THE JOURNAL OF FINANCE • VOL. XXXIX, NO. 5 • DECEMBER 1984

Shareholder Benefits from Corporate International Diversification

ALI M. FATEMI*

ABSTRACT

This study provides further evidence on the rates of return realized by the shareholders of multinational firms relative to those of purely domestic firms. The results indicate that the risk-adjusted returns realized by the shareholders are identical across the two groups except where the MNC operates in competitive foreign markets. In that case, MNC shareholders experience negative abnormal returns. The study also provides further evidence on the risk-reduction effect of international diversification. The results fail to support the hypothesis that the beta is a convex function of the degree of international involvement. Finally, the paper provides some preliminary evidence on the effect of corporate international diversification on shareholders' returns. It is found that abnormal returns rise by some 18 percent during the 14 months preceding the initial foreign diversification.

A NUMBER OF EXPLANATIONS have been proffered for the popularity of international operations with multinational corporations (MNCs).[1] One such explanation often set forth is the profit motive (e.g., see [10], [17], [33]). The argument is that foreign operations are more profitable than comparable domestic operations and that this differential provides firms an inducement to expand beyond national boundaries. This expansion would be carried up to the point where the return on incremental foreign investment is just equal to the return on incremental domestic investment. If this argument is correct, we would expect MNCs to be more profitable than their domestic counterparts: uninational corporations (UNCs). A direct test of the argument would, thus, involve a comparison of profitability of MNCs and UNCs. Such a test, however, would be subject to a high degree of measurement bias due to possible differences in financial reporting practices. To avoid the bias, past research has for the most part dealt with indirect tests of the proposition by comparing the rates of return realized by the stockholders of MNCs to those realized by the stockholders of UNCs. The implicit rationale for this approach has been that any abnormal profits (or monopoly rents) associated with foreign operations will result in higher dividends and/or a higher price of the common stock, and would be reflected in the realized rates of return.

The argument, as set forth, centers on profitability (and the subsequent return to the stockholders) without explicit consideration for risk. To the extent that

* Associate Professor of Finance, Kansas State University. I would like to thank James Ang, Jess Chua, Randolph Pohlman, and an anonymous referee for their valuable comments. Financial support from Phillips Petroleum Company is gratefully acknowledged. I thank Capital Guardian Trust Company for providing the World Index data.

[1] For a review of different motives for direct foreign investment see [24], [33], [37], and [39]. For an excellent review of the topics related to foreign investment see Adler and Dumas [1].

economic activity in foreign countries is less than perfectly correlated with domestic economic activity,[2] foreign operations should provide the stockholders of MNCs risk-return opportunities superior to those available to the stockholders of purely domestic firms. Given that MNCs are perceived less risky than UNCs ([2], [20]) and barring other complications, this result would obtain even if the unadjusted returns to the shareholders of MNCs and UNCs were identical (i.e., if multinationals and purely domestic firms were equally profitable). But, such a result would only hold if the arbitrage process does not function and if the markets are inefficient. In efficient and competitive markets, resources will move away from less profitable ones, such that in equilibrium no one sector's risk-adjusted return would dominate or be dominated by others.

The purpose of this study is twofold. First, it is designed to provide further evidence on the rates of return realized by the stockholders of MNCs compared to those realized by the shareholders of UNCs. Although it is highly desirable to be able to compare the performance of an MNC to that of an otherwise similar UNC, such comparisons would involve a high degree of measurement bias. To minimize such bias, this study compares the performance of a portfolio of multinationals to that of a portfolio of purely domestic firms. Comparisons are made with respect to the unadjusted monthly rates of return, betas, and the risk-adjusted abnormal returns [13] over the five-year period January 1976–December 1980. The second objective is to provide some initial evidence on the effect of corporate international diversification on shareholders' returns. The motivation behind this objective is that although MNCs and UNCs may provide their stockholders identical returns, this does not imply that foreign and domestic operations are equally profitable. If the markets are rational and efficient, any net advantage (or disadvantage) associated with corporate international diversification will be discounted and reflected in the price of MNC shares around the time of such diversification and the subsequent returns will be normal. Observing normal returns for MNCs is not sufficient to conclude that corporate international diversification has no effect on shareholders' wealth. To assess this effect, we examine the behavior of abnormal returns for a portfolio of MNCs during a 60-month period surrounding the period of initial foreign diversification.

Section I briefly reviews the previous work. Section II reports the results of the comparative tests. Further evidence regarding the risk-reduction effect of international diversification is presented in Section III. Section IV reports the time series effects of international diversification, and Section V summarizes and concludes the paper.

I. A Review of Previous Work

There is a rather convincing body of literature which indicates that internationally diversified portfolios are superior to portfolios which are diversified within a single national market in the sense that they provide higher risk-adjusted returns to their holders (see, for example, [15], [25], [26], [28], [37], [40]).[3] However,

[2] See [11], [15], [28], and [36] for empirical evidence supporting low correlation between U.S. and foreign economic activity.

[3] This phenomenon results from various legal, informational, and economic barriers which segment national financial markets.

evidence regarding the performance of multinationals, which may be viewed as portfolios of internationally diversified assets, relative to the performance of uninational firms is sparse and contradictory.

Agmon and Lessard [2] found that the higher the degree of an MNC's international involvement, the lower its market-assigned measure of systematic risk. Jacquillat and Solnik [21], on the other hand, found that the effect of foreign influence on the systematic risk of multinationals is unexpectedly limited compared to the extent of their foreign involvement. They concluded that investing in multinationals is a poor substitute to international portfolio diversification. A similar conclusion was arrived at by Senchack and Beedles [38]. However, none of these studies investigated possible differences in returns. Hughes, Logue, and Sweeney [20] used Treynor's [42] measure of risk-adjusted return to investigate differences between multinationals and uninationals. They found that, when a domestic market index was used to compute the betas, MNCs provided a higher level of risk-adjusted return. However, when a world index was used to estimate the betas, UNCs performed as well as MNCs. Mikhail and Shawky [31] used Jensen's [22] risk-adjusted measure of performance and found that MNCs earn a higher return than would be expected for their degree of systematic risk. However, measurement problems associated with single security analysis are present in both [22] and [31]. Brewer [6] used the grouping method of Black, Jensen, and Scholes [4] to alleviate these measurement problems. He found that the security market line (SML) for MNCs is statistically identical to the SML for UNCs. Brewer's tests are quite sophisticated relative to the others' and greater reliance could be placed on his results for this reason alone. However, his tests are limited to a single time period.[4] Finally, Errunza and Senbet [12] have arrived at a different conclusion. Using a value-based test of profitability, they found that there is a positive relationship between the degree of international involvement and excess market value. Logue [29], however, points out that because of data and measurement problems Errunza and Senbet's findings should be considered quite preliminary.

This study provides further evidence on the risk-return characteristics of U.S. MNCs vis-à-vis those of the UNCs. It differs from previous work in that: (1) measurement and data problems are, to the extent possible, minimized; (2) the sample is selected carefully to include only firms with significant foreign involvement in the MNC group and to exclude firms with any foreign involvement from the UNC group; (3) comparative tests are multiperiod in nature; and (4) some new tests are performed to determine the effect of foreign operations on the degree of riskiness of MNCs. Additionally, this study provides some initial evidence on the effect on shareholders' returns of a firm's decision to embark on direct foreign investment.

