

**ANALYZING M&A: THE EFFECTS OF INSTITUTIONAL INVESTOR CROSS
OWNERSHIP**

By

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Abstract

This study provides new evidence on the role of institutional investors in corporate strategy, specifically in mergers and acquisitions and for three subsets of deals. For firms that are harder to value with greater information asymmetry, institutional investor cross-ownership between two firms increases transaction fees, reduces deal premiums, and lowers cash consideration in deals. Firms with greater analyst following and cross ownership as a percentage of total institutional ownership pay less fees, lower deal premiums, and less cash consideration in deals. Higher analyst following also contributes to lower completion probabilities while higher cross ownership as a percentage of total institutional ownership increases completion probability. While my results suggest that synergies are largely unaffected by cross ownership and the subsets listed above, my overall results suggest that institutional cross-ownership will continue to affect strategic decision-making processes moving forward.

1. Introduction

This study aims to improve our understanding of how cross-level institutional ownership affects outcomes in the mergers and acquisitions (M&A) process. Institutional investor cross-ownership occurs when an investor who owns shares of one firm in an M&A process also owns shares of the other firm in the same M&A process. In the financial services industry, in both the sell-side and buy-side realms, understanding the various drivers of M&A as well as how they result in certain outcomes is incredibly important. In the specific case of institutional investor

cross ownership, there is a great deal of research on how varying levels of this variable broadly affects outcomes in M&A.

Cross-level institutional ownership can play a major role in M&A outcomes. Brooks et al. (2008) has found that higher levels of cross-level institutional ownership not only increase the probability of two firms merging, but also affects outcomes of the transaction as well (e.g. reduced deal premiums, increased stock payment in transactions, and lowered completion probabilities of deals with negative acquirer announcement returns). They also found that deals with high institutional investor cross-ownership tend to have lower transaction costs and that the combined firm discloses more transparent financial statement information post-acquisition, with the ultimate effect of institutional investor cross-ownership on the total deal synergies and post-deal long-term performance being positive.

This paper extends the Brooks et al. (2018) analysis to investigate several open questions. First, while Brooks et al. (2018) examine cross-level institutional ownership using an OLS specification with time and industry fixed effects, I believe it would be interesting to see which industries and during which periods in time (i.e., merger waves, recessionary periods) does institutional cross-ownership matter more in M&A outcomes. An examination of the individual coefficients of industry and time effects did not reveal any insights.

Second, I will look into whether there is cross-sectional variation in the relationship between cross-level institutional ownership and the M&A outcome variables (as Brooks, Chen, and Zheng do not look at interaction variables or perform other cross-sectional analyses). For example, I plan to investigate whether the relationship between cross-level institutional ownership and the outcome variables is stronger (or weaker) among the following cross-sectional characteristics:

- Firms that have higher potential information asymmetry or are harder to value (such as high R&D, greater intangible assets, higher bid-ask spreads)
- Firms that have more or less analyst following
- The overall percentage of institutional ownership at the buyer and target that represents cross-ownership.

Understanding the role of institutions in post-merger outcomes is important for three main groups. The first group includes sell-side firms like investment banks, as they would have a better idea on where to source potential deals. With institutional shareholder information already publicly available, banks could use the results in this study to refine their search for potential new advising opportunities along various factors like industry, levels of institutional investor cross ownership, as well as other factors. In addition, after securing the advising opportunity, banks could structure transactions better based on the analysis with a better understanding of stock-based transactions, deal premiums, etc.

Another group that I believe will benefit from this research includes buy-side firms like hedge funds looking for new potential investment opportunities. With the same access to publicly available shareholder information as banks, asset managers and hedge funds would be able to better predict where successful potential M&A transactions are more likely to occur or better predict which publicly announced transactions may perform better than others.

The third group that will benefit is academics, because this paper will expand upon the current literature around M&A outcomes and institutional investor cross ownership. This paper will hopefully also help provoke thought around the importance of cross-sectional areas of

investigation concerning the relationship between institutional cross-ownership and M&A outcomes for a most recent subsets of firms.

2. Existing Literature

Several prior studies have examined the factors that helps facilitate successful M&A transactions. One variable in particular that has been studied is the level of institutional ownership of both target and acquirer firm (known as cross-ownership) and how it affects the outcomes of these deals. The level of common institutional investor ownership has been studied in the context of M&A, but also in contexts indirectly related, providing further avenues for research and exploration.

With regards to research around institutional investors, a large set of the recent literature focuses on institutional investors in the context of shareholder activism, and more specifically how these large institutional investors can effect changes in companies. Some of these changes in companies include forcing management to partake in certain merger and acquisition transactions. Becht, Polo, and Rossi (2016) look at how hedge fund activism — particularly by institutional investors — is a huge channel of influence for those investors. Specifically, they argue that institutional investors' ability to affect shareholder voting can specifically lower agency conflict and deter CEOs from making overconfident decisions, thereby resulting in more successful M&A transactions as value-destructive transactions do not make it past a shareholder vote. However, Becht et al. (2018) examined M&A transactions in the UK where rules require shareholder voting for transactions of a certain size (as opposed to the US where such voting is not mandatory).

Becht et al's (2018) research is extended by Li, Liu and Wu (2018) which looks at all-stock US deals where shareholder voting is required for deals in which the acquiring firm issues more than 20% of new shares to finance the transaction. Their findings are similar in that the shareholder vote serves as a sort of disciplinary device that forces acquirer management to choose target firms with potentially greater synergies and/or lower offer premiums than in cases without shareholder voting, thereby further highlighting the importance of institutional investors monitoring M&A transactions. While these two pieces of literature discuss institutional investor ownership from a sole owner basis (not in the context of cross-ownership), the findings as well as the methods of sampling and testing data prove useful towards understanding the topic as well as providing a basis for further research.

