CORPORATE GOVERNANCE, INTERNATIONAL

Cross Listing

AND HOME BIAS

BY MICHAEL R. KING AND DAN SEGAL

A perception exists that the equity of Canadian-listed firms trades at a discount relative to the equity of comparable firms listed in the United States. Differences in valuation may be explained by a host of reasons, such as differences in accounting rules, the depth and liquidity of capital markets or the system of regulation. With the passage of the Sarbanes-Oxley Act by the United States Congress last year, Canadian investors are focusing on another potential source of valuation differences between Canada and the United States, namely differences in corporate governance.

The term corporate governance is used in financial literature in both broad and narrow senses. Shleifer and Vishny (1997) broadly define corporate governance as the ways in which the suppliers of finance to corporations assure themselves of getting a return on their investment. A more narrow definition describes the leadership of corporations, the membership of boards of directors and the relationship with outside parties such as auditors. Both definitions point to the same message: corporate governance is about investor protection. Many of Canada's largest companies will be required to comply with Sabanes-Oxley, due to their shares being interlisted on a U.S. stock exchange. Given the potential for a growing division in the corporate governance of Canadian firms, investors may be asking themselves what impact corporate governance has on equity valuation. A stronger corporate governance structure is hypothesized to contribute to a higher valuation for the stock market as a whole, as well as for individual firms that follow best practices in this area.

A comparison of Canadian- and U.S.-listed equity provides a natural experiment for examining these questions.

What impact does corporate governance have on equity valuation?

While most Canadian firms are listed exclusively in Canada, a large number of Canadian companies are listed on both a Canadian and a U.S. stock exchange, allowing for a direct comparison of the relative valuation across markets. Canadian firms have historically listed on U.S. stock exchanges as an ordinary share, rather than issuing an American Depository Receipt (or ADR). In order to list as an ordinary share, the Canadian firm must register with the Securities and Exchange Commission (SEC), must comply with all SEC regulations, and must furnish a full reconciliation of financial accounts that comply with U.S generally accepted accounting principles (Karolyi 1998). Interlisting has been found to generate an increase in the price of a domestic stock due to some combination of greater secondary market turnover, a reduction in the cost of equity, access to a wider investor base, increased visibility, and lower trading costs (Bancel and Mittoo 2001; Doukas and Switzer 2000; Errunza and Miller 2000; Foerster and Karolyi 1998, 1999; Karolyi 1998).

Recent academic research links the decision to interlist and the associated positive effects to the level of investor protection provided in the foreign market. Pagano, Roell and Zechner (2001) and Coffee (2002) argue that firms choose to interlist on foreign stock markets which offer more effective investor protection, higher disclosure standards, and more stringent regulation. Doidge, Karolyi and Stulz (2001) argue that foreign firms interlist in the United States in order to

Michael King is a principal researcher in the Financial Markets Department of the Bank of Canada. Dan Segal is an assistant professor of accounting, Joseph L. Rotman School of Management at the University of Toronto.

signal that the interests of controlling shareholders are aligned with minority investors. Doidge (2003) finds that cross-listing by foreign firms in the U.S. improves the protection of minority investors and decreases the private benefits of control. Finally, Stulz, Dahlquist, Pinkowitz and Williamson (2002) suggest that the prevalence of closely held firms in foreign countries with weaker investor protection explains part of the home bias of U.S. investors. Home bias refers to the unwillingness of U.S. investors to diversify their portfolios internationally, making the proportion of foreign assets held by U.S. investors too small relative to the predictions of modern portfolio theory. Canadian firms may seek to mitigate U.S. investor home bias by interlisting their shares on a U.S. stock exchange—a strategy that may or may not be successful.

Overall studies find that Canada and the United States have comparable systems of corporate governance that offer high levels of investor protection relative to the rest of the world. These two countries are perceived to differ, however, in a number of dimensions of corporate governance. For instance, Canada features a higher concentration of corporate ownership than the United States, more frequent use of pyramidal ownership structures, and a higher level of corporate ownership by wealthy families (Attig, Gadhoum and Lang 2002; Doidge, Karolyi and Stulz 2001; Morck, Stangeland and Yeung 2000). Canada also has perceived weaker enforcement of insider trading laws (Bris 2001; Jabbour, Jalilvand and Switzer 2000; McNally and Smith 2003).[1] Unlike the United States, Canada does not have a unified regulatory framework for securities markets, with responsibility shared among a large number of bodies. Thus, these differences in corporate governance between Canada and the U.S. may lead to differences in valuation for firms listed in each stock market.