II. Cross-Sectional Comparative Tests

In this section, we compare a group of multinationals to a group of uninational firms with respect to monthly unadjusted returns, betas, and abnormal returns. Comparisons on the basis of the latter two criteria require the establishment of a benchmark. We employ two such benchmarks: the CRSP value-weighted NYSE

[4] Brewer [6], himself, points this limitation out.

index and Capital International's World Index.[5] The former evaluates performance from the point of view of an investor with investment opportunities limited to U.S. capital markets, whereas the latter evaluates performance from the viewpoint of an investor with global (portfolio) investment opportunities.

A. The Sample

The source of monthly return data is the CRSP tape. For a firm to be included in the sample, it had to have complete return data over the ten-year period January 1971–December 1980. Moody's *Directory of Corporate Affiliations* was then consulted to determine whether these firms were engaged in overseas operations. Those firms which were not reported as having foreign operations were tentatively classified as uninational firms. Those firms which were reported as having foreign operations were tentatively classified as multinationals. Next, Stopford, Dunning, and Haberick's *World Directory of Multinational Enterprises* [41] was used to ascertain each MNC's extent of foreign involvement. From the tentative list of MNCs we retained only those which derived at least 25 percent of their annual sales from foreign operations. This screening process resulted in a sample of 84 MNCs. Each MNC was then assigned to one of the 13 industry classifications listed in Panel A of Table I according to its main line of business.

Next, from the tentative list of UNCs, we retained only those firms with main lines of business corresponding to those of the MNC group. *Moody's Industrial Manuals* were consulted to ensure that the sample represented only purely domestic firms. Firms with any degree of international involvement (including those involved in exporting) were dropped from the sample. This screening process resulted in a sample of 52 UNCs. Panel A of Table I reports the breakdown of each sample into different industries.

Panel B of Table I reports the summary statistics for the distributions of (1) the size of the firms included in each sample, where size is proxied by the dollar value of annual sales,[6] and (2) the degree of international involvement (DII) of the sample firms in the MNP, where DII is defined as the percentage of total sales generated from overseas operations.[7] As expected, the average MNC is larger in size than the average UNC. Indeed, in our sample the average MNC is over five times as large as the average UNC. By design, the MNCs in the sample derive at least 25 percent of their annual sales from overseas operations and the UNCs have no international involvement. The average MNC, however, derives over one-third of its annual sales from international operations.

B. The Results

The two groups are compared on the basis of monthly unadjusted returns, betas, and abnormal returns over the 60-month period January 1976–December

[5] The use of the World Index was suggested by the *Journal's* referee.

[6] Although the total assets figure is ideally a better proxy for size, its reported value is subject to possible differences in accounting practices of the sample firms and may bias the results. The same problem exists for reported earnings as well. Reported sales is relatively free of these problems and is used as a proxy for size.

[7] DII is defined as a function of sales, rather than of assets or earnings, because of the possible differences in accounting practices and their effect on reported values of assets and earnings.

Table I

Sample Composition and Characteristics

Industry	Multinationals	Uninationals
A. The Composition		
Agriculture Production and Foods	10	9
Mining, Drilling, Petroleum, Gas & Refining	11	10
Glass Containers	1	1
Lumber, Wood & Paper	3	3
Rubber, Plastics & Chemicals	14	4
Drugs & Toiletries	14	4
Metal Products	2	2
Industrial Machinery & Equipment	5	5
Electronics & Computers	12	4
Electrical Equipment & Supplies	2	2
Autos & Automotive Parts	6	4
Leisure Products & Services	2	2
Conglomerates	2	2
Totals	84	52
B. The Characteristics		
Sales (millions of dollars)		
Mean	7,357	1,405
Standard Deviation	12,258	2,643
Minimum Value	1,112	24
Maximum Value	83,555	16,667
Degree of International Involvement		
Mean	0.3664	0.0
Standard Deviation	0.1006	0.0
Minimum Value	0.2500	0.0
Maximum Value	0.7200	0.0

1980. Abnormal returns are computed according to

$$\hat{\varepsilon}_{it} = R_{it} - \hat{\gamma}_{0t} - \hat{\gamma}_{1t}\hat{\beta}_{it}, \tag{1}$$

where

$\hat{\varepsilon}_{it} \equiv$ the residual or abnormal performance of firm i for month t,

$R_{it} \equiv$ the rate of return (adjusted for dividends, stock dividends, and splits) on firm i during month t,

$\hat{\beta}_{it} \equiv$ the estimated measure of firm i's risk relative to the market portfolio computed as $\text{cov}(\tilde{R}_i, \tilde{R}_m)/\sigma^2(\tilde{R}_m)$ by using the 60 monthly rates of return data prior to month t, and

$\hat{\gamma}_{0t}, \hat{\gamma}_{1t} \equiv$ market-determined variables representing the ex post relation between risk and return at time t estimated according to the procedure used by Fama and MacBeth [14].[8]

[8] The details of the procedure are as follows. Monthly returns data (adjusted for dividends, stock dividends, and splits) for all common stocks traded on the NYSE during the period January 1964–

Two sets of residuals are computed for each group. One with the NYSE value-weighted index as the proxy for the market portfolio and a second with Capital International's World Index as the proxy. These estimated residuals (remaining after subtracting out the effects of market-wide factors $\hat{\gamma}_{0t}$, $\hat{\gamma}_{1t}$, and $\hat{\beta}_{it}$ which, of course, depend on the choice of the proxy for the market) are studied to determine if shareholders of MNCs realize abnormal returns significantly different than UNC shareholders. To avoid measurement problems associated with single security comparisons, average residuals on the portfolio of multinationals are compared to those on the portfolio of uninationals. These average residuals are obtained by averaging the residuals, $\hat{\varepsilon}_{it}$, for each month t across firms in each portfolio, i.e.,

$$\bar{e}_{t,\text{MNP}} = 1/84 \sum_{i=1}^{84} \hat{\varepsilon}_{it},$$

$$\bar{e}_{t,\text{UNP}} = 1/52 \sum_{j=1}^{52} \hat{\varepsilon}_{jt} \tag{2}$$

where

$\bar{e}_{t,\text{MNP}} \equiv$ the average residuals for the portfolio of MNCs for month t, and
$\bar{e}_{t,\text{UNP}} \equiv$ the average residuals for the portfolio of UNCs for month t.

