

Bank acquisitions and ownership structure: Theory and evidence*

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In this paper we both theoretically and empirically consider the *joint* nature of two owner–manager conflict resolution mechanisms: insider shareholdings, α , and shareholder concentration, γ . We find evidence of a significant entrenchment effect for high α , low γ firms. Moreover, bidder returns are found to be positive for high α , high γ firms only. We utilize a switching of regression regimes model to solve for critical values of α and γ that subdivide the universe of acquiring firms into separate and distinct ownership structure regimes, i.e., that define ‘high’ vs. ‘low’ levels of α or γ .

1. Introduction

Are corporate acquisitions in shareholders’ interests? Despite the plethora of studies addressing this issue, there is no consensus regarding the returns to acquirers. For banking, in particular, the issue is of crucial importance. The pace of consolidation (rapid over the deregulatory 1980s) promises to pick up as further regulatory restrictions (e.g., Glass–Steagall) are eroded or repealed and as deposit insurers auction insolvent or marginally solvent institutions in their attempts to resolve the thrift crisis. However, there is no conclusive evidence on the impact of acquisitions on the value of the acquiring firm.¹

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¹Jensen and Ruback, in their 1983 survey, cite the literature’s mixed results. For example, for non-banking acquirers, Dodd (1980) and Firth (1980) find that acquisitions reduce bidding firm value although Asquith, Bruner and Mullins (1983), Malatesta and Thompson (1985) and Dennis and McConnell (1986) find a significantly positive abnormal return, while others [Langetieg (1978), Asquith and Kim (1982) and Eckbo (1983)] find no significant effect. Banking studies tend to support the contention that acquisitions are value enhancing for the acquiring

Much attention has been devoted to the issue of the motivations behind managerial pursuit of an acquisition policy and the resulting impact on firm value. Indeed, *all* acquisitions will *ex ante* be value enhancing unless there exists some element of market inefficiency, i.e., imperfect competition in either the product and/or labor market and/or agency conflicts. The implication is that once these inefficiencies are removed, management will be induced to pursue an *ex ante* value maximizing acquisition strategy. Previous studies have isolated various agency conflict resolution mechanisms that are available to remove these inefficiencies. Two possibilities are insider stake (management ownership of shares), denoted α , and shareholder concentration (reducing the free rider problem by creating shareholder coalitions with sufficient power and incentive to actively monitor managerial actions), denoted γ . In particular, the higher the level of α , the more closely are shareholders' and managers' interests aligned.² However, offsetting this conflict resolution effect is an entrenchment effect. That is, as in Harris and Raviv (1988) and Stulz (1988), managerial control increases at higher levels of α , perhaps at the *expense* of shareholders' interests. What is neglected in discussions of the entrenchment hypothesis, however, is that it is a relative concept. High α levels imply an entrenched management *only if* managerial power is not balanced by high concentrations of shareholder power, i.e., high levels of γ . Thus, management can be said to be more entrenched the higher the level of α *and* the lower the level of γ . Thus, one cannot examine one conflict resolution mechanism, α , without reference to the other, γ . In this paper we investigate, both theoretically and empirically, the interaction between α and γ . Indeed, we find evidence that it is the most entrenched managers (of firms with high α and low γ) that pursue the most active acquisition policy while the least entrenched managers (low α and high γ) undertake the fewest acquisitions. Moreover, studies that isolate one or another of the control mechanisms [e.g., α as in Stulz (1988), Morck, Shleifer and Vishny (1988) and Amihud, Lev and Travlos (1990), and γ as in Amihud and Lev (1981) and Amihud, Dodd and Weinstein (1986)] omit an important explanatory variable and are subject to specification error. Our event study results show positive bidder returns only for firms with high levels of *both* α and γ . Thus, the market appears to view only those firms that have most effectively resolved the agency conflict *via combinations* of high levels of α and γ as engaging in value enhancing acquisitions.

bank [see Desai and Stover (1985), James and Weir (1987) and Bertin, Ghazanfari and Torabzadeh (1989)], although Neely (1987) finds slightly negative or insignificant acquirer returns. Moreover, Pettway and Trifts (1985), Giliberto and Varaiya (1989) and Cheng, Gup and Wall (1989) find evidence of overbidding by acquiring banks, and Dubofsky and Fraser (1989) find evidence of a significant decline in the wealth of shareholders of banks that had been active acquirers, while Rose (1987) finds a decline in performance measures of acquiring banks.

²For instance, Lewellen, Loderer and Rosenfeld (1985) show that positive bidder returns tend to be earned by firms with higher insider stake levels and vice versa.

Either the conflict resolution or the entrenchment hypothesis holds over certain ranges of α and γ . In particular, increases in α may play an agency conflict resolution role for relatively low values of α and/or relatively high values of γ . In contrast, increases in α may serve only to further entrench management when α is in a relatively high range and/or γ is relatively low. This implies that there are critical values of α (and γ), delineating 'high' α (γ) from 'low' α (γ) firms, that must be reached before managerial policy is impacted. Thus, the returns to bidders will be dependent upon whether or not insider stake and/or shareholder concentration has exceeded this critical value.³ Determination of the critical values of α and γ is a matter for empirical investigation. Rather than prespecifying the cutoff points, we endogenize them using a switching regression regimes methodology on a sample of 58 bank holding companies engaging in 546 acquisitions over the period 1979–1986. Moreover, this methodology has the advantage of not imposing a constant relationship between α , γ , and firm value across different ownership structures. The failure to correctly specify these individual regime relationships may account for the paucity of significant empirical results in the extensive literature to date.⁴ That is, estimating the model for a pooled sample of firms across different regimes precludes isolation of intra-regime relationships, thereby yielding insignificant and inconsistent empirical results.⁵ Indeed, in this paper, we find empirical evidence of significant ownership structure regimes delineated by critical values of α and γ . That is, consideration of the different relationships between firm value and acquisition policy across four distinct ownership structure regimes (subsamples) increases the explanatory power of the empirical model. Moreover, some insights are gained into the bidder's choice of method of financing acquisitions. In particular, we find that the most entrenched managers (of high α , low γ firms) are more likely to use cash to finance acquisitions, perhaps to protect their insider stake, while the least entrenched managers (of low α , high γ firms) are most likely to finance acquisitions using stock, perhaps to dilute the stake of concentrated shareholders.

Section 2 enumerates acquisition incentives and reviews the literature. The model and comparative statics are presented in section 3. In section 4 we apply the model to our sample of bank holding company acquirers and

³Shleifer and Vishny (1986) model a threshold γ -level that partially resolves the shareholders' free rider monitoring problem.

⁴There have been other considerations advanced to explain previous studies' contradictory and inconclusive empirical results. For instance, Agrawal and Eytan (1989) find a tax classification effect and Travlos (1987) found that method of payment (cash or stock) is important in determining abnormal returns to acquisitions.