Building upon existing literature on institutional investor ownership, many studies have looked at how institutional level cross-ownership affects companies, deals and other attributes as well. Scholars have looked at institutional level cross-ownership in various different contexts outside of M&A, but with potential extensions and connections to M&A. These contexts include corporate innovation, competition between firms (generally speaking as well as in the airline industry more specifically), product market competition, market mechanisms, corporate governance, and disclosure practices. In the context of corporate innovation, Gao, Shen, Gao, and Chan (2019) looked at a sample of Chinese firms from 2003 through 2016 and measured whether institutional investor cross-ownership had an impact on a firm's ability to innovate. In the context of my proposed study, there seems to be potential to review the analysis on a newer data set and on US firms and whether or not the higher levels of corporate innovation lead to an increased or decreased desire for potential M&A (derived from a firm's ability or lack thereof to innovate organically to grow).

In terms of competition amongst firms, both Connely, Lee, Tihanyi, Certo, and Johnson (2019) as well as Azar, Schmalz, and Tecu (2018) looked at how institutional investor cross-ownership impacted competition. Both studies came to similar conclusions in that rival firms with similar ownership structures will engage in dissimilar competitive actions to avoid directly competing with one another. While Azar et al.'s (2018) analysis is limited to just the airline industry (using a sample of US publicly traded airlines up to 2016Q2), there is potential to explore the analysis in other industries and on newer data sets.

He and Huang (2017) found in their research that cross-held firms experienced significantly higher market share growth than non-cross-held firms and that institutional investor cross-ownership “facilitates explicit forms of product market collaboration (such as within-industry joint ventures, strategic alliances, or within-industry acquisitions) and improves innovation productivity and operating profitability.” Building upon that research, He, Huang and Zhao (2019) looked at how this cross-level ownership incentivizes institutional investors to be more active in their monitoring, illustrating the point that institutional cross-ownership serves “as a market-based mechanism to alleviate the inefficiency induced by governance externalities.” From a disclosure perspective, Jung (2013) investigates how an overlap in institutional investor ownership between two firms acts “as a mechanism by which a first-mover firm’s increase in disclosure prompts investors to seek a similar increase from a follower firm” and that ultimately, investor overlap works as a channel of communication and feedback mechanism.

Some scholars have looked at this cross-level ownership directly in the context of M&A. Brooks, Chen, and Zeng (2018) looked directly at how the role of institutional investors affects corporate strategy and more specifically how institutional level cross-ownership affects

outcomes in mergers and acquisitions. While their findings show that higher cross-level ownership leads to an increased probability of merging, reduced deal premiums, and increased stock payments among other results), their data set only resembles data from a 30-year window from 1984-2014. With the M&A market heating up over the last five years, there is potential to reinvestigate these findings on a new set of data as well as classify different time periods for analysis as well. In addition, this research is generally contradicted by Harford, Jenter and Li (2017) who argue that institutional investor cross-holdings are too small to matter in most M&A transactions. With a similarly less recent sample, there is opportunity to reinvestigate findings in this case as well, especially with the number of M&A deals worldwide increasing at a CAGR of 5.1% since 2014 up to 2018 (IMAA). In addition, there is an opportunity to reinvestigate Brooks et al.'s (2018) findings in a cross-sectional context as discussed in the introduction.

Ultimately, there are some gaps in the current research, especially with the outdated nature of some of the sample transactions used in the papers. In addition to potentially performing similar analyses as some above-discussed prior studies with newer data, our research could be classified by different industries or comparisons could be made between different time periods of M&A activity as well. In addition, with the research done on institutional level cross-ownership in fields not exactly M&A, there are many potential links between those fields and the success or failure of M&A transactions as well as other driving factors related to M&A deals.

3. Data and Methods

This study uses archival data to investigate the research questions. First, in order to collect the sample of mergers and acquisitions, I use the Thomson Reuters securities Data

Company Platinum Mergers and Acquisitions database (SDC Platinum). To further refine the sample, I start with all US domestic mergers and acquisitions announced between 1977 - 2018 (ten more years than the sample used by Brooks, Chen, and Zeng, 2018). Following the guidelines of Brooks et al., I require that both acquirers and targets be US publicly traded companies so that institutional cross-ownership can be calculated, excluding transactions labeled as minority stake purchases, acquisitions of remaining interest, privatizations, repurchases, exchange offers, self-tenders, recapitalizations or spin-offs. In addition, the percentage of the target's shares that are owned by the acquirer prior to and after the transaction must be less than 50% and at least 90%, respectively. I exclude deals that are less than \$1 million in transactions value. I also use the Compustat database for accounting data and the CRSP database for stock price data. Finally, the sample is limited to deals in which the acquirer and target have data from those two databases and all independent variables are winsorized at the 1% and 99% levels. To calculate institutional cross ownership, I link the M&A sample with the Thomson Financial CDA/Spectrum Institutional (13F) database. Table A2 presents a distribution of the sample of deals by year and by industry and suggests that the sample is representative of the general deal environment of its time period and is well diversified.

In terms of analyzing the data, I will also be taking a similar approach as Brooks, Chen and Zeng (2018) did with their multivariate analysis. The main empirical approach will be two ordinary least squares regressions. The first regression will investigate whether there is cross-sectional variation in the relationship between cross-level institutional ownership and the M&A outcome variables (as discussed above, Brooks, Chen, and Zheng do not look at interaction variables or perform other cross-sectional analyses). Specifically, the regression will look into

how the effects on the outcome variables change as acquirer cross ownership and target cross ownership change.