Table II reports the summary statistics for the distributions of returns, betas, and residuals. These results indicate that the MNCs in our sample have, on

---

December 1980 were used to estimate $\tilde{\gamma}_{0t}$ and $\tilde{\gamma}_{it}$. With the value-weighted NYSE index as the proxy for the market portfolio the following steps were taken:

1. Monthly data for the first seven years (1964–1970) were used to estimate β_i for each firm, where

$$\hat{\beta}_i = \text{cov}(\tilde{R}_i, \tilde{R}_m)/\sigma^2(\tilde{R}_m).$$

   Return on the value-weighted NYSE index was used as a proxy for R_m.
2. Each firm was assigned to one of 20 portfolios by a ranking procedure. The first five percent of firms with the lowest $\hat{\beta}_i$'s were placed in the first portfolio. Five percent of firms with the next lowest $\hat{\beta}_i$'s were placed in the second portfolio, and so on.
3. The following five years (1971–1975) of data were used to recompute the $\hat{\beta}_i$'s. These estimates were then averaged across firms within portfolios to obtain 20 initial portfolio estimates of $\hat{\beta}_{Pt}$. For each month t of the following 30 months (January 1976–June 1978), these $\hat{\beta}_{Pt}$'s were recomputed as averages of individual firm $\hat{\beta}_i$, thus allowing for delisting of firms. The $\hat{\beta}_i$'s of individual firms were themselves updated annually.
4. For each portfolio, monthly returns R_{Pt} were computed (with equal weighting of individual firms) every month during the 30-month period January 1976–June 1978.
5. For each month t of this 30-month period, the monthly returns of the 20 portfolios were regressed on the estimates $\hat{\beta}_{P,t-1}$, derived in step 3 above,

$$R_{Pt} = \hat{\gamma}_{0t} + \hat{\gamma}_{1t}\hat{\beta}_{P,t-1} + e_{Pt}, \qquad P = 1, 2, \cdots, 20. \tag{*}$$

   In this equation, $\hat{\beta}_{P,t-1}$ is the explanatory variable while γ_{0t} and γ_{1t} are least squares estimates of γ_{0t} and γ_{1t}.

The steps above were repeated for the period July 1966–December 1980 by using seven years of data to form portfolios; the next five years to compute initial values of the explanatory variables in (*); and the next 30 months to fit month-by-month regressions of (*). As a result, 60 pairs of estimates, γ_{0t} and γ_{1t} were obtained for the period January 1976–December 1980.

With the World Index as the proxy for the market portfolio, all of the above were repeated using the return on the World Index as a proxy for $\tilde{R}_m$. As a result, a separate set of 60 pairs of estimates of $\tilde{\gamma}_{0t}$ and $\tilde{\gamma}_{1t}$ were obtained.

Table II

Summary Statistics and Tests of Normality for the Distributions of Returns, Betas, and Residuals

	Monthly Returns	Market Portfolio Proxy I: NYSE		Market Portfolio Proxy II: World Index	
		Betas	Residuals	Betas	Residuals
A: The MNC Sample					
Mean	0.011453	1.0739	−0.0042	1.1731	−0.0051
Standard Deviation	0.076653	0.3163	0.0643	0.3717	0.0782
Minimum Value	−0.319000	0.0000	−0.3260	−0.0217	−0.3321
Maximum Value	0.562000	2.2360	0.4910	2.5130	0.5370
Standard Error of Mean	0.001080	0.0045	0.0009	0.0051	0.0011
Kolmogorov-Smirnov *D*-Statistic	0.040690*	0.0451*	0.0424*	0.0531*	0.0497*
B: The UNC Sample					
Mean	0.021304	1.2254	0.0028	1.2754	0.0022
Standard Deviation	0.111171	0.4467	0.0964	0.5944	0.0989
Minimum Value	−0.468000	0.2290	−0.3370	0.2098	−0.3408
Maximum Value	1.026000	3.3180	1.0350	3.6291	0.9863
Standard Error of Mean	0.001990	0.0080	0.0017	0.0093	0.0021
Kolmogorov-Smirnov *D*-Statistic	0.073700*	0.0907*	0.0691*	0.0926*	0.0722*

* Significant beyond the 0.01 level.

Table IIa

Summary Statistics and Tests of Normality for the Distribution of Returns, Betas, and Residuals: The Size-Controlled Subsample

	Monthly Returns	Market Portfolio Proxy I: NYSE		Market Portfolio Proxy II: World Index	
		Betas	Residuals	Betas	Residuals
A: The MNC Subsample[a]					
Mean	0.013217	1.0861	−0.0032	1.1982	−0.0047
Standard Deviation	0.072051	0.2201	0.0587	0.2173	0.0629
Minimum Value	−0.184000	0.6530	−0.2520	0.6672	−0.2980
Maximum Value	0.269000	1.6840	0.2140	1.8263	0.2425
Standard Error of Mean	0.002685	0.0082	0.0022	0.0097	0.0031
Kolmogorov-Smirnov *D*-Statistic	0.0414*	0.0336*	0.0524*	0.0408*	0.0567*
B: The UNC Subsample[b]					
Mean	0.025144	1.1105	0.0097	1.1710	0.0085
Mean Deviation	0.096849	0.3452	0.0809	0.3106	0.0714
Minimum Value	−0.277000	0.3080	−0.1950	0.5231	−0.1862
Maximum Value	0.705000	2.2500	0.6080	1.9172	0.7235
Standard Error of Mean	0.003609	0.0129	0.0030	0.0102	0.0047
Kolmogorov-Smirnov *D*-Statistic	0.0649*	0.0715*	0.6172*	0.0691*	0.6534*

[a] Mean Sales = $4,267 million (Std. Dev. = 3851).

[b] Mean Sales = $4,424 million (Std. Dev. = 4184).

* Significant beyond the 0.01 level.

average, provided lower rates of return than those provided by the UNCs. However, as judged by the standard deviation of monthly returns, the total risk borne by the MNC stockholders has been lower than that borne by the holders of UNC shares. Additionally, regardless of the choice of the proxy for the market portfolio: (1) MNC betas have been lower and considerably less volatile than UNC betas,[9] and (2) while the MNC residuals have, on average, been negative, they have been more stable than those of the UNCs which have, on average, been positive.[10] However, any further inference must await statistical evaluation.

In order to determine the appropriate technique for tests of equality of returns, betas, and residuals across the two groups, normality tests were performed. The Kolmogorov-Smirnov D-statistics[11] for all five distributions and for both samples are also reported in Table II. According to these results, none of the distributions (in either sample) are normal. Thus, the appropriate test is the nonparametric Kruskal-Wallis one-way analysis of variance of ranks (the H-test).[12]

The test is to determine whether the 60 monthly return observations for the multinational portfolio (MNP) and the uninational portfolio (UNP) are generated from identical populations. However, the monthly returns for the MNP and the UNP are obtained by averaging the returns for 84 MNCs and 52 UNCs, respectively. Disregarding this imbalance in the underlying number of firms may bias the results. To eliminate this potential bias, the weighted analysis of variance of ranks was used, in which the weights are equal to the number of underlying firms. The same approach was also used for tests of distributions of betas and residuals. Results are reported in Panel A of Table III. According to these results, we can not reject the null hypothesis of no difference between the monthly returns on the MNP and the UNP. The monthly rates of return on the two portfolios are generated from the same or identical populations. However, the null hypotheses of identical betas (for both proxies) are rejected at the one percent level of significance. Also rejected are the null hypotheses that the average residuals for the two portfolios come from the same or identical populations. These hypotheses are rejected regardless of whether the NYSE value-weighted index or the World Index is used to estimate the betas and the residuals. Average residuals for the MNP are significantly lower than those for the UNP, with the former's mean being negative and the latter's mean being positive. In view of our earlier observation that the average MNC is over five times as large as the average UNC, these results are in line with the small firm effect reported

[9] Notice that the use of the World Index instead of the NYSE index causes an upward shift in the estimates of the betas. Thus, the use of the latter index results in underestimation of the "global" measure of riskiness of an asset. This is supported by the evidence that 78 percent of the differences between $\hat{\beta}_{i,\mathrm{WI}}$ and $\hat{\beta}_{i,\mathrm{NYSE}}$ are positive and the average difference is +0.0804.

[10] The same holds true for the multinational portfolio (MNP) and the uninational portfolio (UNP). Additionally, for the MNP negative average residuals exceed positive ones both in frequency and magnitude. The opposite holds true for the UNP.

