

Conflicts of Interests Among Shareholders: The Case of Corporate Acquisitions*

Jarrad Harford
University of Washington[†]

Dirk Jenter
Massachusetts Institute of Technology and NBER[‡]

Kai Li
University of British Columbia[§]

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Abstract

We identify important conflicts of interests among shareholders and examine their effects on corporate decisions. When a firm is considering an action that affects other firms in its shareholders' portfolios, shareholders with heterogeneous portfolios will disagree about whether to proceed. This effect is large and measurable in the case of mergers and acquisitions, where bidder shareholders with cross-holdings in the target want management to maximize a weighted average of both firms' equity values. Empirically, we find that these cross-holdings are large for a significant group of institutional shareholders in the average acquisition and even for a majority of institutional shareholders in a significant number of deals. We test whether cross-holding shareholders have influence over management in structuring deals and find that managers effectively ignore their shareholders' portfolio concerns and behave as if the cross-holdings do not exist. We note that managers are compensated to behave as undiversified shareholders in their own firm.

Key words: cross-holdings, shareholder heterogeneity, agency conflict, mergers and acquisitions, toehold

JEL classification: G30, G34

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[†] University of Washington Business School, Box 353200, Seattle, WA 98195-3200, 206.543.4796, jarrad@u.washington.edu.

[‡] Sloan School of Management, Massachusetts Institute of Technology, E52-446, Cambridge, MA 02142, 617.258.8947, djenter@mit.edu.

[§] Sauder School of Business, University of British Columbia, 2053 Main Mall, Vancouver, BC V6T 1Z2, 604.822.8353, kai.li@sauder.ubc.ca.

Much of the corporate finance literature takes for granted the assumption that shareholders want to maximize the value of their firm's equity.¹ In reality, most shareholders are diversified and care about the effects of managerial actions on their portfolio value, not just on the value of the specific firm taking the action. When shareholders have different portfolios, they may disagree about which actions managers should take. We identify and analyze such conflicts of interests among shareholders in the case of acquisitions, and we empirically document their magnitude and their effects. Diversified shareholders who hold equity stakes in both an acquirer and its target want bidder management to maximize a weighted average of the bidder's and the target's equity values. Concentrated shareholders with stakes in the bidder only want management to focus on the bidder's equity value, setting-up a conflict between shareholder groups. We test for which group prevails by examining whether bidding shareholder cross-holdings have an observable impact on the terms and outcomes of deals.

The insight that cross-holdings by shareholders alter their preferences over takeover decisions is a special case of the general result that diversified shareholders prefer corporate policies which maximize their portfolio values to policies which narrowly maximize the value of individual firms. If all shareholders were perfectly diversified and held the value-weighted market portfolio, then shareholders would unanimously desire joint value maximization by all firms and the internalization of all between-firm externalities.² In general, however, externalities on other firms imposed by managers' decisions are likely to be small or hard to estimate, so in a bounded-rationality framework, it makes sense for managers to focus on own firm value. In

¹ There is a sizeable literature on the conditions necessary for shareholder unanimity to obtain, see, among others, Ekern and Wilson (1974), Radner (1974), Mossin (1977), Grossman and Stiglitz (1977, 1980), Grossman and Hart (1979), and Hart (1979). There is also literature that examines specific deviations from shareholder unanimity about equity value maximization. Eckbo and Verma (1994) identify shareholder conflicts over dividend policy due to heterogeneous tax rates, information asymmetries, and agency costs. Kraus and Rubin (2006) show that the conflict between diversified shareholders who want to maximize their portfolio values and managers who use capital budgeting rules to choose firm-value maximizing projects has important implications for executive compensation design. Rice (2006) demonstrates that the importance of a shareholder group to price formation depends on the group's price elasticity of demand for shares, leading to a divergence between the effects of corporate decisions on market values and the effects of those decisions on shareholder welfare.

² Hansen and Lott (1996) and Rubin (2006) provide a more detailed discussion of the effects of shareholder diversification on corporate objectives and interactions among firms.

corporate acquisitions, the externalities are large and easily computed, and so the opportunity to correctly maximize the wealth of the majority (but not simultaneously all) of the shareholders is present. Thus, we use merger bids as our experimental setting and specifically test the hypothesis that cross-holdings by bidder shareholders affect bid characteristics and outcomes.

A shareholder who owns equity in both a bidder and its target is naturally concerned with the effect of a takeover bid on both firms' stock prices. The relative weights the shareholder assigns to the two firms are given by the relative size of her holdings. A shareholder who owns 5% of the bidder and 2% of the target receives 5% of any takeover gains accruing to the bidder and 2% of any gains accruing to the target. Naturally, this shareholder wants bidder management to use the same weights in the firm's objective function: the shareholder sees her expected wealth maximized if bidder management maximizes not only the bidder's stock price but also puts a weight of $2\% / 5\% = 40\%$ on target price. This ratio, which we call the shareholder's *relative cross-holding* or just *cross-holding* for short, completely determines the objective function each shareholder wants bidder management to use. Narrow firm value maximization is the preferred objective only for those bidder shareholders with no holdings in the target.

In reality, different shareholders of the bidder have different portfolios and hence different cross-holdings in the target, with many bidder shareholders holding no shares in the target at all. The heterogeneity in investors' cross-holdings leads to disagreements about the objective function for the bidding firm. Even if bidder managers attempt to take their shareholders' portfolios into consideration, it is far from obvious which decision rule managers should adopt to determine their optimal acquisition strategy. Any rule has to favor the preferences of one subset of bidder shareholders over those of others. Theory provides little guidance as to how bidder management should aggregate the preferences of its shareholders, and hence what weight to attach to target value in its objective function.

How would bidders' acquisition strategies change if they took their shareholders' cross-holdings into account? We formally show that the preferences of a bidder shareholder with cross-

holdings in the target are equivalent to the preferences of a value-maximizing bidding firm that has a toehold in the target: A shareholder who owns 5 percent of the bidder and 2 percent of the target wants bidder management to act as if the bidding firm itself held a $2\% / 5\% = 40\%$ toehold in the target.³ If bidder managers take their shareholders' cross-holdings into account, they will thus tilt their acquisition strategy towards the optimal strategy for a toehold bidder. In all models of takeover bidding with toeholds considered in the prior literature, toeholds make bidders more willing to pursue an acquisition and more willing to bid aggressively. Bidding firms that consider their shareholders' cross-holdings are therefore expected to follow a more aggressive acquisition strategy.

Given the lack of theoretical guidance as to how bidder managers should aggregate the preferences of their shareholders, we use several measures of the distribution of shareholder preferences in the empirical analysis. An intuitively appealing solution to the aggregation problem is for managers to maximize a weighted average of their shareholders' subjective preferences. This implies that a bidder shifts to a more aggressive acquisition strategy even if only 10 or 20 percent of its shareholders own shares in the target. Alternatively, management may follow a majoritarian rule and simply adopt the preferences of its median shareholder. The median shareholder in our context is defined such that 50 percent of the bidder's shares are held by shareholders with smaller cross-holdings and 50 percent by shareholders with larger cross-holdings. Given that larger cross-holdings are associated with preferences for a more aggressive acquisition strategy, the median shareholder defines the most aggressive policy the bidder can pursue while maintaining the support of a majority of its shareholders' votes.

We document the magnitude and role of investor cross-holdings in takeovers and the resulting conflicts of interests using information on the portfolios of large institutional investors and takeover data from 1984 to 2002. On average, institutional investors own 46 percent of the

³ The intuition behind this result is most obvious in the case of a single shareholder who owns 100% of the bidder and 20% of the target. This shareholder sees her expected wealth maximized if bidder management acts as if the bidding firm itself had a 20% toehold in the target, i.e. if the bidding firm's objective function puts a weight of 0.2 on the target's equity value.

shares of bidding firms and 32 percent of the shares of targets. Thirty-one percent of the institutional holdings in the bidder are by institutions who also own shares in the target. Since we cannot observe the portfolios of non-institutional investors, we focus most of our discussion on the cross-holdings of institutional investors, and restrict our sample to bidders who have at least 20 percent of their shares held by institutions. Of particular interest are the cross-holdings by the median institutional shareholder of the bidder, whose preferences define the most aggressive acquisition strategy a bidder can pursue while retaining the support of a majority of its *institutional* shareholders' votes.⁴

We find that the average bidder's median institutional shareholder has a cross-holding of 5.3 percent in the target, with a median of 0.0 percent. The distribution of cross-holdings is strongly right-skewed both across bidders and across shareholders in a given bidder; in 5 percent of the bidders, the median institution has cross-holdings of more than 40 percent in the target. In the average bidder, 20 percent of the institutional holdings are by investors with cross-holdings of more than 34 percent, and 10 percent of the institutional holdings are by investors with cross-holdings above 75 percent. Hence many institutional investors want bidder management to act as if the bidder had a large toehold in the target, which in turn implies substantial disagreements between shareholders with cross-holdings and those without.

When we focus our attention on blockholders, defined as institutions who own at least 5 percent of the bidder's equity, the observed cross-holdings increase. The median blockholder of the average bidder has a cross-holding of 10.9 percent (median 0.0 percent), and 5 percent of the bidders in our sample have a median blockholder with a cross-holding above 82 percent. These numbers suggest that there are many merger bids in which institutional blockholders, i.e. the set of institutional investors most likely to have influence on bidder management, have large cross-holdings in the target.

⁴ The median institutional shareholder is defined such that 50% of the institutional ownership in the bidder is by institutions with larger cross-holdings and 50% by institutions with smaller cross-holdings. This definition is similar to the definition of the median shareholder discussed before, with all percentiles re-defined relative to the total institutional ownership in the firm.

Despite the size of the observed cross-holdings, we find that bidder shareholders' cross-holdings have no effect on observed announcement returns for bidders or targets, on bid premiums, or on deal completion probabilities. This pattern holds even when we focus on subsets of deals in which the institutional cross-holdings are largest. These results contrast with the well-documented effects of toeholds held by the bidding firm itself. The prior literature has found toeholds to be associated with higher returns to the bidder, lower bid premiums, and a higher probability of takeover success, and to have an ambiguous effect on target shareholder returns.⁵ Our findings are indicative of a principal-agent problem between diversified shareholders and managers, and suggest that the conflict of interests between concentrated and diversified shareholders is decided in favor of concentrated shareholders with no cross-holdings in the target.

