Cross-ownership, returns, and voting in mergers ☆

Gregor Matvos [a], Michael Ostrovsky [b,*]

[a] Graduate School of Business, University of Chicago, Chicago, IL 60637, USA
[b] Graduate School of Business, Stanford University, Stanford, CA 94305, USA

A B S T R A C T

We show that institutional shareholders of acquiring companies on average do not lose money around public merger announcements, because they hold substantial stakes in the targets and make up for the losses from the acquirers with the gains from the targets. Depending on their holdings in the target, acquirer shareholders generally realize different returns from the same merger, some losing money and others gaining. This conflict of interest is reflected in the mutual fund voting behavior: In mergers with negative acquirer announcement returns, cross-owners are significantly more likely to vote for the merger.

© 2008 Elsevier B.V. All rights reserved.

1. Introduction

On October 27, 2003, Bank of America (BAC) announced plans to acquire FleetBoston Financial (FBF). In the week following the announcement, the market capitalization of BAC decreased by $9 billion, from $122 billion to $113 billion, while the market capitalization of FBF increased by approximately the same amount, from $33.5 billion to $42.5 billion.[1] The 10 largest shareholders of BAC owned 24% of the company and so lost more than $2 billion dollars on their BAC holdings. The merger was subsequently approved by the BAC shareholders. This is somewhat unsettling. Why would the shareholders of BAC agree to lose almost 10% on their holdings, especially given that the 10 largest shareholders control almost a quarter of the company voting stock?

This example, while striking, is by no means an exception. Many studies show that average returns to acquiring-firm shareholders are negative, or at best slightly positive, while average returns to target-firm shareholders are positive and high, when both companies are publicly traded (Jensen and Ruback, 1983; Jarrell, Brickley, and Netter, 1988; Morck, Shleifer, and Vishny, 1990; Andrade, Mitchell, and Stafford, 2001; Moeller, Schlingemann, and Stulz, 2004, 2005). Proposed explanations of negative announcement returns for the acquirers include overconfidence of their managers (Roll, 1986; Malmendier and Tate, 2008), empire-building and other personal objectives of managers (Jensen, 1986; Morck, Shleifer, and Vishny, 1990; Shleifer and Vishny, 1988, 1989), and a price pressure effect on acquirer's stock price around mergers (Mitchell, Pulvino, and Stafford, 2004). These papers, however, do not explain why shareholders of the acquiring firms remain largely inactive and do not try to block mergers.

In this paper we show that the incentives for many shareholders of acquiring firms to block negative-return mergers are often blunted or even reversed: Institutional investors do not lose nearly as much money as the simple computation above might suggest, because they frequently also own large stakes in the target companies.[2] Table 1 illustrates the effect of cross-ownership for the Bank of America–Fleet merger. Panel A lists the 10 largest shareholders of Bank of America and the 10 largest shareholders of Fleet prior to the merger. Eight out of 10 shareholders are on both lists. Panel B shows dollar returns of the 10 largest shareholders of Bank of America on their holdings in the two stocks. Instead of losing more than $2 billion, these shareholders gained more than $300 million. Even without the most successful shareholder, Capital Research and Management Company (CRMC), the remaining nine lost only around $200 million, i.e., an order of magnitude less than the $2 billion suggested by the simple calculation.

This observation points to a conflict of interest between Acquirer-only (A-only) shareholders, who do not hold shares of the target and bear the full loss, and cross-owners, who are compensated by the gains in the target. We first demonstrate that the Bank of America–Fleet merger is not an exception. In a sample of mergers between publicly traded US firms from 1981 to 2003, the amount of institutional cross-ownership is substantial. Without taking cross-ownership into account, average returns to acquiring-firm shareholders are negative and significant, in line with previous studies. Announcement returns to cross-owners, meanwhile, are on average positive. The returns realized in the target for this group of shareholders on average more than make up for the losses incurred from their holdings in the acquirer. Overall, taking target-firm holdings of acquiring-firm shareholders into account, we find that returns to institutional investors in the acquirer on average do not significantly differ from zero.

Because the returns to A-only shareholders and to cross-owners are so different, their incentives to approve or disapprove a merger are also different, and so it is natural to expect that their behavior when they vote on a merger proposal is different as well. We test this conjecture using a data set containing mutual fund votes in a sample of mergers announced in years 2003–2006. We show that mutual funds that hold shares in the target company are more likely than A-only shareholders to vote for a merger with negative acquirer announcement returns. There is no difference in voting behavior between the two groups of shareholders when acquirer announcement returns are positive.

Table 1

Top institutional investors' holdings and announcement returns in the merger of Bank of America (BAC) and FleetBoston Financial (FBF)

This table describes the returns of top institutional shareholders around the announcement of the Bank of America–FleetBoston Financial merger on Monday, October 27, 2003. Panel A lists 10 largest shareholders of BAC and FBF and their holdings (as a percentage of all shares outstanding). Panel B shows the losses from BAC holdings, gains from FBF holdings, and net returns of the 10 largest shareholders of BAC around the announcement. Panel C shows aggregate holdings and returns of all institutional shareholders of BAC around the announcement. Holdings are as of September 30, 2003. Gains and losses in millions of dollars are from Friday, October 24 to Friday, October 31, 2003. Data are from Thomson Financial and the Center for Research in Security Prices.

Panel A. Ten largest shareholders of BAC and FBF

Shareholder	Percent owned
Shareholders of Bank of America	
Barclays	4.77
Fidelity	3.69
State Street	3.00
Axa	2.97
CRMC	2.16
Vanguard	1.87
Mellon	1.52
Northern Trust	1.31
Deutsche Bank	1.27
Morgan Stanley	1.15
Shareholders of FleetBoston Financial	
CRMC	8.50
Barclays	5.14
Axa	3.13
State Street	2.91
Fidelity	2.23
Vanguard	1.88
Bank of America	1.82
MFS	1.77
Deutsche Bank	1.18
Northern Trust	1.10

Panel B. Returns of the 10 largest shareholders of Bank of America

Shareholder	BAC return	FBF return	Net return
Barclays	−430	461	31
Fidelity	−332	200	−133
State Street	−270	261	−9
Axa	−268	281	13
CRMC	−195	763	568
Vanguard	−170	168	−2
Mellon	−137	90	−47
Northern Trust	−118	99	−19
Deutsche Bank	−115	106	−9
Morgan Stanley	−103	39	−64
Total	−2,139	2,469	329

Panel C. Aggregate holdings and returns of all institutional shareholders of Bank of America

Holdings and returns	Value
BAC shares held by institutional shareholders (millions)	861
Percent of BAC shares owned by institutional shareholders	57.5
FBF shares held by institutional shareholders of BAC (millions)	647
Percent of FBF shares owned by institutional shareholders of BAC	61.5
Loss of institutional shareholders of BAC on BAC shares	−5,277
Gain of institutional shareholders of BAC on FBF shares	5,558
Net gain	281

---

[2] Easterbrook and Fischel (1982) and Hansen and Lott (1996) also point out that diversified shareholders could hold shares in both the acquirer and the target in a merger and, hence, could care about the total return to their portfolio instead of individual returns to its components. These papers, however, do not estimate the average returns to shareholders in mergers taking this effect into account, do not discuss the conflict of interest among the shareholders, and do not present evidence on shareholders' voting behavior.

