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Corporate International Diversification: Evidence From Canada

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Abstract

This paper investigates the impact of corporate international diversification on the shareholders of Canadian firms. The results indicate that, within the context of Canada, multinationals outperform their purely domestic counterparts. Specifically, we find that the shareholders of Canadian multinationals earn significantly higher abnormal returns. This holds true despite the finding that these shareholders are also exposed to a higher degree of systematic risk. Further, these results indicate that both the abnormal returns and the degree of systematic risk are increasing functions of the degree of international involvement.

Corporate International Diversification: Evidence from Canada

Over the course of the last quarter century, a large body of literature has accumulated that indicates that internationally diversified portfolios are superior to their counterparts diversified within a single national market. According to this evidence, internationally diversified portfolios provide higher risk-adjusted returns to their holders than those provided by single-country focused portfolios. See, for example, Grubel (1968), Levy and Sarnat (1970), Grubel and Fadner (1971), Solnik (1974), Lessard (1976), Atherton and Yap (1979), and Barnett (1979). Further, within the context of Canada, Xu (1996) reports gains accrued to Canadian Banks from international portfolio diversification. An interesting component of this body of literature has been the work of Errunza, Hogan and Hung (1999). They report that, consistent with changes in investment barriers, gains from international portfolio diversification have diminished over time. Such changes in barriers include a number of components. Corporate international diversification is, arguably, one of the most important elements of these changes. Focusing on its impact on the Canadian firms, this paper is designed to provide further evidence on shareholder benefits from corporate international diversification.

A Review of Previous Work

A rather large body of research has focused on the question of the valuation consequences of corporate international diversification. Included among these are the work of Agmon and Lessard (1977) who found that the higher the degree of an MNC's international involvement, the lower its market-assigned measure of systematic risk. Jacquillat and Solnik (1978), on the other hand, found that the effect of foreign influence on the systematic risk of multinationals is unexpectedly limited. They concluded that investing in multinationals is a poor substitute to international portfolio diversification. A similar conclusion was arrived at by Senchack and Beedles (1980). Focusing on returns, Hughes, Logue, and Sweeney (1975) 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 (1979) further reported that MNCs earn a higher return than what would be expected for their degree of systematic risk. However, measurement problems associated with single security analysis were present in both of these works. Using the grouping method of Black, Jensen, and Scholes, Brewer (1981) found that the security market line for multinationals is statistically identical to that of the purely domestic firms. Although Brewer's tests are quite sophisticated relative to the earlier ones, they are limited to a single time period.

Using a value-based test of profitability, Errunza and Senbet (1981) arrived at a different conclusion; they found a positive relationship between the degree of international involvement and excess market value. However, as Logue (1981) points out, data and

measurement problems cast a shadow on Errunza and Senbet's findings. Fatemi's work (1984), regarded as one of the most carefully conducted studies on the subject (e.g., see Shapiro 1996), has dealt with the valuation consequences of international diversification at a comprehensive level. He reports that risk-adjusted returns realized by the shareholders are identical across the two groups except where the multinational firm operates in a competitive foreign market. In that case, shareholders experience negative abnormal returns. He also provides further evidence on the risk-reduction effect of international diversification. His results fail to support the hypothesis that the beta is a convex function of the degree of international involvement. Finally, his results provide support for the hypothesis that corporate international diversification is a value enhancing proposition, in that abnormal returns rise by some 18 percent during the 14 months preceding the initial foreign diversification. Bühner (1987), using a different methodology, arrives at similar conclusions that German corporations diversifying abroad create shareholder value. Doukas and Travlos (1988) expand on Fatemi's approach and provide further support for the hypothesis of corporate international diversification as a value-enhancing activity. Morck and Yeung (1991), on the hand, find support for the internalization theory suggesting that intangible assets are necessary to justify corporate international diversification.

Christophe (1997) examines the value of international operations to the U.S. multinational corporation during a period of exchange rate volatility and uncertainty. He finds evidence consistent with hysteresis pricing in foreign markets, in that international operations in the 1980s are associated with decreases in value. Lins and Servaes (1999) examined the valuation effect of diversification in a large sample of firms in Germany, Japan and the U.K. They found that the valuation impact of diversification is dependent on international differences in corporate governance. Pantzalis (2001) examined the valuation impact of geographic scope and found that multinationals with a presence in developing economies have significantly higher values than those limiting their presence to advanced economies.