[11] For a discussion of the Kolmogorov-Smirnov D-test see [9, pp. 267–75].

[12] The Kruskal-Wallis H-Test does not require any assumptions about the distribution of the populations from which the samples are drawn except that they are continuous. To use it, each observation is replaced by its rank, and the sum of the ranks of each group are generated to determine whether the sums are so divergent that it is likely they were not generated from the same population. For a description of the test, see any standard statistic text, e.g., [8].

Table III

Weighted Analysis of Variance of Ranks for Monthly Returns, Betas, and Average Residuals

		Average Residuals		Betas	
	Returns	Proxy I	Proxy II	Proxy I	Proxy II
A: The Entire Sample					
Mean Rank, MNP	56.65	52.22	54.03	30.50	31.20
Mean Rank, UNP	64.35	68.78	69.12	90.50	92.80
The Kruskal-Wallis *H*-Statistic	1.44	6.80	7.10	334.49	338.92
Observed Level of Significance	0.23	0.01	0.01	0.0001	0.0001
B: The Size-Controlled Subsample					
Mean Rank, MNP_s	56.25	52.89	53.92	50.78	52.32
Mean Rank, UNP_s	64.74	68.11	68.73	70.22	73.36
The Kruskal-Wallis *H*-Statistic	1.80	5.98	6.32	10.08	12.98
Observed Level of Significance	0.18	0.02	0.01	0.002	0.001

by [3], [34], and [35]. Therefore, a determination has to be made as to whether these results are indeed due to the size effect. To do so, we need to test for the equality of residuals across the two groups while controlling for size. To this end, the following steps were taken: (1) The 136 firms in the sample were ranked by their size from the largest to the smallest. (2) The 12 pairs of MNCs and UNCs which ranked next to each other (i.e., were of approximately equal size) were assigned to two size-controlled portfolios, MNP_s and UNP_s, the summary statistics which are reported in Table IIa. (3) The analysis of variance of ranks was employed for testing the null hypotheses of no difference in the monthly rates of return, betas, and residuals across the two groups. Results are reported in Panel B of Table III. These results are identical to those reported in Panel A, which suggests that the detected differences between the MNCs and the UNCs are not due to the size effect but are instead due to either international involvement (or lack thereof) or some other phenomenon including measurement problems. Insight may be obtained, as to the cause, by the comparative tests of equality of residuals across the two groups within each industry represented in the sample.

Mean average residuals for the 13 industries comprising each portfolio are reported in Table IV.[13] Also reported are the *H*-statistics for testing the null hypotheses that the average residuals for the MNCs and the UNCs within each industry come from the same population. An examination of these results

[13] Results reported in Tables IV and V are associated with the use of the NYSE index as the proxy for the market portfolio. Results associated with the use of the alternate proxy (i.e., the World Index) are similar to those in Tables IV and V and are, thus, not reported herein. They are, however, available from the author.

Table IV

Mean Average Residuals and Weighted Analysis of Variance of Ranks for Monthly Average Residuals by Industry

Industry	Mean Average Residuals for MNCs	Mean Average Residuals for UNCs	Kruskal-Wallis *H*-Statistic	Observed Level of Significance
Agriculture Production and Foods	−0.004742	0.000524	1.58	0.21
Mining, Drilling, Petroleum, Gas & Refining	0.011697	0.011815	0.23	0.63
Glass Containers	−0.012017	−0.0110167	0.12	0.73
Lumbar, Wood & Paper	−0.003200	−0.002878	0.04	0.85
Rubber, Plastics & Chemicals	−0.008471	0.011629	8.10	0.005
Drugs & Toiletries	−0.005930	0.005217	0.34	0.56
Metal Products	−0.002942	−0.005533	2.24	0.14
Industrial Machinery & Equipment	−0.004783	−0.002093	0.16	0.70
Electronics & Computers	−0.004203	−0.002400	0.05	0.82
Electrical Equipment & Supplies	−0.012133	−0.003008	0.05	0.82
Autos & Automotive Parts	−0.008117	0.003579	0.73	0.39
Leisure Products & Services	−0.020700	−0.016108	0.68	0.41
Conglomerates	−0.007733	0.014983	9.67	0.002

indicates that, within these industry classifications, the average residuals for all but two industries are statistically identical across the two groups. The two exceptions are the "rubber, plastics, and chemical" industry and "conglomerates." Average residuals for MNCs in these two classifications are significantly lower than those of the UNCs in comparable lines of business. These results can be explained in terms of the oligopoly theory of the multinational firm. Multinationals, as oligopolists, should erect and preserve effective barriers to entry in order to survive as such [39, p. 372]. Once barriers to entry erode, MNCs will be at a cost disadvantage relative to local firms,[14] and this may in turn affect their overall profitability. Looking back at Table IV, among all of the industries represented in the sample, the two industries for which MNC are significantly less profitable than their UNC counterparts are the ones most likely to have the least degree of monopolistic or oligopolistic advantage abroad.[15] In fact, included in the MNC group of the "rubber, plastics, and chemical" industry are firms such

[14] See Shapiro [39, p. 372].

[15] Other industries (e.g., drugs, steel, autos, etc.) may seem just as old and/or just as subject to competitive pressures abroad. Yet, within each of these other industries average residuals are statistically identical across the two groups. This can be explained by one or both of the following reasons: (1) Although these other industries may *now* appear to be old and/or subject to competitive pressure they apparently were not evaluated as such by the markets in the five-year period, 1976–1980, covered by this study. (2) Barriers to entry are not always in technological (know-how) forms.

as Firestone, Goodyear, and Uniroyal which because of lack of product differentiation and ease of entry have faced severe price competition in the European market and have eliminated or are eliminating their operations there.[16] Once these two groups of firms are removed from each portfolio, we can no longer reject the null hypothesis that the average residuals for the revised MNP (MNP_r) and the revised UNP (UNP_r) come from the same population or identical populations.[17] These results are reported in Table V. Notice that the other two conclusions—that the monthly rates of return are identical and that the betas are significantly different—are not affected by the revisions in portfolios.

III. International Diversification and the Degree of Riskiness

The general conclusion in Agmon and Lessard [2], Jacquillat and Solnik [21], and Senchack and Beedles [38] is that foreign operations tend to reduce the degree of systematic risk. This suggests that MNC betas are a function of the degree of international involvement. However, disagreement exists as to the degree of responsiveness of MNC betas with respect to the degree of international involvement. The conclusion in [2] is that the higher the degree of foreign involvement the lower the riskiness, suggesting a high degree of responsiveness. On the other hand, the conclusion in [21] and [38] is that investing in MNCs is a poor substitute to international portfolio diversification because they do not provide *all* of the benefits associated with direct investment in foreign securities. These results suggest a low degree of responsiveness and/or nonlinearity.