This first regression will be as follows with the variables discussed above, as in Brooks et al., controls for both year and industry fixed effects:

$$Y = \alpha_i + \beta_1 * ACO + \beta_2 * TCO + \beta_3 * (ACO * TCO) + Controls + Fixed Effects + \varepsilon$$

The second regression will also investigate whether there is cross-sectional variation in the relationship between cross-level institutional ownership and the M&A outcome variables. For example, is the relationship between cross-level institutional ownership and the outcome variables stronger (or weaker) among: 1) Firms that have higher potential information asymmetry or are harder to value (such as high R&D, greater intangible assets, higher bid-ask spreads) 2) Firms that have more/less analyst following 3) Firms that with higher/lower cross-ownership as a percentage of total institutional ownership?

This second regression will be as follows with the variables discussed above, as in Brooks et al., controls for both year and industry fixed effects:

$$Y = \alpha_i + \beta_1 * ACO + \beta_2 * TCO + \beta_3 * (ACO * Var) + \beta_4 * (TCO * Var) + Controls + Fixed Effects + \varepsilon$$

3. Results

The main outcome variables that I examined are Total Transaction Fees paid (FTOT), Deal Premium (DealPrem), Cash Consideration used in deal (PCT_Cash), Synergies achieved (Synergies), and Completion Probability (Completed). I initially run regressions to determine the effects of acquirer cross ownership and target cross ownership on those outcome variables, following the controls laid out by Brooks et al. After those regressions, I proceeded with my cross-sectional analysis to see how those effects varied for firms with more or less information asymmetry, analyst following, and cross ownership as a percentage of total institutional ownership. In looking at the first cross section of analysis with regards to information asymmetry, I looked at three main indicators: Research and Development (R&D) expense scaled by total revenue, Intangible Assets scaled by total assets, Bid Ask spread 1 month before the deal announcement. For the second cross sectional analysis, I looked at unique analysts following from both the acquirer and target level. For the final cross section analysis, I looked at the ratio of cross ownership as a percentage of total institutional ownership.

3a. Total Transaction Fees

In looking at the effects of institutional investor cross ownership on the transaction fees of a M&A deal, similar to Brooks et al., I am essentially looking to see if institutional cross-owners have a governance role in reducing information asymmetry and facilitating bargaining between target and acquirer better than a deal between two entirely independent parties. In addition, similar to Brooks et al., I hypothesize that if firms connected by institutional cross-

owners have greater information and better knowledge about the long-term profitability of a deal, there may be a lower need to hire investment banks to provide professional advice and therefore result in lower M&A advisory fees for such deals (2018).

Panel A of Table 1 presents the results examining transactions fees. While Brooks et al. showed for an average deal that one more institutional top 10 cross-owner (unique number of owners) is associated with a \$0.9 million reduction in acquirer financial advisor fees and a \$1.0 million reduction in target financial advisor fees, I find largely opposite results. With the larger, more recent sample, I found that acquirer cross ownership and target cross ownership actually increased total transaction fees with each percentage increasing total fees for both all deals in the sample as well as for completed deals in the sample. A 10% increase in acquirer and target cross ownership results in about a \$.7 million and \$.3 million increase in transaction fees. This result differs from my initial hypothesis but may be due to the more recent sample size and difference in looking at all institutional owners from a collective level rather than on an incremental per investor level. In looking at the interactions between acquirer cross ownership and target cross ownership, while both cross ownerships resulted in lower transaction fees, the interaction signals that the increasing presence of the other cross ownership variable resulted in an increase in total fees paid.

Panel B of Table 1 examines the cross-sectional effects of information asymmetry. In Column 1, I found that while both higher levels of R&D from acquiring firms and target firms led to marginally higher transaction fees and that both acquirer and target cross ownership also increased total fees, consistent with my earlier results. In the presence of the interaction term in Column 2, the increased presence of R&D for acquiring firms led to lower total fees: a 10% increase in information asymmetry ultimately led to a \$.6 million decrease in total fees paid. In

Column 3, I find that high levels of intangible assets (scaled by total assets) also led to an increase in total fees paid with a 10% increase in intangibles resulting in a \$.4 million and \$.2 million increase in total fees for acquiring and target firms respectively. In the presence of the interaction in Column 4, those effects were strengthened as increased intangibles for both acquiring and target firms increased total fees paid greatly with a 10% increase in intangibles resulting in a \$.9 million increase in fees for both acquiring and target firms. Looking into Column 5, I find that target firms with higher 1-month bid ask spreads paid substantially higher transaction fees with a 10% increase resulting in an increase of \$2.9 million in fees. In the presence of the interaction in Column 6, I find that that effect was mitigated for both acquiring firms and target firms who had high 1-month bid ask spreads. Overall, these results indicate that firms that are harder to value generally pay more in transaction fees, but with higher market misalignment on value leading up to the deal, may pay lower fees.

Columns 1 and 2 of Panel C of Table 1 examines the cross-sectional influence of analyst following. I find higher analyst following from the acquiring firm resulted in lower total transaction fees with each additional unique analyst lowering transaction fees by \$.02 million and higher analyst following from target firms increased transaction fees by \$.04 million. In the presence of interaction terms in Column 2 however, I find that the effects from higher analyst following for acquiring firms are reversed for firms with acquiring firms with higher cross ownership. In addition, the increased cross ownership for target firms strengthens the effect of analyst following, boosting transaction fees by an additional \$1.0 million. From these results, it is clear that analyst following plays a minor role in reducing fees paid by firms in transactions as the effects from acquiring firms and target firms largely cancel one another out.

