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Corporate Control and the Choice of Investment Financing: The Case of Corporate Acquisitions

YAKOV AMIHU, BARUCH LEV, and NICKOLAOS G. TRAVLOS*

ABSTRACT

We test the proposition that corporate control considerations motivate the means of investment financing—cash (and debt) or stock. Corporate insiders who value control will prefer financing investments by cash or debt rather than by issuing new stock which dilutes their holdings and increases the risk of losing control. Our empirical results support this hypothesis: in corporate acquisitions, the larger the managerial ownership fraction of the acquiring firm the more likely the use of cash financing. Also, the previously observed negative bidders' abnormal returns associated with stock financing are mainly in acquisitions made by firms with low managerial ownership.

DO FIRMS HAVE SYSTEMATIC preferences for the means of financing investments? In Modigliani and Miller's (1958) (M&M's) perfect market, no-tax world, the means by which investments are financed are irrelevant for the total value of the firm. Miller (1977) extended this irrelevance proposition to a case where taxes exist. However, casual observation suggests that firms are not indifferent to the means of financing. For example, many firms prefer to finance investments from internal sources or by debt rather than by issuing new equity. An explanation for such systematic financing preferences and the consequent capital structure of firms is, therefore, called for. Indeed, a number of such explanations have been advanced. For example, DeAngelo and Masulis (1980) showed that in Miller's (1977) framework the means of financing is not irrelevant if firms have different expected marginal effective tax rates due to differences in fixed charges. It has also been argued that financing preferences may result from agency costs associated with debt (e.g., Barnea, Haugen, and Senbet (1981) or from asymmetry of information between managers and outside investors (Myers and Majluf (1984)).

Recently, Harris and Raviv (1988) and Stulz (1988) advanced a new argument for the existence of financing preferences that centers around managers' incentive to maintain control over the corporation. Specifically, by increasing debt and using the proceeds to retire equity held by the public, owners-managers increase the probability of maintaining control and reaping the benefits associated with it, since the substitution of debt for outsiders' equity decreases the fraction of

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votes held by passive investors that can be acquired by a raider. Stulz (1988) also points out that a higher leverage may deter raiders because of the increasingly restrictive covenants generally associated with higher debt and the decreasing ability to issue more debt. Thus, financing investments by debt or from internal resources rather than by issuing new equity solidifies the control of managers-owners, thereby serving as a takeover resistance strategy.¹ Stulz (1988) discusses a homemade alternative to the increase in the debt/equity ratio aimed at maintaining control, analogous to M&M's classical "homemade leverage" alternative to corporate borrowing. Rather than the firm increasing its debt relative to equity in order to increase the proportion of insiders' holdings, managers can borrow on personal account and use the proceeds to acquire more equity, thereby enhancing their control. However, this alternative requires an M&M world of perfect markets in which managers' borrowing rates are equal to the corporate rate. Stulz points out that in reality managers cannot borrow at the same terms as the corporation and they may therefore prefer to increase their control by corporate borrowing.

The apparent incentives of managers-owners to increase debt in order to solidify their control over the firm should be qualified. Harris and Raviv (1988) point out that increasing debt might also decrease the probability of maintaining control due to the increase in bankruptcy risk,² the increased restrictiveness of loan covenants, and the greater commitment for future cash payments. Stulz (1988) argues that, since an increase in debt reduces the total value of outstanding equity, it may become cheaper for a bidder who faces increasing marginal cost of borrowing to acquire equity and replace the managers. Thus, the relation between leverage and control is not unambiguous and calls for empirical examination. Several studies documented a positive cross-sectional correlation between the debt/equity ratio of firms and the fraction of insiders' ownership.³ In contrast to these studies which focus on the ex post relation between leverage and corporate control, we examine directly the relation between the managerial decision that determines leverage (the means of financing investments) and the extent of insiders' ownership.

It is difficult to test empirically the relation between managers' control and the means of investment financing, since no information is provided in firms' financial statements on the financing of individual investment projects. One exception, and an important one at that, is the case of corporate acquisitions where the means of financing—cash (from raising debt or from internal sources) or stock—is a matter of public record. Accordingly, we examine in this study

¹ In Harris and Raviv's (1988) model the managerial financing strategy of increasing debt and retiring shares does not harm stockholders and, therefore, does not violate the M&M irrelevancy proposition. This is so because in this model investors cannot capture the benefits associated with control (other than by actually acquiring control). Hence, the market value of the firm does not reflect the benefits of control. Competition among investors will drive the market price to the present value of future cash flows, net of control benefits.