The rest of the paper is organized as follows. Section 2 examines the impact of cross-ownership on institutional investor returns in mergers. We first work out in detail the effects of cross-ownership on returns of institutional investors on the example of the Bank of America–Fleet merger and then we extend the analysis to a sample of mergers from 1981 to 2003. Section 3 provides the details of the construction of the data set on mutual fund voting and presents evidence on the effect of cross-ownership on mutual fund voting in mergers. Section 4 concludes.

2. Institutional investors' holdings and returns around merger announcements

In this section, we describe the holdings of institutional investors and their returns around merger announcements, and then we show that taking into account holdings in the target firms makes a large and significant difference to the returns to the acquiring firms' investors. After taking these holdings into account, the average returns to institutional owners are statistically indistinguishable from zero.

2.1. Data

Our sample includes completed mergers of publicly traded US companies reported in Center for Research in Security Prices (CRSP) and Thomson Financial SDC Platinum (SDC) merger databases. The sample starts in 1981, when ownership data became available, and ends in 2003. We restrict the sample to mergers in which the acquiring firm owns less than 50% of the target prior to the announcement date and 100% after the completion of transaction. We also require that the market capitalization of the target be greater than $1 million (inflation-adjusted, 2003 dollars) and also greater than 1% of that of the acquirer. Finally, we exclude mergers involving firms that have multiple classes of shares traded, mergers involving bidding wars, mergers for which CRSP and SDC databases report announcement dates that differ by more than one trading day, and records that could not be matched with price and return data. The information on institutional ownership comes from the Thomson Financial CDA/Spectrum Institutional (13f) Holdings database. We consider only mergers for which institutional ownership in both participating companies is positive.

The resulting sample contains 2,529 observations. Panel A of Table 2 shows summary statistics for the sample. On average, institutional investors hold 43.1% of the shares of acquiring companies and 29.5% of the shares of target companies. Of these, slightly less than a third (12.1%) of shares of acquiring companies held by institutional holders is held by cross-owners, who also own slightly more than a half (15.5%) of institutional holdings of target companies' shares. The average market capitalizations of the acquirer and the target are approximately $6 billion and $816 million, respectively (in 2003 dollars), and the market capitalization of the target is on average 22% of the market capitalization of the acquirer.

Table 2

Institutional ownership and cross-ownership of acquirer and target shares before merger announcements from 1981 to 2003

Panel A presents summary statistics on institutional ownership for a sample of 2,529 completed mergers and acquisitions of public US companies between 1981 and 2003 in which institutional ownership in both the acquirer and the target is positive. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the (−5,+5) trading days event window, in percentages. Holdings are in percentages of all shares outstanding, as of the end of the last quarter prior to the merger. Market capitalization is in millions of 2003 dollars. Panel B presents summary statistics for the subsample of 100 largest mergers, by inflation-adjusted market capitalization of the target. Data are from the Center for Research in Security Prices and Thomson Financial SDC Platinum merger databases and the Thomson Financial CDA/Spectrum Institutional (13f) Holdings database.

Variable	Mean	Median	Std. Dev.
Panel A. Full sample			
Market-model abnormal acquirer (A) return	−1.64	−1.65	10.50
Market-model abnormal target (T) return	21.93	18.16	24.87
Acquirer market capitalization	5,973	1,407	17,417
Target market capitalization	816	139	3,747
Shares of acquirer held by institutions	43.09	43.03	24.15
Shares of target held by institutions	29.53	24.07	23.31
Shares of A held by T's institutional investors	12.13	6.99	13.53
Shares of T held by A's institutional investors	15.49	9.59	16.56
Relative size	0.22	0.13	0.23
Panel B. The one hundred largest mergers			
Market-model abnormal acquirer (A) return	−4.70	−4.52	9.82
Market-model abnormal target (T) return	16.48	15.45	14.59
Acquirer market capitalization	39,957	18,895	52,258
Target market capitalization	11,985	6,650	14,819
Shares of acquirer held by institutions	56.21	57.38	17.22
Shares of target held by institutions	58.12	60.91	18.03
Shares of A held by T's institutional investors	42.23	41.81	15.65
Shares of T held by A's institutional investors	45.71	44.58	16.25
Relative size	0.44	0.41	0.25

Moeller, Schlingemann, and Stulz (2004) show that size is an important determinant of merger returns and that the shareholders of acquiring firms earn significantly lower abnormal returns in large mergers than they do in small mergers. In Panel B of Table 2, we show the same summary statistics as in Panel A, but only for the largest one hundred mergers (by the market capitalization of the target, in 2003 dollars). Institutional holdings and the degree of cross-ownership are much higher in this subsample. On average, institutions hold more than 50% of shares of each company (56.2% of acquirer and 58.1% of target) and cross-owners own three-quarters of acquirer (42.2%) and target (45.7%) institutional holdings.

2.2. Shareholders' gains and losses: an example

We estimate the average returns to shareholders around merger announcements using the standard event study methodology (Brown and Warner, 1985), with and without adjustment for cross-ownership. We first illustrate our adjustment procedure using the Bank of America–Fleet merger as an example (Table 1, Panel C). The weekly announcement return on the BAC shares was −7.5%. With the market capitalization of $122 billion, this translates

into a return of $-7.5\% \times \$122{,}488$ million $= -\$9{,}172$ million to BAC shareholders (the numbers in equations are rounded to the nearest tenth for percentages and to the nearest million for dollar amounts). The institutional ownership of Bank of America was 57.5%, so institutional owners lost $57.5\% \times \$9{,}172$ million $-\$5{,}277$ million on their investment in BAC. Without taking cross-ownership into account, this loss might be interpreted as the loss to the institutional shareholders of Bank of America from the transaction.

This calculation ignores the fact that the institutional shareholders of Bank of America also held 61.5% of all Fleet shares and partook in its 27% gain. With the market capitalization of \$33 billion, this amounts to a return of $(27.0\% \times 61.5\% \times \$33{,}462$ million$) = \$5{,}558$ million. These gains exceeded the losses the institutional investors of BAC suffered on their positions in BAC by \$5,558 million $-\$5{,}277$ million $= \$281$ million. We calculate adjusted announcement returns by taking into account the total holdings of acquirer institutional owners, including their investment in the target.[3] Then the total investment of institutional holders of BAC is $(57.5\% \times \$122{,}488$ million $+ 61.5\% \times \$33{,}462$ million$) = \$91{,}040$ million and the adjusted return on this investment is \$281 million / \$91,040 million $= 0.3\%$. This simple calculation puts the BAC–FBF merger in a different light for the average institutional owner. Instead of losing 7.5%, it makes 0.3%.

The return calculation can also be applied to cross-owners, not all institutional owners of the acquirer (i.e., excluding the institutional shareholders of the acquirer who do not hold any shares in the target). They owned 53.8% of BAC and 61.5% of FBF, thus realizing smaller losses on the acquirer and earning the returns over a smaller overall investment. Their total investment was $(53.8\% \times \$122{,}488$ million $+ 61.5\% \times \$33{,}462$ million$) = \$86{,}417$ million. They made $(-7.5\% \times 53.8\% \times \$122{,}488$ million$) = -\$4{,}931$ million on the acquirer and $(27.0\% \times 61.5\% \times \$33{,}462$ million$) = \$5{,}558$ million on the target, earning an overall return of \$627 million. Their percentage return is then \$627 million / \$86,417 million $= 0.7\%$, which is significantly higher than the -7.5% earned by investors holding only the acquirer. This difference in returns also suggests that these two groups of shareholders could have very different incentives in whether this merger should take place.