⁵Indeed, Amihud, Lev and Travlos (1990) find that aggregating acquisitions with different methods of payments yields insignificant results as the positive abnormal returns associated with cash financed acquisitions are offset by the negative abnormal returns associated with stock financed acquisitions.

utilize the switching regression regimes methodology to delineate the four regimes. In addition, an event study is conducted to determine the market's evaluation of bidder returns for the four regimes delineated by the switching regression model. Finally, section 5 provides a summary and the conclusion.

2. Acquisition incentives

2.1. Shareholder incentives

Efficient markets and rational decision making imply that, on an ex ante basis, acquisitions are value enhancing, i.e., upon announcement of an acquisition, share prices should rise.⁶ There are many acquisition motives that are consistent with value maximization goals. Acquisitions may yield synergies resulting in economies of scale and/or scope. Clark's (1988) survey of studies on bank economies of scale and scope implies that this would be a merger motive for only the smallest institutions since most empirical studies fail to find evidence of economies of scale or scope in banking institutions over \$50 million in assets. Stoughton (1988) observes that shareholders may find it less expensive to diversify internally (*via merger*) than externally (*via market transactions*) if information asymmetries cause shares to be undervalued in the market. This explanation has merit in banking because all but the largest bank holding companies' shares trade in inactive, low volume markets. Moreover, new business may be attracted to larger banks [see Smirlock (1985) and Beatty, Santomero and Smirlock (1987)] although James and Weir (1987) test, but find no evidence of, a market share motivation for acquisitions.⁷ Finally, Amihud, Dodd and Weinstein (1986) claim that risk reducing mergers are in the interests of shareholders since they reduce the cost of management compensation contracts by reducing noise in performance variables, thereby reducing monitoring costs.

Regulators also create value enhancing incentives for acquisition. It is well known that some institutions are considered by bank regulators to be too big to fail. An active acquisition program can place a bank holding company in that coveted classification. In addition, James and Wier (1987) formulate a specialized resources hypothesis. That is, target firms' unique assets (such as

⁶If the value of the merged firm exceeds the sum of the independent firms, then the prices of target and/or bidder shares may increase. Whether the target and/or the bidder firm's shareholders gain depends on their relative bargaining power in setting the purchase premium. Although this issue is beyond the scope of this paper, each firm's ownership structure will be an important determinant of its relative power in appropriating the gains to merger [see Shleifer and Vishny (1986)].

⁷However, one explanation for their failure to discern a market power effect may be that they used the bank's share of core deposits as a measure of market share. The largest banks (who are the most active acquirers) relied heavily upon purchased liabilities, as opposed to deposits, to finance their asset portfolios during the period under study, 1972–1983 [see Allen, Peristiani and Saunders (1989) for empirical documentation].

location in a protected market) may be employed more efficiently by the combined firm than by the target firm alone. Thus, bank regulations that impose geographic restrictions may create monopoly rents for franchises in highly prized markets. Finally, if acquisitions are undertaken to remove an inefficient management (perhaps sheltered by past regulatory protection) at the target firm, and if target firm shareholders cannot obtain the entire increase in target firm value in the form of a purchase premium (say, because of atomistic shareholder stakes), then acquisitions will be consistent with increases in acquiring firm's share price.

2.2. *Managerial incentives*

2.2.1. *The size effect*

Even if managerial control mechanisms are lax enough to permit value reducing acquisitions, what incentives are there for managers to pursue non-value enhancing acquisitions, i.e., to pursue size for its own sake? First, managerial motives underlying merger activity have been related to risk reduction in Amihud and Lev (1981), Amihud and Kamin (1979), Lloyd, Hand and Modani (1987) and Saunders, Strock and Travlos (1990). Since managers, unlike shareholders, have an undiversifiable stake in the corporation that employs their human capital, manager-controlled firms are more likely to engage in risk reducing mergers and pursue acquisitions to increase size than are owner-controlled firms. Beatty, Santomero and Smirlock (1987) empirically document that acquiring banks, before the acquisition, tend to be larger, riskier, and offer higher returns to their shareholders than do targets, suggesting a risk reduction motive for merger. Moreover, Amihud, Kamin and Ronen (1983) find evidence that manager-controlled firms engage in more 'income smoothing', thereby lowering their unsystematic risk exposure, than do owner-controlled firms. Second, Roll's (1986) hubris hypothesis suggests that acquirers who overestimate the value of the target will more likely be successful, thus leading to a decrease in acquirer value. Dubofsky and Fraser (1989) find evidence of this in banking. Finally, given the returns to size in the managerial labor market [see, e.g., Fredericks (1985/1986), Cole (1987) and Brown and Medoff (1989)], managers may pursue size *via* acquisitions, disregarding the impact on firm value, in order to maximize personal employment opportunities and enhance perquisites and personal prestige. Akella and Greenbaum (1988) link low levels of shareholder concentration with excessive production (sales maximization). Allen and Saunders (1989)-document, in a different context, a tendency on the part of bank managers to pursue temporary increases in size, even when such a policy may be contrary to shareholders' interests.

2.2.2. *The effort effect*

The size effect focuses on management's tendency to engage in an over acquisitive program. However, there are countervailing considerations that might lead management to pursue an under acquisitive program. Lambert (1986) finds that agency conflicts and managerial incentives to minimize effort lead to either an underinvestment or an overinvestment in risky investment projects. As long as effort is unobservable (i.e., undifferentiable from simply a bad draw from the stochastic return distribution), managers may exert less effort than shareholders think optimal. To the extent that acquisitions entail non-trivial amounts of managerial effort, we might expect to see undisciplined management pursuing fewer acquisitions than would be in the interests of shareholders.

Lax shareholder controls over managerial actions enable managers to pursue their own interests at the expense of shareholders. Similarly, an entrenched management will be free to pursue its own interests with little fear of shareholder retaliation. We would therefore expect to see a divergence from value maximizing for acquiring firms with an entrenched management and few managerial control mechanisms in place. In the next section we show that managers choose an acquisition strategy that maximizes their constrained utility functions, thereby balancing the size and effort effects. The restrictiveness of shareholders' monitoring constraints is determined by the parameters α and γ .

3. The model

We model the manager's short run optimization problem. Management maximizes its utility function subject to exogenous parameters set by shareholders. Among these parameters are the values of α and γ . That is, shareholders set γ *via* share purchase decisions. Moreover, they set α over time by granting management stock options and stock bonuses as stipulated in the managerial compensation contract.⁸ We examine how managerial decision making is impacted by these parameters.