² Bankruptcy on personal account when the manager borrows to buy the firm's equity will also result in loss of control (Stulz (1988)).

³ See Kim and Sorensen (1986), Agrawal and Mandelker (1987), Friend and Hasbrouck (1987), and Friend and Lang (1988). On the ownership-leverage relation in LBOs, see Amihud (1989).

whether the means of financing corporate acquisitions is associated with managerial control, measured by the fraction of the firm's stock held by corporate insiders.⁴ Our findings support the existence of such a relation and thus provide an explanation for the observed financing preferences by firms.

The paper is organized as follows. Section I surveys briefly the research on the choice of acquisition financing. Section II presents two empirical tests, one on the effect of insiders' ownership on the probability of stock financing and the other on the effect both of the method of financing and of insiders' ownership on acquiring companies' abnormal stock returns. Our conclusions are stated in Section III.

I. Previous Research on the Financing of Corporate Acquisitions

Two hypotheses have been advanced to explain the choice of acquisition financing. These hypotheses, however, do not provide a clear-cut preference for a specific means of financing; nor are they strongly supported by empirical findings.

A. Tax Effects

A cash acquisition creates an immediate liability for capital gains tax for the target company shareholders, while an exchange of shares (equity financing) defers any tax payments until the new shares are sold. This difference leads to a prediction of general use of stock financing for corporate acquisitions, or at least in cases where the bid premia are large (i.e., the expected capital gains to target shareholders are substantial). On the other hand, the tax rules (prior to the 1986 Tax Reform Act) also offered an advantage for cash payment due to the option of "writing up" certain assets of the target company to their fair market value.⁵ This would result in higher depreciation expenses and, therefore, higher after-tax future cash flows for the acquiring firm, providing an incentive to finance acquisitions by cash when the market value of the target's assets exceeded considerably their book value.

Empirical tests of the tax hypothesis require the use of proxies for unobservable variables, such as the magnitude of the tax liability of target shareholders and the potential tax savings from writing up depreciable assets. The empirical evidence on this issue does not indicate a consistent relation between the means of financing and the various tax motives. For example, Carleton et al. (1983) report that "lower dividend payout ratios and lower market-to-book ratios increase the probability of being acquired in a cash takeover relative to being

⁴ On the relation between managerial control and acquisitions, see Amihud and Lev (1981), Ramakrishnan and Thakor (1984), and Amihud, Dodd, and Weinstein (1986). Amihud and Lev argue and confirm empirically that conglomerate mergers, which are risk reducing and size increasing, serve managers' interests, and thus manager-controlled firms are more likely to undertake them than are owner-controlled firms. The other two studies argue that risk reduction by conglomerate mergers can also serve stockholders' interests since it improves the observability of managers' efforts and allows for more efficient contracts between the principals (shareholders) and agents (managers).

⁵ The write-up option exists also in the 1986 Tax Reform Act, but it is not attractive since it triggers an immediate tax liability for the capital gains created by the write-up.

acquired in an exchange of securities" (p. 825). The finding that a low market-to-book ratio is associated with cash financing is inconsistent with one aspect of the tax effect, namely that a high market-to-book ratio represents a large potential tax savings due to higher depreciation. On the other hand, this finding appears to be consistent with another aspect of the tax effect that book values approximate the basis on which capital gains liabilities of target shareholders are computed. Niden (1986) found no relation between the tax-paying circumstances of target shareholders and the form of acquisition financing (cash or stock). Auerbach and Reishus (1988), using three different measures for the potential tax benefits of the write-up of target assets, report that "none of these were statistically significant or important in explaining the form of payment. Likewise, the results for the tax saving due to use of losses and credits [of target] are not significant in explaining the form of payment" (pp. 93-94).

B. Information Asymmetries

If managers of the acquiring firm are better informed than outside investors about the value of their firm, they will prefer stock financing of an acquisition when their firm's stock is believed to be overvalued (Myers and Majluf (1984)). However, investors expect this and will, therefore, drive down the value of firms that issue new equity. Cash (debt) financing of acquisitions will, therefore, be preferred unless its cost to insiders is excessive. On the other hand, Hansen (1984, 1987) argues that, if target shareholders are better informed than outsiders about the value of their firm prior to acquisition (the true valuation being revealed after acquisition), equity offers will be preferred to cash offers when target equity is believed to be undervalued. In this case, target shareholders prefer to retain an equity position in the merged entity in order to participate in the gains from the post-merger revelation of the previous target undervaluation. Fishman (1989) argues that, when the fixed costs of collecting information about the target are high, cash financing is more likely than stock financing to be used as a means to signal high valuation in order to deter competing offers for the target firm.

