JOHN MOLSON SCHOOL OF BUSINESS
CONCORDIA UNIVERSITY
MONTREAL, QUEBEC, CANADA

Ownership control, liquidity and changes in firm value: Evidence from Canadian earnings announcements

by

Lawrence Kryzanowski* and Arturo Rubalcava**

Current Version: June 2006

*Ned Goodman Chair in Investment Finance, Department of Finance, John Molson School of Business, Concordia University, 1455 de Maisonneuve Blvd. West, Montreal, P.Q., Canada, H3G 1M8. Telephone: 514-848-2424, local 2782. Fax: 514-848-4500. E-mail: lkryzan@vax2.concordia.ca.

** Assistant Professor of Finance, Faculty of Business Administration, ED 565.5, Education Building, University of Regina, Regina, Saskatchewan, Canada, S4S 0A2. Telephone: 306-337-2567. E-mail: Arturo.Rubalcava@uregina.ca.

Financial support from the Ned Goodman Chair in Investment Finance, IFM2, SSHRC, SSHRC-CREF and SSQRC-CIRPÉE are gratefully acknowledged. We would like to thank Nalinaksha Bhattacharyya and the participants at ASAC 2006 (Banff) for their many helpful comments. The usual disclaimer applies. Please do not quote without the authors' permission.

Comments are welcomed.

Ownership control, liquidity and changes in firm value: Evidence from Canadian earnings announcements

Abstract

This paper examines shares float as a proxy for liquidity and ownership control diffuseness and its role as a determinant of changes in firm value due to earnings announcements by Canadian firms. We find that ownership control is negatively [positively] and [in]significantly associated with the market's abnormal return reaction when *float* is signed with negative [positive] earnings surprises. Thus, the market reaction is always in the right direction for firms with higher levels of ownership diffuseness but is only significant when firms report earnings below analysts' expectations. This suggests that the increasing costs of managerial discretion (i.e., rent extracting by managers) in widely held firms more than offset the benefits of liquidity only in the presence of negative surprises in earnings. This finding is partially consistent with the principal-agent theory in Berle and Means (1932) and Jensen and Meckling (1976).

Keywords: ownership control diffuseness; share float; liquidity; agency problems; earnings surprises.

JEL Classification: G14, L20, G30, M14.

Ownership control, liquidity and changes in firm value: Evidence from Canadian earnings announcements

1. Introduction

In the last 20 years much theoretical and empirical literature has examined whether ownership structure plays an important role as a determinant of firm value.[1] More recent studies by Himmelberg, Hubbard and Palia (1999), Demsetz and Villalonga (2001), among others, report that ownership structure is not a relevant determinant of longer-run, *ex-post* firm performance as measured by Tobin's Q.[2] They argue that this result is expected because concentrated or diffuse ownership that maximizes firm value is related to the interaction of market forces and not to ownership structure. However, whether or not these results are robust to the metrics used to measure ownership structure and firm value impact, and on whether or not the effect is present in the short-run price discovery process for any information surprise associated with a known information event remains an issue that requires further study.

Thus, the primary purpose of this paper is to assess the robustness of the evidence reported to date on whether or not ownership structure is a relevant determinant of *changes* in firm value around any surprise contained in known information events. As such, our study has two main objectives. The first is to estimate the market reaction (i.e., *changes* in firm value) around the dates of quarterly earnings per share announcements (earnings announcements hereafter) by Canadian firms listed on the Toronto Stock Exchange (TSX). The second objective is to examine whether a firm's shares *float*, as a proxy for liquidity and ownership control diffuseness, is an important determinant of the changes in the equity values of these firms around the studied information event after controlling for other potential determinants of changing market values.

[1] Demsetz and Villalonga (2001) provide a brief and interesting review of this literature.

[2] Himmelberg et al. (1999) use the relative share ownership percentage of top managers and directors as reported in the proxy statements, while Demsetz and Villalonga (2001) use both the percentage of shares owned by top management and the percentage of shares owned by the five largest shareholders. All of these metrics are only approximate measures of shares float.

Shares float consists of the shares of firms that are outstanding and are available for trade in the stock market. Items excluded to obtain the measure of shares float include a firm's controlling ownership represented by shares held by insiders (such as officers, directors, and their immediate families), shares held by another corporation and shares held by individuals or institutions who hold 10% or more of the outstanding shares**.** Thus, the lower the firm's proportional shares float (i.e., the number of shares in the float divided by the number of shares outstanding, or *FLOAT* hereafter), the lower the liquidity of the stock and the higher its ownership control.