Bidder management may find it optimal to ignore their diversified shareholders' cross-holdings in other firms because managers' incentives are mostly aligned with concentrated shareholders, and because diversified shareholders may be less likely to directly influence management. Current executive compensation practices put a heavy emphasis on stock options and restricted stock, and base bonus and long-term incentive plans on firm-specific performance measures such as profits, earnings-per-share, or growth in sales. Hence managers are incentivized to maximize the value and performance of their own firm, with few incentives to consider the externalities they impose on other firms in their shareholders' portfolios.

Furthermore, well-diversified institutional shareholders, who are most likely to own shares in both bidders and targets, tend to own only small stakes in each firm and are unlikely to have the means or motivation to directly influence management. An extreme example of diversified institutions without any voice in corporate governance are index funds, which by

⁵ On toeholds and bidder returns see Betton and Eckbo (2000), on toeholds and bid premiums see Walkling and Edmister (1985) and Betton and Eckbo (2000), on toeholds and the probability of takeover success see Walkling (1985), Jennings and Mazzeo (1993), and Betton and Eckbo (2000), and on toeholds and target shareholder returns see Eckbo and Langohr (1989), Jarrell and Poulsen (1989), Franks and Harris (1989), Stulz, Walkling, and Song (1990), and Betton and Eckbo (2000).

construction have cross-holdings of 100 percent between all index firms. Our results suggest that management finds it advantageous to ignore the preferences of such diversified institutional investors, and to follow the preferences of concentrated investors who are more likely to exert pressure on managers.

Our paper is the first to analyze and measure the conflict of interests between diversified and concentrated shareholders in acquisitions. In related work, Matvos and Ostrovsky (2006) argue that investor cross-holdings may explain the low and often negative returns to acquiring firms in takeovers. They emphasize that bidder shareholders with large cross-holdings do not mind overpaying for the target, and argue that cross-holdings help explain why shareholders fail to block apparently bad takeover deals. Our analysis clarifies that shareholders' preferences are determined by their *relative* holdings in the bidder and the target, and that only shareholders who own a larger percentage of the target than of the acquirer favor overpayment. Empirically, shareholders with cross-holdings above 100 percent are rare and hold on average only 4.1 percent of the bidders' equity in the mergers in our data.⁶ Hence the influence of investors who favor overpayment is likely to be limited, and cross-holdings are unlikely to explain why bidders overpay.⁷

The next section formally examines the incentives of diversified shareholders and draws on prior theoretical work on toeholds to analyze the effects of cross-holdings by bidding shareholders on firms' objectives. Section II describes our data and the variable definitions used in the empirical analysis. Section III presents summary statistics on the size and prevalence of cross-holdings in actual takeovers and examines their effects on announcement returns, takeover premiums, and the probability of takeover success. The last section summarizes and concludes.

⁶ Matvos and Ostrovsky (2006) do not analyze individual cross-holdings and instead simply add up bidder shareholders' stakes in the target. For example, if the bidder has a single institutional investor who owns 0.1 percent of the bidder and 60 percent of the target, they assign a 60 percent cross-holding to the bid, irrespective of the miniscule size of the investor's stake in the bidder.

⁷ While shareholders with small cross-holdings are never in favor of overpaying for a target, they may rationally favor overbidding for a target, with the goal to induce an even higher counter-bid from a rival bidder. See Burkart (1995), Singh (1998), and Bulow, Huang, and Klemperer (1999). Our empirical analysis finds no evidence that investor cross-holdings are associated with more aggressive bidding behavior.

I. Theoretical Background

This section examines how cross-holdings affect shareholders' preferences over mergers and acquisitions, and how bidder management may react to the heterogeneous preferences of its shareholders. We analyze shareholder preferences in the two canonical classes of takeover models analyzed in the prior literature, models of tender offers in the spirit of Grossman and Hart (1980) and models of competitive takeover bidding in the spirit of Fishman (1988).

We show that the preferences of diversified bidder shareholders can be summarized by their relative cross-holdings, defined as the ratio of their percentage stake in the target divided by their percentage stake in the bidder: a shareholder who owns α_B percent of the bidder and α_T percent of the target wants bidder management to maximize an objective function that puts a weight of one on bidder value and a weight of (α_T / α_B) on target value. This means that the shareholder wants management to act as if the bidding firm itself had a toehold of size (α_T / α_B) in the target.

I.A. Cross-holdings in a model of tender offers with free-riding

This section describes shareholder preferences in a Grossman and Hart (1980)-type setting with dispersed target shareholders. In Grossman and Hart, takeovers are hampered by a free-rider problem in tender offers: Dispersed shareholders of the target firm are unwilling to accept any bid below the post-takeover price of the target's shares. The acquirer's bid has to include the full value of any expected improvements in target value, and the acquirer has to pay for any transaction costs caused by the acquisition.⁸

To illustrate the idea, consider a model with two firms, a bidder and a target. The value of the target under incumbent management is V_I . The bidder is able to create synergies worth $S > 0$

⁸ The implicit assumption in Grossman and Hart (1980) is that the non-tendered shares retain their share of the target firm's value after a successful acquisition. This assumption fails to hold if the target is absorbed into the acquiring firm or if the target is taken private.

that are realized only if the bidder acquires control. To obtain control, the bidder needs to acquire 50 percent of the target shares in a conditional tender offer, which entails a transaction cost of $k > 0$.⁹ Assume that $S > k$ so that the acquisition is socially efficient. All target shares are held by dispersed shareholders.

Grossman and Hart's insight is that atomistic target shareholders do not tender their shares at any price below the full post-takeover value given that their own tendering decision is irrelevant for the final outcome of the tender offer. Since all target shareholders act in the same manner, any tender offer at a price below $V_T + S$ fails. The bidder, on the other hand, incurs the transaction cost of k and is not able to pay more than $V_T + S - k$ without making a loss. The result is that socially desirable acquisitions do not occur.

Now consider the preferences of a shareholder who owns α_B percent of the bidder and α_T percent of the target. This shareholder wants the bidder to pursue an acquisition whenever her share of the associated takeover gains exceeds her share of the takeover costs:

$$\alpha_T \cdot S > \alpha_B \cdot k \Leftrightarrow -k + \left(\frac{\alpha_T}{\alpha_B} \right) \cdot S > 0 \quad (1)$$

The shareholder wants bidder management to put a weight of (α_T / α_B) on target value and to effectively internalize (α_T / α_B) percent of the takeover gains accruing to target shareholders. But the decision rule in (1) is simply the optimal rule for a value-maximizing bidding firm that owns a toehold of (α_T / α_B) percent in the target.¹⁰ Hence a bidder shareholder with relative cross-holdings of (α_T / α_B) wants bidder management to act as if the bidder itself had a toehold of (α_T / α_B) . In the extreme, a shareholder who owns a higher percentage of the target than of the bidder wants management to act as if the bidder had a toehold larger than 100 percent in the target, which is to say that this shareholder would actually benefit from overpayment for the target.

⁹ The level of ownership necessary for control is irrelevant for the analysis here.

¹⁰ See, among others, Shleifer and Vishny (1986), Hirshleifer and Titman (1990), and Chowdhry and Jegadeesh (1994).

I.B. Cross-holdings in a model of competitive takeover bidding

This section describes shareholder preferences in models in which two or more bidders compete for a target, and in which the Grossman-Hart free-rider problem plays no role. Most papers in this literature model competition between bidders using some version of the “ascending clock” variant of the English auction. In this game, the bid price is gradually increased and the bidders choose whether to remain in the auction or to drop out. The last remaining player in the auction wins and has to pay the price at which the second-to-last bidder withdrew. Our illustration follows the set-up in Burkhart (1995).¹¹ For simplicity, we assume that there are only two bidders, labeled 1 and 2, that both bidders are risk neutral, and that there are no bidding costs. The winning bidder is obligated to accept all tendered shares, including any toehold shares tendered by the rival bidder. Target shareholders act as price-takers and tender their shares to the auction winner as long as their reserve price is met. For simplicity, the reserve price is set equal to the value of the target firm under incumbent management.¹²

Let V_i denote the private value of the target to bidder i , and assume for simplicity that both V_1 and V_2 exceed the value of the target firm under incumbent management. This ensures that the target will be taken over by one of the bidders in equilibrium, and that all target shares are acquired by the winning bidder. Bidder 1’s and bidder 2’s strategies consist of choosing price ceilings C_1 and C_2 , respectively, at which to withdraw from the auction, given that the rival is still actively bidding.

Now consider once more the preferences of a shareholder who owns α_B percent of bidder 1 and α_T percent of the target. This shareholder receives α_B percent of any takeover gains accruing to bidder 1 in case bidder 1 wins the auctions, and the shareholder sells her α_T percent

¹¹ The equilibrium outcome of this auction is the same as in the second-price sealed-bid auction (Burkhart (1995)). Competitive bidding between multiple potential acquirers for a takeover target has been modeled by, among others, Fishman (1988), Hirshleifer and P’ng (1989), Bhattacharyya (1992), and Daniel and Hirshleifer (1998). Toeholds were introduced into this literature by Burkhart (1995), Singh (1998), Bulow, Huang, and Klemperer (1999), and Ravid and Spiegel (1999).

¹² There is no collusion between the bidders and no retrading after the auction ends.

target stake to whichever bidder wins the auction at the winning price. Hence her expected payoffs are given by:

$$\begin{aligned} & \Pr(\text{bidder 1 wins}) \cdot [\alpha_B \cdot (V_1 - E(C_2 | \text{bidder 1 wins})) + \alpha_T \cdot E(C_2 | \text{bidder 1 wins})] + \Pr(\text{bidder 2 wins}) \cdot [\alpha_T \cdot C_1] \\ \Rightarrow & \Pr(\text{bidder 1 wins}) \cdot \left[V_1 - E(C_2 | \text{bidder 1 wins}) + \left(\frac{\alpha_T}{\alpha_B} \right) \cdot E(C_2 | \text{bidder 1 wins}) \right] + \Pr(\text{bidder 2 wins}) \cdot \left[\left(\frac{\alpha_T}{\alpha_B} \right) \cdot C_1 \right] \end{aligned} \quad (2)$$

The payoff function puts a relative weight of one on the takeover gains to bidder 1 in case that bidder wins, and a relative weight of (α_T / α_B) on the takeover price paid, independently of which bidder wins. But this is exactly the objective function of a bidding firm that owns a toehold of (α_T / α_B) percent in the target and sells that toehold to the rival bidder in case the rival wins the auction.¹³ It follows that a bidder shareholder with relative cross-holdings of (α_T / α_B) would see her expected wealth maximized if the bidder set its bidding strategy as if the bidder itself had a toehold of (α_T / α_B) in the target.