A simple two-period model with asymmetric information can demonstrate the manager's acquisition incentives. Management and shareholders are assumed to have symmetric information regarding the present market value of the acquiring *a* firm (denoted V_a^0), the cost of any *b* acquisition (C_b),⁹

⁸Benston (1985) suggests that those individuals promoted to top management are those who have demonstrated their commitment to the company by exercising their stock options and holding shares. Therefore, top management can be viewed as accumulating their ownership stakes, in large part, *via* shareholder determined management compensation packages. Raviv (1985) suggests that α may be a signalling mechanism. Alternatively, management can be viewed as being limited in its ability to purchase shares by wealth constraints and insider trading restrictions. An extension of the model would be to allow managers to have some control over α .

and the future market value of the existing (non-merged) firm (V_a^1). Management is assumed to know the future market value of the merged firm (denoted V_{a+b}^1) with certainty. Shareholders can only estimate this value using $f(N_b, \gamma, V_a^1, C_b)$ since, because of the free rider problem, small shareholders expend insufficient resources to obtain perfect information about acquisition targets. The shareholder valuation function $f(N_b, \gamma, V_a^1, C_b)$ is a function of γ because as shareholder concentration increases, shareholders have more of an incentive to invest resources in evaluating the future value of the merged firm.¹⁰ Indeed, as γ approaches the critical value γ^* , the shareholders' estimation of the merged firm's value approaches the true (insider's) expectation, i.e., as $\gamma \rightarrow \gamma^*$, $f(N_b, \gamma, V_a^1, C_b) \rightarrow V_{a+b}^1$. γ^* will therefore depend on shareholder monitoring costs and their incentives to fully employ available monitoring technology, $m(\gamma)$.

We model the incentives for management to acquire other firms. Management faces a fixed set of acquisition candidates b , some of which will increase the value of the acquiring firm, some of which will reduce it. The b target firm can be thought of as a numeraire firm of constant unit size. Therefore, a more aggressive acquisition strategy (larger acquisition targets) would entail the acquisition of more of these unit firms (N_b , the number of b firms acquired, increases). Thus, management faces an all or nothing choice regarding each unit of target b firm. Either the firm is acquired, in its entirety, or not.¹¹ Management ranks acquisition targets by their impact on the value of the acquiring firm and then chooses the optimal number of targets on which to bid. The managerial choice variable then is the number of acquisitions N_b (with the optimal value denoted N). The post acquisition size of the firm is completely determined by N_b .¹²

⁹ $C_b(N_b)$ (acquisition costs at time 0) are assumed to be a monotonically increasing function of the size (number, N_b) of acquisition targets, i.e., $C' > 0$.

¹⁰The shareholder valuation function $f(N_b, \gamma, V_a^1, C_b)$ is actually a function of shareholders' monitoring efforts, say $m(\gamma)$, which, in turn, is a monotonically increasing function of γ .

¹¹All acquisition attempts initiated by managers are assumed to be successful. This is a result of the assumed nature of the information set available to both shareholders and managers. Both shareholders and managers have perfect information regarding the current market value of their firm as a stand alone entity. Since all target firms are owned by many small shareholders (indeed, we can consider γ for b firms to be less than γ for a firms), target firm shareholders cannot obtain a purchase premium (that would amount to the increase in acquirer value as a result of the acquisition) for their shares. Therefore, the price of the target firm is known to all and is equal to the b firm's present value.

¹²Alternatively, this formulation can be interpreted as allowing for acquisitions of less than 100% of the target firm. The target firm can be thought of as being divided into numeraire-sized acquisition alternatives. To acquire 100% of a large target firm would require more acquisitions, say N_{b1} , than for a small target firm, N_{b2} (where $N_{b1} > N_{b2}$). The interpretation in the text conforms to our empirical specifications since we consider large bank holding company acquisitions of smaller targets, although in section 4.3 we also consider acquisition size, as opposed to number of acquisitions, as the managerial choice variable for a small subset of the database.

Value maximization dictates that all acquisitions be undertaken as long as $V_{a+b}^1 - rC_b \geq V_a^1$, where r is one plus the cost of capital (the risk-free rate if acquisition returns are known with certainty). If acquisition targets are continuously divisible, value maximization implies that targets be acquired (N_b is the number of acquisitions) until

$$\frac{\partial V_{a+b}^1}{\partial N_b} - \frac{r\partial C_b}{\partial N_b} = 0,$$

where $\partial V_{a+b}^1 / \partial N_b > 0$ and $r\partial C_b / \partial N_b > 0$. This implies that only those acquisitions that increase the value of the merged entity will be undertaken (the value maximizing number of acquisitions is denoted N_b^*).

Management is assumed to maximize the following utility function given α and γ :

$$\max_{N_b} U[\alpha(V_{a+b}^1 - rC_b - V_a^1), \theta(N_b, \alpha), \varepsilon(\gamma, N_b, \alpha)] \quad (1)$$

subject to the following constraint:

$$\frac{\partial f(N_b, \gamma, V_a^1, C_b)}{\partial N_b} - \frac{r\partial C_b}{\partial N_b} \geq 0. \quad (1a)$$

The first term in the managerial utility function is simply management's share of the profits from acquisition (i.e., the increase in the value of the bidding firm as a result of the acquisition).¹³ Management can with perfect information classify the acquisition candidates as either value enhancing or value reducing. Shareholders can only imperfectly do so. *Ceteris paribus*, management will always choose value maximizing acquisitions before value reducing ones.

The second term represents the managerial size effect as discussed in section 2. The only way management can realize the benefits of size in this model is *via* acquisitions. Indeed, the size effect may induce management to

¹³Firm a is assumed to grow only *via* acquisitions of other firms. Therefore, if the size of firm a alone is fixed, management can only achieve the benefits of size by acquiring other firms, $N_b > 0$. The model could be generalized to include internal growth by including the size of firm a in the managerial θ function. Then, the firm's internal growth rate would be another managerial choice variable. The assumption of an internal growth rate of zero is less troublesome for banking firms since geographic and product regulatory restrictions tend to limit internal growth opportunities. Therefore, banks tend to grow *via* acquisitions, as modeled.

undertake more acquisitions than are in shareholder's interests, i.e., management, after exhausting all value enhancing targets, pursues some value reducing targets. We therefore postulate that $\partial\theta/\partial N_b > 0$ and $\partial U/\partial\theta > 0$.

The size effect, θ , is also a function of α . As management becomes more entrenched (higher α), we might expect that management's returns to size, θ , are reduced thereby causing management to become less aggressive in its pursuit of acquisitions. Managers with high α can be thought of as having a long tenure with the firm and, perhaps, are closer to retirement (having accumulated their shares over a longer working lifetime). The returns to size (in terms of future employment opportunities and prestige) for these managers would tend to be less valuable than for less entrenched managers. That is, the value of shares may represent a relatively larger portion of managerial wealth. This implies that $\partial\theta/\partial\alpha < 0$.¹⁴

The third term captures the managerial effort effect as discussed in section 2.¹⁵ The more entrenched managers (highest α) could be expected to exert the most control and therefore require the least effort, in terms of obtaining shareholder approval, to implement a chosen acquisition strategy. Therefore, we postulate that the relationship between the effort function and α , $\partial\varepsilon/\partial\alpha$, is negative. Moreover, we postulate that $\partial\varepsilon/\partial\gamma$ is positive (as shareholder concentration increases, management must expend greater effort levels in order to acquire targets), $\partial\varepsilon/\partial N_b$ is positive (as the number of acquisitions undertaken increases, the effort required increases),¹⁶ and $\partial U/\partial\varepsilon$ is negative (exertion of effort, *ceteris paribus*, reduces managerial utility).