The main contributions of this paper are three-fold. Firstly, shares float is used as a measure of ownership structure relative to other less precise measures used in previous studies. This provides a superior test of whether ownership control (stock liquidity) indeed plays a crucial role as a determinant of changes in firm values in the context of Canadian firms.[3] Although no statistically significant relationship is identified more recently between ownership structure and the ex post firm performance as measured by Tobin's Q (Himmelberg, Hubbard, and Palia, 1999; Demsetz and Villalonga, 2001), this does not imply that ownership structure as measured by shares float is not relevant. Furthermore, our use of signed shares float (i.e., conditioned on the sign of the surprise in earnings per share) allows for a cleaner test of whether or not ownership has an asymmetric impact on firm value given the release of new information.

Secondly, the use of cumulative abnormal returns (*CAR*) around the date of a firm's quarterly earnings per share announcements is a clean and clearer reflection of changes in firm value resulting from the information conveyed by the announcement.[4] The reason is that an earnings announcement as a *single* firm event also may provide relevant information about *ex-ante* (expected) future performance at *a specific point in time* for the firm.

Finally, our study provides important insights into the role that shares float plays in terms of the magnitudes of the impacts on *CARs* around the announcements of firms' earnings. Since *CAR* can be

[3] Many stock market indexes, such as the S&P500 index and the S&P/TSX Composite index use weights based on share float and not outstanding shares to better reflect the investment opportunities available to public investors.
[4] Earnings announcements are highly relevant information events in the stock price formation process (e.g., Ball and Brown, 1968; Beaver, 1968; Landsman and Maydew, 2002; DeFond, Hueng, and Trezevant, 2004).

positive or negative and asymmetric in terms of magnitude given the surprises in a firm's earnings announcements, the effect of a firm's shares float on *CAR* is conditioned on the direction of any surprise in earnings. This allows for an examination of whether asymmetric effects of float on *CAR* occur when conditioned on whether the surprise in earnings is positive or negative. In contrast, the power of past tests is low since they use a value measure that is dependent on accounting values and fails to isolate information events that are likely to affect firm value and whose price discovery process may depend upon the ownership structure of the firm.

The main findings of this paper are as follows. In contrast to the non-linear relationship between firm performance and ownership structure documented in studies by Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990), Anderson and Reeb (2003) and Davies, Hillier, and McColgan (2005), changes in firm value (*CAR*) are linearly related with signed float. Thus, our results do not support the notion that an optimal ownership structure exists within the range between low and high ownership control levels. The *CAR* are negatively [positively] and [in]significantly related with signed float when the earnings surprise is negative [positive] (i.e., when actual earnings are less [greater] than expected earnings). Thus, the market reaction is always in the right direction for firms with higher levels of ownership diffuseness but is only significant when firms report earnings below analysts' expectations. These findings are partially consistent with Berle and Mean (1932) and the principal-agent theory as modeled by Jensen and Meckling (1976), in which managers of widely-held firms are prone to enrich themselves or fail to maximize wealth of shareholders due to the lack of monitoring by shareholders. Also, our results are not consistent with the competing theory based on the Demsetz and Lehn (1985) model that posits that ownership structure is an irrelevant firm value determinant, since it is determined endogenously.

Our findings also are associated with studies related to asymmetric effects of financial events such as those reported by Wiggins (1992) and Bhardwaj and Brooks (1993) in which stocks with high [low] historical betas have higher [lower] betas during boom than bust markets. Similarly, Pettengill, Sundaram and Mathur (1996) find support for the CAPM when "the relationship between the return to high and low

beta portfolios is conditional on the relationship between realized market returns and the risk-free rate". However, in the presence of size and the book to market value ratios, " a lack of symmetry is revealed between premium payments to beta in bull markets and bear markets" (Pettengill et al., 2002). The similarity of these studies and ours is that float or ownership structure has asymmetric effects on firm value for positive and negative earnings surprises.

The rest of the paper is organized as follows. Section two examines the sample and data. The model for the abnormal returns of earnings announcements and the empirical results are presented in section three. The hypothesis, the model for the determinants of abnormal returns, and the empirical results are presented in section four. Finally, section five concludes the paper.

2. Sample and Data

The initial sample consists of all the firms in the S&P/TSX composite index over the period 1990-1999, since data on shares float are available for these firms from the TSX. After removing primarily announcements for firms that did not have data on I/B/E/S, the final sample is reduced to 1,846 quarterly earnings announcements for 161 TSX-listed firms. The earnings announcements are originally obtained from Bloomberg, and then are compared against those in Lexis-Nexis and updated if necessary. (The Lexis-Nexis dates are never later than those reported by Bloomberg.) Quarterly earnings per share and latest consensus earnings forecasts (including those revised by earnings warnings) are obtained from the I/B/E/S detail tape for all earnings announcements.

Daily stocks returns, closing prices, trading volumes, closing bid and ask quotes, number of trades, the S&P/TSX composite index and the monthly number of shares outstanding for the firm shares executed on the TSX are obtained from the Canadian Financial Markets Research Centre (CFMRC) database. The monthly Canadian T-bill rate (risk-free proxy) and the shares float data are obtained from CANSIM and the TSX database, respectively.