Comparing the adjusted returns from the BAC–FBF example with the unadjusted returns to BAC, we see that the cross-ownership adjustment can be substantial. Section 2.3 applies the basic calculations above, with some variations and robustness checks, to the sample of 2,529 mergers described in Section 2.1.

2.3. Shareholders' gains and losses: results from 1981 to 2003

In this section, we show that, when cross-holdings are taken into account, the mean abnormal return to institutional shareholders around merger announcements is statistically indistinguishable from zero. Mean acquirer abnormal returns unadjusted for cross-ownership in our sample are consistent with the previous literature: They are negative at around -1% and highly statistically significant.[4] Table 3 presents the unadjusted and adjusted abnormal and raw returns to institutional shareholders over the $(-5,+5)$ days window. We use three different ways of estimating returns: market-model abnormal returns, market-adjusted returns (raw return minus the CRSP equally weighted index), and raw returns. The market-model abnormal return on the acquirer is -1.64%, and the market-adjusted abnormal return is -1.36%. Both are statistically significant at the 1% level. The raw return is -0.26%, statistically insignificant. Thus, by looking only at the abnormal returns to the acquirer shares, one might conclude that an acquisition of a public target is, on average, bad news for acquirers' shareholders.

Once we adjust for cross-ownership, the abnormal returns to acquirers' institutional shareholders around merger announcements are not statistically different from zero. Column 3 of Panel A shows that the average of adjusted market-model abnormal returns is -0.29% and statistically insignificant, as is the average of market-adjusted returns (-0.04%). The average of raw returns, once adjusted for acquirer holdings in the target, is positive (1.06%). Regardless of return specifications, on average the institutional owners of the acquirer do not seem to realize a negative announcement return in public mergers. Table 3 also demonstrates that the difference between adjusted and unadjusted acquirer returns is not a consequence of behavior in the tails. The results hold for the medians of adjusted and unadjusted returns. Table 4 shows that the results over the $(-1,+1)$ and $(-20,+20)$ days windows are similar to those over the $(-5,+5)$ days windows.

Another way to understand the impact of cross-ownership on merger announcement returns is to look at the average cross-ownership adjustment to acquirer announcement returns. This difference between the unadjusted and adjusted returns is presented in the last column. It is very stable, ranging from 1.33% for market-adjusted returns to 1.35% for market-model abnormal returns. All changes are statistically significant at the 1% level. These results show that the magnitude of the adjustment is comparable to the negative returns calculated without taking cross-ownership into account.

---

[3] An alternative way to normalize the cross-ownership-adjusted (adjusted) abnormal returns is to divide the dollar returns by the value of institutional investments in the acquirer only. The results do not change significantly because the target is on average much smaller than the acquirer.

[4] Andrade, Mitchell, and Stafford (2001) report -0.7% return for the acquirer over the $(-1,+1)$ event window and -3.8% for the acquirer from 20 days before the announcement to the completion of the merger, for a sample of mergers of publicly traded companies from 1973 through 1998. Moeller, Schlingemann, and Stulz (2004) also report that acquirers of public companies lose, on average, 1% around announcement, for the sample of mergers from 1980 through 2001.

Table 3

Returns to institutional investors around merger announcements

The sample in Panel A contains 2,529 completed mergers and acquisitions of public US companies between 1981 and 2003 in which institutional ownership in both the acquirer and the target is positive. The sample in Panel B contains the 100 largest mergers, by inflation-adjusted market capitalization of the target. All returns are over the (−5,+5) trading days event window. Market-adjusted and market-model abnormal returns are relative to the CRSP equally weighted index benchmark. Return to cross-holders is computed as the dollar return to shareholders who have shares both in the target and the acquirer, divided by the total value of their holdings in both the acquirer and the target. Adjusted return to the shareholders of an acquirer is computed as the total dollar return to the shareholders of the acquirer from their holdings in both the acquirer and the target, divided by the total value of their holdings in the acquirer and the target. *Significant at 10%; **significant at 5%; ***significant at 1%. Data are from the Center for Research in Security Prices and Thomson Financial SDC Platinum merger databases, Thomson Financial CDA/Spectrum Institutional (13f) Holdings database, and CRSP stock price database.

Returns	Return on acquirer stock (1)	Return to cross-holders (2)	Cross-ownership adjusted return (3)	Return difference (2-1)	Return difference (3-1)
Panel A. Full sample					
Market-model abnormal return					
Mean (%)	−1.64	2.29	−0.29	4.04	1.35
Standard error (%)	0.21***	0.23***	0.20	0.14***	0.05***
Median (%)	−1.65	1.62	−0.26	2.02	0.35
Market-adjusted return					
Mean (%)	−1.36	2.49	−0.04	4.00	1.33
Standard error (%)	0.21***	0.23***	0.20	0.14***	0.05***
Median (%)	−1.49	1.79	−0.37	1.98	0.34
Raw return					
Mean (%)	−0.26	3.53	1.06	3.94	1.33
Standard error (%)	0.22	0.23***	0.22***	0.13***	0.05***
Median (%)	−0.35	2.75	0.65	1.99	0.34
Panel B. The one hundred largest mergers					
Market-model abnormal return					
Mean (%)	−4.70	0.80	−0.27	5.51	4.43
Standard error (%)	0.98***	0.87	0.86	0.46***	0.37***
Median (%)	−4.52	0.81	0.07	5.21	4.58
Market-adjusted return					
Mean (%)	−3.69	1.64	0.59	5.34	4.29
Standard error (%)	1.04***	0.98*	0.97	0.44***	0.36***
Median (%)	−3.65	1.03	0.31	5.07	4.37
Raw return					
Mean (%)	−2.80	2.51	1.47	5.31	4.27
Standard error (%)	1.10**	1.07**	1.05	0.44***	0.36***
Median (%)	−3.15	2.46	1.05	5.07	4.37

The results are even more striking if we restrict the analysis to the sample of one hundred largest mergers (by the inflation-adjusted market capitalization of the target), which are presented in Panel B. These mergers are on average worse for the acquirer than the average merger from the full sample. The magnitudes of the acquirer returns are −3.69% for market-adjusted returns and −4.70% for market-model abnormal returns. The average adjusted returns are similar to the ones calculated in the full sample, statistically indistinguishable from zero. These mergers are not only worse for the acquirer shareholders on average, but, as pointed out in Section 2.1, they also have a higher degree of cross-ownership. This is reflected in the difference between unadjusted returns and adjusted returns in the last column. Regardless of return calculation, the difference is greater than 4%, statistically significant at the 1% level.

While the average announcement return to institutional investors from the merger is statistically indistinguishable from zero, these investors are not a homogeneous group and have potentially very different incentives in a merger. The investors who hold only acquirer stock on average realize negative abnormal returns. Cross-owners, meanwhile, realize positive returns (Table 3, Column 2). Their announcement abnormal returns are 2.29% for market-model abnormal returns and 2.49% for market-adjusted returns.[5] Column 4 in the same table shows that cross-owners on average realize announcement returns that are 4 percentage points

---

[5] There are 122 mergers in our sample that do not have any cross-owners. For these mergers, the return to cross-owners is not defined and so the numbers in Columns 2 and 4 are reported only for the remaining 2,407 mergers. Restricting the analysis to this sample changes the results in Columns 1, 3, and 5 only slightly.

