2.38
Fingerhut Companies	1.31
URS Corporation	0.62
Russell Corporation	0.924
Kansas City Southern	1.23
Lands' End Inc	0.756
Cincinnati Bell Inc	0.66
Westvaco Corp	1.19
Toll Brothers Inc	2.02
PanEnergy Corp	1.19
Central Louisiana Electric	0.524
Inter-Regional Financial	1.71
KU Energy Corp	0.533

This supports the findings of Jacquillat and Solnik (1978). They find that MNCs display a high level of correlation with their respective stock market index. An American investor wishing to purchase a U.S. MNC to gain international diversification would merely be buying a stock that virtually mimics the U.S. stock market. This investor would receive much more diversification by purchasing shares of a foreign MNC, such as a Belgian MNC. This study confirms the ineffectiveness of the home-based MNC to deliver substantial diversification benefits.

Table 5 shows the results from the purely domestic firms. The overall beta coefficient is 1.12. The beta coefficients from the purely domestic firm returns are indeed more varied than the MNCs. The range (difference between the highest and the lowest) of betas for the domestic firm is 1.93, while the range for MNCs is 0.75. However, overall the purely domestic firm is very similar to the MNC based upon the average beta coefficient with the New York Composite Index. It is possible that the results may be driven by firm size or the nature of the domestic firm's industries. This analysis indicates that domestic firms, on average, behave as the domestic market and that MNCs also behave more like the domestic market than world indices. This provides further evidence that the MNC does not provide significant international diversification benefits.

## V. CONCLUSION

There are many investment vehicles available for the individual U.S. investor seeking international diversification. This paper discusses the most common methods and some of

the voluminous literature on international diversification. Global markets have become more integrated over the past few decades. This integration has led many U.S. investors to demand foreign securities to aid in portfolio diversification.

There is still debate regarding the use of U.S. exchange-listed securities as a means for portfolio diversification. The results from this paper and other studies indicate that it appears as though these securities are more indicative of the exchange where they trade rather than the index of the country where the cash flows may be generated. This paper suggests that exchange-traded "international" securities are not the ideal vehicles for diversification.

## REFERENCES

- Akdogan, H. (1995). *The integration of international capital markets: Theory and empirical evidence*. Aldershot and Brookfield, VT.
- Bailey, W., & Lim, J. (1992). Evaluating the diversification benefits of the new country funds. *Journal of Portfolio Management*, Spring, 75–80.
- Barry, C. B., Peavy, J. W., III., & Rodriguez, M. (1997). *Emerging stock markets: Risks, return, and performance*. Research Foundation of the Institute of Chartered Financial Analysts mimeograph, Charlottesville, VA.
- The Bloomberg, Bloomberg L.P.
- Byers, J. D., & Peel, D. A. (1993). Some evidence on the interdependence of national stock markets and the gains from international portfolio diversification. *Applied Financial Economics*, 3, 239–242.
- Chang, E., Eun, C. S., & Kolodny, R. (1995). International diversification through closed-end country funds. *Journal of Banking and Finance*, 19, 1237–1263.
- Espitia, M., & Santamaria, R. (1994). International diversification among the capital markets of the EEC. *Applied Financial Economics*, 4, 1–10.
- French, K., & Poterba, J. (1991). Investor diversification and international equity markets. *American Economic Review*, May, 222–226.
- Gastineau, G. L., Arimura, M. M., Belkin, M. J., Clausen, E. A., Kyokuta, T., Higashino, T., & Mitchinson, C. M. (1988). *Japanese stock index futures-structure and applications*. New York: Salomon Brothers Inc.
- Jacquillat, B., & Solnik, B. (1978). Multinationals are poor tools for diversification. *Journal of Portfolio Management*, Winter, 8–12.
- Johnson, G., Schneeweis, T., & Dinning, W. (1993). Closed-end country funds: Exchange rate and investment risk. *Financial Analysts Journal*, November-December, 75–82.
- Jorion, P., & Roisenberg, L. (1993). Synthetic international diversification. *Journal of Portfolio Management*, 19(2), 65–74.
- Officer, D., & Hoffmeister, J. R. (1987). ADRs: A substitute for the real thing? *Journal of Portfolio Management*, Winter, 61–65.
- Peters, E. (1988). The case for international index funds. *Pension World*, April, 26–28.
- Wahab, M., & Khandwala, A. (1993). Why not diversify internationally with ADRs? *Journal of Portfolio Management*, Winter, 75–82.
- Webb, S., Officer, D., & Boyd, B. (1995). An examination of international equity markets using American depository receipts (ADRs). *Journal of Business Finance & Accounting*, April, 415–430.