3. Abnormal Returns Around the Earnings Announcement Dates

3.1 Test Methodology

The abnormal returns for each earnings announcement date are computed using the following regression:

$$R_{it} = a_i + b_i R_{mt}^{TSX} + c_i R_{mt}^{TSX} * Dum1 + \gamma_{1i} DumCARPreAD_t + \gamma_{2i} DumAD_t + \gamma_{3i} DumCARPostAD_t + \varepsilon_{it} \quad (1)$$

In Equation (1), R_{it} is the continuously compounded daily excess return for the trades executed on the TSX for firm *i* on trading day *t* and is equal to the stock return for firm *i* minus the Canadian risk-free rate. a_i is the intercept for firm *i*, and b_i is the coefficient that measures the TSX market risk or beta. R_{mt}^{TSX} is the continuously compounded daily excess return for the S&P/TSX composite index. The dummy *Dum1* is included to account for the possibility that the market beta is changed by the earnings announcement, and it takes the value of one for each day in the period from one to 44 days after the announcement day (AD). The dummy variable $DumCARPreAD_t$ controls for abnormal performance (price run-up) prior to the announcement date, and takes on values of one for days –15 through –2 relative to the earnings announcement day, i.e., [AD-15, AD-2], and is zero otherwise. $DumAD_t$ is a dummy variable that is used to fully capture the market's response to the earnings announcement, and equals one for each day in the three-day announcement window [AD-1, AD+1], and is zero otherwise. The dummy variable $DumCARPostAD_t$ controls for abnormal performance after the announcement date due to slowness in the price discovery process, and takes the value of one for the period starting 2 to 15 days after the announcement day, i.e. [AD+2, AD+15], and is zero otherwise.

The parameters γ_{1i}, γ_{2i} and γ_{3i} are the daily average abnormal returns or AAR generated for the trading days in each of the three event windows for firm *i*. Therefore, $3\hat{\gamma}_{2i}$ is the three-day cumulative abnormal return or *CAR* for firm *i* for the earnings announcement window [AD-1, AD+1], and $14\hat{\gamma}_{1i}$ and $14\hat{\gamma}_{3i}$ are the *CARs* for firm *i* for the pre-AD window [AD-15, AD-2] and post-AD window [AD+2, AD+15], respectively.

The abnormal returns for the announcement and other windows are estimated simultaneously using the 45 trading days prior to the announcement day and ending 45 trading days after the announcement day. This period of time ensures that prior and subsequent announcement dates are not included in any estimation to obtain the *CAR*. The *CAR* for each event window are averaged across all of the earnings announcements, and the resulting ACAR are tested for significance using a Z-statistic that assumes that stock returns are approximately log-normally distributed and exhibit cross-sectional independence. The later assumption is reasonable since by visual inspection the earnings announcements for the different firms usually occur at different calendar dates. ACAR or parameter estimates that are significant at the 0.01, 0.05 or 0.10 levels are referred to hereafter as being highly significant, significant or marginally significant, respectively.

3.2 Empirical Results

Table 1 reports the ACAR for the three event windows based on the quarterly earnings announcements of Canadian firms during the time period, 1990-1999. The statistical significances of the coefficients are given in the parentheses by their Z-values. ***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively. The mean coefficient ACAR estimate for the pre-announcement window ($DumCARPreAD_t$) of 0.14 percent is not significant (Z-value of 0.47), and suggests that the announcement is not anticipated or leaked to the market. The mean coefficient ACAR estimate for the announcement window ($DumAD_t$) of 0.20 percent is highly significant (Z-value of 3.91), which suggests that the earnings announcements contain new information. The mean ACAR for the post-announcement window ($DumCARPostAD_t$) is a significant –1.14 percent, which suggests some slowness in the price discovery process. The mean estimated beta coefficient for the sample of 0.8176 is highly significant, and indicates lower average risk than for the market. The mean beta shift coefficient estimate of –0.0304 is significant, and indicates that the betas of firms announcing quarterly earnings decline post-announcement.

[Please place Table 1 about here]

4. Determinants of the Changes in Firm Values around the Announcement of Earnings

4.1 Hypotheses

The first null hypothesis, H_0^1, is that the proportional shares float as a proxy for liquidity and ownership structure is a significant determinant of cumulative abnormal returns (*CAR*) during the announcement windows for earnings announcements by Canadian firms after controlling for other variables. This hypothesis provides a test of whether the level of ownership structure matters as an important determinant of changes in firm values for Canadian shares listed on the TSX.

The second null hypothesis, H_0^2, tests for asymmetric effects in *CAR* with signed ownership structure. The proportional shares float and the other independent variables are conditioned on the sign of the surprise in earnings (*SUE*) on the announcement date.