This paper studies the relative valuation of Canadian- and U.S.-listed firms from 1990 to 2000, based on book-to-market and earnings-to-price multiples. By comparing the valuation of interlisted

(continued on page 12)

TABLE 1:
REGRESSION USING EXCLUSIVELY CANADIAN-LISTED AND U.S.-LISTED FIRMS, 1991-2000
(standard errors in parentheses)

Dependent Variable	Book-to-Market		Earnings-to-Price [1]	
Specification	A	B	A	B
Intercept	0.37** (0.025)	0.554** (0.038)	0.044** (0.003)	0.02** (0.004)
Log of Total Assets	-0.0101** (0.0019)	-0.0012 (0.002)	-0.0003 (0.0002)	0.0003 (0.0002)
Return on Equity (ROE)	0.056** (0.006)		0.078** (0.003)	
Profit Margin		0.004** (0)		0.09** (0.003)
Asset Turnover		-0.1** (0.006)		0.011** (0.001)
Leverage		-0.015** (0.001)		0.002** (0)
Cost of Equity (K)	5.229** (0.22)		0.21** (0.027)	
Risk Free Rate		1.638** (0.629)		0.191** (0.062)
Premium (Beta x Equity Premium)		7.623** (0.25)		0.347** (0.03)
Expected growth rate of EPS (GR)	0.003** (0)	0.002** (0)	-0.002** (0.001)	0.001* (0)
Number of analysts (ANLYST)	-0.036* (0.019)	0.003 (0.012)	0** (0)	0** (0)
Share Turnover (TURN)	-101.678** (2.985)	-105.219** (2.915)	-6.8075** (0.407)	-6.4228** (0.3981)
Risk-adjusted stock market return (SMR)	-0.013** (0.0016)	-0.0157** (0.0017)	0 (0)	0 (0)
Country dummy (1=Canada)	0.146** (0.034)	0.211** (0.025)	0 (0.002)	0.005** (0.002)
Observations	16,114	16,215	9,700	9,775
Adjusted R-squared	10.3	12.8	9.0	11.6
F - value	232**	217**	122**	117**

1. Excludes negative earnings. Note: Level of statistical significance for two-tailed test: ** = 1%, * =10%.

(continued from page 9)

Canadian firms with firms listed exclusively in Canada, on one hand, and other U.S.-listed firms on the other, we can control for a number of institutional variables such as accounting rules and regulatory framework. This approach allows us to highlight the impact of corporate governance on valuation through a process of elimination. These comparisons are careful to control for factors identified in the finance literature which are known to affect valuation. The impact of firm size, profitability, cost of equity, secondary market liquidity, industry membership and the overall performance of the stock market are controlled, with the residual impact of valuation due to the variable of interest captured by a dummy variable.

The total sample consists of 50,720 firm-year observations, of which 2,392 observations are 474 firms listed exclusively in Canada, 1,017 observations are 158 Canadian firms cross listed on both a Canadian and a U.S. stock exchange, and 47,311 observations are 8,865 firms listed in the United States. We control for industry effects by restricting the samples in each regression to those three-digit SIC industries that are present in both samples. Any industries that are not present in both Canadian and U.S. samples are excluded. This restriction ensures that the valuation of industries not present in any of the samples does not bias the results. We estimate the regressions using weighted least squares, where the weight is the number of observations in each year. We identify influential observations and eliminate outliers. In regressions using earnings-to-price as the dependent variable, we only considered firms that had positive earnings in line with other studies in the literature.