To summarize, we have shown that both in free-rider models in the spirit of Grossman and Hart (1980) and in models of competitive bidding in the spirit of Fishman (1988) and Burkhart (1995), a shareholder with stakes of α_B percent in the bidder and α_T percent in the target wants bidder management to act as if the bidder itself had a toehold of size (α_T / α_B) . This motivates our focus on the distribution of these cross-holdings among bidder shareholders in the empirical analysis in Section III.

Assuming that bidder management decided to take its shareholders' cross-holdings into account, how would the bidder's acquisition strategy change? In Grossman and Hart (1980), a toehold bidder receives some of the takeover gains accruing to target shareholders, making it more likely that the bidder is able to cover the acquisition cost and hence more likely that the bid

¹³ See, for example, Burkhart (1995) and Singh (1998).

goes ahead.¹⁴ Cross-holdings by bidder shareholders in a target should thus make an acquisition bid more likely. In models of competitive takeover bidding, a toehold makes it optimal for a bidder to bid more aggressively and to even raise its bid above its own valuation for the target. The more aggressive bidding strategy increases the bidder's expected capital gain on the toehold should a rival win and purchase the toehold.¹⁵ Cross-holdings by bidder shareholders in a target should therefore motivate bidder management to bid more aggressively.

I.C. Aggregation of shareholder preferences by bidder management

The relative cross-holdings are by construction shareholder-specific and range from zero to values above 100 percent in most bidder-target combinations. Bidder management thus faces the question how to aggregate the preferences of its shareholders into a decision rule for the overall firm. Even if we assume that bidder managers wish to maximize the overall welfare of their shareholders, it is far from obvious what acquisition strategy managers should adopt. With different cross-holdings by different shareholders, any policy has to favor the preferences of one subset of bidder shareholders over others. Theory provides little guidance as to how bidder management should aggregate its shareholders' preferences, and what weight to attach to target value in its objective function. Two intuitively appealing solutions to the aggregation problem are for managers to adopt the preferences of its median shareholder, or for managers to maximize a weighted average of shareholder preferences.

Under the median-shareholder criterion, bidder management pursues all takeover deals which are supported by the owners of a majority of its shares. The median shareholder in our

¹⁴ Shleifer and Vishny (1986) and Hirshleifer and Titman (1990) further show that toeholds are associated with lower bid premiums as toeholds allow acquisitions with lower value-added to proceed. In Hirshleifer and Titman (1990) and Chowdhry and Jegadeesh (1994), the probability of takeover success increases in the size of the bidder's toehold.

¹⁵ The purpose of overbidding is to provoke an even higher counter-bid by the rival, but bears the danger that the target may be inefficiently allocated to the bidder with the lower valuation. See Burkhart (1995), Singh (1998), and Bulow, Huang, and Klemperer (1999). Burkhart (1995) and Singh (1998) further show that toeholds help to preempt entry by rival bidders, lead to higher prices paid for the target, a higher probability of a successful acquisition, and higher expected profits for the bidder. See also Bulow, Huang, and Klemperer (1999) and Ravid and Spiegel (1999) for closely related results in different model environments.

context is defined such that 50 percent of bidder shares are held by investors with larger cross-holdings and 50 percent by investors with smaller cross-holdings. Since larger cross-holdings make a shareholder prefer a more aggressive acquisition strategy, the median shareholder defines the most aggressive strategy managers can implement while retaining the support of a majority of shareholders' votes. Diagram 1 illustrates how the median shareholder and her cross-holdings are determined. The median shareholder is likely to have a different identity in every bidder-target combination under consideration.¹⁶

The median-shareholder criterion by design ignores the preferences of most shareholders. Alternatively, bidder managers may try to maximize a weighted average of all their shareholders' subjective preferences, instead of focusing on the preferences of the median shareholder. While it is not obvious what weights management should use to aggregate shareholder preferences, most reasonable weighting schemes would imply that bidders shift to a more aggressive acquisition strategy even if only 10 or 20 percent of their shareholders have equity stakes in a target.¹⁷ This contrasts with the median-shareholder criterion under which the bidder alters its strategy only if at least 50 percent of its shares are held by investors who also own shares in the target. In the empirical analysis in Section III, we document both the preferences of the median shareholder and of the subsets of bidder shareholders with the highest cross-holdings, and examine whether their preferences are reflected in acquisitions.

The above aggregation schemes for shareholder preferences can only be relevant to real-world acquisitions if bidder management does in fact consider the portfolios held by its own shareholders, or if diversified shareholders have the means to impose portfolio-value

¹⁶ According to the weak form of the median voter theorem (Black, 1948), the median voter always casts her vote for the policy that is ultimately adopted. The existence of a median voter is guaranteed if preferences are single-peaked and if the issue space is one-dimensional. Both conditions are fulfilled in the merger and acquisition context considered here.

¹⁷ Drèze (1974) proposes to use shareholders' ownership stakes as weights when aggregating heterogeneous shareholder preferences. Interestingly, applying this weighting scheme to relative cross-holdings amounts to simply adding up the bidder shareholders' percentage stakes in the target, and hence gives the same aggregate preferences as if there were a perfect coalition among bidder shareholders. This degree of coordination between shareholders is not realistic and we opt not to use this aggregation scheme in the empirical analysis. We do, however, consider the possibility that the largest institutional shareholders may align their preferences through negotiated side-payments.

maximization on management. Shareholders with cross-holdings may be able to influence acquisition decisions through their representatives on boards of directors, voting at shareholders' meetings, or private or public communication with the management team (Smith (1996), and Carleton, Nelson, and Weisbach (1998)). This kind of influence is most likely for institutional investors and for blockholders, and for this reason the empirical analysis in Section III pays particular attention to the cross-holdings of institutional investors with large stakes in the bidder.

On the other hand, there are several reasons to suspect that managers may ignore the cross-holdings their shareholders have in other firms. The compensation of top executives is heavily biased towards stock options and restricted stock and thus ultimately depends on own firm performance.¹⁸ Further, large concentrated shareholders such as founding families or venture capitalists are unlikely to hold any cross-holdings in target firms, but are likely to be active in corporate governance and to exert influence over managers. Hence managers are given strong incentives to maximize the performance of their own firm, but few obvious incentives to care about any externalities they impose on other firms in their shareholders' portfolios. The degree to which cross-holdings will matter thus depends on the ability of cross-holding investors to influence bidder management. Whether bidder management takes its shareholders' portfolios into account when making acquisition decisions is ultimately an empirical question which we attempt to answer in Section III.

II. Sample Formation and Variable Construction

In order to examine the size of institutional shareholders' cross-holdings in mergers and to test whether cross-holdings by bidder shareholders matter in bid characteristics and outcomes, we construct a sample of mergers by public bidders. In this section, we describe our data and provide variable definitions.

¹⁸ See Murphy (1999) for a comprehensive review of executive compensation practices. Kraus and Rubin (2006) discuss the effect of shareholder diversification on optimal managerial compensation contracts.

II.A. Sample selection

We begin with all announced (both completed and cancelled) US mergers with announcement dates between January 1, 1984 and December 31, 2002 as identified from the Mergers and Acquisitions database of the Securities Data Company (SDC). We identify all deals where both the bidder and target are public firms and the form of deal was coded as a merger, an acquisition of majority interest, or an acquisition of assets. After applying the above filters, we get 8,075 deals. The sample period is chosen because the information in SDC is less reliable before 1984.

Next, we match our bidders and targets with Compustat and CRSP data, and we only retain an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. These filters yield 2,885 deals.

Finally, we merge our acquisition data with the CDA/Spectrum 13F data on institutional shareholdings in the bidder and the target. All institutional investors with greater than \$100 million of equity securities under discretionary management are required to report their holdings quarterly using the SEC's form 13F.¹⁹ Ideally, we would also like to measure cross-holdings at the individual investor level. Using data on institutional investors adds a layer of intermediation between individual investors and firms, and makes it difficult to assess the extent to which the ultimate owners of the assets are diversified across firms. However, given the greater size of their stakes, the cross-holdings of institutional investors are more likely to be reflected in company policies than the cross-holdings of the individuals behind these institutions. When interpreting our results it is nevertheless useful to keep in mind that we do not observe the

¹⁹ A 1978 amendment to the Securities and Exchange Act of 1934 requires all institutions with greater than \$100 million of equity securities under discretionary management to report every quarter all common-stock positions greater than 10,000 shares or \$200,000. These reports are available in electronic form back to 1980 from CDA/Spectrum, a firm hired by the SEC to process the Form 13F filings.

portfolios of non-institutional investors and therefore miss potentially significant cross-holdings by individual shareholders.²⁰ Our final sample has 2,815 merger deals where both bidder and target have data on institutional shareholdings in the quarter-end prior to the bid announcement.

II.B. Variable construction

In Section I we show that the preferences of each shareholder of the bidder are determined by her cross-holdings, defined as her percentage ownership of the target divided by her percentage ownership of the bidder. Since different shareholders have different cross-holdings, the resulting shareholder preferences over acquisitions are heterogeneous. It is this distribution of cross-holdings across bidder shareholders that is of interest to us and that may matter for bidder management. In absence of an agreed-upon aggregation method for shareholder preferences, there is no single number that adequately summarizes the distribution of preferences, and we therefore adopt three complementary approaches to describing the (cumulative) distribution of cross-holdings across shareholders. Since we do not observe the portfolios of non-institutional investors, we focus most of our discussion on the cross-holdings of institutional investors and restrict our sample to bidders that have at least 20 percent of their equity owned by institutions. This restriction excludes firms in which institutional investors are unlikely to have any influence on management.