Separately, a body of literature has dealt with the determinants of betas which has overlooked the possible effect of international involvement on the degree of systematic risk (e.g., see [5], [16], [18], [27], [30], [32]). Hill and Stone's study [18] is the most thorough in which they found that market betas are dependent on both financial structure and systematic operating risk. Their model is

$$\beta^M = a_0 + a_1[\beta^0/(1 - f)] + a_2 f + a_3 f^2 \tag{3}$$

where

$\beta^M \equiv$ market beta,

$\beta^0 \equiv$ operating beta = $\text{cov}(\text{ROA}_i, \text{ROA}_M)/\text{var}(\text{ROA}_M)$, with ROA defined as the ratio of operating earnings after depreciation to total assets and subscripts i and M for firm i and the market, respectively, and

---

They can take the form of highly developed marketing skills and/or enormous advertising expenditures which lead to product differentiation (e.g., companies such as Coca Cola and Procter & Gamble), production rationalization techniques which utilize economies of scale and lead to reductions in production costs (e.g., Ford), or control of raw materials (e.g., firms in the extractive industries). Therefore, although these industries may be characterized as "old" and "low-tech" they are not necessarily free of barriers to entry.

[16] See Shapiro [39, p. 383].

[17] MNP_r is comprised of 68 MNCs and UNP_r is comprised of 46 UNCs, and the mean residuals for both groups are identical to zero ($t = 1.12$ for MNCs and $t = 0.82$ for UNCs). The findings that the average residuals for the two portfolios come from identical populations and that the mean residuals for both groups of firms are identical to zero, are directly comparable to Brewer's findings that the SML for MNCs is statistically identical to the SML for UNCs. However, Brewer's tests were performed for a single time period, while our tests are performed over a 60-month period.

Table V

MNP$_r$ vs. UNP$_r$: Mean Values and Weighted Analysis of Variance for Monthly Returns, Betas, and Average Residuals

	Returns	Betas	Average Residuals
Mean, MNP$_r$	0.012403	1.0697	−0.003206
Mean, UNP$_r$	0.019962	1.2217	0.001500
Mean Rank, MNP$_r$	57.25	30.50	55.67
Mean Rank, UNP$_r$	63.75	90.50	65.33
Kruskal-Wallis H-Statistic	1.04	340.93	2.25
Observed Level of Significance	0.31	0.0001	0.13

$f \equiv$ financial leverage defined as the ratio of all financing other than common equity to total assets.[18]

To determine the effect of foreign involvement on the degree of systematic risk, we can add a third explanatory variable, i.e., the degree of international involvement (DII), to Hill and Stone's model. However, this would be a less-than-optimal approach if DII is correlated with the measure of financial leverage and/or the operating beta. Since such a relationship is quite possible, we chose to investigate the question through an alternative approach. It involves the regression of DII on the residuals from Equation (3), i.e., the regression of DII on the market beta once the effects of the operating beta and financial leverage are removed. Thus, the model is of the form:

$$\beta^M - \{\hat{a}_0 + \hat{a}_1[\beta^0/(1-f)] + \hat{a}_2 f + \hat{a}_3 f^2\} = \delta_1 \mathrm{DII}, \tag{4}$$

where

DII $\equiv$ the degree of international involvement defined as the percentage of total sales generated from overseas operations, and $\hat{a}_0$, $\hat{a}_1$, $\hat{a}_2$, and $\hat{a}_3$ are estimates of a_0, a_1, a_2, and a_3 in (3).

Additionally, to test for the presence of nonlinearity, Equation (4) is reestimated as

$$\beta^M - \{\hat{a}_0 + \hat{a}_1[\beta^0/(1-f)] + \hat{a}_2 f + \hat{a}_3 f^2\} = \delta_1 \mathrm{DII} + \delta_2 (\mathrm{DII})^2. \tag{5}$$

Notice that, since the dependent variable is the residual from (3) and as such is a mean-zero variable, there is no provision for an intercept term in either (4) or (5).

Parameter estimates of (3), presented in Table VI,[19] were used to estimate

[18] Data from the COMPUSTAT tape were used to estimate the operating betas and the degree of financial leverage consistent with Hill and Stone's definitions. Estimation of market betas is explained in Section II.

[19] These estimates are comparable to those reported by Hill and Stone. However, as pointed out by them, because of the high correlation between f and f^2 there is little meaning to the significance of a_2 or a_3 in Equation (3) [18, p. 627]. Additionally, like Hill and Stone, we found no significant change in results as a consequence of measuring financial leverage by the debt-equity ratio, i.e., replacing f by $f/(1-f)$ results in estimates similar to those reported in Table VIII and does not affect the estimates of Equations (4) and (5).

Table VI

The Dependency of Market Beta on Financial Structure

$$\beta^M = a_0 + a_1[\beta^0/(1-f)] + a_2 f + a_3 f^2$$

$\hat{a}_0$	$\hat{a}_1$	$\hat{a}_2$	$\hat{a}_3$	$\bar{R}^2$
A. Market Portfolio Proxy: NYSE Index				
1.02	0.037	0.061	0.013	0.17
(18.73)*	(4.80)*	(2.12)*	(2.62)*	
B. Market Portfolio Proxy: World Index				
1.05	0.045	0.030	0.009	0.19
(5.72)*	(3.65)*	(6.65)*	(2.94)*	

* Significant beyond the 0.05 level.

Equations (4) and (5). Results are presented in Table VII. Panel A reports the results for all firms (84 MNCs and 52 UNCs) in the sample. Individually, both DII and $(DII)^2$ are marginally significant. However, these individual estimates of δ_1 and δ_2 may be biased due to the discontinuity of DII in the 0.0–0.25 range for the total sample; while the value of DII is zero for the 52 UNCs, its minimum value is (by design) 0.25 for the 84 MNCs. To remove this possible source of bias, the analysis is repeated using only the data for the MNCs. Results, reported in Panel B, differ from those in Panel A by the observed levels of significance of the individual estimates of δ_1 and δ_2, i.e., the estimates are highly significant when only the data for the MNCs are used. However, (regardless of the choice of sample) once both DII and $(DII)^2$ are included in the model neither exhibit significance if the NYSE index is used as the reference portfolio. DII exhibits only marginal significance if the World Index is used. This is due to the high correlation between DII and $(DII)^2$ ($\rho = 0.94$) as a result of which the explained variance is arbitrarily allocated to the two variables.[20] Therefore, the high collinearity of DII and $(DII)^2$ complicates inference about the exact form of the effect of international involvement on betas. Nonetheless, while the results indicate a strong statistical relationship between the betas and the DII, the evidence is too weak to conclude that the relationship is nonlinear in DII. Thus, it can be concluded that corporate international diversification results in a lower degree of systematic risk and that the higher the degree of foreign involvement the lower the degree of riskiness.[21] These findings are in line with [2] and contradict [21] and [38].

IV. Time Series Tests of the Effect of International Diversification

The preceding section's results indicate that MNCs, as a group, are less risky than their domestic counterparts and that the relative degree of riskiness declines

[20] Thus, there is little meaning to the significance of δ_1 or δ_2 in Equation (5).

[21] Bowman [5] shows that the degree of systematic risk is not dependent on size and our earlier results (Table III) rule out such dependency. Nevertheless, we directly tested for the size effect in two ways. One involved adding size (proxied by total sales) as a fourth explanatory variable to Equation (3) and the other involved regressing the residuals of Equation (3) on size. The effect was insignificant in both cases.