Finally, I examine whether target and acquiror cross-ownership differentially influence each other in terms of their relationship with transactions fees. In Columns 3 and 4 of Panel C of Table 1, I find that greater percentage of cross ownership represented of total institutional ownership for acquiring firms led to an increase in total fees by small increase in total fees of \$.09 million for an increase of 10%. For target firms, an increase of cross ownership as a percentage of total institutional ownership by 10% resulted in a decrease of transaction fees by \$.1 million. In the presence of the interaction terms in Column 5, I find that while it seems that both cross ownership and cross ownership as a percentage of total fees significantly reduces transaction fees, those effects are largely reversed in the presence of the interaction term. This is consistent with my earlier results that cross ownership generally increases transaction fees and the larger cross ownership as percentage of total institutional ownership, especially for firms with higher cross ownership already, the larger the total transaction fees that are paid.

3b. Deal Premiums

Table 2 looks at the effects of institutional investor cross ownership on the deal premium of M&A deals, Brooks et al. found that institutional cross ownership reduces deal premiums, thus leading to better value for acquirers (2018). In Panel A of Table 2, I find that acquirer cross ownership tends to do decrease deal premiums and target cross ownership increases deal premiums with a 10% increase in cross ownership representing a .08% decrease and .07% increase in the premiums respectively. In the presence of the interaction in Column 2, I find that higher levels of the opposing ownership tends to increase the deal premium with a 10% increase in cross ownership resulting in a .05% increase in deal premium on top of the effects of the

individual variables. These results are consistent across regressions run with and without fixed effects.

Panel B of Table 2 illustrates the effects of institutional cross ownership for firms with higher levels of information asymmetry on deal premiums. Columns 1 and 2 focus on R&D expenditures and acquiring and target firms with higher levels of R&D expense (scaled by total revenue) tend to result in lower deal premiums. Consistent with the earlier results, acquirer cross ownership significantly reduces deal premiums while target cross ownership tends to increase deal premiums as shown in Column 2. In looking at how deal premium was affected for firms with higher levels of information asymmetry, Column 3 shows that acquiring and target firms with higher R&D generally resulted in lower deal premiums paid as well; however, the effect on lowering deal premiums was reversed in the presence of the interaction. Column 4 shows that acquiring and target firms with higher levels of intangible assets resulted in higher deal premiums with a 10% increase in intangible assets scaled by total assets resulting in a .3% increase in deal premium. In the presence of the interaction in Column 4, with that effect was reversed for acquiring firms with high levels of intangible assets and increased for target firms with higher levels of intangible assets. Columns 5 and 6 show the effects of cross ownership and 1-month bid ask spreads on deal premiums. Column 5 shows that higher bid ask spreads on the 1-month level of acquiring firms generally led to lower deal premiums as well with target bid ask spreads leading to higher deal premiums with a 10% increase in the bid ask spread scaled by price reducing deal premiums by 3.4% and increasing premiums by 2.7% for acquiring and target firms respectively. These effects were increased for firms with acquiring and target firms with higher levels of cross ownership by 1.0% and 11.4% respectively.

Panel C of Table 2 examines the cross-sectional influence of analyst following on deal premiums. Column 1 is consistent with earlier results in coefficient and magnitude showing that increases in acquirer cross ownership reduces deal premiums and increases in target cross ownership tends to increase deal premiums. Column 2 indicates that while the effects of analyst following were not significant, they tend to be strengthened for increases in acquirer and target cross ownership, respectively. For acquiring firms, this effect was increased by .5% for firms with higher cross ownership and for target firms, this effect was decreased further by .3% for firms with high levels of cross ownership.

In looking at Columns 3 and 4 of Panel C of Table 2, I find that higher levels of cross ownership as a percentage of total ownership for both acquiring firms and target resulted in lower deal premiums by .08% and .003% respectively for acquiring and target firms for a 10% increase in the cross ownership/total institutional ownership ratio. Column 4 shows that while insignificant, these results are bolstered for acquiring firms with higher cross ownership and mitigated for target firms with higher levels of cross ownership.

3c. Cash Consideration

In looking at the form of payment in M&A transactions, Brooks et al. found that higher levels of institutional investor cross ownership resulted in higher levels of stock payment and lower levels of cash payment used in the transaction (2018). In Column 1 of Panel A of Table 3, I find that higher levels of acquiring firm cross ownership lowered the percentage of cash used as payment in a transaction by 1.5% for a 10% increase in acquirer cross ownership but that higher levels of target firm cross ownership increased the percentage of cash used by .5% for a 10%

increase in target cross ownership. Column 2 shows that the effects of lowering cash payment were strengthened for higher levels of target cross ownership and the opposite to be true from the perspective of acquiring cross ownership. These results were generally consistent with and without fixed effects.

Panel B of Table 3 look at the first cross section of information asymmetry. Column 1 illustrates that both acquiring and target firms with higher levels of R&D paid a lower percentage of cash consideration in deals by .6% and .02% for a 10% increase in acquirer and target cross ownership respectively. In looking at how the effects of cross ownership varied for firms with higher or lower R&D, Column 2 shows that the increased amount of R&D on the acquirer side and the target side increased the cash consideration used with the target increase significant at .5% for a 10% increase in R&D expense as a percentage of total revenue. Column 3 looks into how these effects vary for firms with higher and lower intangible assets. Specifically, higher levels of intangibles for both acquirer and target resulted in a lower percentage of cash consideration with the target decrease significant at .7% for a 10% increase in intangible assets as a percentage of total assets. These effects were mitigated for target firms with higher levels of cross ownership and increased for acquiring firms with higher levels of cross ownership. Column 5 shows that higher 1-month bid ask spreads for acquiring firms resulted in higher percentages of cash used in deals by 8.6% for a 10% increase in the spread but for target firms resulted in lower percentages of cash used in deals by 1.9% for a 10% increase in the spread. The interactions in Column 6 suggest that for acquiring and target firms with higher levels of information asymmetry tend to pay less in cash as that bid ask spread increases.