The constraint in eq. (1a) is the minimum acceptable return to value maximizing shareholders. Shareholders estimate the return to any acquisition using their estimate of the future value of the merged entity, $f(N_b, \gamma, V_a^1, C_b)$. Shareholders immediately remove any management that violates this constraint. We assert that $f(N_b, \gamma, V_a^1, C_b) \geq V_{a+b}^1$. That is, shareholders overestimate the future value of the merged entity and revise that estimate downward as they improve the accuracy of their forecast (i.e., as their greater stake induces them to invest more resources in obtaining information about the firm). Shareholders are dependent upon management to provide them

¹⁴Alternatively, as retirement becomes imminent, bragging rights may become more important to the manager who wants to either enhance his own prestige and/or improve his retirement package. Which effect predominates is a matter for empirical investigation.

¹⁵In our model, we assume that management has an exogenous endowment of superior information i.e., management has perfect information regarding the return from any acquisition. Alternatively, we could view V_{a+b}^1 as a function of managerial effort to consolidate the target firm into the acquirer's activities. Management knows with certainty how much effort will be expended and, therefore, has better information regarding V_{a+b}^1 than do shareholders, who have only imperfect information regarding managerial effort.

¹⁶Another interpretation is that larger sized acquisitions require more managerial effort. Following the argument in footnote 12, larger acquisitions represent a greater number N_b of numeraire target firms and, as N_b increases, required effort increases.

with information on potential acquisition targets. If management can observe the shareholders' (noisy) valuation function, managers may sort potential acquisition targets. If shareholders underestimate expected returns from some targets and overestimate returns from other targets, management will choose those targets whose returns are overestimated by shareholders (in order to win shareholder approval). Therefore, management will exclude potential targets that are likely to be undervalued by shareholders and we will observe only shareholders' overestimation errors (as opposed to underestimation errors). Moreover, shareholder monitoring efforts may be able to limit managers' ability to undertake value reducing acquisitions, but are unable to force managers to fully exploit all value increasing opportunities, i.e., shareholder monitoring places an upper bound (as opposed to a lower bound) on management's choice of the number of acquisitions. As γ increases and approaches the critical level, γ^* , shareholders expend monitoring resources in order to reduce (and at γ^* eliminate) the noise in their valuation function. The critical value of shareholder concentration, γ^* , is determined by the minimum shareholder stake necessary to induce shareholders to actively monitor the condition of the firm in order to obtain accurate estimates of future firm value, V_{a+b}^1 . The nature of the shareholder constraint on managerial acquisition policy, therefore, is to establish an upper bound on the acceptable number of targets that can be acquired. As $\gamma \rightarrow \gamma^*$, the approved number of targets, N_b , declines and approaches the value maximizing number, N_b^* .

Solving the managerial optimization problem yields the following first-order conditions:¹⁷

$$\frac{\partial U}{\partial N_b} = \alpha \left[\frac{\partial V_{a+b}^1}{\partial N_b} - \frac{r \partial C_b}{\partial N_b} \right] + \frac{\partial U}{\partial \theta} \frac{\partial \theta}{\partial N_b} + \frac{\partial U}{\partial \varepsilon} \frac{\partial \varepsilon}{\partial N_b} - \lambda \left[\frac{\partial f}{\partial N_b} - \frac{r \partial C_b}{\partial N_b} \right] = 0.$$

The first-order conditions demonstrate the use of γ as a mechanism to reduce managerial divergence from value maximizing behavior, given any α . The shareholder constraint becomes binding when $\partial f / \partial N_b - r \partial C_b / \partial N_b = 0$. It is not binding if $\partial f / \partial N_b - r \partial C_b / \partial N_b > 0$ (< 0 is ruled out by the overestimation bias in the shareholders' valuation function). For $\gamma < \gamma^*$, $\partial f / \partial N_b - r \partial C_b / \partial N_b > \partial V_{a+b}^1 / \partial N_b - r \partial C_b / \partial N_b$. This implies that the shareholders' optimal number of acquisitions, denoted N^s , based on their imperfect information about acquisition values (since $\gamma < \gamma^*$) is greater than the value maximizing number of acquisitions N_b^* . The shareholder constraint will only become binding if management's optimal choice of the number of acquisitions, N_b , is

¹⁷Second-order conditions hold if there are diminishing returns to both acquisitions and size and if marginal effort costs are constant or decreasing as N_b increases.

greater than N^s . Therefore, the effect of the shareholder constraint is to place an upper bound (equal to $N^s - N_b^*$) on the number of value reducing acquisitions pursued by management. As the shareholders more effectively monitor managers, $f(\gamma, V_a^1, C_b) \rightarrow V_{a+b}^1$, $N^s \rightarrow N_b^*$, and the number of value reducing acquisitions approaches zero. Therefore, the model predicts that, holding α constant, N_b decreases as γ increases. The shareholder concentration variable γ reduces N_b in another way. As γ increases, the effort required to gain shareholder approval for acquisitions increases ($\partial \varepsilon / \partial \gamma > 0$). This reduces N_b directly since $\partial U / \partial \varepsilon < 0$. Therefore, γ places an upper bound on the number of acquisitions.

Examining the comparative statics of increases in α , holding γ fixed leads to several possible scenarios. Assume for simplicity that the shareholder constraint is not binding and therefore that $\lambda = 0$.¹⁸ If

$$\frac{\partial U}{\partial \theta} \frac{\partial \theta}{\partial N_b} > \left| \frac{\partial U}{\partial \varepsilon} \frac{\partial \varepsilon}{\partial N_b} \right|,$$

then the marginal utility of size outweighs the marginal disutility of effort. Management is induced, therefore, to engage in some value reducing acquisitions in order to gain the benefits of size (i.e., $\partial V_{a+b}^1 / \partial N_b - r \partial C_b / \partial N_b < 0$), and $N_b > N_b^*$.

A second scenario assumes that

$$\frac{\partial U}{\partial \theta} \frac{\partial \theta}{\partial N_b} < \left| \frac{\partial U}{\partial \varepsilon} \frac{\partial \varepsilon}{\partial N_b} \right|,$$

or that the manager's marginal disutility of effort exceeds the marginal utility associated with size. Under this scenario, only value enhancing mergers are undertaken ($\partial V_{a+b}^1 / \partial N_b - r \partial C_b / \partial N_b > 0$ implying that $N_b < N_b^*$).