4.2 The Cross-sectional Model

To test our hypotheses, the following empirical cross-sectional model that examines the relationship between abnormal returns for the announcement window and shares float after controlling for other potential determinants is estimated:

$$\begin{aligned} CAR_i = {} & a_0 + (a_1 + \delta_{FLOAT} DumNegSUE) FLOAT_i + a_2 SUE_i + (a_3 + \delta_{SIZE} DumNegSUE) SIZE_i \\ & + (a_4 + \delta_{STD} DumNegSUE) STD_i + (a_5 + \delta_{PreCAR} DumNegSUE) PreCAR_i \\ & + (a_6 + \delta_{ABSPREAD} DumNegSUE) ABSPREAD_i + (a_7 + \delta_{PRICE} DumNegSUE) PRICE_i \\ & + (a_8 + \delta_{AbnormVol} DumNegSUE) AbnormVol_i + \lambda_{DumQTR\tau} DumQTR_{\tau,\ \tau=2\&4} + \xi_i \end{aligned} \quad (2)$$

The independent variables included in regression model (2) are based on relevant variables documented in previous empirical studies and economic intuition. The dependent and each independent variable are described next. The expected signs when they take on positive values and are conditioned on positive *SUE* are provided in the brackets preceding the names of the independent variables. Although not shown, the expected sign is reversed when each variable takes on a negative value and is signed on a negative *SUE*.

CAR_i *is* equal to the abnormal returns for the earnings announcement window [AD-1, AD+1] and is equal to $3\hat{\gamma}_{2i}$ from model (1).

[+] $FLOAT_i$ proxies for ownership control and liquidity, and is measured by the ratio of the number of shares available for trade divided by the number of shares outstanding pre-announcement. The magnitude of the coefficient estimate of a positively signed *FLOAT* is given by a_1 in equation (2).[5]

$DumNegSUE_i$ is a dummy variable that is equal to 1 if the surprise in earnings (*SUE*) is negative and is zero otherwise. The rationale for using this signing variable is as follows. Since a surprise in earnings (i.e., the difference between actual earnings and the estimates of analysts) can be positive, zero, or negative, *FLOAT* and the other variables need to be conditioned on the direction of *SUE* to determine the asymmetric impact (if any) of *FLOAT* on *CAR*. Thus, [+] indicates that *CAR* is expected to be increasing for positively signed *FLOAT* or $FLOAT|SUE^+$. Similarly, [-] indicates that *CAR* is expected to be decreasing for negatively signed *FLOAT* or $FLOAT|SUE^-$.

[+] SUE_i is equal to the deviation of actual quarterly earnings from expectations, and is adjusted by the stock price 3 days before the announcement date.

[+] $SIZE_i$ proxies for firm size and is measured by market capitalization (i.e., the number of shares outstanding multiplied by the share price pre-announcement). Firm size may also proxy for other variables not included such as the number of investment analysts, number of institutional investors, and number of firm news.

[+] STD_i is a proxy for equity risk and is equal to the standard deviation of daily stock returns during the period $[AD_{Q-1}+3, AD_Q-3]$. This variable also may proxy for leverage (Ogden et al., 2003) or cash flow instability (Fields and Mais, 1994).

[5] The magnitude of a_1 can also be obtained by running the alternative regression of *CAR* on positively signed *FLOAT*, i.e., $CAR_i = a_0 + (a_1' + \delta_{FLOAT}\,DumPosSUE)FLOAT_i + \ldots + \ldots$ in which $a_1 = a_1' + \delta_{FLOAT}$. The advantage of using regression model (2) is that it directly reports the magnitude of a_1 and its level of significance for positively signed *FLOAT*.

[+] *PreCAR* represents the cumulative *CAR*, and is less likely to be contaminated by post-firm information-related effects from a firm's previous quarterly earnings announcement. $PreCAR_i$ is the cumulative daily differences in the returns for firm *i* and the S&P/TSX composite index, in the spirit of Korajczyk et al. (1990). This variable measures the market anticipation of the firm's earnings announcement.

[-] $ABSPREAD_i$ is a modified version of the partial anticipation of the spread by the market maker. It has been used by Tripathy and Rao (1992), and is given by the average of the difference of the daily actual and expected proportional spread.

[-] $AbnormVol_i$ is a proxy for firm-information-related volatility, and is given by the average of the differences of the daily actual and expected trading share volumes (Bessembinder and Seguin, 1992; Jiang and Kryzanowski, 1998).[6]

[-] $PRICE_i$ is used to control for share price, and is the price of the firm's stock prior to the earnings announcement date [AD-2].

$DumQTR_{i\,\tau=2...4}$ are dummy variables that are included to control for any seasonal effects for quarters 2 through 4. For example, $DumQTR_{it=2}$ is a dummy variable that equals one for quarter 2 and equals zero otherwise.