Our Purpose

This study is designed to provide further evidence on the impact of international corporate diversification on shareholder returns. Our country of focus is, however, Canada: a country with a well-developed capital market and a thriving corporate structure. Given its small population, many Canadian firms have found it essential to diversify across the border into the U.S. Nonetheless, some have found it possible to operate successfully without an attempt to tap into the markets beyond the Canadian borders. This paper is designed to investigate the question of whether firm choosing to stay focused on the Canadian markets fare better or worse than their peers who choose to diversify internationally. Surprisingly, there is a dearth of such evidence. With the exception of Nguyen and Devinney (1990) who undertook to evaluate the performance of diversified Canadian firms, to our knowledge, no other study has dealt with the effect of international diversification on the performance of Canadian firms.

The Data

Our study compares a group of Canadian 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 TSX Index and the MSCI index. The former evaluates performance from the point of view of an investor with investment opportunities limited to the Canadian capital markets, whereas the latter evaluates performance from the viewpoint of an investor with global (portfolio) investment opportunities.

The source of monthly return data is Datastream Advance. For a firm to be included in the sample, it had to be included in the S&P/TSX Composite Index, have complete return data over the January 2000 through April 2005 period, and be headquartered in one of the Canadian provinces. The presence or the absence of foreign sales was then used as a criterion for classifying these firms into one of two categories, multinationals and uninationals. For this purpose, we used company annual reports, the notes to financial statements, and the narratives in management discussion and analysis. Having obtained the sales information, the *Mergent* database was consulted to find each firm's SIC and primary NAICS code. The resulting sample, grouped by NAICS codes, was sorted by the percentage of international sales to total sales.

Once we had obtained the data for the S&P/TSX Composite index companies, Mergent online database was consulted again for all companies within the specified NAICS. (Given that all firms in the mining, oil & natural gas industries had the overwhelming majority of their sales derived from international sources and that we could not find matching uninational companies, we chose to exclude them from the analysis.) Within each industry, a firm with foreign sales (including exports) was deemed as a multinational if foreign sales represented more than 25% of its total sales. This process resulted in a sample of 132 multinationals (MNCs) and 72 uninationals (UNCs). Table 1 reports the breakdown of each sample into different industries. It is interesting to note that the average Canadian multinational derives almost three quarters of its revenue from international sales. This is much higher that the corresponding percentage for U.S. multinational[1]. Further, note that the average Canadian MNC is roughly about twice the size of the average UNC. This, too, is very different than the evidence available for U.S. companies[2]. This may best be explained by the presence, in our sample, of many small Canadian firms that derive more than 25% of their revenues from cross-border sales to the United States.

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[1] Fatemi(1984), for example, reports a corresponding value of close to 37% for the U.S. multinationals.

[2] The corresponding comparison, as reported by Fatemi (1984), is that average U.S. MNC is five times as large as an average UNC in terms of sales.

The Analysis

The two groups are compared on the basis of monthly unadjusted returns, betas, and abnormal returns over the 64-month period January 2000 to April 2005. Abnormal returns are computed according to

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

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 64 monthly rates of return data, and

$\hat{\gamma}_{0t}, \hat{\gamma}_{1t}$ $\equiv$ market-determined variables representing the ex- post relation between risk and return.

Two sets of residuals are computed for each group; one with the TSX index as the proxy for the market portfolio and a second with MSCI 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 from 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.

Table 2 reports the summary statistics for the distributions of returns, betas, and residuals. These results indicate that the UNCs in our sample have, on average, provided lower rates of return than those provided by the MNCs. However, as judged by the standard deviation of monthly returns, the total risk borne by the UNC stockholders has also been lower than that borne by the holders of MNC shares. Additionally, regardless of whether the TSX or MSCI is used as a proxy for the market portfolio, UNC betas have been lower and considerably less volatile than MNC betas. Finally, while UNC residuals have, on average, been either negative or quite small, they have been more stable than those of the MNCs. The latter residuals have, on average, been fairly large but also more volatile. 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 for all five distributions and for both samples are also reported in Table 2. 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

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of variance of ranks (the H-test). The test is to determine whether the 64 monthly return observations for the multinational portfolio (MNP) and the uninational portfolio (UNP) are generated from identical populations.