Panel C of Table 3 looks into the cross section of analyst following. Column 1 indicates that each additional analyst following for the acquiring and target firm reduces the cash

percentage used by .11% and .16% respectively. Column 2 indicates that these effects were mitigated for acquiring firms with higher levels of cross ownership and increased for target firms with higher levels of cross ownership by .22% and .14% respectively. Overall, analyst following generally contributes to a decrease in the cash percentage used in deal considerations.

The last 2 columns of Panel C of Table 3 look into the final cross section of cross ownership as a percentage of total institutional ownership. Column 5 indicates that higher levels of cross ownership as a percentage of total ownership resulted in lower percentages of cash consideration used for both acquiring and target firms by .17% and .44% respectively for an increase of the cross ownership to total institutional ownership ratio by 10%. This effect was magnified for acquiring firms with higher levels of cross ownership and mitigated for target firms with higher levels of cross ownership by an additional 3.5% for a 10% increase in the cross ownership as a percentage of total institutional ownership percentage for acquiring firms. Overall, these results indicate that cross ownership generally reduces the cash consideration percentage used in total deal consideration.

3d. Synergies

Brooks et al. found that deal synergies, measured by acquirer and target market value-weighted average announcement returns, tended to be higher in the presence of institutional cross-owners (2018). In our results, it was unclear how significant the increases in deal synergies as a result of cross ownership were. Based on Panel A of Table 4, none of the independent variables were significant, but it seems that cross ownership generally increases the synergies achieved in deals to a small extent.

Panel B of Table 4 looks at these effects from an information asymmetry perspective. Specifically, Columns 1 and 2 show that only target R&D expenditures are significant in affecting synergies, with a 10% increase in those expenditures as a percentage of revenue resulting in a 1.4% decrease in synergies achieved. In looking at the interactions in Column 2, those results were consistent as increases in target R&D expenditures as a percentage of total revenue decrease synergies achieved, but that increased levels of cross ownership mitigated that effect. Columns 3 and 4 show that it was unclear how intangible assets affected synergies, but that the coefficients indicate that acquirer intangible assets seemed to decrease synergies achieved and target intangible assets seemed to increase synergies achieved. With regards to 1-month bid ask spreads, Column 5 shows that only target bid ask spreads had any significant impact on deal synergies, increasing synergies by 7.8% a 10% increase in the bid ask spread for the target firm. Column 6 indicates that while the interaction terms were not significant, that this effect was mitigated for firms with higher levels of cross ownership.

Panel C of Table 4 investigates the cross sections of analyst following and cross ownership as a percentage of total institutional ownership. In the analyst following cross section and cross ownership cross section, there were no significant takeaways on the effects of both analyst following or cross ownership as a percentage of total ownership on deal synergies. However, based on the coefficients, it seems that both acquirer analyst following and acquirer and target cross ownership as a percentage of total institutional ownership reduced deal synergies and that target analyst following increased deal synergies marginally.

3e. Completion Probability

Brooks et al. found generally that the presence of institutional cross-ownership between two firms increases the probability of a merger pair formation and that the existence of institutional investor cross-ownership reduces the completion probability of deals with negative acquirer CAR, but has no effect on the completion probability of deals with positive acquirer CAR (2018). Panel A of Table 5 suggests generally that higher levels of acquiring and target firm cross ownership resulted in lower completion probability of the deal by 34% and 55% respectively. Column 2 shows the interaction of the two cross ownership variables and indicates that the greater the presence of the corresponding cross ownership, the lower the completion probability as well.

With regards to information asymmetry, Panel B of Table 5 indicates that the level of R&D did not have any significant effect on the completion probability of deals. However, the coefficients of the variables in Columns 1 and 2 suggest that higher levels of R&D expenditures scaled by total assets tends to lead to higher completion probability. Column 3 shows that acquirer intangible assets do have a significant impact on completion probability of deals, lowering the probability by .06% for a 10% increase in intangibles as a percentage of total assets. Column 4 indicates that the significance of the acquiring firm interaction term that the effect of reducing completion probability is increased for firms with higher intangibles. Columns 5 shows that target bid ask spreads do not play a significant role in completion probabilities but generally reduce the chances at the deal closing. While the individual acquirer and target firm spreads did not predict any changes in completion probability, Column 6 indicates that firms with higher levels of bid ask spreads increased the completion probability.

Panel C of Table 5 looks at the analyst following cross section. Column 1 shows that more analysts following target firms resulted in a slight decrease in completion probabilities by 1% for each additional analyst. In the presence of the interaction in Column 2, the result was consistent and the interactions signal that the effect of the decrease in completion probability was magnified for deals with higher target cross ownership.

Finally, the last two columns of Panel C of Table 5 look at cross ownership as a percentage of total institutional ownership as a cross section. These independent variables did not significantly predict any changes to completion probability, but the coefficients signal that acquirer cross ownership may reduce completion probability while target cross ownership may improve completion probability. In Column 4, the significant interaction term for acquirer cross ownership shows that for acquiring firms with cross ownership, the higher that cross ownership is as a percent of total institutional ownership, the lower the completion probability of the deal.

4. Conclusion

While cross ownership led to generally higher transaction fees, the governance powers of institutional investors cross owning both target and acquiring firms can be seen in their ability to influence lower deal premiums, something that is more flexible compared to standard advisory fees for deals. With cash and stock often used as substitutes for one another in deals, my findings were aligned with Brooks et al. that deals with cross owners tend to use more stock and less cash for payment. Given the high unpredictability of market returns surrounding deals, it was hard to identify any significant takeaways with regards to synergies under these three cross sections. My

findings on completion probability build on Brooks et al findings in showing that higher levels of target cross ownership ultimately reduce completion probability of deals.