The first approach to measuring shareholder preferences captures what percentage of the institutional holdings in the bidder is by institutions with large cross-holdings, and what percentage by institutions with small or no cross-holdings. Specifically, we order all institutional investors in the bidder by their cross-holdings, and then calculate the (marginal) cross-holding for the top 1, 5, 10, 20, and 50 percent of all institutional holdings (labeled as the *top-1%*, *top-5%*, *top-10%*, *top-20%*, and *median cross-holdings*, respectively). For example, a *top-10% cross-holding* of 75 percent means that 10 percent of the institutional ownership in the bidder is

²⁰ In a similar vein, an institutional investor portfolio reported to the SEC may be an aggregate of multiple distinct portfolios managed by the institution.

controlled by investors with cross-holdings of at least 75 percent.²¹ Probably the most relevant measure of investor incentives in this set is the cross-holding of the median institutional shareholder in the bidder. The cross-holding of this investor, called the *median cross-holding* for short, determines the set of acquisition policies the bidder can pursue while maintaining the support of the majority of its institutional shareholders' votes. To complement the analysis for institutional shareholders, we also calculate and report cross-holdings for all shareholders of the bidder by making the conservative assumption that all non-institutional investors have zero cross-holdings.

The above approach to measuring cross-holdings ignores the fact that bidder shareholders differ greatly in their ability to impose their preferences on bidder management. We expect bidder management to be most responsive to the preferences of its largest shareholders; hence our next two approaches look explicitly at the cross-holdings of blockholders, defined as institutional investors who own at least 5 percent of the bidder's shares. Specifically, we order the blockholders by their cross-holdings, and then report the (marginal) cross-holding for the top 5, 10, 20, 50, 75, and 100 percent of all shares owned by blockholders, in parallel to the calculations for all institutional investors described above.

Finally, we consider the possibility that blockholders might coordinate their actions and negotiate side-payments with each other. With costless bargaining, the Coase Theorem predicts that the blockholders should act in unison and support any acquisition that is profitable for all blockholders combined.²² The aggregate preferences of this coordinated group of investors are determined by their combined cross-holdings, given by the sum of their equity stakes in the target divided by the sum of their stakes in the bidder. For example, if all bidder blockholders combined own 30 percent of the bidder and 10 percent of the target, then they want bidder

²¹ The calculations of the cross-holdings are illustrated in Diagram 1, except that the percentiles here are computed with respect to the total ownership by *institutional* investors in the bidder.

²² See Coase (1960). DeMarzo (1993) uses a similar argument to model side-payments between members of the board of directors, and shows that the resulting negotiated transfers lead the board to act with unanimous preferences.

management to act as if the bidder owned a 33 percent toehold in the target. In reality, coordination between blockholders may not be costless and side-payments are likely to be restricted by law.²³ Hence the blockholders' combined cross-holdings should be interpreted as an upper bound on the cross-holding the blockholders may bring to bear on the bidding firm's decision process.

III. Empirical Results

In this section, we first present an overview of our sample with a focus on the magnitude of shareholder cross-holdings and the implied conflicts between bidder shareholders in corporate takeovers. Then we estimate the wealth effect of mergers on bidder shareholders with and without cross-holdings. Finally, we formally test the null hypothesis that shareholder cross-holdings matter in merger bid characteristics and outcomes in a multivariate regression framework.

III.A. Sample overview

Table 1 presents descriptive statistics on the announced merger deals, the bidders, and the targets. In Panel A, we show that 75 percent of the announced deals are eventually completed. A quarter of the deals use only cash as the method of payment, and over 40 percent of the deals are pure stock swaps. Approximately 13 percent of the targets receive competing bids within one year. The sample is split evenly between diversifying and within industry deals. The mean relative deal size, defined as the ratio of the transaction value to the market value of the bidder, is 30 percent. Consistent with the prior literature, there are few direct toeholds, and more than 95 percent of the bidders in our sample have no toehold at all in their targets. On average, the bidder

²³ The Securities and Exchange Commission passed new rules in 1992 allowing shareholders to directly communicate with each other (SEC (1992)). Thus, the costs of creating shareholder coalitions were substantially reduced.

is offering a premium of 45 percent above the market price of the target as of four weeks before the bid.

In Panel B, we show that the average three-day abnormal announcement period return (CAR3) for the bidder is -1.2 percent, while the average CAR3 for the target is close to 20 percent. Following Bradley, Desai, and Kim (1988), we also compute the dollar amount of the synergistic gains ($= \text{bidder CAR3} * \text{bidder market capitalization} + \text{target CAR3} * (1 - \text{toehold}) * \text{target market capitalization}$) as well as the percentage synergy gains ($= \text{synergy in dollars} / (\text{bidder market capitalization} + (1 - \text{toehold}) * \text{target market capitalization})$). Panel B shows that the average synergies amount to about \$47 million in 2002 dollars, corresponding to an average percentage gain of about 2 percent. This implies that, once we account for the large positive announcement return to the target, mergers in our sample are on average welfare-improving.

Panels C and D present summary statistics on the bidders and targets in our sample. Consistent with the relative size variable, the bidders are much larger than their targets in terms of both book and market values. The bidders and targets have similar levels of leverage, while the bidders appear to enjoy faster sales growth, better operating performance, and higher stock returns in the year prior to the bid.

Table 2 presents summary statistics of institutional shareholdings in bidders and targets. On average, institutional investors own 46 percent of the equity of bidding firms and 32 percent of the equity of targets. Bidder institutions who also own shares in the target control 14 percent of all bidder shares, or 31 percent of the bidder shares owned by institutions. While target institutions who also own shares in the bidder control a similar 18 percent of all target shares, they own over half of the generally smaller institutional holdings in the target.

Table 3 summarizes the empirical distribution of cross-holdings in the bidder and target. In Part I of Panel A, we calculate cross-holdings for the top 1, 5, 10, 20, and 50 percent of the bidders' shareholders, assuming that the cross-holdings of non-institutional investors are zero.

With this assumption, we find that the average median cross-holding is only 0.3 percent. This low number is a direct result of the assumed zero cross-holdings for non-institutional investors and of the fact that the median shareholder is an institution in less than half of the bidders in our sample. However, even under these assumptions, the average top-10% cross-holding is above 30 percent. We also compute the fraction of bidder shares whose holders own a higher percentage stake of the target than of the bidder. We find that bidder shareholders with cross-holdings greater than one are rare and control on average only 4.1 percent of the bidder's equity and only 10.1 percent of the total institutional holdings in the bidder. This means that the influence of bidder shareholders who favor overpayment for the target is likely to be small.

In Part II of Panel A, we calculate cross-holdings for the top 1, 5, 10, 20, and 50 percent of the bidders' *institutional* shareholders and limit our sample to bidders with total institutional ownership no less than 20 percent. This reduces our sample by only 16% to 2,356 observations. We find that the average median cross-holding by institutional shareholders is 5.3 percent, with a median of 0.0 percent. The distribution of cross-holdings across bidders is strongly right-skewed; in 5 percent of the bidders, the median institution has cross-holdings larger than 40 percent, while in 1 percent of the bidders, the median cross-holding is above 87 percent. Focusing on the largest cross-holdings, we find that the average top-10% cross-holding is above 75 percent, and that the average top-5% cross-holding is above 140 percent. We conclude that there is a substantial number of institutional investors with large cross-holdings in the average bidder, and that there is a significant set of mergers in which even the median institution owns a large stake in the target. At the same time, many institutional shareholders of the bidder have no cross-holdings in the target at all, implying significant conflicts of interests over the objective function of the bidder.

The above analysis ignores the differences in power possessed by different bidder shareholders to impose their preferences on bidder management. We therefore focus next on large shareholders. Table 4 presents summary statistics of cross-holdings held by blockholders,

defined as institutions that own at least 5 percent of the shares of a firm. Part I of Panel A shows that the average median cross-holdings by blockholders is 10.9 percent (median 0.0 percent), and that in 5 percent of the bidders, the median blockholder has a cross-holding larger than 82 percent in the target. Turning to the distribution of large cross-holdings by blockholders, the average top-20% cross-holding is larger than 18 percent, and the average top-10% cross-holding is above 20 percent. These numbers suggest that there is a significant number of institutional blockholders, i.e. the subset of institutional investors most likely to influence bidder management, with large cross-holdings in targets.

In Part II of Panel A we allow blockholders to negotiate side-payments with one another and to act as a group. The average combined cross-holding by all blockholders in the bidder is 12 percent. The distribution is again skewed, with the median of the combined cross-holding equal to zero. In the top 10 percent of all deals, however, blockholders want management to act as if the bidder had a 46 percent toehold in the target, and in 5 percent of all deals blockholders want management to act as if the bidder had a 70 percent toehold in the target. For comparison, Betton, Eckbo, and Thorburn (2005) analyze toeholds held directly by the acquirer in a comprehensive sample of twelve thousand bidders and find that only 11 percent of the bidders own a toehold in the target. In their sample, the average toehold size among bidders with a positive toehold is 21 percent, with a median of 17 percent.²⁴

Of course, target shareholders can have cross-holdings in the bidder as well, so Tables 3 and 4 present analogous information for target shareholders' cross-holdings in bidders. We find similar, but generally higher cross-holdings held by target shareholders in bidders. This is likely a mechanical outcome driven by the relatively greater institutional interest in bidders observed in Table 2.

²⁴ Similar, if somewhat higher, numbers have been documented before by, among others, Bradley, Desai, and Kim (1988), Jarrell and Poulsen (1989), Jennings and Mazzeo (1993), and Betton and Eckbo (2000).

III.B. Wealth effects of bid announcements

Next we examine to what extent the wealth effects from takeovers experienced by bidder shareholders change when we take their cross-holdings in the target into account. To address that question, we introduce two return measures that capture the effect of takeover bid announcements on the total wealth of bidder shareholders. First, the *equal-weighted total return* is computed for all institutional investors in a bidder as

$$\text{Equal-weighted total return} = \frac{1}{N} \sum_{i=1}^N \frac{\alpha_{Bi} \cdot \Delta V_B + \alpha_{Ti} \cdot \Delta V_T}{\alpha_{Bi} \cdot V_B + \alpha_{Ti} \cdot V_T}, \quad (3)$$

where α is the percentage shareholding by institution i in either the bidder (subscript B) or in the target (subscript T), V is the market value of either the bidder or the target, ΔV is the change in firm value computed as the product of the market value and the corresponding abnormal announcement period return, and N is the number of institutional shareholders in the bidder. This return measure captures the average announcement return to the bidder's institutional shareholders from their stakes in both the bidder and the target.

Second, the *holding-weighted total return* is computed as:

$$\text{Holding-weighted total return} = \frac{\sum_i \alpha_{Bi} \left(\frac{\alpha_{Bi} \cdot \Delta V_B + \alpha_{Ti} \cdot \Delta V_T}{\alpha_{Bi} \cdot V_B + \alpha_{Ti} \cdot V_T} \right)}{\sum_i \alpha_{Bi}}. \quad (4)$$

Equation (4) weights each institutional investor's total wealth change by the size of the investors' stake in the bidder. The resulting weighted-average percentage wealth change gives more weight to institutions with large stakes in the bidder and less weight to institutions with small stakes.