Results are reported in Panel A of Table 3. 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 TSX index or the MSCI index is used to estimate the betas and the residuals. Average residuals for the MNP are significantly higher than those for the UNP. Thus, it appears that shareholders of Canadian multinationals earn positive abnormal returns beyond those provided to the shareholders of purely domestic firms.

As a test of robustness of these results, we repeat this analysis for a size-controlled sub-sample. The MNCs and UNCs included in our sample differ in size, not only in terms of their revenues, but also in terms of the size of their total assets. (The MNC group's average asset size is $11,143 million while the UNC group's average is $7,461 million). Therefore, it is prudent to make a determination as to whether these results are driven by the size effect. To do so, we test for the equality of residuals across the two groups while controlling for size. To this end, the following steps were taken: (1) The 204 firms in the sample were ranked by their asset size from the largest to the smallest. (2) The 45 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 for these two portfolios are reported in Table 4. An examination of these results leads one to draw the same conclusions arrived at by examining the overall sample results that: UNCs, on average, provide lower rates of return than those provided by the MNCs; the total risk borne by the UNC stockholders is lower than that borne by the holders of MNC shares; regardless of the whether the TSX or MSCI is used as a proxy for the market portfolio, UNC betas appear to be lower and less volatile than MNC betas; and MNC residuals appear to be much larger than those of the UNCs.

Next, to complete our test of robustness, 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 controlled groups. Results are reported in Panel B of Table 3. 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 such as the industries in which either MNC's or UNC's are concentrated. 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 ten industries comprising each portfolio are reported in Table 5. 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 indicates that, within these industry classifications and at the five percent level of significance, the average residuals for all

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but two industries are statistically identical across the two groups. The two exceptions are the "telecommunications" (with a p value of .003) and "radio and television broadcasting" (with a p value of .016). Average residuals for UNCs in these two classifications are significantly lower than those of the MNCs in comparable lines of business. At the ten percent level of significance shareholders in two other industries, "consumer products" (with a p value of .062) and "manufacturing," (with a p value of .053) experience the same pattern of differential residuals. Therefore, it appears that the superior residual returns accrued to the shareholders of Canadian MNCs are due, largely, to the performance of a subset of these firms, namely those in the telecommunications, and radio and television broadcasting. At the margin, Canadian MNCs in the manufacturing and consumer products sectors also outperform their purely domestic counterparts.

Systematic Risk and the Degree of International Involvement

As reported in Tables 3 and 4, our results lead us to conclude that Canadian MNCs expose their shareholders to a higher degree of systematic risk. This is the case regardless of whether we evaluate their degree of riskiness from the perspective of an investor with opportunities limited to the Canadian markets (i.e., when use the TSX as the index for market portfolio) or an investor with global opportunities (i.e., when we use the MSCI as a surrogate). It is instructive, therefore, to evaluate the question of whether this degree of riskiness is, indeed, a function of the MNC's degree of international involvement. To test for such an effect, we regress the observed betas on the degree of internationalization, proxied by the percentage of foreign sales to total sales. We repeat the same analysis for the observed residual returns as well. Using the TSX composite index as the proxy for returns on the market portfolio, the results are as follow:

$$\beta_i = .104 + 1.447\ f_i \quad \text{and} \quad \lambda_i = -.105 + .047\ f_i$$

$$.380 \quad 4.099 \qquad\qquad -.1.436 \quad 3.425$$

$$.705 \quad\ \ 000 \qquad\qquad\quad .153 \quad\ \ 000$$

Here, β_i and λ_i represent, respectively, the beta and the residual returns of company i, and f_i represents the degree of foreign involvement. For each regression we also report the t-statistics (in the first row following the regression results) and their probability values (in the second row following the results). It turns out that both the degree of systematic risk and the residual returns are significantly and positively affected by the degree of internationalization[3]. Therefore, it may be concluded that (1) international involvement exerts a positive influence on the degree of riskiness and the abnormal returns accrued to the shareholders of Canadian MNCs, and that (2) increased international involvement is associated with a proportional increase in both the degree of the riskiness and in residual returns.

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[3] Identical results are obtained when the MSCI index is used as the proxy for the market portfolio.