Table 4

Returns to institutional investors around merger announcements over the (−1,+1) and (−20,+20) days windows

    The sample contains 2,529 completed mergers and acquisitions of public US companies between 1981 and 2003 in which institutional ownership in both the acquirer and the target is positive. Panel A presents returns over the (−1,+1) trading days event window. Panel B presents returns over the (−20,+20) trading days event window. Market-adjusted and market-model abnormal returns are relative to the CRSP equally weighted index benchmark. Return to cross-holders is computed as the dollar return to shareholders who have shares both in the target and the acquirer, divided by the total value of their holdings in both the acquirer and the target. Adjusted return to the shareholders of an acquirer is computed as the total dollar return to the shareholders of an acquirer from their holdings in both the acquirer and the target, divided by the total value of their holdings in the acquirer and the target. *Significant at 10%; ***significant at 1%.

Returns	Return on acquirer stock (1)	Return to cross-holders (2)	Cross-ownership adjusted return (3)	Return difference (2-1)	Return difference (3-1)
Panel A. (−1,+1) event window					
Market-model abnormal return					
Mean (%)	−1.49	1.99	−0.29	3.58	1.20
Standard error (%)	0.16***	0.19***	0.16*	0.14***	0.05***
Market-adjusted return					
Mean (%)	−1.42	2.04	−0.23	3.57	1.19
Standard error (%)	0.16***	0.19***	0.16	0.14***	0.05***
Raw return					
Mean (%)	−1.13	2.26	0.06	3.51	1.19
Standard error (%)	0.17***	0.19***	0.16	0.12***	0.05***
Panel B. (−20,+20) event window					
Market-model abnormal return					
Mean (%)	−3.05	1.64	−1.52	4.76	1.53
Standard error (%)	0.39***	0.38***	0.38***	0.17***	0.07***
Market-adjusted return					
Mean (%)	−1.76	2.52	−0.36	4.48	1.40
Standard error (%)	0.34***	0.35***	0.33	0.16***	0.06***
Raw return					
Mean (%)	2.71	6.97	4.11	4.42	1.40
Standard error (%)	0.37***	0.38***	0.36***	0.15***	0.06***

higher than the returns to institutional investors who hold only shares in the acquirer. These results suggest a potential conflict of interest between these two groups of shareholders, which is the focus of our analysis of shareholder voting behavior in Section 3.

Table 5 shows the results for cash, stock, and mixed mergers separately. The adjustment for cross-ownership is substantial and similar in magnitude for all three merger types. In contrast (and consistent with the previous literature), the unadjusted returns are very different for different merger types, and so the adjusted returns are different as well. Notably, cross-owners realize positive average announcement returns of 0.7% even in pure equity mergers, which have the lowest adjusted and unadjusted returns for the acquirers, once again showing that, in mergers, different shareholders of the acquirer receive very different payoffs, depending on their holdings in the target.

We do not have data for individual investors and therefore cannot estimate the impact of the cross-holding adjustment on their returns. Also, we do not take into account the fact that even if, say, a mutual fund holds shares only in the acquirer, an individual investor in that fund could hold shares in other mutual funds, which, in turn, could hold shares in the target. This individual investor would also get some benefit from cross-owner-

ship, thus potentially reducing the conflict of interest between institutions that hold shares only in the acquirer and those that hold shares in both the acquirer and the target. The basic arithmetic, however, is the same: Diversified investors who hold shares in both acquiring and target firms lose less, and possibly even gain, while investors who hold shares only in acquiring firms bear the full loss around merger announcements.

3. Voting

In Section 2 we show that, while shareholders who hold shares only in the acquiring company on average realize negative announcement returns, institutional investors on average realize returns that are close to zero. Moreover, a subgroup of institutional shareholders, the cross-owners, in fact realize positive returns, even in equity mergers. This suggests a potential conflict of interest between the shareholders who hold only shares in the acquirer and the cross-owners. The former should never want bad mergers to go through, while the latter might like such mergers if they own sufficiently large stakes in the target.

In principle, other conflicts of interest could arise among shareholders, due to different tax situations, risk

Table 5
Returns to institutional investors around merger announcements by form of payment

The subsamples in this table are from the sample of 2,529 completed mergers and acquisitions of public US companies between 1981 and 2003 in which institutional ownership in both the acquirer and the target is positive. The subsamples are drawn based on the method of payment: Panel A cash; Panel B stock; Panel C mixed. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the $(-5,+5)$ trading days event window. Return to cross-holders is computed as the dollar return to shareholders who have shares both in the target and the acquirer, divided by the total value of their holdings in both the acquirer and the target. Adjusted return to the shareholders of an acquirer is computed as the total dollar return to the shareholders of the acquirer from their holdings in both the acquirer and the target, divided by the total value of their holdings in the acquirer and the target. **Significant at 5%; ***significant at 1%.

	Return on acquirer stock (1)	Return to cross-holders (2)	Cross-ownership adjusted return (3)	Return difference (2-1)	Return difference (3-1)
Panel A. Cash					
Mean (%)	1.38	5.38	2.22	4.16	0.83
Standard error (%)	0.38***	0.54***	0.37***	0.41***	0.08***
Number of mergers	570	542	570	542	570
Panel B. Stock					
Mean (%)	−2.88	0.70	−1.55	3.62	1.32
Standard error (%)	0.32***	0.31**	0.30***	0.18***	0.08***
Number of mergers	1,268	1,213	1,268	1,213	1,268
Panel C. Mixed					
Mean (%)	−1.86	2.67	−0.04	4.73	1.82
Standard error (%)	0.37***	0.38***	0.35	0.25***	0.12***
Number of mergers	691	652	691	652	691

attitudes, and time horizons. However, the specific conflict of interest that we identify is reflected in investors' behavior exceptionally clearly and directly. We show that, in a given merger, mutual funds that hold shares in both the acquirer and the target are more likely to vote for the merger than the ones that hold shares only in the acquirer. Furthermore, we show that this effect is present only in mergers with negative announcement effects, showing that, as expected, the conflict arises only in mergers with negative returns in the acquirer. It is in the interest of both shareholder groups to pass mergers with positive announcement returns.

3.1. Data

Until recently, voting in shareholder meetings in the US was confidential. Mutual funds and other investors did not have to disclose how they voted unless they wished to do so. Beginning in 2003, however, the Securities and Exchange Commission (SEC) required all mutual funds to disclose their votes in N-PX and N-PX/A filings. Our data set was collected from the filings submitted by the funds to the SEC between August 2004 and December 2006. These filings contain information on votes in shareholder meetings that took place between July 1, 2003 and June 30, 2006.

Each fund is required to report the names and identifiers of the companies in which voting took place, meeting and record dates, short descriptions of the proposals being voted on, management recommendations on the issues, and the fund's votes. The proposals range from mergers and acquisitions to election of directors and shareholder resolutions. The SEC, however, does not specify a particular format in which these reports should be submitted. As a result, funds submit their filings in a wide variety of different formats, and moreover, for the same fund the format often changes from one year to the next. Fortunately, some formats are relatively common. We downloaded all funds' filings and searched through a subsample of them (the subsample included the one hundred largest funds as well as a number of popular fund families) to identify the different formats present there. We identified 46 different formats and wrote Perl scripts to extract data from them.