There were some limitations in the study, namely with some of the variables calculated based on market indices that were calculated without a value weighted market index to benchmark stock price changes. More broadly, there were some limitations in calculating a post-deal metric as the synergies variable was based on a cumulative abnormal return over a 3 day window, rather than assessing the value achieved over a longer time horizon. In addition, there are many other confounding variables that may have explained the variation in the outcome variables I used. At the end of the day, M&A deals are a complex process involving various measurable and immeasurable factors that may ultimately affect outcomes; however, institutional investor cross ownership may provide some detail as to how deal makers can better strategize these deals moving forward.

Appendix A

Table A1

Variable definitions. This table provides variable definitions and the corresponding data sources. CRSP refers to the Center for Research in Security Prices, SDC refers to the Thomson Reuters Securities Data Company, 13F refers to the Thomson Reuters 13F Database, and IBES refers to the Institutional Brokers' Estimate System

| Variable | Definition | Source |
|---|--|---------------|
| <i>Dependent variables of interest</i> | | |
| FTOT | Total Transaction fees paid by acquirer and target firms | SDC |
| DealPrem | Deal premium paid: (transaction value/market value of target) - 1 | SDC/CRSP |
| PCT_Cash | Percentage of cash payment involved in the total value of the transaction | SDC |
| Synergies | (acquirer CAR3 * acquirer market value + target CAR3 * (1 - toehold) * market value) / (acquirer market value + (1 - toehold) * target market value) | SDC/CRSP |
| Completed | Indicator variable: one for deals that are completed, zero for withdrawn deals | SDC |
| <i>Acquirer and target firm characteristics</i> | | |
| A(T)XrdRev | Research and Development (R&D) expense scaled by total revenue in last fiscal year ending before announcement | Compustat |
| A(T)IntanAt | Intangible assets scaled by total assets in last fiscal year ending before deal announcement | Compustat |
| A(T)Bidask1M | Mean bid-ask spread scaled by price during the 31 days prior to deal announcement | CRSP |
| A(T)Bidask3M | Mean bid-ask spread scaled by price during the 92 days prior to deal announcement | CRSP |
| A(T)AnalystFollow | Number of unique analysts who provided an EPS forecast for the acquirer in the 365 days prior to deal announcement | IBES |
| A(T)coIo | Cross owned shares divided by total shares owned by institutional investors at quarter end | 13F |
| A(T)LogSize | The natural log of total assets at the end of the fiscal year before the announcement | Compustat |
| A(T)Lev | Book value of debt over total assets at the end of the fiscal year before the deal announcement | Compustat |
| A(T)CHE | Cash holdings, including cash and marketable securities | Compustat |
| A(T)CFtoE | Income before extraordinary items plus depreciation minus dividends on common and preferred stocks divided by firm market value at the end of the fiscal year before the deal announcement | Compustat |
| A(T)Ret205 | Buy-and-hold stock return over the (-205, -6) window | CRSP |
| A(T)Std205 | The standard deviation of the daily return over the (-205, -6) window | CRSP |
| GrossCollateral | The gross value of property, plant, and equipment over total assets at the end of the fiscal year before deal announcement | Compustat |
| NetCollateral | The net value of property, plant, and equipment over total assets at the end of the fiscal year before deal announcement | Compustat |
| TotalIO | Institutional ownership at the quarter end | 13F |
| A(T)ROA | Operating cash flows over total assets | Compustat |
| A(T)Sales_Growth | Percentage change in sales from the previous year | Compustat |
| <i>Deal characteristics</i> | | |
| HostileDeal | Indicator variable: one for hostile deals, zero otherwise. | SDC |
| CompDeal | Indicator variable: one if more than one firm is bidding for the target, zero otherwise | SDC |
| TenderDeal | Indicator variable: one for tender offers, zero otherwise | SDC |
| DiversDeal | Indicator variable: one if target and acquirer have different two-digit SIC Codes, zero otherwise | SDC |
| RelSize | The ratio of transaction value to acquirer market value at the end of the fiscal year before the deal announcement | SDC/Compustat |
| <i>Institutional cross-ownership variables</i> | | |
| A(T)CrossOwnPct | Ownership by acquirer (target) institutions that own target (acquirer) shares | 13F |

Table A2

Sample breakdown by year

| Year | # of Deals | Percent | Year | # of Deals | Percent |
|------|------------|---------|-------|------------|---------|
| 1977 | 1 | 0.01 | 1998 | 623 | 6.14 |
| 1978 | 14 | 0.14 | 1999 | 645 | 6.35 |
| 1979 | 10 | 0.10 | 2000 | 570 | 5.61 |
| 1980 | 16 | 0.16 | 2001 | 387 | 3.81 |
| 1981 | 93 | 0.92 | 2002 | 215 | 2.12 |
| 1982 | 93 | 0.92 | 2003 | 241 | 2.37 |
| 1983 | 134 | 1.32 | 2004 | 239 | 2.35 |
| 1984 | 196 | 1.93 | 2005 | 220 | 2.17 |
| 1985 | 234 | 2.30 | 2006 | 257 | 2.53 |
| 1986 | 241 | 2.37 | 2007 | 273 | 2.69 |
| 1987 | 282 | 2.78 | 2008 | 204 | 2.01 |
| 1988 | 329 | 3.24 | 2009 | 163 | 1.61 |
| 1989 | 294 | 2.90 | 2010 | 152 | 1.50 |
| 1990 | 196 | 1.93 | 2011 | 108 | 1.06 |
| 1991 | 238 | 2.34 | 2012 | 130 | 1.28 |
| 1992 | 204 | 2.01 | 2013 | 124 | 1.22 |
| 1993 | 294 | 2.90 | 2014 | 168 | 1.65 |
| 1994 | 409 | 4.03 | 2015 | 198 | 1.95 |
| 1995 | 479 | 4.72 | 2016 | 144 | 1.42 |
| 1996 | 499 | 4.91 | 2017 | 116 | 1.14 |
| 1997 | 592 | 5.83 | 2018 | 129 | 1.27 |
| | | | Total | 10,154 | 100 |