Concluding Remarks

A large body of literature has focused on the issue of international diversification. By and large, this literature indicates that internationally diversified portfolios provide investors with a lower risk and higher risk adjusted return than their national counterparts. Although some researchers report that globalization and the reduction of investment barriers have diminished gains from international portfolio diversification, others (e.g., Fooladi and Rumsey, 2005) have shown that, despite these developments, gains from international portfolio diversification continue to persist.

The issue of gains from corporate international diversification, however, is more controversial. While some researchers have reported results showing that corporate international diversification reduces the market-assigned measure of systematic risk or that it leads to an increase in the risk-adjusted returns, others have found the effect of foreign involvement to be quite limited. Yet some other researchers have found that the choice of a proxy for the market index determines whether or not one finds the MNCs to provide a higher level of risk-adjusted returns than those provided by UNCs. Finally, there exists empirical work reporting that risk-adjusted returns are identical across the two groups, except where the multinational firm operates in a competitive foreign market. In that case, shareholders experience negative abnormal returns.

In this paper, we provide further evidence on the impact of corporate international diversification on (1) shareholder returns and (2) on the degree of systematic riskiness of Canadian firms. Our work complements work of Nguyen and Devinney (1990) who undertook to evaluate the performance of diversified Canadian firms. Our sample includes 132 multinationals and 72 uninationals. We compare the two groups with respect to their monthly unadjusted returns, betas, and abnormal returns over the 64-month period January 2000 to April 2005. Our results indicate that the UNCs in our sample have, on average, provided lower rates of return and lower variability of return than those provided by the MNCs. Furthermore, regardless of our choice of proxy for the market portfolio (MSCI or S&P/TSX Composite indexes), UNC betas have been lower and considerably less volatile than MNC betas.

Our statistical evaluations show that none of the variables under consideration (unadjusted returns, betas and residual returns) are normally distributed. Nonparametric analyses of variance of ranks lead us to reject that null hypotheses that the monthly observations of variables for the multinational portfolio and the uninational portfolio are generated from identical populations. (The only exception is the case of unadjusted returns, where we can not reject the null.) These results further lead us to conclude that the residual returns and betas of the MNCs are significantly higher than those of the UNCs. Repeating the analysis for a size-controlled sub-sample, these results are found to be robust with regard to the size of the firms.

We also find that, at the five percent level of significance, mean average residuals for all but two industries (telecommunications, and radio and television broadcasting) are statistically identical across the two groups. For these two industries shareholders of

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MNCs enjoy a significantly higher abnormal return than those of the UNCs[4]. Finally, the results indicate that both the observed betas and the computed abnormal returns increase with the degree of corporate international involvement, proxied by the percentage of foreign sales to total sales.

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[4] At the ten percent level, in two other industries (consumer products and manufacturing) shareholders experience the same pattern of differential residuals.

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Table 1

Sample Composition and Characteristics

Industry Grouping	# of Multinationals	# of Uninationals
Consumer Products	3	9
Electronics, Computers and Software	6	3
Finance; Banking, Insurance & Investment Advice	11	19
Manufacturing; including Logging	66	13
Pharmaceutical Preparation Manufacturing & Medical Laboratories	16	6
Printing	2	2
Radio & Television Broadcasting	5	2
Services	11	6
Telecommunications	7	6
Transportation	5	6
Total	132	72
Characteristics:		
Sales (million $)		
Mean	2,072.59	918.76
Standard Deviation	4,584.40	2,755.58
Minimum	0.039334	0.009731
Maximum	22,379	19,056
% of revenue outside Canada		
Mean	0.743	
Standard Deviation	0.22601	
Minimum	0.25	
Maximum	1.00	

Table 2
Summery Statistics and tests of Normality for the Distributions of Returns,
Betas and Residuals