From that voting data, we extracted the records with votes on mergers and acquisitions and combined them with a list of mergers and acquisitions obtained from SDC Platinum database for the corresponding time period (2003–2006) using firm identifiers (tickers and CUSIPs), keeping the deals for which voting data were present for both the acquirer and the target. For each fund and each merger in which the fund voted, we then identified whether the fund voted only in the acquirer, only in the target, or in both. Because we are interested in shareholder voting in acquiring firms, we focus on the records in which either the fund reported votes only in the acquirer (in which case we classify it as an A-only shareholder) or in both the acquirer and the target (in which case we classify it as a cross-owner).

Next, we combined our voting data with the data on mutual fund holdings. In their filings, the funds were not required to include any fund-specific identifiers. They only included fund family-specific identifiers as well as fund names. More precisely, they included the Central Index Key (CIK) numbers that the SEC assigned to fund families and groups. Multiple CIK numbers could correspond to the same fund family.

Because fund names can be written in many different ways, we could not match the voting data to the holdings data from other databases based directly on them. What we did instead is as follows. In a separate database, for the

funds in which it can be done reliably, the SEC reports fund ticker symbols corresponding to fund names.[6] Because this is a different database, fund names in it do not have to match exactly to the names in NP-X and NP-X/A forms submitted by funds (in fact, they can be quite different, because funds' names sometimes change). Fortunately, both databases contain CIK numbers, and so our matching procedure consisted of two steps. First, we matched each group of funds with the same CIK number in one database to the group of funds with the same CIK number in the other database. Then, we manually matched the funds in each group by their names. We then matched the ticker symbols for the funds to their portfolio codes in CRSP Mutual Fund database, which allowed us to obtain mutual fund holdings.[7] The resulting data set contains 7,322 records, which include 114 mergers and 1,457 mutual funds. To calculate announcement returns we obtained stock prices from the CRSP stock price database and merged them with the voting and holdings data on six-digit CUSIPs. We obtained family membership from the CRSP ICDI mappings database, which we merged on portfolio codes.

3.2. Summary statistics

The summary statistics for the voting data are presented in Tables 6 and 7. The average acquirer market capitalization ($27.5 billion) and target market capitalization ($11.4 billion) are larger than in the sample analyzed in Section 2 ($6.0 billion and $0.8 billion, respectively). Because the merger has to have come up for a vote in the acquirer to be included in the sample, the targets are also on average much larger relative to the acquirer (0.55) than in Section 2 (0.22). Announcement returns are lower. Market-model abnormal returns from a $(-5,+5)$ event window for the acquirer are -5.2% and 13.3% for the target. In 36% of observations the fund is a cross-owner, holding both the acquirer and the target.

Table 7, Panel A shows that mutual funds overwhelmingly approve mergers: 97.4% of votes are "for" the acquisition, only 1.7% are "against," and 0.9% are "did not" or "abstain." A large number of funds in our sample never oppose the management and always vote "for." This is in line with the findings of Matvos and Ostrovsky (2008), who show that a large heterogeneity exists among funds in terms of their propensity to oppose the management in board of director elections and that a large fraction of funds votes "for" management-recommended directors 100% of the time. In Panel B of Table 7, we drop these "nonresponsive" funds. We look at "responsive" ones, which have cast an "against" or "did not" vote in at least one merger in our sample. These funds support mergers to

---

[6] For example, ticker symbols for Vanguard Index Funds can be obtained at http://www.sec.gov/cgi-bin/browse-edgar?CIK=0000036405&action=getcompany&scd=series.

[7] Another potential complication is that the same fund could have multiple ticker symbols for different share classes. This, however, turns out not to be a major issue, because the same group of tickers corresponding to the fund in the SEC database usually corresponds to it in the CRSP database as well.

Table 6
Voting behavior: summary statistics of holdings and returns

The sample contains 7,322 mutual fund votes in acquirers in 114 completed mergers and acquisitions of public US companies between 2003 and 2006 in which mutual funds voted on the merger in the acquirer and the target. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the $(-5,+5)$ trading days event window. Market capitalization is in millions of US dollars. Fund return is calculated as the abnormal dollar return to the fund from its holdings in the acquirer and the target divided by the total value of its holdings. Target holding is a dummy variable that takes the value of one if the mutual fund voting in the acquirer also has holdings in the target. Data are from the Securities and Exchange Commission Edgar database (N-PX filings), Thomson Financial SDC Platinum merger database, CRSP mutual fund holdings database, and CRSP stock price database.

Variable	Mean	Median	Std. Dev.
Acquirer return (%)	−5.15	−5.91	9.14
Target return (%)	13.29	10.70	12.34
Fund return (%)	−3.23	−2.38	10.21
Acquirer market capitalization	27,503	8,387	41,417
Target market capitalization	11,397	4,919	15,478
Relative size (target/acquirer)	0.55	0.52	0.32
Target holding	0.36	0.00	0.48

Table 7
Voting behavior: distribution of votes

The sample in Panel A contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. Panel B presents summary statistics for the subsample of responsive funds. Responsive funds are funds that have cast at least one "did not" or "against" vote in our sample.

Vote	Frequency	Percent
Panel A. Full sample		
Against	123	1.68
Did not	68	0.93
For	7,131	97.39
Total	7,322	100
Panel B. Responsive funds		
Against	123	6.26
Did not	68	3.46
For	1,773	90.27
Total	1,964	100

a much smaller degree. They cast 90.3% of votes "for" mergers, 6.3% "against," and 3.5% "did not."

In principle, funds that hold shares in both the acquirer and the target should cast the same vote in both companies, either helping to approve the merger or trying to prevent it. Nevertheless, we observe several instances in which funds cast a "for" vote on one side of the deal and an "against" vote on the other. For example, in the merger between Boise Cascade and OfficeMax, Schwab Total Stock Market Index Fund voted "for" the merger in OfficeMax and "against" the merger in Boise Cascade. This voting behavior is inconsistent with the fiduciary duty of the funds. The funds are fiduciaries of their shareholders and not of the acquirer shareholders or the target

Table 8
Distribution of fund votes by holdings in the target

The sample in Panel A contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. Panel B presents summary statistics for the subsample of responsive funds. Responsive funds are funds that have cast at least one "did not" or "against" vote in our sample. The dummy for holdings in the target is one if the fund has had a positive holding in the target at recording, announcement, or voting date.

| | Dummy for holdings in the target | | | | |
| | 0 | | 1 | | |
Vote	Frequency	Percent	Frequency	Percent	Total
Panel A. Full sample					
Against	101	2.17	22	0.82	123
Did not	47	1.01	21	0.79	68
For	4,507	96.82	2,624	98.39	7,131
Total	4,655	100	2,667	100	7,322
Panel B. Responsive funds					
Against	101	11.90	22	1.97	123
Did not	47	5.54	21	1.88	68
For	701	82.57	1,072	96.14	1,773
Total	849	100	1,115	100	1,964

shareholders. These inconsistent votes could be due to funds following recommendations of outside advisers or internal guidelines and procedures that do not take cross-ownership into account. We adopt a conservative approach and do not remove them from the data. Removing them would make our results stronger.