Table A3

Sample breakdown by industry code

| # of Deals | 2-digit SIC Code | Industry Description |
|--------------|------------------|---|
| 1,214 | 67 | Holding & Other Investment Offices |
| 963 | 73 | Business Services |
| 746 | 28 | Chemical & Allied Products |
| 719 | 60 | Depository Institutions |
| 698 | 36 | Electronic & Other Electric Equipment |
| 580 | 48 | Communications |
| 469 | 35 | Industrial Machinery & Equipment |
| 388 | 38 | Instruments & Related Products |
| 383 | 13 | Oil & Gas Extraction |
| 320 | 49 | Electric, Gas, & Sanitary Services |
| 274 | 63 | Insurance Carriers |
| 207 | 37 | Transportation Equipment |
| 201 | 80 | Health Services |
| 183 | 62 | Security & Commodity Brokers |
| 180 | 20 | Food & Kindred Products |
| 166 | 10 | Metal, Mining |
| 142 | 61 | Nondepository Institutions |
| 128 | 27 | Printing & Publishing |
| 127 | 34 | Fabricated Metal Products |
| 117 | 33 | Primary Metal Industries |
| 114 | 50 | Wholesale Trade – Durable Goods |
| 109 | 87 | Engineering & Management Services |
| 1,726 | Other | Other industries with < 102 deals in sample |
| <hr/> 10,154 | | |

Table A4

Dependent and Independent variable breakdown

| <i>Variable</i> | <i>Mean</i> | <i>Std Dev</i> | <i>25th Pctl</i> | <i>50th Pctl</i> | <i>75th Pctl</i> |
|-----------------|-------------|----------------|------------------|------------------|------------------|
| FTOT | 9.008 | 16.345 | 1.000 | 3.058 | 9.451 |
| DealPrem | 1.380 | 1.515 | 0.997 | 1.306 | 1.618 |
| PCT_CASH | 81.883 | 28.989 | 63.470 | 100.000 | 100.000 |
| Synergies | 0.208 | 3.377 | 0.000 | 0.114 | 0.301 |
| Completed | 0.725 | 0.447 | 0.000 | 1.000 | 1.000 |
| ACrossOwnPct | 0.167 | 0.185 | 0.024 | 0.097 | 0.259 |
| TCrossOwnPct | 0.197 | 0.215 | 0.028 | 0.113 | 0.303 |
| AXrdRevt | 0.115 | 1.922 | 0.000 | 0.000 | 0.039 |
| TXrdRevt | 0.164 | 0.730 | 0.000 | 0.000 | 0.050 |
| AIntanAt | 0.106 | 0.167 | 0.000 | 0.021 | 0.144 |
| TIntanAt | 0.082 | 0.150 | 0.000 | 0.003 | 0.093 |
| ABidask1M | 0.011 | 0.018 | 0.000 | 0.004 | 0.013 |
| ABidask3M | 0.011 | 0.018 | 0.000 | 0.004 | 0.014 |
| TBidask1M | 0.023 | 0.035 | 0.001 | 0.012 | 0.030 |
| TBidask3M | 0.024 | 0.035 | 0.001 | 0.012 | 0.032 |
| AAnalystFollow | 14.540 | 13.500 | 3.000 | 11.000 | 23.000 |
| TAnalystFollow | 7.119 | 8.843 | 1.000 | 4.000 | 10.000 |
| AcoIo | 0.318 | 0.260 | 0.094 | 0.264 | 0.503 |
| TcoIo | 0.495 | 0.301 | 0.247 | 0.516 | 0.739 |
| ALogSize | 7.651 | 2.453 | 6.038 | 7.797 | 9.440 |
| TLogSize | 5.648 | 2.254 | 4.031 | 5.548 | 7.188 |
| ALev | 0.584 | 0.247 | 0.415 | 0.583 | 0.787 |
| TLev | 0.544 | 0.284 | 0.314 | 0.546 | 0.770 |
| ache | 1946.350 | 5743.640 | 26.661 | 148.546 | 893.805 |
| tche | 242.690 | 862.885 | 4.071 | 21.908 | 97.377 |
| ACFtoE | 0.053 | 0.093 | -0.034 | 0.050 | 0.096 |
| TCFtoE | -0.336 | 0.777 | -0.230 | 0.034 | 0.100 |
| ARet205 | 0.127 | 0.348 | -0.071 | 0.084 | 0.265 |
| TRet205 | 0.106 | 0.437 | -0.150 | 0.072 | 0.301 |
| AStd205 | 0.026 | 0.015 | 0.015 | 0.022 | 0.031 |
| TStd205 | 0.037 | 0.024 | 0.021 | 0.031 | 0.046 |
| GrossCollateral | 0.494 | 0.365 | 0.203 | 0.406 | 0.721 |
| NetCollateral | 0.234 | 0.231 | 0.035 | 0.160 | 0.363 |
| TotalIO | 0.836 | 0.566 | 0.395 | 0.785 | 1.212 |
| AROA | 0.042 | 0.064 | 0.008 | 0.034 | 0.074 |
| TROA | -0.083 | 0.316 | -0.054 | 0.012 | 0.057 |
| ASalesGrowth | -0.023 | 0.150 | -0.085 | -0.085 | -0.026 |
| TSalesGrowth | -0.150 | 0.398 | -0.286 | -0.111 | -0.006 |
| HostileDeal | 0.035 | 0.184 | 0.000 | 0.000 | 0.000 |
| CompDeal | 0.065 | 0.246 | 0.000 | 0.000 | 0.000 |
| TenderDeal | 0.142 | 0.349 | 0.000 | 0.000 | 0.000 |
| DiversDeal | 0.525 | 0.499 | 0.000 | 1.000 | 1.000 |
| RelSize | 0.332 | 0.650 | 0.000 | 0.066 | 0.367 |