Empirical tests on the choice of investment financing as a function of informational asymmetry obviously require the use of proxies for largely unobservable variables, such as differences in private information between insiders of the acquiring firm, target shareholders, and outside investors. Various researchers examined the relation between the method of financing and the abnormal returns on the bidders' stock at the acquisition announcement, where abnormal returns were assumed to indicate the existence of private information. The evidence suggests that bidders' abnormal returns are lower in stock financing relative to cash financing.⁶

The hypothesis that maintaining control motivates the choice of investment financing has not been tested to date. By this hypothesis, managers with a

⁶ See Travlos (1987), Wansley, Lane, and Yang (1987), and Franks, Harris, and Mayer (1988). Eckbo, Giammarino, and Heinkel (1988) examine the effect of the mix of cash and securities offers on the bidding firms' abnormal stock returns. By their model, this mix provides a signal which uniquely relates the bidder's private information about its own value and the value of the target, including the expected synergies. Huang and Walking (1987) found higher returns to target firms in cash offers.

significant ownership in their firm who wish to retain control will tend to finance acquisitions (or any other large investment) with cash or debt rather than with stock in order not to dilute their control and risk losing it. We turn now to an empirical examination of this hypothesis.

II. Empirical Test and Results

The hypothesis tested here is that the likelihood of an acquisition being financed by cash is an increasing function of the managerial ownership in the acquiring firm. If supported by the data, this hypothesis may also bear on the differential abnormal stock return of acquiring firms observed upon the acquisition announcement (i.e., lower return for stock-financed acquisitions). We shall therefore also examine the relation between these abnormal returns, the method of payment, and managerial ownership.

A. Data

Our sample consists of firms that appeared in the 1980 list of Fortune 500 companies and that acquired other firms during the years 1981–1983. The initial list of acquisitions was obtained from the periodical *Mergers and Acquisitions*. For each acquisition we recorded insiders' ownership fraction in the acquiring firm, the method of payment, and, when available, the size of the acquiring and target firms (in sales). Also recorded were the equity value of the acquiring firm and the value of the acquisition, that is, the dollar amount of the transaction. We included in the sample only acquisitions where payment was made either by cash (or notes) or by a stock exchange offer, and we excluded acquisitions where the reported value of the transaction was below \$10 million or where the financing was by a mix of cash/notes and stock. The final sample consists of 209 acquisitions by 165 firms.

The extent of insiders' (officers and directors) ownership in the acquiring firm is represented by three measures of the fraction of voting shares held by insiders and their relatives. The variables *OWN2*, *OWN5*, and *OWNALL* stand for the ownership fraction held by the two insiders with the largest holdings, by the largest five insiders, and by all directors and officers, respectively. These data were obtained from the proxy statements filed with the SEC in the year prior to the announcement of acquisition. The method of payment, reported in *Mergers and Acquisitions* and confirmed against the *Wall Street Journal's* announcement, is represented by the variable *PAY*: *PAY* = 0 when the target firm was acquired for cash and/or notes, and *PAY* = 1 when the acquiring firm exchanged its stock for that of the acquired firm. Size is represented by *SLA* and *SLT*, which are, respectively, the sales in millions of dollars of the acquiring and target firms, and by *EQA*, the equity (market) value of the acquiring firm.⁷ *VAL* is the value of the acquisition in millions of dollars, and *RATIO* = *VAL/EQA* is the acquisition value relative to the equity value of the acquiring firm.⁸

⁷ On the relation between firm's size and ownership structure, see Demsetz and Lehn (1985).

⁸ The values of the variables *SLA*, *SLT*, and *VAL* are reported in *Mergers and Acquisitions*; *VAL* was also confirmed by checking against the *Wall Street Journal*. *EQA* is the product of the number of shares outstanding and the price per share at the end of the year before the acquisition, reported in the COMPUSTAT data base.