Panel A of Table 5 shows that, when ignoring cross-holdings, the average wealth effect from bid announcements for bidder institutional investors is -1.2 percent, which is simply the average announcement return on the bidder's stock. Taking the investors' cross-holdings in the

target into account to calculate the holding-weighted total return in (4) raises this number to -0.2 percent. The increase is caused by the positive wealth gains earned by many bidder institutions on their share holdings in the target. The average equal-weighted total return in (3) is a positive 0.01 percent, with this further increase due to institutional investors with small stakes in the bidder and larger stakes in the target. Finally, we examine how many bidder institutions experience a return reversal due to their cross-holdings, defined as occurring when the bidder CAR is negative but the institutions' total wealth effect is positive. We find that, in deals with negative bidder CAR, about 4 percent of the bidders' shares are controlled by investors experiencing such reversals, indicating that the influence of bidder shareholders who actually profit from bids with negative announcement returns is limited.

In Panel B we report results for the sub-sample of bidders with total institutional shareholding above 20 percent. The average wealth effects from bid announcements are similar to those for the full sample, and we focus instead on the wealth effects for the median and for the top 20^{th} percentile institutional shareholder as defined before. The average total return for the bidder's median institutional shareholder from her holdings in both bidder and target is -1.2 percent and only slightly higher than the average bidder announcement return of -1.5 percent. This small increase is consistent with our prior result that the bidders' median institutional shareholders tend to have only small cross-holdings in the target. The average cross-holding of the bidder's top 20^{th} percentile shareholder is significantly larger and is reflected in a total wealth effect that rises to -0.1 percent. Finally, in deals with negative bidder CAR, 8.2 percent of the institutional shares in the bidder are owned by investors whose total wealth change turns positive because of their cross-holdings. All in all, the evidence in Table 5 suggests that cross-holdings have only moderate effects on the average shareholder in the bidder, but substantial effects on the wealth of the bidder shareholders with the largest cross-holdings in the target. The wealth effects of takeover bids differ markedly between shareholders with and without cross-holdings, underlining the divergence in shareholder preferences over takeovers caused by differences in shareholders' portfolios.

III. C. The effect of cross-holdings on merger outcomes

In this sub-section, we test the hypothesis that managers consider the effect of their actions on their shareholders' portfolios, when possible. Managers can observe, or be told, the portfolio holdings of their institutional investors, and the effects of a merger bid on those portfolios are calculable. Thus, we use merger bids as our experimental setting and formally test the null hypothesis that bidder (or target) management pay attention to their shareholders' cross-holdings when making acquisition decisions.

The dependent variables in Table 6 are the bidder and target abnormal announcement period returns, bid premiums, and the likelihood of deal completion. The prior literature has found reliable effects of bidders' toeholds in targets on these outcome variables.²⁵ The key right-hand-side variables are the bidder's and target's median and top-20% cross-holdings. In order to focus on deals which are important to the bidding firm and its shareholders, we also require that the target's size is at least 5 percent of the size of the bidder for these regressions.²⁶ Panels A-D summarize the results.

Throughout, we find no effect of cross-holdings held by bidder shareholders on either announcement period returns, bid premiums, or the likelihood of deal completion. This result is robust in a wide variety of specifications; in untabulated regressions we have used cross-holdings calculated for alternative percentiles of the bidder's equity, we have experimented with dummy variables identifying bidders with extraordinarily high cross-holdings, and we have re-estimated our regressions for various subsets of the full sample chosen on the basis of deal size.²⁷ Further, we have examined whether an effect becomes apparent only after 1992, when the SEC rules governing shareholder communication changed. We find no difference following the rule

²⁵ See, among others, Walkling (1985), Walkling and Edmister (1985), Eckbo and Langohr (1989), Jarrell and Poulsen (1989), Franks and Harris (1989), Stulz, Walkling, and Song (1990), Jennings and Mazzeo (1993), and Betton and Eckbo (2000).

²⁶ All results are qualitatively unchanged when we include deals with smaller targets in the regressions.

²⁷ We have also repeated the analysis after removing all institutional investors whose investment strategy appears to be that of an indexer. These "quasi-indexers" are identified following the approach in Bushee (1998). The inferences are unchanged.

change. Focusing on the cross-holdings of bidder blockholders, either individually or as a group, shows similarly no effect of cross-holdings on any of the outcome variables. We conclude that large cross-holdings do not lead the bidder to pursue its target in a more aggressive manner, contrary to what would be observed if bidder management considered its shareholders' cross-holdings in formulating its strategies.

We do find some evidence in Panels B and C that higher cross-holdings held by target shareholders in the bidder are associated with lower target announcement returns and lower bid premiums. This may suggest that large cross-holdings by target shareholders in the bidder weaken the target's takeover defenses and lead to a less expensive acquisition for the bidder. On the other hand, we do not find a positive effect of target shareholders' cross-holdings on bidder announcement returns. The other control variables used in the regressions are employed based on the prior literature and the estimated coefficients on these variables are intuitive.

In untabulated results, we examine the time-series of cross-holdings before bid announcements. We find no evidence that cross-holdings in either party increase in the quarters leading-up to the bid. Thus, we find no evidence that institutions can predict bids or that they systematically increase their holdings in potential merger partners to trigger or influence a possible deal.

The finding that bidder shareholders' cross-holdings have no observable effects rejects our null hypothesis, but is consistent with our observation that managers are given strong incentives to maximize firm-specific performance and value, but few incentives to consider their shareholders' overall portfolios. This also suggests that on average, the preferences of diversified shareholders are not satisfied even in situations where the effect of the managerial action on their cross-holdings is potentially large and easily observable. Thus, our results in this last sub-section establish both a source of disagreement among heterogeneous shareholders and an agency problem between diversified shareholders and corporate managers.

IV. Summary and Conclusion

This paper identifies conflicts of interests among shareholders caused by differences in their portfolio compositions, and examines their effects in the case of corporate acquisitions. Diversified shareholders prefer corporate policies which maximize the value of their portfolios to policies which narrowly maximize the value of individual firms, and shareholders with different portfolios disagree about which actions firms should pursue. While the problem of shareholder heterogeneity examined here is general, the large premiums paid in acquisitions make it acute in this setting. Thus, if managers ever alter their decision making to accommodate cross-holding shareholders' preferences, they would do so in acquisition bids, offering us the most power to detect it.

We show how to correctly measure the shareholder preferences implied by their cross-holdings, and we document their size and effects in takeover data from 1984 to 2002. We find that the average acquirer's median institutional shareholder has a cross-holding of 5.3 percent in the target; the average top-10% cross-holding is above 75 percent; and in 5 percent of the acquisitions even the median institution has a cross-holding above 40 percent. At the same time, many institutional shareholders of the bidder have no cross-holdings in the target at all, implying substantial disagreements over the objective function of the bidder.

Shareholders with cross-holdings want management to act as if the bidder had a toehold in the target and hence want management to pursue the target more aggressively, but other shareholders do not. We find no effect of cross-holdings on the bidding strategies used by acquirers. This stands in contrast to effects found in the extant literature for toeholds held directly by the bidder. Our evidence suggests that bidder management pays little attention to the cross-holdings of its shareholders, and indicates the existence of a principal-agent problem between diversified shareholders and corporate managers. The evidence also suggests that the conflict of interests between concentrated and diversified shareholders is decided in favor of concentrated shareholders without any cross-holdings in targets.

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Diagram 1
Bidder Shareholders' Cross-holdings in the Target

This diagram illustrates how the bidder shareholders' cross-holdings in the target firm are determined. We first rank all bidder shareholders by their cross-holdings in the target, defined as their percentage ownership of the target divided by their percentage ownership of the bidder. Using this ranking, we then calculate the marginal cross-holdings associated with the top 1, 5, 10, 20, and 50 percent of the bidder's equity. In the example illustrated below, 1 percent of the bidder's shares are owned by shareholders with cross-holdings of at least 116%, and hence the *top-1% cross-holding* is set to 116 percent. Twenty percent of the bidder's shares are owned by shareholders with cross-holdings of at least 45 percent, and hence the *top-20% cross-holding* is set to 45 percent. Finally, the median shareholder has a cross-holding of 24 percent in the target, which we call the *median cross-holding* for short. Cross-holdings for institutional investors only are calculated similarly, but with all percentiles defined relative to the total institutional ownership in the bidder.