In the regressions that follow, the dependent variable is a measure of the valuation of a firm's equity. The book-to-market ratio is used in one specification and the earnings-to-price ratio in a second specification. Explanatory variables consist of company-specific variables, market-specific variables, and a dummy variable which captures remaining systematic effects. A number of variables are included in these regressions in order to control for firm size, profitability, cost of equity, future expected growth rate of earnings per share, share turnover and analyst coverage of the stock. Firm size (SIZE) is measured by the log of total assets in U.S. dollars, using the end-of-year exchange rate to convert Canadian dollar assets. The proxy for profitability is the return on equity (ROE). To test the robustness of this measure, ROE is decomposed

TABLE 2:
REGRESSIONS USING EXCLUSIVELY CANADIAN-LISTED AND CANADIAN CROSS-LISTED FIRMS, 1991-2000 (standard errors in parentheses)

Dependent Variable	Book-to-Market		Earnings-to-Price [1]	
Specification	A	B	A	B
Intercept	0.524** (0.101)	0.574** (0.102)	0.015 (0.011)	0.018 (0.013)
Log of Total Assets	0.0122 (0.0104)	0.0192* (0.0106)	0.001 (0.001)	0.0008 (0.0013)
Return on Equity	-0.052 (0.042)		0.288** (0.02)	
Profit Margin		0.009* (0.005)		0.086** (0.011)
Asset Turnover		0.094** (0.04)		0.029** (0.004)
Leverage		-0.025** (0.01)		0.006** (0.002)
Cost of Equity	2.952** (1.014)		0.266** (0.109)	
Risk Free Rate		-2.487* (1.378)		0.192 (0.152)
Premium (Beta x Equity Premium)		12.003** (1.633)		0.112 (0.236)
Expected growth rate of EPS	0.001 (0.009)	-0.005 (0.009)	0.001 (0.001)	0.002* (0.001)
Number of analysts	0.001 (0.002)	0.001 (0.002)	0 (0)	0 (0)
Share Turnover	-3.241 (10.85)	-8.122 (10.035)	-1.663 (1.1836)	0.2625 (1.3008)
Risk-adjusted stock market return	-0.0312* (0.0168)	-0.0513** (0.0165)	-0.001 (0.002)	-0.004* (0.002)
Cross listed dummy (1 = crosslisted)	-0.129** (0.043)	-0.131** (0.042)	-0.009** (0.004)	-0.018** (0.005)
Observations	832	831	506	501
Adjusted R-squared	2.0	7.7	31.0	17.7
F - value	3.31**	7.3**	29**	11**

1. Excludes negative earnings. Note: Level of statistical significance for two-tailed test: ** = 1%, * =10%.

into profit margin, asset turnover and financial leverage following the Dupont method. The cost of equity (K) is computed by the single-factor Capital Asset Pricing Model (CAPM). The nominal annualized yield on the 90-day Treasury bill in each market is used to proxy for the risk-free rate. The equity market premium used in the CAPM calculations is based on the stock market where it is listed. Canadian-listed firms are benchmarked against the TSE 300 composite index while U.S.-listed firms are benchmarked against the Standard & Poor's 500 index. Two betas are calculated for Canadian firms cross listed on both a Canadian and U.S. stock exchange.

The valuation of a firm's equity is directly related to the future growth prospects of the firm's earnings. This variable is captured by including the future expected growth rate of earnings per share (GR), using the longest available geometric growth rate available up to a maximum of five years. A firm's secondary market liquidity is measured using share turnover (TURN), calculated as the average number of shares traded in a month divided by the total number of shares outstanding, adjusted for stock splits, dividends and other factors. The visibility and information environment of a firm is proxied using the number of analysts (ANLYST) following the stock, with no distinction given to the reputation of the analyst or the quality of their coverage.

Finally, the regressions include a market-specific variable that captures the relative performance of the national equity market where the share is listed. While both the Canadian and the U.S. stock markets rose over the sample period, the Canadian market underperformed the U.S. market by a noticeable margin. Therefore, a variable is included to capture any premium valuation of U.S.-listed firms that may be due to the "irrational exuberance" witnessed in U.S. equity markets over the mid- to late-1990s. Differences in the risk-adjusted equity returns between Canada and the United States are captured using the Sharpe ratio. For each market, the risk-adjusted stock market return is calculated where the excess stock market return over the risk-free rate for the past year is divided by the standard deviation of this excess market return for this period.