The above two α scenarios demonstrate that management will tend towards an *over*-acquisitive policy if the size effect outweighs the effort effect, and vice versa. Since both the size and effort effects are functions of α , their relative predominance depends on the parameter α . Demarcation of the two α scenarios occurs at the critical value of α^* . Indeed, α^* is endogenously determined as the non-zero level of α that just induces management to choose the value maximizing number of acquisitions, N_b^* . Intuitively, it is the level of α that just balances the size and effort effects. To see this for a non-binding shareholder constraint, $\partial V_{a+b}^1 / \partial N_b - r \partial C_b / \partial N_b = 0$ (the value maximizing solution) in the first-order conditions if and only if

¹⁸Alternatively, if $\lambda > 0$, $\partial f / \partial N_b - r \partial C_b / \partial N_b = 0$.

$$\frac{\partial U}{\partial \theta} \frac{\partial \theta}{\partial N_b} = \left| \frac{\partial U}{\partial \varepsilon} \frac{\partial \varepsilon}{\partial N_b} \right|. \quad (2)$$

α^* is the value of α that satisfies eq. (2). For a binding shareholder constraint, the solution for α^* is the value of α that satisfies

$$\frac{\partial U}{\partial \theta} \frac{\partial \theta}{\partial N_b} + \frac{\partial U}{\partial \varepsilon} \frac{\partial \varepsilon}{\partial N_b} - \lambda \left[\frac{\partial f}{\partial N_b} - r \frac{\partial C_b}{\partial N_b} \right] = 0. \quad (2a)$$

We can therefore divide firms into four regimes. Type I firms have $\alpha < \alpha^*$ and $\gamma < \gamma^*$. Type II firms have $\alpha \geq \alpha^*$ and $\gamma < \gamma^*$. Type III firms have $\alpha < \alpha^*$ and $\gamma \geq \gamma^*$. Type IV firms have $\alpha \geq \alpha^*$ and $\gamma \geq \gamma^*$. Differentiation among the four alternative α and γ regimes is an empirical issue, i.e., the critical values of α^* and γ^* must be estimated. Indeed, the effectiveness of α and γ as managerial control mechanisms must be verified empirically. Moreover, the critical values of α and γ are empirically estimated using the switching of regression regimes methodology. It is to these issues that we now turn.

4. Empirical results

4.1. Data description

The ownership structure data are from the *Corporate Data Exchange Stock Ownership Directory: Banking and Finance, 1980*.¹⁹ C.D.E. provides data on the identity of any shareholder holding more than 0.2 of one percent of the total shares outstanding.

Merger information was gathered from *Mergers and Acquisitions, 1980 through 1987*, incorporating mergers that took place from 1979 through 1986. We considered any merger-related activity (acquisition or acquisition of a majority interest in) initiated by any of the bank holding companies in our sample. We were only concerned with acquisitions by the bank holding company. We did not include either divestitures or acquisitions by subsidiaries.²⁰ We then checked the acquisitions data with three separate

¹⁹An assumption of the model is that ownership structure is relatively stable over the time frame of the analysis. We therefore omitted bank holding companies that were engaged in large mergers of equals that might be expected to substantially change the structure of the firm (e.g., two major bank holding companies merging as when Provident National and Pittsburgh National formed PNC in 1983; or Sun Banks of Florida and Trust Company of Georgia formed Sun Trust in 1985). After omitting these observations, we were left with a sample of fifty eight bank holding companies out of the eighty three for which 1980 ownership structure data were available.

²⁰This implies that the bank holding company's management sets and implements the acquisition policy for all bank and non-bank subsidiaries. Whalen (1981, 1982), Cornyn, Hanweck, Rhoades and Rose (1986) and Saunders (1989) suggest that decision making is somewhat centralized thus making it less likely that bank holding companies conduct their acquisition policy *via* their subsidiaries.

alternative sources: (1) the *Wall Street Journal Index*, (2) a database compiled by Cates Consulting (covering 1984–1986 acquisitions only), and (3) an on-line Mergers and Acquisitions database provided by *Dialog Services* (for 1984–1986 acquisitions only). What is especially disturbing is that, for bank holding company acquisitions, the data obtained from the *Mergers and Acquisitions* journal was incomplete and, at times, inaccurate.²¹ Given the reliance upon this, or any, source, as a sole source, in other studies [such as Lloyd, Hand and Modani (1987) and Neely (1987) who use *Mergers and Acquisitions* as their sole source of merger data, as well as Cheng, Gup and Wall (1989) who rely solely on the Cates database], these deficiencies are cause for concern. When unresolvable discrepancies arose among the various sources, we used the data reported in the *Wall Street Journal*. For the small subset of acquisitions (ten bank holding company acquirers) that provided complete data on the size (in terms of assets) of the target firm, we used the *Dialog* Mergers and Acquisitions database as the final arbiter of any discrepancies.

Bank holding company assets as of the fourth quarter of 1979 were obtained from Standard and Poor's *Bank Compustat*. The five-year growth rate was computed using year end assets from 1975 through 1979, as reported in *Bank Compustat*. Daily stock price data (used in the event study tests) were obtained from CRSP for the subset of bank holding companies that were listed on either the New York or the American Stock Exchange. Event dates were the first announcement dates appearing in the *Wall Street Journal Index* unless at least two other sources agreed upon an earlier date. Dates of enactment for each state's passage of regional interstate banking pacts were taken from a survey article in the *American Banker*, March 3, 1987.

Previous studies [see, e.g., Amihud and Lev (1981)] have distinguished between conglomerate, horizontal, and vertical acquisitions. Since the scope of bank merger activity is limited by regulatory restrictions, much of this distinction does not apply to banks. We therefore do not classify acquisitions by type.

4.2. The switching of regression regimes model

The theoretical model postulates that the relationship between ownership structure and bidder returns is different for each of the four distinct regimes: Type I ($\alpha < \alpha^*$, $\gamma < \gamma^*$), Type II ($\alpha \geq \alpha^*$, $\gamma < \gamma^*$), Type III ($\alpha < \alpha^*$, $\gamma \geq \gamma^*$), and

²¹Of course, *Mergers and Acquisitions* may be less accurate in reporting bank acquisitions than in reporting industrial acquisitions, thereby limiting the applicability of this word of caution to other banking studies only. However, problems were not limited to the *Mergers and Acquisitions* source. The Cates database listed as completed two acquisitions, although they were actually unsuccessful, and omitted numerous successful acquisitions.

Type IV ($\alpha \geq \alpha^*$, $\gamma \geq \gamma^*$). To implement the four-way classification scheme outlined in section 3, we must estimate the cut-off points that differentiate the firm types, α^* and γ^* . Previous studies [see, e.g., Amihud and Lev (1981) and Morck, Shleifer and Vishny (1988)] that have examined the relationship between value maximization and one or another of the ownership structure variables have used prespecified delineation points.²² We use the Goldfeld-Quandt (1973) switching regressions model with unknown sample separation points in order to allow the data to determine the appropriate cut-off points, α^* and γ^* . The procedure is to utilize a two-variable switch (based on managerial stake and shareholder concentration of ownership) in order to endogenize the cut-off points differentiating the four firm types.