PreCAR, $ABSPREAD_i$ and $AbnormVol_i$ are variables that proxy for pre-disclosure firm information, and they are measured by their average value for the period that begins three days after the prior quarter's announcement day [AD_{Q-1} +3] through the three days before the current quarter's announcement day [AD_Q–3]. In other words, they are the averages over the period [AD_{Q-1}+3, AD_Q–3], where the subscript Q refers to the current quarter's announcement day.

Regression model (2) has three important advantages: First, it avoids the problem of identification of causality between changes in firm value and ownership structure (*FLOAT*) (Brous and Kini, 1994). The

[6] For each announcement, the expected trading volume is obtained from the best-fitted ARMA model based on the actual series of trading volumes until the residuals are 'white' noise. A similar procedure is used in calculating the abnormal spread.

change in price value is a reaction (effect) of the firm's earnings announcement relative to the analysts' forecast. Second, this model deals with the problem of endogeneity by including variables that are assumed (theoretically) to affect the level of insider ownership (such as firm size) and the standard deviation of returns which proxies for cash instability (Fields and Mais, 1994). Endogeneity is not a problem if the inclusion or omission of these variables does not change the relationship between insider ownership and (change in) firm value significantly. Additionally, the endogeneity problem can be solved by incorporating lagged float into the model as a relevant instrumental variable to proxy for ownership control and to determine its effect on changes in firm value. Finally, regression model (2) is a parsimonious model that not only can incorporate the ownership control diffuseness effect from earnings surprises (asymmetric effects) but also the non-linear effects as reported in McConnell and Servaes (1990).

4.3 Determinants of Changes in Firm Value: Empirical Results

This section examines some relevant descriptive statistics and the potential determinants of the change in firm value (*CAR*). The unreported descriptive statistics for some relevant determinants included in regression model (2) are as follows. The mean [median] firm *SIZE* is C$3,326.6] [C$1,277.4] million Canadian dollars (C$) with a mean [median] *PRICE* of C$25.3 [C$21.2]. The mean [median] *CAR* is 0.19% [0.14%] with a mean [median] *PreCAR* of -2.42% [-0.72%]. The mean [median] *SUE* is -0.15% [0.00%], in which 997 [849] *SUE* values correspond to zero or positive [negative] surprises in earnings. The mean [median] value of *FLOAT* is 0.8392 [0.9993]. The large proportional mean and median values of *FLOAT* are due to the fact that the firms with available shares float data correspond to the largest Canadian publicly listed firms, which usually are widely held.

Whether share ownership, as proxied by *FLOAT*, is a systematic determinant of abnormal returns as measured by *CAR* for the earnings announcement window is examined by running six cross-sectional regressions. Table 2 reports the cross-sectional regression results using *CAR* as the dependent variable against the hypothesized determinants (such as *FLOAT*, *SUE*, *SIZE*, *STD*, *PRICE*, *PreCAR*, *ABESPREAD* and *AbnormVol*) with and without conditioning on negative or positive surprises in earnings (*SUE*).

DumNegSUE is equal to *DumNegSUE* [*DumPosSUE*] when conditioning on negative [positive] *SUE*.[7] $DumQTR_2$, $DumQTR_3$ and $DumQTR_4$ are dummy variables for quarters 2, 3 and 4, respectively. The relevant regression results are reported as regressions (1) to (6).[8] The cells report the mean coefficients and the p-values in parentheses. Tests for significance use Newey and West (1987) robust t-statistics. Regressions (1) through (6) report the results by using different combinations of variables to assess whether some of them subsume others. Adjusted R^2 values and F-statistic probabilities also are reported. *, ** and *** indicate significance at the 10, 5 and 1 percent levels, respectively.

[Please place Table 2 about here]

In regressions (1) and (2), *FLOAT* is not conditioned on the sign of earnings surprises. When the control variables are not included as in regression (1), the *CAR* are negatively and significantly related with *FLOAT*, and positively and insignificantly related with earnings surprises, *SUE*. When the control variables are added to regression (1) to get regression (2), the *CAR* are negatively but not significantly related with *FLOAT*, and positively and insignificantly related with earnings surprises, *SUE*.

In regressions (4) and (6), the independent variables including *FLOAT* are conditioned on the sign of earnings surprises (negative and positive, respectively). While the *CAR* are negatively related with signed *FLOAT*, the negative relations are only significant when the earnings surprise is negative (i.e., actual earnings are less than expected earnings). The negative and significant relation with signed *FLOAT* when *FLOAT* is conditioned on negative earnings is supported by regression (4) where the addition of the significant dummy variable coefficient plus the *FLOAT* coefficient is negative and significant (0.0019-0.0174=-0.0155). Alternatively, it is supported by regression (6) where the estimated coefficient for *FLOAT* of -0.0155 is negative and highly significant (p-value of 0.0033). The positive but insignificant relation with signed *FLOAT* when *FLOAT* is conditioned on positive earnings surprises (*DumPosSUE*) similarly is supported by regressions (4) or (6). For example, the estimated coefficient for *FLOAT* of

[7] The results are materially unchanged when the model is run on the paired combinations of three dummy variables; that is, when SUE>0 (773 observations), SUE=zero (224 observations) and SUE<0 (849 observations)..
[8] Based on the correlation matrix various regressions on different combinations of independent variables were run. The regressions reported in table 2 summarize the main findings.