3.3. Results

The effect of cross-ownership on voting of mutual funds in mergers can be easily seen from basic descriptive statistics. In Table 8, Panel A, cross-owners are more than twice as likely to vote "against" the merger as A-only funds: 2.2% versus 0.8%. The difference is more striking when we restrict our attention to responsive funds in Panel B. Among these funds, 11.9% of A-only owners vote "against" the merger and 82.6% vote "for," while 2% of cross-owners vote "against" and 96.1% vote "for." Table 9 confirms the descriptive results by estimating the linear probability, logit, and conditional logit (fixed effects logit) models on the full sample. The linear probability model in Column 1 of Panel A and the logit model in Column 1 of Panels B and C yield similar results. Cross-owners are 1.6 percentage points more likely to vote "for" the merger than A-only shareholders, and the results are statistically significant at 1%.

If cross-ownership is correlated with merger or fund characteristics, our estimates could be biased. The presence of a bias is very likely, because acquirer size is positively correlated with cross-ownership and negatively correlated with acquirer announcement returns. Estimating models with merger and fund fixed effects in Columns 2 and 3 controls for this possibility. The results using linear probabilities and conditional logit confirm that when

Table 9
Estimating probability of voting for the merger from cross-ownership

The sample contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. The dependent variable is a dummy that takes the value of one if the vote in the acquirer is "for" and zero otherwise. Holdings in the target is a dummy variable that takes the value of one if the fund holds shares in the target. Panel A presents a linear probability model. Panel B presents logit and conditional logit models. Panel C presents the marginal effects of models in Panel B. Regression specifications (2) and (3) include merger and fund fixed effects, respectively. Standard errors are in parentheses. **Significant at 5%; ***significant at 1%. Data are from the Securities and Exchange Commission Edgar database (N-PX filings) and Thomson Financial SDC Platinum merger database.

	(1) Vote (for)	(2) Vote (for)	(3) Vote (for)
Panel A. Linear probability model			
Holdings in the target	0.016	0.008	0.025
	(0.004)***	(0.003)**	(0.006)***
Constant	0.968	0.971	0.965
	(0.003)***	(0.002)***	(0.003)***
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	7,322	7,322	7,322
R^2	0.00	0.28	0.24
Panel B. Logit and conditional logit models			
Holdings in the target	0.695	0.498	1.096
	(0.175)***	(0.219)**	(0.214)***
Constant	3.416		
	(0.084)***		
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	7,322	4,343	1,876
Panel C. Logit and conditional logit models (marginal effects)			
Holdings in the target	0.016	0.122	0.249
	(0.004)***	(0.051)***	(0.040)***
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	7,322	4,343	1,876

funds are cross-owners they are more likely to vote for the merger. While all models yield statistically significant results of the same sign, the magnitudes of the cross-ownership effect differ. They are much larger in the conditional logit model. The cross-holders are 12.2 percentage points more likely to vote for the merger than A-only holders in the merger fixed effects model and 24.9 percentage points in the fund fixed effects model.

This should not be surprising, given that cross-ownership can have an impact only on the behavior of responsive funds, and the conditional logit model with fund fixed effects automatically restricts the sample to that group. The magnitude of the cross-ownership effect in other regressions also changes when we focus on responsive funds. Table 10 presents these results. The effect ranges from 7.7% to 13.6% in the linear probability specifications and from 13.6% to 37.9% for the logit. In all specifications, it is statistically significant at the 1% level. For the remainder of the paper, we use the full voting

Table 10
Estimating probability of voting for the merger from cross-ownership for responsive funds

The sample contains 1,964 mutual fund votes in acquirers' shareholder meetings in 113 completed mergers and acquisitions of public US companies between 2003 and 2006 for funds who cast at least one "did not" or "against" vote in our sample. The dependent variable is a dummy that takes the value of one if the vote in the acquirer is "for" and zero otherwise. Holdings in the target is a dummy variable that takes the value of one if the fund holds shares in the target. Panel A presents a linear probability model. Panel B presents logit and conditional logit models. Panel C presents the marginal effects of models in Panel B. Regression specifications (2) and (3) include merger and fund fixed effects, respectively. Standard errors are in parentheses. [***]Significant at 1%.

	(1) Vote (for)	(2) Vote (for)	(3) Vote (for)
Panel A. Linear probability model			
Holdings in the target	0.136	0.108	0.077
	(0.014)[***]	(0.015)[***]	(0.016)[***]
Constant	0.826	0.842	0.859
	(0.013)[***]	(0.012)[***]	(0.013)[***]
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	1,964	1,964	1,964
R^2	0.05	0.45	0.28
Panel B. Logit and conditional logit models			
Holdings in the target	1.661	1.979	1.096
	(0.180)[***]	(0.249)[***]	(0.214)[***]
Constant	1.555		
	(0.090)[***]		
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	1,964	1,092	1,876
Panel C. Logit and conditional logit models (marginal effects)			
Holdings in the target	0.136	0.379	0.249
	(0.014)[***]	(0.027)[***]	(0.040)[***]
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	1,964	1,092	1,876

Table 11
Distribution of fund votes by holdings in the target and acquirer announcement returns

The sample contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. The sample in Panel A contains mutual fund votes in mergers with positive acquirer announcement returns. The sample in Panel B contains mutual fund votes in mergers with negative acquirer announcement returns. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the (−5,+5) trading days event window.

	Dummy for holdings in the target				
	0		1		
Vote	Frequency	Percent	Frequency	Percent	Total
Panel A. Mergers with positive acquirer returns					
Against	3	0.34	7	1.36	10
Did not	3	0.34	7	1.36	10
For	887	99.33	501	97.28	1,388
Total	893	100	515	100	1,408
Panel B. Mergers with negative acquirer returns					
Against	98	2.60	15	0.70	113
Did not	44	1.17	14	0.65	58
For	3,620	96.23	2,123	98.65	5,743
Total	3,762	100	2,152	100	5,914

sample. The results get stronger if we restrict the sample to responsive funds.

If the effect of cross-ownership is to blunt the incentives of funds to prevent mergers that are bad for the acquirer, then cross-ownership should not have an effect in mergers that are good for the acquirer, because the incentives of cross-owners and A-owners are aligned. One way to proxy for good mergers is to see whether they have positive announcement returns. This proxy is not perfect: Stock prices can move for reasons unrelated to the merger or because of speculative behavior by arbitrageurs. Nevertheless, good mergers should be more likely to result in positive returns to the acquirer (and vice versa), and our results below indicate that this is the case.

Table 11 shows descriptive statistics for the subsamples of mergers split according to their market-model abnormal announcement returns around the (−5,+5) trading days window. In mergers with positive announcement returns presented in Panel A, A-only holders are no more likely to vote against mergers than cross-owners. When announcement returns are positive, only 0.7% of the shareholders vote "against." In mergers with negative announcement returns presented in Panel B, A-only holders are notably more likely than cross-owners to vote "against." Cross-owners are no more likely to oppose mergers with negative returns than the ones with positive returns: 0.7% vote against the merger when returns are negative versus 1.4% when returns are positive. The A-only holders, however, are much more likely to oppose negative-return mergers. In mergers with positive announcement returns, only 0.3% vote against the merger. In mergers with negative announcement returns, that number increases by almost an order of magnitude to 2.6%. As before, the magnitudes would be more pronounced if we restricted our sample to responsive funds.