Let Y_i be the number of acquisitions by bank holding company, assumed to be dependent on a set of independent variables, X_i : availability of *FDIC* assistance to subsidize acquisitions (*FDIC*), the acquirer's past growth rate (*GROWTH*), the number of merger applications filed in 1981 (*81MER*), by acquirer's state, and a dummy variable to denote the state's regulatory policy regarding interstate acquisitions (*PACTS*). That is, availability of *FDIC* assistance is proxied by the fraction of acquisitions that receive *FDIC* subsidies, by acquiring bank holding company. Generous *FDIC* assistance may be expected to induce even reluctant acquirers to pursue a more acquisitive strategy. The acquirer's past growth rate is a five-year growth rate of assets from 1972 until 1979, computed from *Bank Compustat*. This variable would denote past growth policies and/or the existence of a rapidly growing (or shrinking) banking market. The number of merger applications filed in 1981, by acquirer's state, was obtained from Golembe and Holland (1986) and denotes the level of activity in the external takeover market. James (1984) documents the impact of state acquisition laws on bank managerial efficiency and thus, for both defensive and offensive purposes, we expect *ceteris paribus* that a bank holding company would pursue a more aggressive acquisition policy the more active its external takeover market. The interstate banking pact dummy takes on a value of 0 to 8 depending on the year that the state (in which the acquiring bank holding company has its flagship bank) passed legislation permitting any interstate merger activity. A value of 0 denotes that legislation was passed or took effect after December 31, 1986 (i.e., no legislation was in effect during the time period under study, 1979–1986). If interstate banking was permitted sometime in the year 1986, the dummy variable takes on a value of 1, and so on, until it takes on a value of 8 if interstate banking was permitted as early as 1979. Presumably,

²²Amihud and Lev (1981) and Morck, Shleifer and Vishny (1988) estimate a single regression equation with dummy variables to differentiate among three (prespecified) ownership regimes. Glassman and Rhoades (1979) recognized that a single regression equation may be an inappropriate specification if the structural relationship differs across different ownership regimes and their study represented an early attempt to examine the empirical issues raised in this paper.

the bank holding company may better implement an acquisition policy if interstate merger restrictions are lifted. We can now define the switching regression model as follows:

$$Y_i = X_i B_{1i} + U_1 \quad \text{for Type I: } \alpha \leq \alpha^*, \gamma \leq \gamma^*, \quad (3)$$

$$Y_i = X_i B_{2i} + U_2 \quad \text{for Type II: } \alpha > \alpha^*, \gamma \leq \gamma^*, \quad (4)$$

$$Y_i = X_i B_{3i} + U_3 \quad \text{for Type III: } \alpha \leq \alpha^*, \gamma > \gamma^*, \quad (5)$$

$$Y_i = X_i B_{4i} + U_4 \quad \text{for Type IV: } \alpha > \alpha^*, \gamma > \gamma^*, \quad (6)$$

where we assume that the U 's obey usual assumptions regarding error terms. The switching variables are α – the fraction of shares held by insiders ('managerial stake') – and γ – the fraction of shares held by the top five shareholders.

Table 1 contains the solutions for the cut-off points in the switching regression. We found α^* (the cut-off point for α) to be 0.7%,²³ and γ^* (the cut-off point for γ) to be 12%.

The most active acquiring group was neither the largest (in terms of 1979 fourth quarter assets) nor the fastest growing (in terms of a five-year growth rate computed over 1975 through 1979). From table 1 we see that Type II bank holding companies were, by far, the most active acquirers (with a mean of 14.29 acquisitions per bank holding company), followed by Type IV (a mean of 10.62 acquisitions), then Type I (9.67 acquisitions) and finally Type III (only 4.88 acquisitions on average over the period) bank holding companies. This is consistent with the model in section 3 in that given any level of managerial stake, a greater concentration of shareholdings is consistent with fewer acquisitions. Moreover, for any given concentration of shareholdings, the greater the managerial stake, the more active the merger policy. Thus, our results are consistent with the managerial entrenchment hypothesis since the most active acquirers (one might say *over-acquisitive* Type II firms) are the firms with the most powerful managers, i.e., high α together with low γ . In contrast, the least active acquirers (*under-acquisitive* Type III firms) are the firms with least entrenched management, i.e., low α and high γ .

To test the significance across groups of differences in means for selected

²³This cut-off point may, at first, appear to be quite low. However, a managerial stake of 0.7% of all outstanding shares is not insignificant since our sample consists of the 58 largest bank holding companies with mean assets of \$13.2 billion as of 1979. As Jensen and Warner (1988) report for Fortune 500 firms, the Chairman and the President jointly hold, on average, 3.7% of the shares outstanding and the Chief Executive Officer holds 2.4% on average. The median CEO shareholdings are 0.2%, and eighty percent of the CEOs hold less than 1.4%. The median managerial stake for our sample of bank holding company acquirers was 1.07%.

Table 1
Descriptive statistics (group means) for the four distinct ownership structure regimes obtained as the solution for the switching regression model.^a

Type	N_b	#BHC (%)	α (%)	γ	C/S	FDIC (\$b)	ASSETS (%)	GROWTH	MC	8/MER	PACTS
I	9.67 (3.2)	9	0.1 (0.7)	8.9 (1.2)	0.51 (0.2)	0.01 (0.01)	22.3 (10.9)	54 (8.0)	0.56 (0.2)	0.06 (0.01)	4.44 (0.4)
II	14.29 (4.5)	7	2.4 (0.6)	9.7 (0.7)	0.29 (0.14)	0.01 (0.01)	20.8 (9.0)	47 (6.7)	0.57 (0.2)	0.05 (0.01)	3.43 (0.8)
III	4.88 (0.93)	16	0.3 (0.07)	19.0 (1.1)	0.86 (0.18)	0.05 (0.03)	16.9 (7.0)	58 (9.0)	0.25 (0.11)	0.04 (0.01)	2.13 (0.51)
IV	10.62 (1.6)	26	5.9 (1.2)	21.2 (1.6)	0.69 (0.11)	0.09 (0.04)	6.2 (1.3)	63 (5.0)	0.12 (0.06)	0.04 (0.01)	1.35 (0.27)
All	9.31 (1.1)	58	3.01 (0.65)	17.30 (1.04)	0.66 (0.08)	0.06 (0.02)	13.4 (2.9)	58 (3.4)	0.28 (0.06)	0.04 (0.01)	2.29 (0.26)