0.0019 in regression (4) is positive but insignificant (p-value of 0.6869). Since similar inferences are drawn when *CAR* is regressed only against signed *FLOAT* and *SUE* (and the indicator variables) as reported in regressions (3) and (5), our findings are consistent with the absence of an endogeneity problem between *CAR* and *FLOAT*, as posited by Fields and Mais (1994).

The results indicate that, on average, the more widely held the firm is the more negative the change in its value, and that this relation is only significant for negative surprises in earnings. Thus, we fail to find a significant relation between changes in firm value (*CAR*) and signed ownership control (*FLOAT*) for positive surprises in earnings.

Our findings are partially consistent with the principal-agent problem between managerial ownership and control. Although liquidity is higher with lower levels of ownership control, the benefits of higher liquidity do not compensate for the disadvantage of rent extracting benefits of managerial discretion at the expense of shareholders (Jensen and Meckling, 1976) in the presence of negative surprise in earnings.

The control variable *PreCAR*, [*ABESPREAD* and *PRICE*] are significant [marginally] only when they are conditioned on negative surprises in earnings (regression (4) in Table 2). For example, although *PreCAR* is insignificant (p-value of 0.1960) and negative (–0.0225) and the slope coefficient is insignificant (p-value of 0.7182) and negative (-0.0079) when *PreCAR* is conditioned on negative surprises in earnings (regression (4) in table 2), the total effect is significant (p-value of 0.0142) and negative (-0.0305) as reported for regression (6). On the other hand, when *PreCAR* is conditioned on positive surprises in earnings, the total effect (-0.0026=-0.0305+0.0079) based on regression (6) is insignificant (p-value of 0.1960) as reported by the coefficient of *PreCAR* for regression (4). This indicates that *CAR* are lower for higher levels of *PreCAR* only for announcements containing negative surprises in earnings. The other control variables with marginal significance are *ABSPREAD*, with a p-value of 0.0682, where it exhibits a negative relation (–0.0275) with *CAR*; and *PRICE*, with a p-value of 0.0704, where it exhibits a positive relation (0.1590) with *CAR*. The indicator variables associated with quarters 3 [and 4] are negative and very [marginally] significant. This suggests that quarters 3 and 4 reflect a seasonal component in the impact of quarterly earnings announcements on *CAR*.

To test the robustness of the reported results, additional regressions are run using *FLOAT* lagged one period to account for possible endogeneity between *CAR* and *FLOAT*, and to test for non-linear (quadratic) effects between changes in firm value (*CAR*) and *FLOAT*. These results are not materially different than those reported herein.

For additional tests of robustness, a cross-sectional regression is run of the *CAR* against the changes in the average values of each of five firm-information variables (*SIZE*, *PreCAR*, *STD*, *ABSPREAD* and *ABVOL*) between the periods [AD_{Q-1} +3, AD_Q –3] and [AD_{Q-2} +3, AD_{Q-1}–3], where the subscript Q-2 refers to the quarter that is two quarters prior to the current quarter Q. These unreported results once again have no material impact on the inferences drawn above.

5. Concluding Remarks

The relationship between firm value and ownership structure has been documented both theoretically and empirically. While more recent studies (e.g., Demsetz and Villalonga, 1999; and Himmelberg et al., 2001) find that ownership structure is not significantly related to firm value as measured by Tobin's Q, less recent studies (e.g., Shleifer and Vishny, 1986; McConnell and Servaes, 1990) find a non-linear relationship between ownership structure and Tobin's Q.

Our paper extended this literature by examining different metrics for measuring ownership structure and changes in firm values, a different test methodology, different time period, and a different sample. Using event-study techniques, we found that the cumulative abnormal returns (*CAR* or changes in firm value) around the earnings announcement dates of Canadian firms are asymmetrically related to a firm's ownership structure as measured by its proportional shares float (*FLOAT*). The relationship is negative and positive when *FLOAT* is conditioned on negative and positive surprises in earnings (*SUE*), respectively, but only statistically significant when *FLOAT* is conditioned on negative *SUE*. This asymmetric impact of signed earnings surprises on firm value has implications for earnings management, and particularly, in ensuring that analyst's expectations remain below subsequent actual earnings realizations.