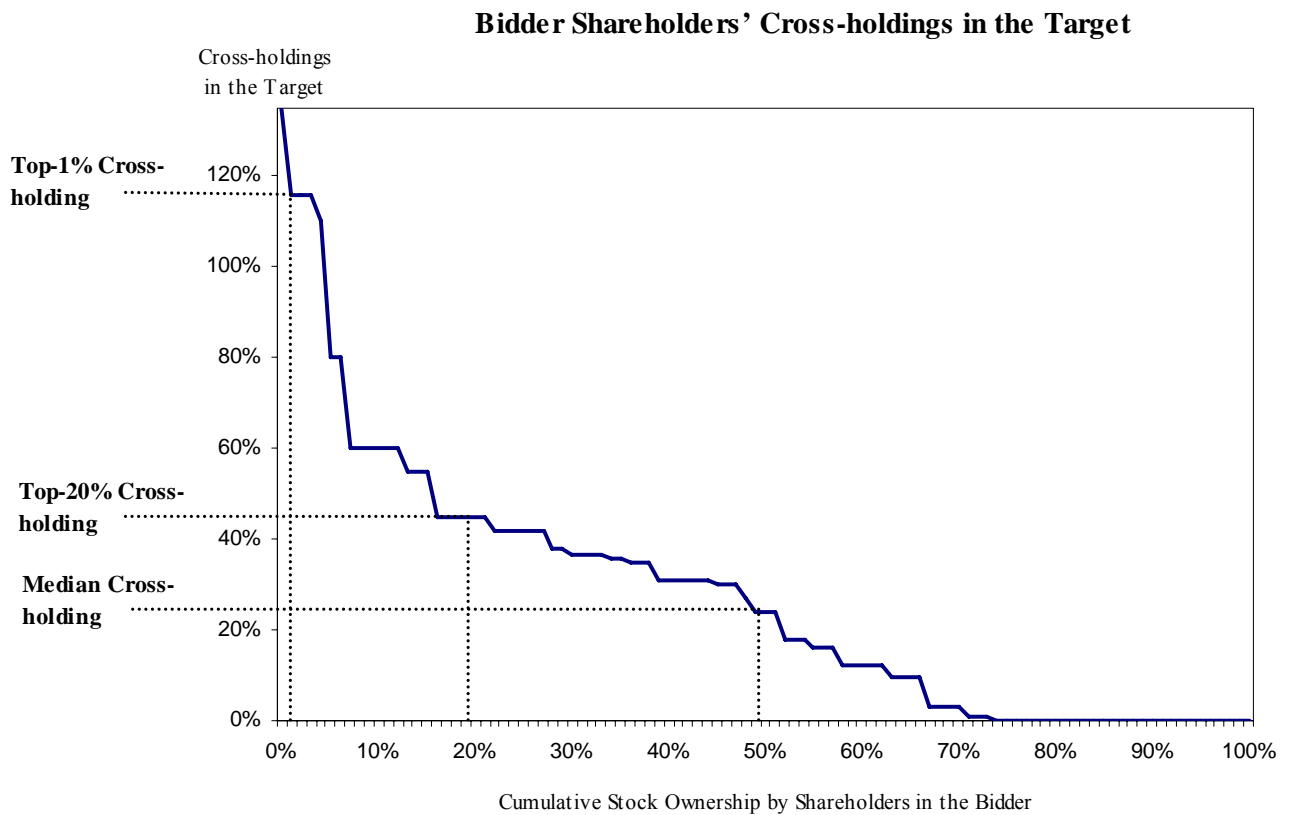


Table 1
Summary Statistics on Merger Bids, Bidders, and Targets, 1984-2002

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers.

Panel A: Deal Characteristics

Complete, All Cash, All Stock, Competing, and Diversifying are dummy variables that take the value of one for completed acquisitions, if only cash is used to pay for the acquisition, if only equity is used, if there are multiple bids for the same target within one year, if the bidder and target are from two different industries, respectively, and zero otherwise. Relative Size is the transaction value divided by the market value of bidder assets at the end of the fiscal year prior to the bid announcement. Toehold measures the percentage of the target's shares held by the bidder prior to the bid announcement. Premium is the ratio of the final offer price to the target's trading price four weeks prior to the original announcement date minus one.

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Complete	2815	0.753	0.431	0.000	1.000	1.000
All Cash	2815	0.256	0.437	0.000	0.000	1.000
All Stock	2815	0.415	0.493	0.000	0.000	1.000
Competing	2815	0.134	0.341	0.000	0.000	1.000
Diversifying	2815	0.477	0.500	0.000	0.000	1.000
Relative Size	2600	0.298	0.653	0.004	0.101	1.081
Toehold	2815	0.006	0.043	0.000	0.000	0.000
Premium	2508	0.447	0.524	-0.057	0.365	1.160

Panel B: Announcement Period Returns, Synergy, and Total Returns

The abnormal announcement period returns (CAR3) are over days (-1, 1), where day 0 is the date of the initial bid announcement by the acquiring firm. Daily abnormal stock returns are computed using the market model and the value-weighted CRSP index. The estimation window is days (-200, -60) prior to the acquisition announcement date. Following Bradley, Desai, and Kim (1988), the percentage synergy gain is defined as the cumulative abnormal return over the (-1, +1) event window for a value-weighted portfolio of the target and bidder. The weights for the bidder and the target are based on the market value of equity two days prior to the bid announcement. The target weight adjusts for the percentage of target shares held by the acquirer prior to the announcement of the deal, with the adjustment set to zero for missing toehold values. The dollar value synergistic gain over the same event window (-1, +1) is defined as the percentage synergy gain times the sum of the market values of equity for the bidder and the target in million dollars, again adjusted for the percentage of target shares held by the acquirer prior to the announcement of the deal.

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Bidder CAR3	2815	-0.012	0.085	-0.129	-0.009	0.092
Target CAR3	2815	0.196	0.248	-0.072	0.145	0.628
Synergy (\$)	2815	46.813	1451.867	-624.124	8.261	916.737
Synergy (%)	2815	0.020	0.084	-0.082	0.012	0.143

Panel C: Bidder Characteristics

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Market Capitalization	2815	8901	29487	50	1512	35670
Market Value Total Assets	2815	20148	57655	87	3390	94310
Book Value Total Assets	2815	13710	43250	56	1977	60871
Sales	2815	5010	11555	33	1087	23364
Market Leverage	2808	0.162	0.140	0.000	0.134	0.433
Book Leverage	2808	0.227	0.176	0.000	0.204	0.543
Market-to-Book Ratio	2815	2.068	2.705	0.974	1.398	4.991
Sales Growth	2815	0.345	1.155	-0.149	0.136	1.200
Return on Assets	2815	0.151	0.177	-0.019	0.143	0.415
Prior Year Stock Return	2815	0.316	0.802	-0.401	0.193	1.264
Prior Year Mkt-Adj Return	2815	0.162	0.786	-0.525	0.038	1.091

Panel D: Target Characteristics

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Market Capitalization	2815	1213	4905	13	154	5097
Market Value Total Assets	2815	4208	22022	25	411	13334
Book Value Total Assets	2815	3495	20498	17	292	10803
Sales	2815	1292	4634	12	177	5823
Market Leverage	2810	0.176	0.167	0.000	0.137	0.503
Book Leverage	2810	0.223	0.204	0.000	0.185	0.606
Market-to-Book Ratio	2815	1.672	1.535	0.856	1.207	3.713
Sales Growth	2815	0.242	0.940	-0.221	0.103	0.952
Return on Assets	2815	0.094	0.195	-0.178	0.105	0.333
Prior Year Stock Return	2815	0.173	0.816	-0.641	0.080	1.072
Prior Year Mkt-Adj Return	2815	0.018	0.805	-0.743	-0.077	0.902

Table 2
Summary Statistics on Institutional Ownership in Bidders and Targets, 1984-2002

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers.

Panel A: Institutional Ownership in Bidders

Total Institutional Ownership is the fraction of a bidder's stock that is owned by institutional investors. Total Blockholder Ownership is the fraction of a bidder's stock that is owned by block institutional investors with share ownership no less than five percent. Bidder Institutions Owning Shares in Target gives the total shareholdings in the bidder by institutions who also own shares in the target. Fraction of Bidder Institutional Ownership Owned by Institutions with Shares in Target gives the percentage of the bidder's institutional ownership that is held by institutions who also own shares in the target.

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Total Institutional Ownership	2815	0.464	0.232	0.064	0.485	0.827
Total Blockholder Ownership	1692	0.153	0.101	0.053	0.125	0.357
Bidder Institutions Owning Shares in Target	2815	0.144	0.142	0.002	0.091	0.442
Fraction of Bidder Institutional Ownership Owned by Institutions with Shares in Target	2815	0.309	0.242	0.014	0.251	0.790

Panel B: Institutional Ownership in Targets

Total Institutional Ownership is the fraction of a target's stock that is owned by institutional investors. Total Blockholder Ownership is the fraction of a target's stock that is owned by block institutional investors with share ownership no less than five percent. Target Institutions Owning Shares in Bidder gives the total shareholdings in the target by institutions who also own shares in the bidder. Fraction of Target Institutional Ownership Owned by Institutions with Shares in Bidder gives the percentage of the target's institutional ownership that is held by institutions who also own shares in the bidder.

	N	Mean	StdDev	5 th Percentile	Median	95 th Percentile
Total Institutional Ownership	2815	0.324	0.233	0.016	0.280	0.759
Total Blockholder Ownership	1764	0.160	0.108	0.054	0.133	0.376
Target Institutions Owning Shares in Bidder	2815	0.179	0.172	0.002	0.123	0.543
Fraction of Target Institutional Ownership Owned by Institutions with Shares in Bidder	2815	0.535	0.282	0.044	0.551	0.981

Table 3
Summary Statistics on Cross-holdings By Institutional Investors in Bidders and Targets

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers.

Panel A: The Cumulative Distribution of Cross-holdings by Bidder Institutional Investors

Cross-holdings are defined as the ratio of the shareholder's percentage ownership in the target divided by her percentage ownership in the bidder. We order all institutional investors by their cross-holdings, and then report the (marginal) cross-holding for the top 1, 5, 10, 20, and 50 percent of all institutional investor shares (labeled as the *top-1%*, *top-5%*, *top-10%*, *top-20%*, and *median cross-holdings*, respectively). We require that at least 20 percent of the bidder's equity is owned by institutions for this analysis. In addition to the analysis for institutional shareholders, we calculate cross-holdings for all the bidder's shareholders under the conservative assumption that all non-institutional investors have zero cross-holdings. Here the percentiles are with respect to all shareholders, and we do not impose the requirement that institutional investors own at least 20 percent of the bidder. Bidder Institutional Holdings with Cross-holding ≥ 1 gives the total shareholdings in the bidder by institutions whose cross-holdings are larger than one. Fraction of Bidder Institutional Holdings with Cross-holding ≥ 1 gives the percentage of the bidder's institutional ownership that is owned by institutions with cross-holdings larger than one. We report cross-holdings for percentiles of all shareholders in Part I and for percentiles of (the actually observed) institutional investors in Part II of Panel A.