^aStandard errors are given in parentheses. Cut-off points delineating firm types are those that maximize the log-likelihood function for the switching regressions model presented in table 3. Definitions of variables are:

- N_b = the mean number of acquisitions by group.
 #BHC = the number of BHCs with ownership structure of type i .
 α = insider stake from CDE Stock Ownership Directory: 1980.
 γ = shareholder concentration from CDE Stock Ownership Directory: 1980.
 C/S = dummy variable: all cash acquisition = 0, all stock = 1, combination = 2.
 FDIC = percentage of acquisitions with FDIC assistance; FDIC = 0 if no assistance, FDIC = 1 if assistance.
 ASSETS = BHC assets as of December 31, 1978 from Bank Compustat.
 GROWTH = 5-year asset growth rates are computed from Dec. 1975-Dec. 1979.
 MC = dummy variable: = 1 if BHC in New York, Chicago, or San Francisco, = 0 otherwise; mc = mean over all BHCs in group.
 8/MER = for each BHC, the fraction of 81 merger applications originating in the acquiring BHC's home state.
 PACTS = for each BHC, the number of years since passage of an interstate banking pact; PACTS = mean across all BHCs in the group.

Type I firms: $\alpha \leq 0.7\%$ and $\gamma \leq 12\%$.

Type II firms: $\alpha > 0.7\%$ and $\gamma \leq 12\%$.

Type III firms: $\alpha \leq 0.7\%$ and $\gamma > 12\%$.

Type IV firms: $\alpha > 0.7\%$ and $\gamma > 12\%$.

The cut-off points, $\alpha^* = 0.7\%$ and $\gamma^* = 12\%$, are estimated from the switching regression regimes model (3)-(6).

variables, z -statistics are presented in table 2. The number of acquisitions by least entrenched managers of Type III bank holding companies is significantly less (at the one percent level) than for any other group, a result consistent with the model's predictions. Conversely, the most entrenched managers (Type II) had a significantly more active acquisition policy than all other firm types (at the five percent significance level or better). When managerial and shareholder power was balanced (Types I and IV), an intermediate level of acquisitions was chosen, with no significant difference in group means.

The variable denoting the fraction of acquisitions receiving *FDIC* assistance is significantly (at the one percent level) lower for Type II firms than for Type III or IV firms, suggesting that the management of Type II firms will engage in more acquisitions with fewer regulatory subsidies. Moreover, differences in acquisition policy do not appear to be a function of regulatory distortions (e.g., regional banking pacts and/or activity in statewide merger market). Finally, our results support Amihud, Lev and Travlos' (1990) finding that, *ceteris paribus*, holding γ constant, high α firms are more likely to use cash rather than stock to finance acquisitions, i.e., the mean of the cash/stock dummy (C/S) is significantly (at the five percent level or better) lower (more all cash bids denoted by a dummy C/S value of zero) for Type II acquirers than for Type I or Type III bidders, and lower for Type IV than for Type III bidders. However, a much more significant effect is that unentrenched (low α) managers of high γ firms (Type III) are most likely to finance acquisitions with stock, perhaps to dilute the stake held by large 'outside' shareholders. That is, the mean value of the C/S dummy for high γ Type III firms is significantly higher (at the five percent level or better from table 2) than for all other firm types, denoting that, *ceteris paribus*, the higher the α , the less reliance on cash to finance acquisitions, and *ceteris paribus*, the lower the γ the more likely the firm relies on cash to finance acquisitions and vice versa. Thus, the choice of financing appears to have a strategic component.

To find α^* and γ^* , we estimated the system of regressions in eqs. (3)–(6). The model presented in section 3 suggests that there is a structural difference between individual regimes, i.e., pooling observations across regimes reduces the model's explanatory power. To test this, and establish the significance of the α^* and γ^* cutoff points, we performed a likelihood ratio test [see Kane and Unal (1988)]. In particular, we compared the value of the log likelihood function for the standard pooled regression (denoted L_0 and found to be equal to -207.31) with the maximized value of the concentrated log likelihood function for the switching regression model ($L_1 = -167.58$). The likelihood ratio statistic $-2 \ln(L_1/L_0) = 79.46$ is (asymptotically) χ^2 distributed with one degree of freedom and is significant at the one percent level. Thus, we accept, at the 99% confidence level, the hypothesis that there is a

Table 2
 Tests of the significance of differences in group means (from table 1) among the four distinct ownership structure regimes
 and compared to the pooled sample.^a

Type	N_i	C/S	FDIC	ASSETS	GROWTH	α	γ	δ	MER	MC	PACTS
<i>Type I</i>											
II	-2.3*	2.7*	0	0.3	1.9	-9.6*	-7.9*	2.3*	-0.1	2.9*	
III	4.3*	-4.6*	-4.9*	1.3	-1.2	-5.3*	-21.3*	4.7*	4.7*	11.9*	
IV	-0.8	-2.9*	-9.4*	4.4*	-3.2*	-24.1*	-24.7*	5.0*	7.2*	19.8*	
All	0.3	-2.6*	-11.6*	2.4*	-1.5	-32.9*	-20.4*	5.9*	4.6*	14.3*	
<i>Type II</i>											
III	5.5*	-7.5*	-5.0*	-0.9	-3.2*	9.0*	-25.4*	2.6*	3.9*	3.9*	
IV	2.1*	3.2*	-9.7*	4.3*	-5.9*	-10.5*	-29.0*	2.8*	5.8*	6.7*	
All	2.9*	-6.3*	-13.1*	2.2*	-4.3*	-2.6*	-27.0*	3.4*	3.8*	3.7*	
<i>Type III</i>											
IV	-14.7*	3.1*	-3.7*	6.0*	-2.0*	-23.5*	-5.5*	0.0	4.3*	5.6*	
All	-16.2*	3.9*	-1.3	1.9	0.0	-31.5*	5.5*	0.0	-1.1	-1.2	
<i>Type IV</i>											
All	3.8*	1.2	3.6*	-15.9*	4.6*	11.3*	11.5*	0.0	-11.4*	-14.9*	

^az-statistics are computed as follows:

$$(\bar{X}_i - \bar{X}_j) / \left[\frac{\sigma_i^2/N_i + \sigma_j^2/N_j}{N_i + N_j} \right]^{0.5}$$

where $\bar{X}_{i,j}$ are group means for rows $i=1, \dots, 5$ and columns $j=1, \dots, 5$, N_i is the number of observations, and σ_i is the standard error of \bar{X}_i . * denotes significance at the 5% level or better. For definitions for variables, see footnotes to table 1.

structural shift in the model at $\alpha^* = 0.7$ and $\gamma^* = 12$. Indeed, in table 3, it is clear that the explanatory power of the switching regressions is far superior to that of the pooled regression ($R^2 = 0.09$). Moreover, pooling the sample changes the sign and significance of the regression coefficients.²⁴ This is consistent with structural differences among the relationships between ownership structure and acquisition policy across regimes. That is, the regression coefficients presented in table 3 differ widely across regimes and in relation to the pooled regression coefficients.