Table I
Characteristics of Sample Firms Classified by the Method of Payment for Acquisitions

Managerial ownership of acquiring firms and various size variables of the acquiring and target firms for the whole sample and for the two subsamples classified by the method of payment for acquisitions: $PAY = 0$ for cash payment and $PAY = 1$ for stock payment (exchange offers). Ownership variables: $OWN2$, $OWN5$, and $OWNALL$ are, respectively, the ownership fraction of the acquiring firm held by the two and five officers and directors with the largest holdings, and by all officers and directors. Size variables: SLA and EQA are, respectively, the sales and equity values of the acquiring firm, and SLT and VAL are the sales and the acquisition value of the target firm, all in millions of dollars. $RATIO = VAL/EQA$. The table presents the means and standard deviation (SD) for each group of cases. Sample period: 1981-1983.

Variable	Total Sample		$PAY = 0$ (Cash Acquisitions)		$PAY = 1$ (Stock Acquisitions)	
	Mean	No. of	Mean	No. of	Mean	No. of
	(SD)	Cases	(SD)	Cases	(SD)	Cases
PAY	0.321 (0.468)	209				
$OWN2$	0.082 (0.120)	209	0.094 (0.132)	142	0.057 (0.084)	67
$OWN5$	0.096 (0.137)	207	0.110 (0.151)	140	0.068 (0.097)	67
$OWNALL$	0.108 (0.143)	205	0.124 (0.158)	140	0.074 (0.094)	65
SLA	3084 (5148)	208	3105 (5229)	141	3040 (5012)	67
SLT	254 (707)	163	264 (711)	105	235 (709)	58
VAL	106 (202)	175	99 (206)	123	124 (194)	52
EQA	1987 (3987)	186	1808 (3663)	126	2363 (4603)	60
$RATIO$	0.190 (0.298)	160	0.211 (0.322)	111	0.144 (0.229)	49

* The t -value is the test statistic on the difference between the means of the respective variables under $PAY = 0$ and $PAY = 1$.

Table I presents the means and standard deviations of all variables for the total sample and for two subgroups classified by the method of payment. The number of cases is different for each variable since complete data were not available for all cases.⁹ The data in the "Mean" column for the total sample show that the mean of the variable *PAY* is 0.321, indicating that about two-thirds of the sample firms financed acquisitions by cash. The average ownership fraction of the five insiders with the largest ownership (*OWN5*), for example, is nearly 10 percent. The average size of the acquiring firm measured by sales is \$3,084 million, more than ten times that of the target firm, \$254 million. The mean of *RATIO* indicates that the acquisition value was, on average, 19% of the equity value of the acquiring firm.

B. Findings

The data in Table I under the headings *PAY* = 0 and *PAY* = 1 are consistent with the hypothesis that firms with relatively large insiders' ownership are more likely to finance acquisitions with cash than with stock. Cash-financed acquisitions (*PAY* = 0) are associated with significantly larger insider ownership (*OWN2*, *OWN5*, and *OWNALL*) than stock-financed acquisitions (*PAY* = 1). For example, the top five officers of the corporation held, on average, 11% of the stock in cash-paying firms but less than 7% in equity-paying firms, the respective share ownership by all officers and directors being 12.4% and 7.4%. These differences in share ownership are statistically significant at better than the 0.05 level.¹⁰ Thus, as hypothesized, managers with relatively large stock holdings in their firms seem reluctant to dilute their holdings and risk the loss of control by financing acquisitions with stock.

Our sample includes cases where the same firm carried out more than one acquisition during 1981–1983. We aggregated such multiple acquisitions by each firm into a single case, obtaining 144 cases of firms which pursued consistent financing policies.¹¹ In this second sample, 35.4% of the acquiring firms used stock financing. Since corporations with low managerial ownership have a greater propensity to acquire firms (Amihud and Lev (1981)), our sample of acquisitions can be expected to include a relatively large number of acquiring firms with low managerial ownership that carried out more than one acquisition. Indeed, the average managerial ownership fraction in the aggregated (second) sample was higher than in the original sample of acquisitions presented in Table I since, in the aggregated sample, firms with multiple acquisitions appear only once. For example, the mean ownership fraction by the five insiders with the largest

⁹ For example, for some acquisitions we could not obtain data on ownership of directors beyond the top few. (In two cases, ownership by officers beyond the top two was not legible, and, in another two cases, the ownership by all officers and directors was not clearly specified.) We also could not obtain complete data for all firms on *SLT*, *EQA*, or *VAL*.