These results are only partially consistent with the principal-agent theory of managerial discretion and ownership control as posited by Berle and Means (1932), Jensen and Meckling (1976), among others, in which managers of widely held firms or firm with large shares float are more likely to extract rents at the expense of shareholders in the presence of negative surprises in earnings. Nevertheless, investors react accordingly as reflected in the negative market reaction at the announcement of the negative earnings news. These findings also are consistent with the expanding financial literature on asymmetric effects, such as those by Wiggins (1992), Bhardwaj and Brooks (1993), and Pettengill, Sundaram and Mathur (2002) on CAPM betas for up and down markets.

References

Anderson, R., & Reeb, D. (2003). Founding-family ownership and firm performance. *Journal of Finance 58*(3), 1301-1328.

Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of Accounting Research, 6*, 159-178.

Beaver, W. (1968). The information content of annual earnings announcements. *Journal of Accounting Research, 6*, 67-92.

Bhardwaj, R. K., & Brooks, L. D. (1993). Dual betas from bull and bear markets: Reversal of the size effect. *Journal of Financial Research, 16*, 269-293.

Berle, A., & Means, G. (1932). The modern corporation and private property. New York, N.Y.: MacMillan.

Bessembinder, H., & Seguin, P. J. (1992). Futures trading activity and stock price volatility. *Journal of Finance, 47*, 2015-2034.

Brous, P. A., & Kini, O. (1994). The valuation effects of equity issues and the level of institutional ownership: Evidence from analysts' earnings forecasts. *Financial Management, 23*, 33-46.

Cho, M. (1998). Ownership structure, investment, and the corporate value: An empirical analysis. *Journal of Financial Economics, 47*, 103-121.

Davies, R., Hillier, D., & McColgan, P. (2005). Ownership structure, managerial behavior and corporate value. *Journal of Corporate Finance, 11*(4), 645-660.

DeFond, M., Hung, M., & Trezevant, R. (2004). Investor protection and the information content of annual earnings announcements: International evidence. Working paper, University of Southern California.

Demsetz, H., & Lehn, K. (1985). The structure of corporate ownership: causes and consequences. *Journal of Political Economy, 93*, 155–1177.

Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance, 7*, 209-233.

Fields, L. P., & Mais, E. L. (1994). Managerial voting rights and seasoned public equity issues. *Journal of Financial and Quantitative Analysis, 19*(3), 445-457.

Himmelberg, C. P., Hubbard, R. G., & Palia, D. (1999). Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics, 53*, 353-384.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics, 3*, 305-360.

Jiang, L., & Kryzanowski, L. (1998). Trading activity, quoted liquidity and stock volatility. *Multinational Finance Journal*, *1*(3), 199-227.

Korajczyk, R. A., Lucas, D., & McDonald, R. L. (1990). Understanding stock price behaviour around the time of equity issues. In Hubbard, R.G. (Eds.), *Asymmetric Information, Corporate Finance, and Investment*. Chicago, IL: University of Chicago Press.

Landsman, W., & Maydew, E. (2002). Has the information content of quarterly earnings announcements declined in the past three decades? *Journal of Accounting Research*, *40*, 797-808.

McConnell, J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, *27*, 595-612.

Morck, R., Shleifer, A., & Vishny, R. (1988). Management ownership and market valuation. *Journal of Financial Economics*, *20*, 293-315.

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, *55*, 703-708.

Ogden, J. P., Jen, F. C., & O'Connor P. F. (2003). *Advanced Corporate Finance: Policies and Strategies*. New Jersey: Prentice Hall.

Pettengill, G. N., Sundaram, S., & Mathur, I. (1996). The conditional relation between beta and returns. *Journal of Financial and Quantitative Analysis*, *30*, 101-116.

Pettengill, G. N., Sundaram, S., & Mathur, I. (1996). Payment for risk: Constant beta vs. dual-beta models. *Financial Review*, *30*, 101-116.

Shleifer, A., & Vishny, R. (1986). Large shareholders and corporate control. *Journal of Political Economy*, *94*, 461-488.

Tripathy, N., & Rao, R. P. (1992). Adverse selection, spread behaviour, and over-the-counter seasoned equity offerings. *Journal of Financial Research*, *15*(1), 39-56.

Wiggins, J. (1992). Betas in up and down markets. *Financial Review*, *27*, 107-124.

Table 1. ACAR of quarterly earnings announcements by Canadian firms

This table reports the average cumulative abnormal returns (ACAR) for different event windows around the announcement dates of quarterly earnings of Canadian firms listed on the Toronto Stock Exchange (TSX) over the time period from 1990 to 1999. The regression used is based on the following model:

$$R_{it} = a_i + b_i R_{mt}^{TSX} + c_i R_{mt}^{TSX} * Dum1 + \gamma_{1i} DumCARPreAD_t + \gamma_{2i} DumAD_t + \gamma_{3i} DumCARPostAD_t + \varepsilon_{it} \qquad (1)$$

The description and interpretation of the coefficients and variables in equation (1) are presented in the body of the text. The statistical significances of the coefficients are given in the parentheses by their Z-values. ***, ** and * denote significance at the 1, 5 and 10 percent levels, respectively. The sample consists of 1,846 quarterly earnings per share announcements for 161firms.