Table 3 shows that the regression coefficient on the *FDIC* assistance variable is significantly positive for Type I and II acquirers only. This suggests that the tendency for managers, under imperfect shareholder scrutiny, to opt for a more acquisitive policy is encouraged by the availability of *FDIC* assistance. Although table 2 shows that, on average, fewer of Type II acquisitions receive *FDIC* assistance, *FDIC* intervention reinforces and augments the tendency for Type II managers to pursue an active acquisition policy. For Type IV acquirers, the faster the historical five-year growth rate, the higher the number of acquisitions, whereas the opposite is true of Type II acquirers suggesting that Type II acquirers are reversing past slow growth policies while Type IV acquirers are reinforcing them. For Types II and IV, the more active the external merger market, the greater the number of acquisitions as expected. However, the opposite is true of Type I acquirers. Finally, the number of years since passage of an interstate banking pact is negative and significant only for Type II acquirers. This suggests that bank holding companies in the states that most recently passed regional banking pacts will be most likely to engage in acquisitions, perhaps in order to achieve a threshold size (as protection from outside competition and/or acquisition) or to protect a particularly valuable local banking franchise.

4.3. *Re-estimating the switching model – target assets as the dependent variable*

Although other studies [see Amihud and Lev (1981) and Lloyd, Hand and Modani (1987)] have used the number of acquisitions as the dependent variable, we attempted to test the robustness of our results using the target asset size as the dependent variable. Unfortunately, unavailability of data on acquisition size decreased our sample size to ten bank holding company acquirers, thereby leaving an inadequate number of degrees of freedom to estimate the switching regression model. However, using the four regimes delineated in section 4.2, we found that Type II bidders acquired the most targets (in terms of assets) at \$5.67 billion, followed by Type I acquirers with

²⁴We estimated the pooled model with cross-group dummy variables (allowing for different coefficients for each group) and found results similar to those presented in table 3.

Table 3
Coefficient estimates from switching regression model with two switching variables, α and γ , each with one cut-off point. Dependent variable Y_i is the number of acquisitions by bank holding company.^a

BHC type	INTERCEPT	PACTS	8/MER	GROWTH	FDIC	DOF	R ²	f-value
Type I	17.5 (7.4)	-(1.2) (1.3)	-132.1 (60.1)	4.3 (6.0)	215.9 (28.1)	9	0.95	19.9 (0.01)
Type II	21.4 (2.8)	-4.0 (0.33)	221.9 (35.1)	-9.3 (3.9)	302.9 (34.7)	7	0.99	105.0 (0.07)
Type III	8.9 (2.8)	-0.3 (0.74)	-14.6 (58.7)	-3.8 (4.2)	-6.9 (9.2)	16	0.25	0.75 (0.58)
Type IV	-2.5 (7.2)	1.4 (1.5)	90.9 (43.2)	15.2 (8.1)	-5.7 (23.6)	26	0.36	2.3 (0.10)
All types	6.6 (3.8)	-0.7 (0.67)	76.6 (40.8)	3.8 (4.8)	0.7 (14.2)	58	0.09	1.1 (0.36)

^aStandard errors are given in parentheses except for significance levels in parentheses under f-values. The cut-off points, $\alpha^* = 0.7\%$, and $\gamma^* = 12\%$, are estimated from the switching regression regimes model (3)-(6). For definitions of variables, see footnotes to table 1.

a mean of \$2.02 billion of assets acquired, and finally by Type IV acquirers with a mean level of assets acquired of \$1.72 billion. In this subsample, there were four bank holding company acquirers that were classified as Type I, one as Type II, none as Type III, and five as Type IV. Although any conclusions are highly conjectural, these results are consistent with those presented earlier.

4.4. Event study results

Agency conflicts that cause divergence from value maximizing strategies are costly for shareholders. An efficient market would evaluate the costs associated with a non-optimal acquisition strategy. An event study methodology can be used to detect the market's estimate of the impact of an acquisition on acquirer share value. The impact of an acquisition policy on firm value should depend on the acquiring firm's type. In particular, those groups that have most effectively resolved the agency conflict (*via* high α and/or γ , i.e., Type IV firms) can be expected to display a positive abnormal return upon announcement of an acquisition. Indeed, our event study results support this conclusion – Type IV firms display positive eleven-day cumulative abnormal returns of 1.22% (insignificant at any meaningful level) as opposed to negative (insignificant) cumulative abnormal returns for all other groups.

These results are for a subsample of 138 acquisition events chosen because acquirer daily stock prices were available on CRSP (NYSE and AMEX). The market model was estimated, for each subsample, using the CRSP equally weighted market index, R_{mt} , over the 136 to 16 days prior to the announcement date t .²⁵ Abnormal returns were then determined by $AR_{it} = R_{it} - a_i - b_i R_{mt}$, where a_i and b_i are the coefficients of the market model for event i . Using the eleven-day cumulative abnormal return as the dependent variable in an OLS regression also confirms the result that bidder returns for Type I, II, and III firms were lower than for Type IV firms. That is, the dummy-independent variable for Type I firms had a coefficient of -0.022 (significant at the 10% level), for Type II firms -0.019 (insignificant), and for Type III firms -0.021 (significant at the 10% level) consistent with the contention that abnormal returns for Type I, II, and III firm acquisitions are significantly lower than for Type IV firm acquisitions.

5. Summary and conclusions

We contribute to a long running controversy over the impact of bank mergers on bank holding company value by examining the interrelationship

²⁵Respectively, 27, 23, 34, and 54 events were undertaken by Type I, II, III, and IV firms.

between ownership structure and bank acquisition strategy. Previous studies have failed to recognize that α and γ are relative concepts. Indeed, high levels of α and γ can be viewed by shareholders as alternatives to be used jointly or independently to internalize the conflict between managers and shareholders. That is, shareholders can reduce the cost of resolving agency conflicts by choosing the least cost combination of control mechanisms from the menu of methods available. That would imply that insider stake, α , and shareholder concentration, γ , are complementary methods to be used jointly by shareholders in the most efficient manner possible in order to align shareholder and managerial interests.

In order to differentiate between high managerial stake, α , and high concentration of shareholdings, γ , as mechanisms for resolving the owner-manager agency conflict, we develop a four-way classification scheme. This technique retrieves significant amounts of data lost in the pooling methodology employed by previous studies. Indeed, we find significant evidence of the existence of critical values, $\alpha = 0.7\%$ and $\gamma = 12\%$, that determine the relationship between managerial acquisition incentives and firm value. Failure to adequately incorporate the regimes delineated by these critical values may account for the inconsistency that has characterized much of the empirical work in this area. Finally, we find evidence of positive bidder returns only for those firms who have most effectively resolved agency conflicts, *via* high levels of α and γ .

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