¹⁰ The significance tests on *OWN2*, *OWN5*, and *OWNALL* are dependent since the three measures are correlated. Our purpose is to demonstrate the results for various ownership groups.

¹¹ Of the 163 bidding firms in our sample, 19 applied inconsistent financing policies. They either had at least one acquisition financed by a mix of cash/notes and stocks or alternated between cash and stock financing.

holdings was 11.6% in the aggregated sample vs. 9.6% in the original sample (Table I). However, the empirical findings are unchanged (qualitatively). In the aggregated sample, the average ownership fraction by the five insiders with the largest stock holdings was 13.4% in firms which used cash financing vs. 8.3% in firms which used stock financing; the difference between these two means is statistically significant ($t = 2.17$).

The size variables—*SLA* and *EQA* (acquiring firm), *SLT* (target firm), and *VAL* (acquisition value)—are not significantly different, on average, between cash- and equity-financing firms. Thus, the observed association between insider ownership and the means of financing acquisitions does not appear to proxy for size differences.

The main test of our hypothesis is carried out by a probit analysis, which is appropriate for a binomial dependent variable (the methods of payment, in our case). In this model, we estimate jointly the effect of managerial ownership and firm size on the probability that a firm will finance an acquisition by cash or by stock:

$$P_i = F(Z_i) = f(B'X_i), \quad (1)$$

where P_i is the probability of firm i paying for the acquisition by stock, which equals the cumulative probability distribution of the standard normal variable Z_i . X_i is a vector of variables which may affect that probability, and B is a vector of coefficients. The explanatory variables include alternatively each of the three managerial ownership variables—*OWN2*, *OWN5*, or *OWNALL*—along with the size variables *SLA*, *SLT*, *EQA*, and *VAL*, as well as *RATIO*. The model was estimated by the maximum-likelihood method, and the best fit was obtained when all variables were transformed to logarithms.¹²

The results of the probit analysis presented in Table II support our hypothesis: the negative and statistically significant coefficients of each of the three insider ownership variables indicate that the higher the insiders' ownership fraction in the acquiring firm the lower the probability that the firm will finance acquisitions by stock. The negative relation between the managerial ownership fraction and the probability of stock financing remains statistically significant when the various size measures are accounted for in the probit analysis. Except for the size variable *SLT* (sales of target firm), the coefficients of other size variables and that of the variable *RATIO* were statistically insignificant and hence are not reported in Table II.¹³

In the above tests, we estimated the relation between managerial control and the method of payment for each case of acquisition (i.e., the original sample). We also estimated the probit model (1) when acquisitions were aggregated by firms that pursued consistent financing policies. The results were unchanged. In particular, the coefficients of the managerial ownership variables were again negative and highly statistically significant.

¹² The better fit of the logarithmic transformation of the ownership variables is consistent with Stulz's (1988) argument on the diminishing incentives to increase managerial ownership when it is already high.

¹³ Since the sizes of the acquiring and target firms are determined by the acquiring firm's management, these variables might depend on managerial ownership.

Table II
Determinants of the Probability of
Stock Financing

The effects of managerial ownership in the acquiring firm and the size of the target firm on the method of payment for acquisitions, estimated by the probit model

$$P_i = F(Z_i) = f(B'X_i), \quad (1)$$

where P_i is the probability of firm i paying for the acquisition by stock, which equals the cumulative probability distribution of the standard normal variable Z_i . In estimation, the dependent variable is $PAY = 0$ or $PAY = 1$ for cash or stock offers, respectively. B is a vector of coefficients, and X_i is a vector of variables which affect that probability. *OWN2*, *OWN5*, or *OWNALL* are the ownership fractions of the stock held by the two or five officers and directors with the largest holdings, or by all officers and directors, respectively; *SLT* is sales of the target firm in millions of dollars. All variables are in logarithms. The numbers in parentheses are ratios of estimated coefficients to estimated standard errors.