Variable	Coefficient	Event Window	Coefficient (Z-values)
Constant	*a*		-0.0004 (-2.16)**
R_{mt}^{TSX}	*b*		0.8176 (98.10)***
$R_{mt}^{TSX} * Dum1$	*d*		-0.0304 (-3.00)***
$DumCARPreAD_t$	$14\gamma_1$	[AD-15, AD-2]	0.0014 (0.47)
$DumAD_t$	$3\gamma_2$	[AD-1, AD+1]	0.0020 (3.91)***
$DumCARPostAD_t$	$14\gamma_5$	[AD+2, AD+15]	-0.0114 (-3.20)***

Table 2. Regressions of *CAR* on possible determinants with(out) conditioning on signs of earnings surprises

This table reports the cross-sectional regression results for a sample of Canadian firms that made quarterly earnings (per share) announcements during the time period from 1990 to 1999. The cumulative abnormal returns (*CAR*) at the announcement dates are regressed on the proportional float (*FLOAT*) proxy for ownership control and stock liquidity, surprises on earnings (*SUE*) and other control variables. *DumNegSUE* is equal to *DumNegSUE* [*DumPosSUE*] when conditioning on negative [positive] *SUE*. $DumQTR_2$, $DumQTR_3$ and $DumQTR_4$ are dummy variables for quarters 2, 3 and 4, respectively. The description and definition of variables are provided in the main body of the text. The cells report the mean coefficients and the p-values in parentheses.. Adjusted R^2 values and F-statistic probabilities also are reported. *, **, and *** indicate significance at the10, 5 and 1 percent levels, respectively, based on Newey and West (1987) robust t-statistics.

	Conditioning					
	None		**Negative Surprises**		**Positive Surprises**	
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Constant	0.0136 (0.0013)***	0.0114 (0.0305)**	0.0135 (0.0012)***	0.0121 (0.0224)**	0.0135 (0.0012)***	0.0121 (0.0224)**
FLOAT	-0.0085 (0.0381)**	-0.0059 (0.1604)	-0.0014 (0.7159)	0.0019 (0.6869)	-0.0156 (0.0004)**	-0.0155 (0.0033)***
*FLOAT*DumSUE*			-0.0142 (0.0000)***	-0.0174 (0.0021)***	0.0142 (0.0000)***	0.0174 (0.0021)***
SUE	0.0301 (0.2541)	0.0297 (0.2668)	0.0159 (0.5393)	0.0178 (0.5147)	0.0159 (0.5393)	0.0178 (0.5147)
SIZE		0.1300 (0.4079)		0.1460 (0.4433)		-0.0850 (0.8433)
SIZE DumSUE*				-0.2310 (0.6387)		0.2310 (0.6387)
STD		-0.1744 (0.1326)		-0.1918 (0.2420)		-0.1372 (0.2960)
*STD*DumSUE*				0.0545 (0.7885)		-0.0545 (0.7885)
PreCAR		-0.0253 (0.0149)**		-0.0225 (0.1960)		-0.0305 (0.0142)**
*PreCAR*DumSUE*				-0.0079 (0.7182)		0.0079 (0.7182)
ABSPREAD		-0.0289 (0.0248)**		-0.0250 (0.4201)		-0.0275 (0.0682)*
*ABSPREAD*DumSUE*				-0.0024 (0.9515)		0.0024 (0.9515)
PRICE		0.1150 (0.1011)		0.0622 (0.4684)		0.1590 (0.0704)*
*PRICE*DumSUE*				0.0964 (0.3569)		-0.0964 (0.3569)
AbnormVol		0.0232 (0.5445)		0.0406 (0.5100)		-0.0042 (0.8517)
*AbnormVol*DumSUE*				-0.0448 (0.5029)		0.0448 (0.5029)
$DumQTR_2$	-0.0017 (0.5992)	-0.0023 (0.4793)	-0.0023 (0.4970)	-0.0028 (0.3946)	-0.0023 (0.4970)	-0.0028 (0.3946)
$DumQTR_3$	-0.0090 (0.0094)***	-0.0089 (0.0101)**	-0.0095 (0.0058)***	-0.0093 (0.0070)***	-0.0095 (0.0058)***	-0.0093 (0.0070)***
$DumQTR_4$	-0.0068 (0.0620)*	-0.0069 (0.0576)*	-0.0068 (0.0599)*	-0.0069 (0.0561)*	-0.0068 (0.0599)*	-0.0069 (0.0561)*
R^2 Adj.	0.006	0.014	0.019	0.024	0.019	0.024
F (Prob)	0.0070	0.0001	0.0000	0.0000	0.0000	0.0000