Establishing a Discount

To test the relative valuation of Canadian- vs. U.S.-listed equity, we compare a sample of exclusively Canadian-listed firms with U.S.-listed firms, and exclude interlisted

TABLE 3:
REGRESSIONS USING U.S.-LISTED AND CANADIAN CROSS LISTED FIRMS, 1991-2000
(standard errors in parentheses)

Dependent Variable	Book-to-Market		Earnings-to-Price [1]	
Specification	Short Form	Long Form	Short Form	Long Form
Intercept	0.303** (0.053)	0.251** (0.081)	0.055** (0.006)	-0.01 (0.009)
Log of Total Assets	-0.0166** (0.0026)	-0.0069** (0.0026)	-0.0006** (0.0003)	0.0008** (0.0003)
Return on Equity	0.057** (0.008)		0.079** (0.005)	
Profit Margin		0.004** (0.001)		0.126** (0.007)
Asset Turnover		-0.013 (0.011)		0.019** (0.001)
Leverage		-0.02** (0.002)		0.001** (0)
Cost of Equity	4.26** (0.358)		0.181** (0.043)	
Risk Free Rate		3.786** (1.04)		0.613** (0.104)
Premium (Beta x Equity Premium)		6.91** (0.396)		0.301** (0.044)
Expected growth rate of EPS	0.168** (0.077)	0.134 (0.086)	-0.047** (0.008)	-0.023** (0.009)
Number of analysts	0.006** (0.001)	0.006** (0.001)	0** (0)	0 (0)
Share Turnover	-84.247** (5.535)	-80.551** (5.066)	-5.3078** (0.6182)	-5.1313** (0.5575)
Risk-adjusted stock market return	-0.0064** (0.0025)	-0.0073** (0.0027)	-0.003** (0)	-0.002** (0)
Interlisted dummy (1 = interlisted)	0.296** (0.041)	0.328** (0.029)	0.008** (0.003)	0.015** (0.003)
Observations	5372	5546	3198	3284
Adj. R-Sq	7.28	9.78	14.43	18.53
F - value	54**	56**	68**	69**

1. Excludes negative earnings.
Note: Level of statistical significance for two-tailed test: ** = 1%, * =10%.

Canadian firms. We run the following regression:

$$VM = \alpha + \beta_1 SIZE + \beta_2 ROE + \beta_3 K + \beta_4 GR + \beta_5 TURN + \beta_6 ANLYST + \beta_7 SMR + \beta_8 CTRY + \epsilon$$

where VM stands for the valuation measure, using the book-to-market ratio in one specification and the earnings-to-price ratio in a second. CTRY is a dummy variable set equal to 1 for Canadian-listed firms and 0 otherwise. If the country of origin has no systematic effect on the valuation measure chosen, the coefficient of the CTRY dummy variable, β_8, should not be statistically significant.

Table 1 shows the results of these regressions. The book-to-market regressions are shown in the first two columns. The coefficients of the control variables are generally significant with the predicted sign. Most importantly, the country dummy is positive and significant at less than 1%, indicating that Canadian-listed firms have higher book-to-market ratios relative to U.S.-listed firms. The coefficient on the country dummy indicated that Canadian firms in this sample are discounted by 15% to 21% over U.S.-listed firms based on book value, making this impact large and economically important. In other words, Canadian-listed firms trade at a discount relative to U.S.-listed firms after controlling for factors known to influence valuation.

The earnings-to-price regressions shown in the final two columns of Table 1 are weaker but consistent with the book-to-market regressions. The country dummy variable is positive in both specifications, but only statistically significant when using the components of ROE and cost of equity. A positive country dummy suggests that Canadian-listed firms had a lower valuation based on multiples of earnings than U.S.-listed firms, although the effect does not appear to be economically significant at less than 1%. These results confirm the findings of King and Segal (2003).