Table VII

The Dependency of Market Beta on International Involvement

$$\beta^M - \{\hat{a}_0 + \hat{a}_1[\beta^0/(1-f)] + \hat{a}_2 f + \hat{a}_3 f\} = \delta_1 \mathrm{DII} + \delta_2(\mathrm{DII})^2$$

	δ_1	δ_2	$\tilde{R}^2$
A: The Total Sample			
Market Proxy: NYSE			
	−0.215		0.26
	(−1.87)*		
		−0.477	0.26
		(−1.85)*	
	−0.137	−0.180	0.27
	(−0.32)	(−0.19)	
Market Proxy: World Index			
	−0.196		0.17
	(−1.89)*		
		−0.439	0.17
		(−1.73)*	
	−0.097	−0.231	0.18
	(−1.73)*	(−0.24)	
B: The MNC Sample			
Market Proxy: NYSE			
	−0.215		0.67
	(−2.38)**		
		−0.477	0.66
		(−2.36)**	
	−0.137	−0.180	0.68
	(−0.40)	(−0.24)	
Market Proxy: World Index			
	−0.196		0.41
	(−2.81)**		
		−0.439	0.41
		(−2.07)**	
	−0.097	−0.231	0.42
	(−1.87)*	(−0.29)	

* Significant beyond the 0.10 level.
** Significant beyond the 0.05 level.

as the degree of international involvement increases. However, the results in Section II indicate that the risk-adjusted returns are identical across the two groups. This provides the basis for concluding that the null hypothesis of semistrong efficiency of the markets with respect to the information contained in the degree of international involvement can not be rejected. This, indeed, is the only conclusion that can be arrived at. No assessment can be made regarding the effect of corporate international diversification on shareholders' wealth. To assess the latter, one needs to examine the behavior of returns around the period of initial diversification or, alternatively, around a period of significant *unexpected* foreign expansion. In this study, we opt for the first approach and examine

the behavior of residuals over a 60-month period surrounding the calendar date in which the initial diversification took place.

To obtain the information about the specific dates involved, a short questionnaire was mailed to the 84 MNCs initially screened. It contained questions about the month and year in which foreign operations first began, and the month and year in which the public (stockholders, security analysts, etc.) was informed of the company's intention to engage in foreign operations. A total of 34 responses were received (a response rate of 40.5%). For a response to be considered usable: (1) it had to have both the month and the year in which foreign operations began[22] and (2) the subject firm had to have complete monthly data available on the CRSP tape over the period $t - 90$ to $t + 60$, where t is the date of diversification. With these criteria, 18 responses were considered usable and thus retained for the time series tests.[23]

The procedure used to estimate $\hat{\gamma}_{0t}$, $\hat{\gamma}_{1t}$, and $\hat{\beta}_{it}$ is the same as that outlined in Section II.[24] However, unavailability of pre-1959 data for the World Index precluded its use as a reference portfolio in this section. Only the value-weighted NYSE index is used as a proxy for the market portfolio and, as such, performance is measured only from the point of view of an investor with investment opportunities limited to the U.S. capital markets.

Table VIII reports the average and the cumulative average residuals (CAR) for the portfolio of 18 firms. According to these results, firms that diversify internationally experience sizeable positive abnormal returns in the time interval $t - 14$ to $t - 5$, relative to the diversification date. Lack of sufficient monthly return data for seven of the 18 firms included in the portfolio precluded performing statistical tests like those performed by Hong, Kaplan, and Mandelker [19]. Therefore, the appearance of the positive drift in the CAR may be due to the random walk behavior of the average residuals (see Brown and Warner [7, pp. 228–29]). However, these residuals reflect only the income effect (i.e., higher cash flows) associated with international diversification and do not reflect the risk-reduction effect. As defined in Equation (1), $\hat{\beta}_{it}$ is estimated as $\text{cov}(\tilde{R}_i, \tilde{R}_m)/\sigma^2(\tilde{R}_m)$ by using the 60 monthly rates of return data prior to month t and as such represents the pre-diversification β_i (i.e., the β of firm i as a UNC). However, results in Section II indicate that MNC betas are significantly lower than those

[22] Practically, all respondents reported the calendar date in which foreign operations began as the announcement date. Telephone interviews with approximately one-fourth of the respondents indicated that the reason for these "best guesses" was lack of knowledge about the date of such an announcement, if any. This being the case, our point of reference ($t = 0$) is set at the time of diversification instead of the announcement date. Therefore, our subsequent results should be interpreted with great caution, because the news about such diversification may have been released or leaked some time prior to the event, providing the market sufficient lead time to discount the advantages (disadvantages) of international diversification into share prices. This lead time can be quite substantial due to the potentially long lags involved in site selection, negotiations, construction, tooling, etc., prior to the start of operations.

[23] The 18 firms retained consist of six firms with diversification dates in the 1940s, seven in the 50s, and five in the early 60s.

[24] However, the dates are changed such that the first estimate of residuals, computed according to Equation (1), is for $t = -30$ where $t = 0$ is the calendar date of international diversification.

Table VIII

The Monthly Average and Cumulative Average Residuals Relative to the Month of Initial Diversification

Relative Month	Average Residuals	Cumulative Average Residuals	Relative Month	Average Residuals	Cumulative Average Residuals
−30	0.026	0.026	0	0.016	0.157
−29	−0.014	0.012	1	−0.013	0.144
−28	−0.013	−0.001	2	−0.017	0.127
−27	0.022	0.021	3	−0.012	0.115
−26	−0.035	−0.014	4	0.028	0.143
−25	0.023	0.009	5	0.011	0.154
−24	−0.011	−0.002	6	−0.013	0.141
−23	0.008	0.006	7	0.009	0.150
−22	0.012	0.018	8	0.005	0.155
−21	−0.023	−0.005	9	−0.012	0.143
−20	0.033	0.028	10	−0.011	0.132
−19	0.010	0.038	11	0.034	0.166
−18	−0.012	0.026	12	−0.013	0.153
−17	0.028	0.054	13	0.016	0.169
−16	−0.021	0.033	14	−0.025	0.144
−15	0.013	0.046	15	0.012	0.156
−14	0.037	0.083	16	0.021	0.177
−13	−0.002	0.081	17	−0.034	0.143
−12	−0.015	0.066	18	0.025	0.168
−11	0.029	0.095	19	−0.016	0.152
−10	0.017	0.112	20	−0.012	0.140
−9	0.012	0.124	21	−0.011	0.129
−8	−0.016	0.108	22	0.027	0.156
−7	0.021	0.129	23	−0.012	0.144
−6	0.015	0.144	24	0.015	0.159
−5	0.013	0.157	25	−0.003	0.156
−4	−0.018	0.139	26	−0.013	0.143
−3	−0.012	0.127	27	0.022	0.165
−2	0.026	0.153	28	−0.011	0.154
−1	−0.012	0.141	29	−0.012	0.142

of UNCs, and Section III results indicate that the higher the degree of international involvement the lower the beta. To provide for the risk-reduction effect, we reestimated the residuals using estimates of the post-diversification betas.[25] The behavior of the resulting cumulative average residuals is portrayed in Figure 1. There is no striking difference between the patterns of the two sets of CARs except that with post-diversification betas, the CAR is stabilized at about 18 percent instead of the 15 percent with pre-diversification betas. Again, lack of sufficient data precludes an assessment regarding the statistical signficance of these abnormal returns. However, significant or otherwise, the magnitude of the abnormal gain is quite small relative to that associated with other events (e.g.,

[25] Post-diversification betas are estimated using the 60 monthly observations subsequent to the diversification date. Consistent with our results in Sections II and III, we found post-diversification betas (avg. = 1.036) lower than the pre-diversification betas (avg. = 1.197).