That cross-ownership affects voting in bad mergers, but has no impact in good ones, is confirmed in Table 12 by estimating linear, logit, and conditional logit probability models. Positive and significant coefficients appear only in the subsample of mergers with negative announcement returns. Furthermore, as expected, the size of the coefficients in mergers with negative announcement returns is larger than the coefficients of corresponding regressions estimated on the complete sample in Table 9. The marginal effect in the pooled logit shows that cross-holders are 2.4 percentage points more likely to vote for a merger with negative returns than A-only holders. The effect is larger in the conditional logit with merger fixed effects at 14.0%. These results demonstrate that cross-owners are more likely to vote "for" than A-only shareholders in mergers with negative returns but not in the ones with positive returns. The effect goes in the opposite direction for positive-return mergers, but it is not robust to the inclusion of merger fixed effects.

Realized fund announcement returns incorporate more salient information about funds' incentives than the

Table 12
Estimating probability of voting for the merger from cross-ownership, by announcement returns

The sample contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. The dependent variable is a dummy that takes the value of one if the vote in the acquirer is "for" and zero otherwise. Holdings in the target is a dummy that takes the value of one if the fund holds shares in the target. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the (−5,+5) trading days event window. The regressions are a linear probability, logit, and conditional logit models for subsamples based on whether the abnormal announcement return to acquirer was positive or not. Panel C presents the estimated marginal effects models. Regression specifications (3) and (4) include merger fixed effects. Robust standard errors are in parentheses. **Significant at 5%; ***significant at 1%. Data are from the Securities and Exchange Commission Edgar database (N-PX filings), Thomson Financial SDC Platinum merger database, and CRSP stock price database.

Merger abnormal return	(1) Vote (for) negative	(2) Vote (for) postitive	(3) Vote (for) negative	(4) Vote (for) positive
Panel A. Linear probability model				
Holdings in the target	0.024	−0.020	0.009	−0.001
	(0.004)***	(0.008)***	(0.004)**	(0.004)
Constant	0.962	0.993	0.980	1.001
	(0.003)***	(0.003)***	(0.018)***	(0.004)***
Merger fixed effects			Yes	Yes
Observations	5,914	1,408	5,914	1,408
R^2	0.00	0.01	0.27	0.35
Panel B. Logit and conditional logit models				
Holdings in the target	1.055	−1.419	0.575	−0.146
	(0.206)***	(0.491)***	(0.235)**	(0.677)
Constant	3.238	4.996		
	(0.086)***	(0.410)***		
Merger fixed effects			Yes	Yes
Observations	5,914	1,408	3,867	476
Panel C. Logit and conditional logit models (marginal effects)				
Holdings in the target	0.024	−0.020	0.140	−0.036
	(0.004)***	(0.008)***	(0.054)***	(0.168)
Merger fixed effects			Yes	Yes
Observations	5,914	1,408	3,867	476

simple cross-ownership dummy. Unfortunately, their magnitudes are plagued with an endogeneity problem, because they depend on the expected probability of merger approval, which itself depends on funds' voting and their attitudes toward the merger. The correlation of realized returns to the funds within a merger to their voting decision is nevertheless informative and serves as an additional robustness check of the results presented above.

In mergers with higher acquirer announcement returns, funds are no more likely to vote "for" (Column 1, Table 13). However, taking cross-ownership into account and calculating overall announcement returns, funds with higher overall returns are more likely to vote for the merger (Column 2, Table 13).[8] The endogeneity problem of returns should be reduced in the merger fixed effects specification, in which the fixed effects absorb the average return to the fund and with it some of the common component of the feedback from expected votes on returns. Column 3 shows that within a merger, funds with higher overall returns are more likely to vote "for." A 10 percentage point increase in the overall return to a fund increases the (linear) probability of voting for the

merger by 3.3 percentage points. Similar conclusions can be reached from the logit and conditional logit estimations presented in Panels B and C.

In our analysis of the effect of fund returns on voting in Tables 11–13, we use the market-model abnormal announcement returns over the (−5,+5) trading days window. Our results remain largely unchanged if we use the (−1,+1) window or market-adjusted returns instead. An alternative way to measure returns is to use longer return windows, e.g., from the announcement date until the voting date. This has the benefit of incorporating all information available to the shareholders when casting their vote but also has the disadvantage of incorporating a substantial amount of information unrelated to the merger. In our case, the disadvantage seems to outweigh the benefit. Most "against" votes cast by A-only shareholders are associated with mergers that have positive abnormal returns over the (−1, voting date-1) and (−5, voting date-1) windows. This suggests that using longer return windows leads to a misclassification of mergers in our sample. Furthermore, unlike with shorter windows, some of the regression results in Tables 12 and 13 become sensitive to exactly how the abnormal returns are calculated. However, our last result that, within a merger, funds with higher announcement returns are more likely to vote "for" (Column 3, Table 13) remains valid and statistically significant at the 1% level. This is not surprising, because merger fixed effects absorb the

---

[8] The acquirer announcement returns in the acquirer are highly correlated with the actual returns to the funds, making the coefficients in a pooled regression using both variables hard to interpret.

Table 13
Estimating probability of voting for the merger from announcement returns

The sample contains 7,322 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. The dependent variable is a dummy that takes the value of one if the vote in the acquirer is "for" and zero otherwise. Returns are market-model abnormal returns relative to the CRSP equally weighted index benchmark over the $(-5,+5)$ trading days event window. Actual fund return is calculated as the dollar return to the fund from its holdings in the acquirer and the target divided by the total value of its holdings. Panel A presents a linear probability model, Panel B presents logit and conditional logit models, and Panel C presents the marginal effects of models in Panel B. Regression specification (3) includes merger fixed effects. Robust standard errors are in parentheses. [**]Significant at 5%; [***]significant at 1%. Data are from the Securities and Exchange Commission Edgar database (N-PX filings), Thomson Financial SDC Platinum merger database, CRSP mutual fund holdings database, and CRSP stock price database.

	(1) Vote (for)	(2) Vote (for)	(3) Vote (for)
Panel A. Linear probability model			
Acquirer return	−0.021 (0.020)		
Actual fund return		0.107 (0.044)[**]	0.333 (0.049)[***]
Constant	0.973 (0.002)[***]	0.977 (0.002)[***]	1.025 (0.020)[***]
Merger fixed effects			Yes
Observations	7,322	7,322	7,322
R^2	0.00	0.00	0.29
Panel B. Logit and conditional logit models			
Acquirer return	−0.827 (0.781)		
Actual fund return		2.008 (0.410)[***]	7.206 (0.240)[***]
Constant	3.580 (0.081)[***]	3.710 (0.079)[***]	
Merger fixed effects			Yes
Observations	7,322	7,322	4,343
Panel C. Logit and conditional logit models (marginal effects)			
Acquirer return	−0.021 (0.020)		
Actual fund return		0.050 (0.010)[***]	1.746 (0.055)[***]
Merger fixed effects			Yes
Observations	7,322	7,322	4,343

Table 14
Estimating probability of voting for the merger from family cross-ownership

The sample contains 6,369 mutual fund votes in acquirers' shareholder meetings in 114 completed mergers and acquisitions of public US companies between 2003 and 2006. The dependent variable is a dummy that takes the value of one if the vote in the acquirer is "for" and zero otherwise. Holdings in the target is a dummy variable that takes the value of one if the fund holds shares in the target. Family and cross takes the value of one if the fund holds shares in the target and some other fund in the same family holds shares in the target as well. Family and no cross takes the value of one if the fund does not hold shares in the target but some other fund in the same family does. Regression specifications (2) and (3) include merger and fund fixed effects, respectively. Standard errors are in parentheses. [**]Significant at 5%; [***]significant at 1%.. Data are from the Securities and Exchange Commission Edgar database (N-PX filings), Thomson Financial SDC Platinum merger database, CRSP mutual fund holdings database, and Investment Company Data, Inc. (ICDI) mappings database.