	N	Mean	StdDev	Median	75 th Percentile	90 th Percentile	95 th Percentile	99 th Percentile
<i>I: Cross-holding by All Bidder Shareholders</i>								
Top-1% Cross-holding	2815	2.544	2.567	1.764	3.564	6.023	7.619	11.209
Top-5% Cross-holding	2815	0.661	0.752	0.431	1.102	1.706	2.168	3.078
Top-10% Cross-holding	2815	0.295	0.445	0.000	0.533	1.009	1.232	1.689
Top-20% Cross-holding	2815	0.099	0.236	0.000	0.013	0.402	0.718	1.019
Median Cross-holding	2815	0.003	0.029	0.000	0.000	0.000	0.000	0.079
Bidder Institutional Holdings with Cross-holding ≥ 1	2815	0.041	0.047	0.025	0.058	0.103	0.139	0.217
Fraction of Bidder Institutional Holdings with Cross-holding ≥ 1	2815	0.101	0.127	0.063	0.135	0.235	0.326	0.619
<i>II: Cross-holding by All Institutional Investors from Bidders with Total Institutional Ownership ≥ 0.2</i>								
Top-1% Cross-holding	2356	4.631	4.895	3.281	6.223	10.216	13.309	22.759
Top-5% Cross-holding	2356	1.396	1.281	1.154	1.905	2.976	3.740	5.683
Top-10% Cross-holding	2356	0.747	0.733	0.619	1.139	1.720	2.125	3.065
Top-20% Cross-holding	2356	0.344	0.451	0.100	0.616	1.027	1.224	1.639
Median Cross-holding	2356	0.053	0.162	0.000	0.000	0.162	0.397	0.866

Panel B: The Cumulative Distribution of Cross-holdings by Target Institutional Investors

Cross-holdings are defined as the ratio of the shareholder's percentage ownership in the bidder divided by her percentage ownership in the target. We order all institutional investors by their cross-holdings, and then report the (marginal) cross-holding for the top 1, 5, 10, 20, and 50 percent of all institutional investor shares (labeled as the *top-1%*, *top-5%*, *top-10%*, *top-20%*, and *median cross-holdings*, respectively). We require that at least 20 percent of the target's equity is owned by institutions for this analysis. In addition to the analysis for institutional shareholders, we calculate cross-holdings for all the target's shareholders under the conservative assumption that all non-institutional investors have zero cross-holdings. Here the percentiles are with respect to all shareholders, and we do not impose the requirement that institutional investors own at least 20 percent of the target. Bidder Institutional Holdings with Cross-holding ≥ 1 gives the total shareholdings in the target by institutions whose cross-holdings are larger than one. Fraction of Target Institutional Holdings with Cross-holding ≥ 1 gives the percentage of the target's institutional ownership that is owned by institutions with cross-holdings larger than one. We report cross-holdings for percentiles of all shareholders in Part I and for percentiles of (the actually observed) institutional investors in Part II of Panel B.

	N	Mean	StdDev	Median	75 th Percentile	90 th Percentile	95 th Percentile	99 th Percentile
<i>I: Cross-holding by All Target Shareholders</i>								
Top-1% Cross-holding	2815	2.069	1.927	1.601	2.953	4.436	5.689	8.494
Top-5% Cross-holding	2815	0.596	0.640	0.398	1.034	1.528	1.795	2.396
Top-10% Cross-holding	2815	0.280	0.409	0.018	0.492	0.969	1.124	1.501
Top-20% Cross-holding	2815	0.099	0.220	0.000	0.043	0.399	0.654	0.968
Median Cross-holding	2815	0.005	0.033	0.000	0.000	0.000	0.008	0.151
Target Institutional Holdings with Cross-holding ≥ 1	2815	0.037	0.043	0.022	0.054	0.094	0.125	0.190
Fraction of Target Institutional Holdings with Cross-holding ≥ 1	2815	0.135	0.162	0.093	0.175	0.295	0.434	0.927
<i>II: Cross-holding by All Institutional Investors from Targets with Total Institutional Ownership ≥ 0.2</i>								
Top-1% Cross-holding	1763	4.533	3.984	3.607	5.802	8.834	11.757	20.729
Top-5% Cross-holding	1763	1.569	1.049	1.412	2.039	2.814	3.410	5.160
Top-10% Cross-holding	1763	0.953	0.646	0.950	1.301	1.684	2.084	2.986
Top-20% Cross-holding	1763	0.507	0.440	0.436	0.824	1.071	1.231	1.756
Median Cross-holding	1763	0.089	0.168	0.005	0.103	0.311	0.484	0.769

Table 4
Summary Statistics on Cross-holdings By Block Institutional Investors in Bidders and Targets

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers.

Panel A: The Cumulative Distribution of Cross-holdings by Bidder Blockholders

Cross-holdings are defined as the ratio of the shareholder's percentage ownership in the target divided by her percentage ownership in the bidder. This table focuses on large shareholders, defined as blockholders with ownership no less than five percent. The sample is restricted to deals with at least one blockholder in the bidder. We order the blockholders by their cross-holdings, and then report the (marginal) cross-holding for the top 5, 10, 20, 50, 75, and 100 percent of all blockholder shares (labeled as the *top-5%*, *top-10%*, *top-20%*, *median*, *top-75%*, and *all cross-holdings*, respectively). We compute two cross-holding measures: for all blockholders, and for all blockholders combined assuming they exchange side payments and act as a group (*combined cross-holding*). We present the empirical distribution of the two measures in Parts I and II of Panel A, respectively.

	N	Mean	StdDev	Median	75 th Percentile	90 th Percentile	95 th Percentile	99 th Percentile
<i>I: Cross-holding by All Bidder Blockholders</i>								
Top-5% Cross-holding	1692	0.199	0.418	0.000	0.154	0.799	1.135	1.936
Top-10% Cross-holding	1692	0.199	0.418	0.000	0.154	0.799	1.135	1.936
Top-20% Cross-holding	1692	0.181	0.395	0.000	0.125	0.711	1.060	1.834
Median Cross-holding	1692	0.109	0.300	0.000	0.015	0.392	0.820	1.470
Top-75% Cross-holding	1692	0.071	0.245	0.000	0.000	0.156	0.512	1.385
All Cross-holding	1692	0.069	0.243	0.000	0.000	0.149	0.497	1.385
<i>II: Combined Cross-holding by All Bidder Blockholders</i>								
Combined Cross-holding	1692	0.121	0.279	0.000	0.084	0.457	0.689	1.385

Panel B: The Cumulative Distribution of Cross-holdings by Target Blockholders

Cross-holdings are defined as the ratio of the shareholder's percentage ownership in the bidder divided by her percentage ownership in the target. This table focuses on large shareholders, defined as blockholders with ownership no less than five percent. The sample is restricted to deals with at least one blockholder in the target. We order the blockholders by their cross-holdings, and then report the (marginal) cross-holding for the top 5, 10, 20, 50, 75, and 100 percent of all blockholder shares (labeled as the *top-5%*, *top-10%*, *top-20%*, *median*, *top-75%*, and *all cross-holdings*, respectively). We compute two cross-holding measures: for all blockholders, and for all blockholders combined assuming they exchange side payments and act as a group (*combined cross-holding*). We present the empirical distribution of the two measures in Parts I and II of Panel B, respectively.

	N	Mean	StdDev	Median	75 th Percentile	90 th Percentile	95 th Percentile	99 th Percentile
<i>I: Cross-holding by All Target Blockholders</i>								
Top-5% Cross-holding	1764	0.214	0.379	0.016	0.272	0.722	1.002	1.698
Top-10% Cross-holding	1764	0.213	0.377	0.016	0.270	0.721	1.000	1.675
Top-20% Cross-holding	1764	0.202	0.363	0.012	0.241	0.701	0.986	1.646
Median Cross-holding	1764	0.114	0.269	0.000	0.078	0.377	0.701	1.348
Top-75% Cross-holding	1764	0.077	0.217	0.000	0.019	0.252	0.514	1.070
All Cross-holding	1764	0.073	0.215	0.000	0.015	0.233	0.505	1.070
<i>II: Combined Cross-holding by All Target Blockholders</i>								
Combined Cross-holding	1764	0.132	0.251	0.010	0.149	0.433	0.699	1.136

Table 5
Wealth Effects of Merger Announcements

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers.

Panel A: Wealth Effects of Merger Announcements in the Full Sample

The abnormal announcement period returns (CAR3) are over days $(-1, 1)$, where day 0 is the date of the initial bid announcement by the acquiring firm. Daily abnormal stock returns are computed using the market model and the value-weighted CRSP index. The estimation window is days $(-200, -60)$ prior to the acquisition announcement date. The Equal-weighted Total Return is the equal-weighted average return to institutional shareholders in each bidder on their stakes in bidder and target combined and is defined in equation (8). The Holding-weighted Total Return is the ownership-weighted average return to institutional shareholders in each bidder on their stakes in bidder and target combined and is defined in equation (9). The Bidder Institutional Holdings with Return Reversal give the total shareholdings in the bidder by institutions whose CAR3 on their bidder shares is negative but whose total return is positive.

	N	Mean	5 th Percentile	Median	95 th Percentile	Fraction of Positive Observations
Bidder CAR3	2815	-0.012	-0.129	-0.009	0.092	0.415
Equal-weighted Total Return	2815	0.001	-0.105	-0.001	0.108	0.494
Holding-weighted Total Return	2815	-0.002	-0.111	-0.003	0.104	0.469
Bidder Institutional Holdings with Return Reversal	1647	0.039	0.000	0.007	0.187	0.736

Panel B: Wealth Effects of Merger Announcements in Bidders with Total Institutional Ownership No Less Than 20 Percent

The abnormal announcement period returns (CAR3) are over days (-1, 1), where day 0 is the date of the initial bid announcement by the acquiring firm. Daily abnormal stock returns are computed using the market model and the value-weighted CRSP index. The estimation window is days (-200, -60) prior to the acquisition announcement date. The Equal-weighted Total Return is the equal-weighted average return to institutional shareholders in each bidder on their stakes in bidder and target combined and is defined in equation (8). The Holding-weighted Total Return is the ownership-weighted average return to institutional shareholders in each bidder on their stakes in bidder and target combined and is defined in equation (9). Bidder Institutional Holdings with Return Reversal give the total shareholdings in the bidder by institutions whose CAR3 on their bidder shares is negative but whose total return is positive. The Total Return to the Median Institution is the total return to the bidder's median institutional investor on her bidder and target shares combined. The Total Return to the Top-20th Percentile Institution is calculated analogously. The Fraction of Bidder Institutional Holdings with Return Reversal is the percentage of the bidder institutional ownership that is owned by institutions whose CAR3 on their bidder shares is negative but whose total return is positive.