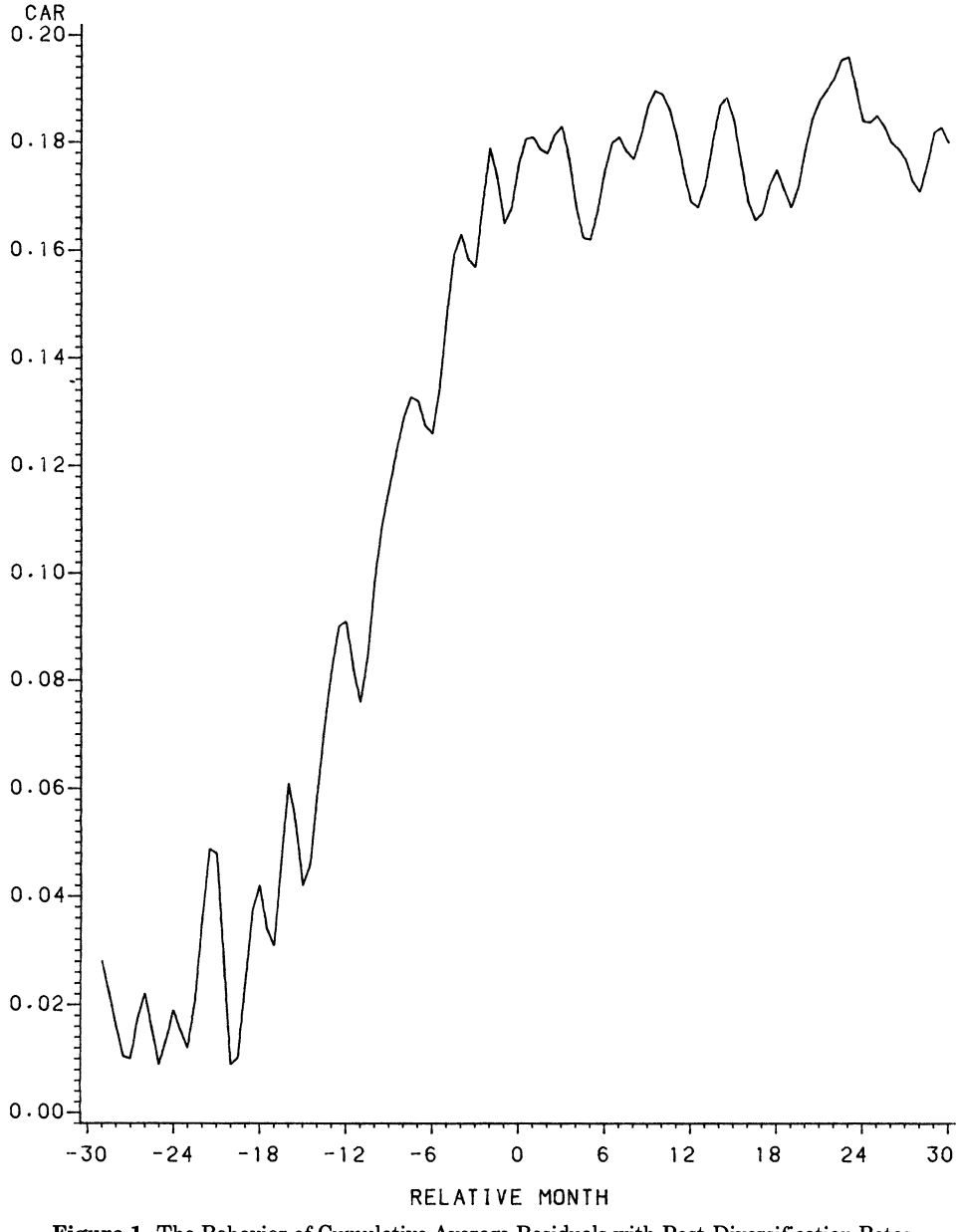

Figure 1. The Behavior of Cumulative Average Residuals with Post-Diversification Betas

mergers, splits, etc.) and relative to the potential of the combined effect of higher profits (as set forth by the profit motive argument) and lower systematic risk. Given this small gain (even if it were not due to chance but indeed a significant gain), the implication is that either foreign operations are not significantly more profitable than the domestic ones or that the higher profits of foreign operations

are largely offset by their disadvantages. Our conjecture is that both factors are responsible for the observed phenomenon. First, as Shapiro hypothesizes, for many firms becoming multinational is more a matter of survival than one of choice, i.e., huge R&D expenditures, antitrust laws, domestic market saturation, and other factors may indeed force the firm to become multinational in order to stay in business [39, pp. 383–84]. Therefore, for these firms the primary motive in international diversification is the preservation of normal profits and thus survival rather than the search for abnormal profits. Notice that, following this line of reasoning, we are not ruling out the possibility of foreign operations being more profitable than the domestic ones. Actually, foreign operations *must* be marginally more profitable in order to compensate the firm for the marginal costs of foreign operations. These marginal costs or disadvantages are mainly in the form of higher monitoring and bonding costs [23]. MNCs are, by nature, larger than UNCs, and the larger the firm the larger the total of these agency costs because "... the monitoring function is inherently more difficult and expensive in a larger organization" [23, p. 348]. These larger agency costs adversely affect the wealth of MNC shareholders. In terms of the initial reaction of the market to the news about international diversification, while the market discounts the positive effects of (possible) higher profits and lower systematic risk, it also discounts these larger agency costs into the price of shares. The relative magnitude of these two opposing adjustments has, yet, to be empirically determined. However, it appears that for our sample there is a positive net effect (i.e., corporate international diversification results in positive abnormal returns to the stockholders), but the magnitude of the effect is quite small relative to what would be expected under the profit motive hypothesis.

V. Summary and Conclusions

The purpose of this study was twofold: First, to provide further evidence on the rates of return realized by the shareholders of MNCs relative to those of UNCs. Second, to provide some initial evidence on the effect of corporate international diversification on shareholders' returns. The first objective was accomplished by comparing the performance of two carefully constructed portfolios: A portfolio of 84 multinational firms, each with at least 25 percent of their annual sales generated from international operations, and a portfolio of 52 purely domestic firms. Monthly performance comparisons were made over the five-year period January 1976–December 1980.

The results obtained indicate that: (1) The monthly rates of return on the two portfolios are statistically identical and, disregarding risk, MNCs and UNCs provide their shareholders the same returns. (2) The monthly rates of return on the multinational portfolio fluctuate less than those on the portfolio of purely domestic firms. Thus, corporate international diversification may reduce shareholders' total risk. (3) The monthly betas of the multinational portfolio are significantly lower and more stable than those of the uninational portfolio, indicating that corporate international diversification reduces the degree of systematic risk. The effect of international involvement on the beta was formally tested for and it was found that the higher the degree of international involvement

the lower the beta. (4) The risk-adjusted abnormal returns on the multinational portfolio are significantly lower than those on the uninational portfolio. However, it was found that this differential is due to inclusion, in the sample, of two groups of "senescent multinationals" [39]. Once these two groups are dropped out, the average residuals are identical across the two portfolios. It may, therefore, be concluded that MNCs provide their shareholders the same risk-adjusted returns as those provided by UNCs. Exceptions are when MNCs operate in markets or offer product lines in which they do not have monopolistic or oligopolistic advantage. In such cases, stockholders experience negative abnormal returns.