	(1) Vote (for)	(2) Vote (for)	(3) Vote (for)
Panel A. Linear probability model			
Holdings in the target	0.029 (0.006)[***]	0.017 (0.005)[***]	0.036 (0.009)[***]
Family and cross	0.000 (0.005)	0.003 (0.005)	0.01 (0.009)
Family and no cross	0.028 (0.005)[***]	0.018 (0.005)[***]	0.024 (0.007)[***]
Constant	0.956 (0.004)[***]	0.962 (0.003)[***]	0.952 (0.005)[***]
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	6,369	6,369	6,369
R^2	0.01	0.30	0.25
Panel B. Logit and conditional logit models			
Holdings in the target	1.135 (0.318)[***]	1.010 (0.367)[***]	1.376 (0.372)[***]
Family and cross	−0.008 (0.369)	0.236 (0.410)	0.258 (0.441)
Family and no cross	1.021 (0.235)[***]	0.952 (0.278)[***]	0.720 (0.317)[**]
Constant	3.081 (0.094)[***]		
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	6,369	3,600	1,617
Panel C. Logit and conditional logit models (marginal effects)			
Holdings in the target	0.023 (0.006)[***]	0.212 (0.067)[***]	0.282 (0.069)[***]
Family and cross	−0.000 (0.009)	0.051 (0.086)	0.051 (0.085)
Family and no cross	0.019 (0.003)[***]	0.0190 (0.041)[***]	0.123 (0.042)[***]
Merger fixed effects		Yes	
Fund fixed effects			Yes
Observations	6,369	3,600	1,617

additional noise introduced by the longer windows. The results with alternative window lengths and return specifications are available upon request.

Proxy voting decisions could also be taken at the fund family level rather than at the level of an individual fund. Therefore, the overall family holdings could have an impact on voting. The regressions in Table 14 explore this possibility. The results are similar in all specifications. If the fund itself does not hold shares in the target but another fund in the family does, the probability of voting for the merger in the acquirer increases. If, however, the fund is a cross-owner itself, the additional target holdings by other funds in the same family do not increase the probability of voting "for." While family cross-ownership influences voting, funds within a family do disagree. For example, when Sprint acquired Nextel in 2004, Fidelity Advisor Equity Income Fund voted against the merger, while Fidelity Advisor Equity Value Fund voted for it.

4. Conclusion

Taking cross-ownership into account can often change an assessment of whether a merger is beneficial to

shareholders of the acquiring company. Even though mergers in our sample on average have negative acquirer announcement returns, the total announcement returns to institutional shareholders are on average not negative. We can identify two groups of institutional shareholders in the acquirer with potentially opposing incentives in the merger: the A-only shareholders, who realize negative announcement returns, and cross-owners, who realize positive returns.

Using a data set on mutual fund voting in mergers, we confirm the existence of a conflict of interest between these two types of shareholders. Cross-owners are much more likely to vote for a merger with negative announcement acquirer returns than A-only holders. There is no difference in voting behavior between the two groups in mergers with positive acquirer returns.

The literature on conflicts of interest in the United States mostly focuses on the agency relationship between the management and shareholders. Our results show that conflicts within the shareholder group, even in large public companies, are also important. It is not clear whether and how such conflicts should be addressed: After all, mutual funds are fiduciaries of their shareholders, and therefore they should vote to maximize the value of their combined holdings in the acquirer and the target, even if a merger is not good for the acquiring company.

Cross-ownership could also have an impact on which mergers are proposed to begin with. If managers do not propose mergers that are likely to be blocked by the shareholders, then mergers with low cross-ownership and low expected support for the merger cannot be observed. Therefore, cross-ownership potentially leads not only to a higher probability of passing a bad merger, but also to a higher number of bad mergers proposed by managers.

Finally, it is fascinating to consider why such a large fraction of A-only shareholders vote "for" the mergers, even when a merger appears to be bad for the acquiring company, and why so many funds never vote "against." This could be due to the beliefs of these shareholders that those mergers are good for the company (and the value of their investment in it) in the long term. Alternatively, it could be due to some unobserved costs of disagreeing with the management. In the latter case, these costs could be especially large if most other shareholders vote "for" the merger, giving rise to coordination games with peer effects. Matvos and Ostrovsky (2008) show that peer effects play an important role in corporate director elections. We leave to future research the analysis of the causes and consequences of the high average level of shareholder support in mergers and acquisitions, as well as the implications of (and the potential remedies to) the conflict of interest among the shareholders identified in this paper.

References

Andrade, G., Mitchell, M., Stafford, E., 2001. New evidence and perspectives on mergers. Journal of Economic Perspectives 15, 103–120.

Brown, S.J., Warner, J.B., 1985. Using daily stock returns, the case of event studies. Journal of Financial Economics 14, 3–31.

Easterbrook, F.H., Fischel, D.R., 1982. Corporate control transactions. Yale Law Journal 91, 698–737.

Hansen, R.G., Lott, J.R., 1996. Externalities and corporate objectives in a world with diversified shareholder/consumers. Journal of Financial and Quantitative Analysis 31, 43–68.

Jarrell, G.A., Brickley, J.A., Netter, J.M., 1988. The market for corporate control: the empirical evidence since 1980. Journal of Economic Perspectives 2, 49–68.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers. American Economic Review 76, 323–329.

Jensen, M.C., Ruback, R.S., 1983. The market for corporate control: the scientific evidence. Journal of Finance 11, 5–50.

Matvos, G., Ostrovsky, M., 2008. Heterogeneity and peer effects in mutual fund proxy voting. Unpublished working paper, University of Chicago.

Malmendier, U., Tate, G., 2008. Who makes acquisitions? CEO overconfidence and the market's reaction. Journal of Financial Economics 89, 20–43.

Mitchell, M., Pulvino, T., Stafford, E., 2004. Price pressure around mergers. Journal of Finance 59, 31–63.

Moeller, S.B., Schlingemann, F.P., Stulz, R.M., 2004. Firm size and the gains from acquisitions. Journal of Financial Economics 73, 201–228.

Moeller, S.B., Schlingemann, F.P., Stulz, R.M., 2005. Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. Journal of Finance 60, 757–782.

Morck, R., Shleifer, A., Vishny, R.W., 1990. Do managerial objectives drive bad acquisitions? Journal of Finance 45, 31–48.

Roll, R., 1986. The hubris hypothesis of corporate takeovers. Journal of Business 59, 197–216.

Shleifer, A., Vishny, R.W., 1988. Value maximization and the acquisition process. Journal of Economic Perspectives 27, 7–20.

Shleifer, A., Vishny, R.W., 1989. Management entrenchment: the case of manager-specific investments. Journal of Financial Economics 25, 123–139.