Probit Version	Ownership Variable	Estimates	
		Managerial Ownership	Sales of Target
1	<i>OWN2</i>	-0.195 (3.26)	-0.203 (2.87)
2	<i>OWN5</i>	-0.205 (3.35)	-0.194 (2.77)
3	<i>OWNALL</i>	-0.203 (2.98)	-0.192 (2.75)

C. Abnormal Returns, the Method of Payment and Managerial Ownership

It has been observed that the reaction of the acquiring firms' stock prices to the acquisition announcement is lower in stock-financed acquisitions than in cash-financed ones (e.g., Travlos (1987)). It has also been suggested that the stock price reaction to the acquisition announcement is related to the ownership structure of the acquiring firm (Lewellen, Loderer, and Rosenfeld (1985) and Amihud, Dodd, and Weinstein (1986)) since investors' concerns about agency conflicts may decrease with an increase in managerial ownership. In the previous section we have shown that there is a significant relation between managerial ownership and the method of payment. Given previous evidence, there may be an interaction between the effect of the method of payment and managerial ownership on the abnormal returns at the acquisition announcement. In this section we test for such interaction.

Of our initial sample, 120 acquisition cases satisfied the data requirements for this part of the study: having stock return data on the University of Chicago CRSP database and having a well-defined acquisition announcement date in the *Wall Street Journal* (the date of the first public announcement of an acquisition bid which included the identities of both bidder and target as well as the proposed method of payment). We also required the absence of other corporate announce-

Table III
Abnormal Stock Returns of Acquiring Firms by Managerial Ownership
and Method of Payment

Average abnormal two-day stock return, $CAR2$, at the acquisition announcement, classified by the method of payment—cash or stock—and by the ownership of the five officers and directors with the largest holdings. $CAR2 = \frac{1}{N} \sum_{i=1}^N CAR2_i$, where $CAR2_i$ is the cumulative abnormal common stock return over days $(-1, 0)$ for stock i , and N is the number of cases in the respective group. Period: 1981–1983.^a

		Managerial Ownership			
		Less than 5%	5%–10%	Above 10%	All Cases
Cash financing	$CAR2$	0.24% (0.39)	1.77% (1.40)	–0.06% (0.12)	0.44% (1.04)
	No. of cases	42	16	25	83
Stock financing	$CAR2$	–1.50% (2.20)	–0.86% (0.77)	0.32% (0.26)	–1.19% (2.14)
	No. of cases	28	4	5	37
All cases	$CAR2$	–0.46% (0.97)	1.24% (1.18)	0.002% (0.04)	0.06% (0.17)
	No. of cases	70	20	30	120

^a t -Statistics are in parentheses. $t = (CAR2/SD)/\sqrt{N}$, where SD is the estimated standard deviation of $CAR2_i$ about the mean $CAR2$ in that group.

ments (e.g., other takeover activity, divestitures, or increases/decreases in earnings or dividends) during the period of 5 days before the announcement through the announcement date. We then estimated the abnormal return on stock i on day t , AR_{it} , during the event period in the conventional way:

$$AR_{it} = R_{it} - a_i - b_i R_{mt} \quad (2)$$

where R_{it} and R_{mt} are the day- t returns on stock i and on the market, respectively. The data source was the CRSP daily stock return file, and R_m is the equally weighted market index. The coefficients a_i and b_i are the ordinary least squares estimates of the intercept and slope of the market model regression:

$$R_{it} = a_i + b_i R_{mt} + \varepsilon_{it}$$

run over the period 136 to 16 days before the acquisition announcement date (ε_{it} is the residual). We then calculated the two-day cumulative abnormal return for firm i , $CAR2_i = AR_{i,-1} + AR_{i,0}$, which is the sum of the abnormal returns over days -1 and 0 , the day prior to and the day of the acquisition announcement.

Table III presents the average two-day cumulative abnormal returns at the acquisition announcement date, $CAR2$, classified by the method of payment—cash or stock—and by three groups of managerial ownership: 0% to 5%, 5% to 10%, and larger than 10%.¹⁴ Managerial ownership is measured here by the ownership fraction held by the five officers and directors with the largest holdings (*OWN5* in our notation). The results for the total sample (right column of Table III) show that the two-day abnormal returns in stock-financed acquisitions are negative, -1.19% , and statistically significant, whereas in cash-financed acquisitions the abnormal returns are positive, 0.44% , but statistically insignificant.¹⁵ Notably, the negative abnormal returns in the stock-financed acquisitions are concentrated in the group of firms with *low* managerial ownership: $CAR2 = -1.50\%$, statistically significant. For the nine cases having ownership fractions above 5% in the group of stock-financed acquisitions, the $CAR2$ is -0.20% , statistically insignificant.¹⁶

¹⁴ The breakpoint at 5% is common; see Morck, Shleifer, and Vishny (1988). They set the second breakpoint at 25%, but in our sample there are too few cases with ownership fraction above 25%.