The second objective of the study was carried out by examining the behavior of cumulative average residuals for a portfolio of 18 firms during a 60-month period surrounding the period of initial foreign diversification. It was found that abnormal returns rise by some 18 percent during the 14 months preceding the initial foreign diversification. This reflects the market's assessment of the net effect of (possible) higher profits, lower degree of riskiness, and the agency costs involved in becoming a multinational. However, because of the small number of firms included in the portfolio, these results should be considered quite preliminary. Further research, using larger sample sizes, is needed before any definite statements can be made on the effect of corporate international diversification on shareholders' wealth.

REFERENCES

1. M. Adler and B. Dumas. "International Portfolio Choice and Corporation Finance: A Synthesis." *Journal of Finance* 38 (June 1983), 925–84.
2. T. Agmon and D. R. Lessard. "Investor Recognition of Corporate International Diversification." *Journal of Finance* 32 (September 1977), 1049–55.
3. R. Banz. "The Relationship Between Return and Market Value of Common Stocks." *Journal of Financial Economics* 9 (March 1981), 3–18.
4. F. Black, M. Jensen, and M. Scholes. "The Capital Asset Pricing Model: Some Empirical Tests." In M. C. Jensen (ed), *Studies in the Theory of Capital Markets.* New York: Praeger, 1972.
5. R. G. Bowman. "The Theoretical Relationship Between Systematic Risk and Financial (Accounting) Variables." *Journal of Finance* 34 (June 1979), 617–30.
6. H. L. Brewer. "Investor Benefits from Corporate International Diversification." *Journal of Financial and Quantitative Analysis* 16 (March 1981), 113–26.
7. S. J. Brown and J. B. Warner. "Measuring Security Price Performance." *Journal of Financial Economics* 8 (September 1980), 205–58.
8. C. T. Clark and L. L. Schkade. *Statistical Analysis for Administrative Decisions.* Cincinnati: South-Western Publishing Co., 1979.
9. W. W. Daniel. *Applied Nonparametric Statistics.* Boston: Houghton Mifflin Co., 1978.
10. D. K. Eiteman and A. I. Stonehill. *Multinational Business Finance.* 2nd Edition, Reading, Mass.: Addison-Wesley, 1979.
11. V. R. Errunza. "Emerging Markets: A New Opportunity for Improving Global Portfolio Performance." *Financial Analysts Journal* 39 (September–October 1983), 51–58.
12. ——— and L. W. Senbet. "The Effects of International Operations on the Market Value of the Firm: Theory and Evidence." *Journal of Finance* 36 (May 1981), 401–17.
13. E. F. Fama, L. Fisher, M. Jensen, and R. Roll. "The Adjustment of Stock Prices to New Information." *International Economic Review* 10 (February 1969), 1–21.
14. ——— and J. D. MacBeth. "Risk, Return, and Equilibrium: Empirical Tests." *Journal of Political Economy* 71 (June 1973), 607–36.
15. H. G. Grubel. "Internationally Diversified Portfolios: Welfare Gains and Capital Flows." *American Economic Review* 58 (December 1968), 1299–1314.

16. R. S. Hamada. "The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks." *Journal of Finance* 27 (May 1972), 435–52.
17. C. N. Henning, W. Pigott, and R. H. Scott. *International Financial Management.* New York: McGraw-Hill, 1978.
18. N. C. Hill and B. K. Stone. "Accounting Betas, Systematic Operating Risk, and Financial Leverage: A Risk-Composition Approach to the Determinants of Systematic Risk." *Journal of Financial and Quantitative Analysis* 15 (September 1980), 595–637.
19. H. Hong, R. S. Kaplan, and G. Mandelker. "Polling vs. Purchase: The Effects of Accounting for Mergers on Stock Prices." *Accounting Review* 53 (January 1978), 31–47.
20. J. S. Hughes, D. E. Logue, and R. J. Sweeney. "Corporate International Diversification and Market Assigned Measures of Risk and Diversification." *Journal of Financial and Quantitative Analysis* 10 (November 1975), 627–37.
21. B. Jacquillat and B. H. Solnik. "Multinationals Are Poor Tools for Diversification." *Journal of Portfolio Management* 4 (Winter 1978), 8–12.
22. M. Jensen. "The Performance of Mutual Funds in the Period 1945–1964." *Journal of Finance* 23 (May 1968), 389–416.
23. ——— and W. H. Meckling. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics* 3 (October 1976), 305–60.
24. C. P. Kindlberger. *American Business Abroad: Six Lectures on Direct Investment.* New Haven: Yale University Press, 1969.
25. D. R. Lessard. "International Portfolio Diversification: A Multivariate Analysis for a Group of Latin American Countries." *Journal of Finance* 28 (June 1973), 619–33.
26. ———. "World, Country and Industry Relationships in Equity Returns: Implications for Risk Reduction Through International Diversification." *Financial Analysts Journal* 32 (January–February 1976), 32–38.
27. B. Lev. "On the Association Between Operating Leverage and Risk." *Journal of Financial and Quantitative Analysis* 9 (September 1974), 627–41.
28. H. Levy and M. Sarnat. "International Diversification of Investment Portfolios." *American Economic Review* 60 (September 1970), 668–75.
29. D. E. Logue. "Discussion." *Journal of Finance* 36 (May 1981), 439–40.
30. R. W. Melicher. "Financial Factors Which Influence Beta Variations Within a Homogeneous Industry Environment." *Journal of Financial and Quantitative Analysis* 9 (March 1974), 231–41.
31. A. D. Mikhail and H. A. Shawky. "Investment Performance of U.S.-based Multinational Corporations." *Journal of International Business Studies* 10 (Spring/Summer 1979), 53–66.
32. R. Petit and R. Westerfield. "A Model of Capital Asset Risk." *Journal of Financial and Quantitative Analysis* 7 (March 1972), 1649–68.
33. G. Ragazzi. "Theories of the Determinants of Direct Foreign Investment." *IMF Staff Papers* 20 (July 1973), 471–98.
34. M. R. Reinganum. "Misspecification of Capital Asset Pricing: Empirical Anomalies Based on Earnings' Yields and Market Values." *Journal of Financial Economics* 9 (March 1981), 19–46.
35. ———. "A Direct Test of Roll's Conjecture on the Firm Size Effect." *Journal of Finance* 37 (March 1982), 27–35.
36. A. A. Robicheck, R. A. Cohn, and J. J. Pringle. "Return on Alternative Investment Media and Implications for Portfolio Construction." *Journal of Business* 45 (July 1972), 427–43.
37. A. M. Rugman. "Risk Reduction by International Diversification." *Journal of International Business Studies* 7 (Fall/Winter 1976), 75–80.
38. A. J. Senchack and W. L. Beedles. "Is Indirect International Diversification Desirable?" *Journal of Portfolio Management* 6 (Winter 1980), 49–57.
39. A. Shapiro. *Multinational Financial Management.* Boston: Allyn and Bacon, 1982.
40. B. H. Solnik. "Why Not Diversify Internationally." *Financial Analysts Journal* 30 (July/August 1974), 48–54.
41. J. M. Stopford, J. H. Dunning, and K. D. Haberick. *The World Dictionary of Multinational Enterprises.* New York: Facts on File Inc., 1981.
42. J. L. Treynor. "How To Rate Management of Mutual Funds." *Harvard Business Review* 43 (January/February 1965), 63–75.