Impact of Investor Protection

The effect of corporate governance on valuation is captured by comparing cross-listed Canadian firms with the rest of the Canadian sample. This comparison uses financial results reported using Canadian GAAP for both sets of firms. By comparing two sets of firms that are listed and traded in Canada, this comparison controls for any ownership restrictions or home bias effect among Canadian investors. However, this comparison

does not control for regulatory environment as the Canadian cross-listed shares are subject to the stricter supervision and enforcement by the SEC. As such, the prediction is that Canadian cross-listed firms will be more highly valued than other Canadian-listed firms, after controlling for other valuation factors that are associated with the decision to cross list.

The following model is estimated:

$$VM = \alpha + \beta_1 SIZE + \beta_2 ROE + \beta_3 K + \beta_4 GR + \beta_5 TURN + \beta_6 ANLYST + \beta_7 SMR + \beta_8 INTR + \epsilon$$

where INTR is a dummy variable with 1 for cross-listed observation, 0 otherwise, and all other variables are as before. If cross-listed Canadian firms trade at a premium relative to other Canadian-listed firms, then β_8 is negative and statistically significant, suggesting that cross-listed firms have lower book-to-market or earnings-to-price ratios, implying a premium valuation.

Table 2 shows the results of these regressions. Most of the coefficients of the control variables are statistically significant. The dummy variable for cross-listed Canadian firms is negative and significant across all regressions as expected. This result implies that cross-listed Canadian firms receive a premium valuation relative to exclusively Canadian-listed firms, based on both book-to-market and earnings-to-price. Overall, the results confirm the hypothesis that cross-listed Canadian firms trade at a premium relative to exclusively Canadian-listed firms, after controlling for factors that are associated with the decision to interlist such as size, profitability and share turnover, among other factors. Taking these factors into account, the principal remaining difference between cross-listed Canadian firms and their domestic counterparts is the tougher securities laws faced by Canadian firms listed on a U.S. stock exchange. This finding suggests that differences in corporate governance related to supervision, regulation and enforcement are a factor influencing the cross-border valuation of firms.

Cross-Listing and Home Bias

Finally, to test the impact of cross-listing on home bias, Canadian cross-listed firms are compared to other U.S. listings using financial results reported under U.S. GAAP to control for accounting. The impact of corporate governance is controlled by considering only those firms that are listed on a U.S. exchange, and are subject to the U.S. regulatory and supervisory oversight. Recall that cross-listed Canadian firms meet the same disclosure requirements and must comply with the same legislation as other U.S.-listed firms. If cross-listed Canadian firms trade at a premium relative to other U.S.-listed firms then the coefficient on the cross list dummy (β_8) should be negative.

Table 3 shows the results of this comparison. The direction and significance of the coefficients on the control variables have the expected signs and statistical significance. The results are similar to the results reported in Table 1 that compared U.S.-listed firms with exclusively Canadian-listed firms. The dummy variable for cross-listed Canadian firms is positive and significant in all regressions, and is economically large for valuation based on book value. This result suggests that cross-listed Canadian firms continue to trade at a discount valuation relative to other U.S.-listed firms. This finding rejects the hypothesis that investors may view a cross-listed foreign firm as a substitute for a U.S. firm. Instead this result is consistent with the literature on home bias, which suggests that U.S. disclosure is not a guarantee of information quality. International cross-listing does not appear to remove the valuation discount based on book-to-market, although the discount on earnings-to-price is quite small. Future research is needed to explore other potential sources of home bias.

Conclusion

This paper has examined the valuation of two classes of Canadian firms—firms listed exclusively in Canada and firms cross-listed on a U.S. stock exchange. This comparison has found that while Canadian firms are valued at a discount relative to their U.S.-listed peers, cross-listing mitigates some of this discount. By controlling for factors such as firm size, secondary market liquidity, investor coverage and profitability, this comparison suggests that the regulatory environment matters. Consistent with other studies, the higher investor protection provided by the U.S. securities regime appears to contribute to a higher valuation for Canadian firms listed in the U.S. Cross-listing, however, does not mitigate U.S. home bias as Canadian cross-listed firms continue to trade at a discount relative to other U.S.-listed firms. The sources of this discount need to be explored further in future research. ∎

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End Notes

1 Richard Blackwell, "Head regulator says whole system needs overhaul, suggests tougher legislation", Globe and Mail, March 4 2002, p.B1.