	N	Mean	5 th Percentile	Median	95 th Percentile	Fraction of Positive Observations
Bidder CAR3	2356	-0.015	-0.129	-0.010	0.086	0.406
Equal-weighted Total Return	2356	-0.003	-0.107	-0.002	0.102	0.481
Holding-weighted Total Return	2356	-0.006	-0.112	-0.004	0.095	0.455
Bidder Institutional Holdings with Return Reversal	1400	0.043	0.000	0.008	0.198	0.754
Total Return to the Median Institution	2356	-0.012	-0.125	-0.009	0.091	0.418
Total Return to the Top-20 th Percentile Institution	2356	-0.001	-0.107	-0.002	0.108	0.489
Fraction of Bidder Institutional Holdings with Return Reversal	1400	0.082	0.000	0.015	0.388	0.754

Table 6
The Effects of Cross-Holdings on Mergers

The sample consists of 2,815 acquisitions announced during the period January 1, 1984, to December 31, 2002. The bidders and targets are listed in the SDC's Mergers and Acquisitions database and have institutional holding data in the CDA/Spectrum database. We keep an acquisition if the bidder owns less than 50 percent of the target prior to the bid and is seeking to own greater than 50 percent of the target. For completed deals, we require that the bidder owns more than 90 percent of the target after the deal completion. All dollar amounts are in 2002 millions of dollars, all percentages are in real numbers. We further require that the relative size of the deal is no less than 5 percent. Columns (1)-(2) are regression results based on a sample of deals where the total institutional ownership in the bidder is no less than 20 percent. Columns (3)-(4) are regression results based on a sample of deals where both bidder and target total institutional ownership are no less than 20 percent. All model specifications include year fixed effects and employ robust standard errors. Superscripts ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively. P-values are reported in brackets.

Panel A: The Bidder Announcement Period Return

	(1) CAR3	(2) CAR3	(3) CAR3	(4) CAR3
Bidder Top-20% Cross-holding	0.007 [0.251]		0.002 [0.766]	
Bidder Median Cross-holding		-0.001 [0.950]		-0.023 [0.150]
Target Top-20% Cross-holding			0.004 [0.653]	
Target Median Cross-holding				0.027 [0.147]
All Cash	0.015*** [0.009]	0.014** [0.011]	0.019*** [0.005]	0.018*** [0.006]
All Stock	-0.018*** [0.002]	-0.017*** [0.003]	-0.016** [0.012]	-0.016** [0.010]
Competing	0.001 [0.868]	0.001 [0.881]	-0.001 [0.930]	-0.001 [0.896]
Diversifying	-0.001 [0.905]	-0.001 [0.851]	-0.001 [0.877]	-0.001 [0.848]
Relative Size	-0.005 [0.271]	-0.006 [0.235]	-0.006 [0.272]	-0.007 [0.242]
Bidder Total Institutional Ownership	0.002 [0.892]	-0.004 [0.776]	-0.010 [0.600]	-0.020 [0.254]
Target Total Institutional Ownership	0.006 [0.678]	0.013 [0.391]	0.018 [0.367]	0.028 [0.126]
Bidder Market Capitalization	0.007** [0.027]	0.007** [0.028]	0.005 [0.124]	0.005 [0.125]
Target Market Capitalization	-0.011*** [0.003]	-0.010*** [0.005]	-0.009** [0.031]	-0.008** [0.037]
Bidder Market Leverage	0.023 [0.241]	0.022 [0.245]	0.029 [0.193]	0.028 [0.200]
Bidder Market-to-Book Ratio	-0.003** [0.027]	-0.003** [0.025]	-0.003** [0.023]	-0.003** [0.020]
Bidder Return on Assets	-0.011 [0.524]	-0.012 [0.505]	-0.008 [0.713]	-0.007 [0.721]
Bidder Prior Year Stock Return	-0.002 [0.458]	-0.002 [0.493]	0.000 [0.926]	0.000 [0.919]
Constant	-0.012 [0.538]	-0.013 [0.495]	-0.027 [0.195]	-0.027 [0.194]
Number of Observations	1379	1379	1071	1071
Adjusted R-squared	0.097	0.096	0.104	0.106

Panel B: The Target Announcement Period Return

	(1) CAR3	(2) CAR3	(3) CAR3	(4) CAR3
Bidder Top-20% Cross-holding	-0.007 [0.690]		0.014 [0.472]	
Bidder Median Cross-holding		-0.034 [0.211]		-0.048 [0.143]
Target Top-20% Cross-holding			-0.039** [0.043]	
Target Median Cross-holding				0.001 [0.977]
All Cash	0.050*** [0.005]	0.051*** [0.005]	0.052*** [0.006]	0.053*** [0.005]
All Stock	-0.021 [0.129]	-0.020 [0.131]	-0.035** [0.014]	-0.034** [0.018]
Competing	-0.029** [0.024]	-0.029** [0.024]	-0.028* [0.054]	-0.027* [0.058]
Diversifying	-0.009 [0.411]	-0.009 [0.424]	-0.007 [0.548]	-0.006 [0.634]
Relative Size	0.021** [0.015]	0.021** [0.013]	0.012 [0.225]	0.013 [0.181]
Bidder Total Institutional Ownership	0.062 [0.119]	0.060 [0.131]	0.120** [0.018]	0.071 [0.147]
Target Total Institutional Ownership	0.061* [0.099]	0.059* [0.079]	0.040 [0.431]	0.086* [0.053]
Bidder Market Capitalization	0.055*** [0.000]	0.055*** [0.000]	0.045*** [0.000]	0.048*** [0.000]
Target Market Capitalization	-0.061*** [0.000]	-0.060*** [0.000]	-0.048*** [0.000]	-0.051*** [0.000]
Target Market Leverage	-0.040 [0.365]	-0.039 [0.370]	-0.045 [0.386]	-0.038 [0.470]
Target Market-to-Book Ratio	-0.006** [0.038]	-0.006** [0.041]	-0.007** [0.049]	-0.007* [0.066]
Target Return on Assets	0.048 [0.141]	0.048 [0.140]	0.051 [0.160]	0.055 [0.128]
Target Prior Year Stock Return	-0.046*** [0.000]	-0.046*** [0.000]	-0.040*** [0.001]	-0.041*** [0.001]
Constant	0.168*** [0.001]	0.162*** [0.001]	0.097* [0.052]	0.092* [0.070]
Number of Observations	1381	1381	1072	1072
Adjusted R-squared	0.157	0.158	0.171	0.169

Panel C: The Bid Premium

	(1) Premium	(2) Premium	(3) Premium	(4) Premium
Bidder Top-20% Cross-holding	-0.028 [0.303]		0.030 [0.326]	
Bidder Median Cross-holding		0.002 [0.972]		0.002 [0.977]
Target Top-20% Cross-holding			-0.090*** [0.007]	
Target Median Cross-holding				-0.063 [0.351]
All Cash	0.031 [0.325]	0.033 [0.295]	0.031 [0.266]	0.033 [0.237]
All Stock	-0.016 [0.548]	-0.017 [0.535]	-0.026 [0.246]	-0.023 [0.297]
Competing	0.023 [0.395]	0.023 [0.390]	0.049* [0.077]	0.050* [0.070]
Diversifying	-0.025 [0.234]	-0.024 [0.254]	0.000 [0.998]	0.003 [0.876]
Relative Size	0.086*** [0.000]	0.088*** [0.000]	0.077*** [0.000]	0.080*** [0.000]
Bidder Total Institutional Ownership	0.010 [0.894]	0.034 [0.640]	0.247*** [0.001]	0.174** [0.015]
Target Total Institutional Ownership	0.003 [0.957]	-0.021 [0.729]	-0.054 [0.512]	0.020 [0.789]
Bidder Market Capitalization	0.088*** [0.000]	0.088*** [0.000]	0.081*** [0.000]	0.086*** [0.000]
Target Market Capitalization	-0.116*** [0.000]	-0.120*** [0.000]	-0.099*** [0.000]	-0.107*** [0.000]
Bidder Market Leverage	0.009 [0.918]	0.009 [0.914]	-0.054 [0.525]	-0.041 [0.631]
Bidder Market-to-Book Ratio	0.002 [0.606]	0.003 [0.586]	0.008** [0.034]	0.009** [0.024]
Bidder Return on Assets	0.022 [0.744]	0.023 [0.728]	-0.065 [0.347]	-0.059 [0.404]
Bidder Prior Year Stock Return	0.027 [0.160]	0.026 [0.170]	0.001 [0.957]	-0.000 [0.988]
Constant	0.502*** [0.000]	0.506*** [0.000]	0.283*** [0.000]	0.282*** [0.000]
Number of Observations	1337	1337	1051	1051
Adjusted R-squared	0.122	0.121	0.179	0.173

Panel D: The Completion Likelihood

	(1) Complete	(2) Complete	(3) Complete	(4) Complete
Bidder Top-20% Cross-holding	0.053 [0.650]		0.142 [0.355]	
Bidder Median Cross-holding		-0.060 [0.817]		-0.334 [0.308]
Target Top-20% Cross-holding			-0.085 [0.580]	
Target Median Cross-holding				0.639 [0.105]
Premium	0.002 [0.987]	0.000 [0.997]	0.033 [0.842]	0.048 [0.772]
All Cash	-0.422*** [0.000]	-0.425*** [0.000]	-0.423*** [0.002]	-0.432*** [0.002]
All Stock	-0.046 [0.667]	-0.044 [0.684]	-0.084 [0.490]	-0.090 [0.460]
Competing	-1.135*** [0.000]	-1.135*** [0.000]	-1.178*** [0.000]	-1.191*** [0.000]
Diversifying	0.096 [0.266]	0.094 [0.278]	0.097 [0.334]	0.104 [0.303]
Relative Size	-0.039 [0.503]	-0.043 [0.458]	-0.021 [0.750]	-0.022 [0.734]
Bidder Total Institutional Ownership	0.722** [0.014]	0.657** [0.020]	0.605 [0.111]	0.229 [0.500]
Target Total Institutional Ownership	-0.094 [0.717]	-0.037 [0.877]	-0.577 [0.119]	-0.178 [0.585]
Bidder Market Capitalization	0.280*** [0.000]	0.280*** [0.000]	0.324*** [0.000]	0.329*** [0.000]
Target Market Capitalization	-0.261*** [0.000]	-0.253*** [0.000]	-0.311*** [0.000]	-0.324*** [0.000]
Bidder Market Leverage	-0.030 [0.931]	-0.032 [0.928]	0.232 [0.580]	0.260 [0.533]
Bidder Market-to-Book Ratio	-0.001 [0.950]	-0.002 [0.942]	0.009 [0.720]	0.010 [0.742]
Bidder Return on Assets	-0.207 [0.385]	-0.209 [0.382]	0.097 [0.722]	0.105 [0.704]
Bidder Prior Year Stock Return	0.063 [0.337]	0.064 [0.332]	0.114 [0.165]	0.116 [0.155]
Constant	0.705* [0.089]	0.688* [0.096]	0.706 [0.176]	0.774 [0.145]
Number of Observations	1337	1337	1051	1051
Pseudo R-squared	0.174	0.174	0.191	0.193