	Monthly Returns	Market Portfolio Proxy I: TSX		Market Portfolio Proxy II: MSCI	
		Betas	Residuals	Betas	Residuals
A: The MNC Sample					
Mean	0.01750	1.17470	0.01960	1.12826	0.02630
Standard Deviation	0.02501	0.96231	0.03694	1.02873	0.04180
Minimum Value	-0.04000	-1.54000	-0.04000	-2.69000	-0.05010
Maximum Value	0.12000	4.39000	0.14000	4.51000	0.14730
Standard Error of Mean	0.00220	0.08380	0.00320	0.08954	0.00364
Kolmogorov-Smirnov *D*-statistics	0.12100*	0.11900*	0.11200*	0.10200*	0.12100*
B: The UNC Sample					
Mean	0.01241	0.66493	-0.00091	0.69217	0.00485
Standard Deviation	0.01493	0.65043	0.02431	0.64100	0.02906
Minimum Value	-0.02430	-0.61100	-0.05650	-0.75000	-0.04930
Maximum Value	0.06240	2.39400	0.09910	2.94900	0.13930
Standard Error of Mean	0.00176	0.07665	0.00286	0.07554	0.00342
Kolmogorov-Smirnov *D*-statistics	0.11600**	0.18500*	0.13100*	0.14100**	0.1040***

* Significant beyond the .01 level
** Significant beyond the .05 level
*** Significant beyond the .10 level

Table 3
Weighted Analysis of Variance of Ranks for Monthly Returns, Betas, and Average Residuals

| | | Average Residuals | | Betas | |
	Returns	Proxy I: TSX	Proxy II: MSCI	Proxy I: TSX	Proxy II: MSCI
A: Entire Sample					
Mean Rank, MNC	106.090	114.690	113.850	115.010	112.750
Mean Rank, UNC	95.920	80.150	81.690	79.560	83.720
Kruskal Wallis H-Statistic	1.381	15.956*	13.831*	16.799*	11.267*
B: The Size-Controlled Sub-sample (45 pairs)					
Mean Rank, MNC	49.080	51.24	52.27	53.14	52.70
Mean Rank, UNC	41.920	39.76	38.73	37.86	38.30
Kruskal Wallis H-Statistic	1.688	4.352*	6.038*	7.706*	6.836*

* Significant beyond the .01 level

Table 4
Summery Statistics and tests of Normality for the Distributions of Returns,
Betas and Residuals: The Size-Controlled Subsample

	Monthly Returns	Market Portfolio Proxy I: TSX		Market Portfolio Proxy II: MSCI	
		Betas	Residuals	Betas	Residuals
A: The MNC Sample					
Mean	0.01881	1.18164	0.02113	1.19711	0.03015
Standard Deviation	0.02497	0.92447	0.03915	1.04238	0.04561
Minimum Value	-0.03190	0.02900	-0.04190	-0.14000	-0.04260
Maximum Value	0.11350	4.38800	0.13140	4.51000	0.14730
Standard Error of Mean	0.00372	0.13781	0.00584	0.15539	0.00680
Kolmogorov-Smirnov *D*-statistics	0.15900*	0.13000**	0.12600**	0.16700*	0.14300*
B: The UNC Sample					
Mean	0.01177	0.75180	0.00108	0.74293	0.00611
Standard Deviation	0.01590	0.69841	0.02676	0.67692	0.03104
Minimum Value	-0.02270	-0.61100	-0.05650	-0.75000	-0.04930
Maximum Value	0.06240	2.39400	0.09910	2.94900	0.13930
Standard Error of Mean	0.00237	0.10411	0.00399	0.10091	0.00463
Kolmogorov-Smirnov *D*-statistics	0.12900**	0.21100*	0.16900*	0.13700*	0.14500*

* Significant beyond the .01 level
** Significant beyond the .05 level

Table 5

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

Industry	Mean Average Residuals for MNCs	Means Average Residuals for UNCs	Kruskal Wallis H-Statistic
Consumer Products	.0092567	-.0127822	3.484***
Electronics, Computers and Software	.0235133	.0162517	.079
Finance; Banking, Insurance & Investment Advice	-.0089909	-.0051966	.636
Manufacturing; including Logging	.0243252	.0045923	3.751***
Pharmaceutical Preparation Manufacturing & Medical Laboratories	.0273344	.0230400	.225
Printing	.0394675	.0083075	2.083
Radio & Television Broadcasting	.0389230	.0030550	5.780**
Services	.0203332	.0056650	.573
Telecommunications	.0586693	.0067158	8.595*
Transportation	.0022780	.0020100	.278

*   Significant beyond the .01 level
**   Significant beyond the .05 level
*** Significant beyond the .10 level