¹⁵ The significance test is a straightforward t -test: $t = (CAR2/SD)\sqrt{N}$, where $CAR2 = \frac{1}{N} \sum_{i=1}^N CAR2_i$ is the mean of the two-day abnormal returns of the cases included in each group (or cell) in Table III. N is the number of cases in that group, and SD is the estimated cross-section standard deviation of $CAR2_i$ in the group about the group mean $CAR2$. We also performed a Z -test which employs the standardized two-day abnormal returns (the abnormal returns divided by the residual standard deviation from the estimation period) and found the test results to be qualitatively similar to those of the t -test.

¹⁶ The results on the mean abnormal returns for the two groups of high managerial ownership using stock financing should be viewed with care given the small number of cases in these groups. Also, we note two cases of outliers: in the group of cash-financed acquisitions and 5%–10% ownership, the mean $CAR2$ is positive and large mostly because of one case with a two-day return of 17.18%. Without it, the group mean would be 0.74% and statistically insignificant. In the group of cash-financed acquisitions with ownership of less than 5%, there is a case with a two-day return of -19.15% . Without it, the mean $CAR2$ of that group is 0.71% with $t = 1.71$. In neither case was there another announcement reported in the *Wall Street Journal* at the time of the acquisition announcement.

We thus find that the negative stock price reaction to stock-financed acquisitions, which has been observed in previous studies (as well as here), is associated with firms where managerial ownership is low (below 5%) but not with firms where managerial ownership is high. This suggests that investors perceive financial policies applied by firms with relatively high managerial ownership as being consistent with shareholders' wealth maximization. Since, as our earlier findings indicate, managers with substantial ownership are averse to stock financing because of the potential risk of losing control, the fact that they nevertheless use stock to finance acquisitions may signal to investors that the acquisition is, at the least, not value decreasing. The evidence thus points at a possible cost which arises from the conflict of interests between stockholders and managers. In firms with low managerial ownership, these conflicts may be more of a problem since managers may apply policies which are not aimed at maximizing stockholders' wealth. Rather, they may pursue policies which serve their own interests, such as carrying out acquisitions which reduce the corporation's risk or increase its size (Amihud and Lev (1981)). The evidence also suggests that the previously observed negative response of stock prices to stock-financed acquisitions reflects the fact that these acquisitions are more likely to be undertaken by firms with low managerial ownership.

III. Conclusions

We examined the relation between corporate control and the means of financing a major investment—corporate acquisition. Specifically, we advanced the hypothesis (following Harris and Raviv (1988) and Stulz (1988)) that managers who value control and hold a significant ownership fraction of their firm's stock will be reluctant to dilute their holdings and risk a loss of control by issuing stock to finance investments. More likely they will finance new investments by cash (or debt).

This hypothesis was tested by examining the relation between the extent of managerial ownership of corporations which acquired other firms and the means of financing these acquisitions. Our results support the hypothesis. We find that the higher the managerial ownership fraction of the acquiring company the larger the probability of the acquisition being financed by cash rather than by a stock exchange offer. These findings can also be interpreted based on asymmetry of information between corporate insiders and uninformed outside investors.¹⁷ If insiders hold a substantial quantity of their company's shares because they believe them to be undervalued, they will be less willing to issue new stock to finance acquisitions.

We also examined the information effect of the method of acquisition financing in conjunction with managerial ownership, as reflected in the reaction of bidders' stock prices to the acquisition announcement. We find that the negative abnormal returns associated with stock financing are concentrated mainly in firms with low managerial ownership. Given the greater potential cost to managers of losing control under stock financing, the fact that they still apply this method of

¹⁷ This was suggested to us by René Stulz.

payment may signal to investors that the acquisition is not value decreasing. Our finding that stock financing is not associated with significant negative returns for firms with relatively high managerial ownership should be viewed in light of the consistent evidence that, in general, announcements of equity issues are associated with negative abnormal returns. It could well be that the extent of managerial ownership in firms which announce new stock issues affects these abnormal returns.

Our study provides direct evidence on the relation between managerial ownership and the means firms choose to finance investments. In a more general context, our findings suggest that corporate capital structure policies may sometimes be motivated by corporate control considerations.

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