Table 1 – Panel A

Basic regression of total transaction fees against cross ownership.

| | Dependent variable = Transactions fees | | | |
|-------------------------------|--|------------------------|----------------------|-----------------------|
| Intercept | -16.3600 *** -10.41 | -15.7661 *** -10.47 | 8.3946 1.23 | 8.5578 1.31 |
| ACrossOwnPct | 10.3748 *** 5.00 | -18.8552 *** -6.85 | 7.4236 *** 3.58 | -20.6072 *** -7.56 |
| TCrossOwnPct | 4.2170 ** 2.42 | -21.0731 *** -8.97 | 3.2895 • 1.91 | -21.6797 *** -9.25 |
| ACrossOwnPct*TCrossOwnPct | | 82.2396 *** 15.33 | | 80.4273 *** 14.99 |
| ALogSize | 0.6886 *** 3.80 | 0.9779 *** 5.60 | 0.4507 ** 2.39 | 0.7129 *** 3.93 |
| TLogSize | 2.2495 *** 9.51 | 2.5704 *** 11.29 | 2.1574 *** 8.87 | 2.4688 *** 10.56 |
| ALev | 0.2237 0.19 | -0.5785 -0.52 | 0.4189 0.35 | -0.4307 -0.38 |
| TLev | 1.1372 1.17 | 0.4709 0.51 | 1.8385 • 1.91 | 1.1362 1.23 |
| ache | 0.0000 0.29 | 0.0000 -0.61 | 0.0000 0.53 | 0.0000 -0.11 |
| tche | 0.0084 *** 16.98 | 0.0070 *** 14.55 | 0.0081 *** 16.51 | 0.0068 *** 14.30 |
| ACFtoE | -9.4027 *** -3.05 | -11.0847 *** -3.75 | -4.4356 -1.37 | -5.2777 • -1.70 |
| TCFtoE | -0.2241 -0.39 | 0.1703 0.31 | -0.3419 -0.60 | 0.0061 0.01 |
| ARet205 | -0.4802 -0.77 | -0.3367 -0.56 | -0.4276 -0.69 | -0.4883 -0.82 |
| TRet205 | 1.8444 *** 3.57 | 1.8622 *** 3.76 | 2.0158 *** 3.94 | 1.9719 *** 4.03 |
| AStd205 | 23.6511 1.18 | 24.8747 1.30 | 40.3202 • 1.82 | 31.5153 1.49 |
| TStd205 | 14.5369 1.05 | 9.9311 0.75 | 16.8586 1.20 | 5.2366 0.39 |
| GrossCollateral | 6.3297 *** 4.23 | 7.2188 *** 5.03 | 6.0779 *** 3.85 | 6.8213 *** 4.51 |
| NetCollateral | -11.4405 *** -4.67 | -12.7909 *** -5.45 | -9.5228 *** -3.40 | -10.3798 *** -3.86 |
| TotalIO | -1.1862 ** -2.18 | 0.5075 0.95 | -1.0173 • -1.83 | 0.6912 1.27 |
| AROA | 8.7505 ** 2.34 | 11.0682 *** 3.09 | 10.2378 *** 2.75 | 11.4812 *** 3.22 |
| TROA | -2.2380 • -1.92 | -2.4819 ** -2.22 | -0.4752 -0.41 | -0.8513 -0.77 |
| ASalesGrowth | -2.9729 ** -1.96 | -2.6032 • -1.79 | -2.7876 • -1.83 | -2.2584 -1.55 |
| TSalesGrowth | -0.3447 -0.55 | -0.4446 -0.75 | -0.5181 -0.85 | -0.4481 -0.76 |
| TAnalystFollow | 0.3635 *** 10.29 | 0.3559 *** 10.52 | 0.3992 *** 10.87 | 0.3898 *** 11.08 |
| HostileDeal | 0.5693 0.41 | 1.2691 0.96 | 1.7705 1.30 | 2.4635 • 1.89 |
| CompDeal | 0.2929 0.31 | 0.4421 0.49 | 0.7113 0.76 | 0.8263 0.92 |
| TenderDeal | -0.9247 • -1.88 | -0.6358 -1.35 | -1.1617 ** -2.32 | -0.8888 • -1.85 |
| DiversDeal | -1.2116 *** -2.87 | -1.1828 *** -2.93 | -0.6896 -1.55 | -0.6385 -1.50 |
| RelSize | 0.0025 *** 6.52 | 0.0025 *** 6.73 | 0.0025 *** 6.56 | 0.0025 *** 6.81 |
| n | 2624 | 2624 | 2624 | 2624 |
| R-squared | 0.554 | 0.591 | 0.609 | 0.642 |
| Year + Industry fixed effects | No | No | Yes | Yes |

Table 1 – Panel B

Regression of total transaction fees against cross-ownership under information asymmetry cross section. Detailed variables descriptions include in Appendix A.

| "InfoAsym" → | Dependent variable = Transactions fees | | | | | |
|-------------------------------|--|----------------------|----------------------|----------------------|----------------------|------------------------|
| | R&D expenditures | | Intangible assets | | Bid-ask spread | |
| Intercept | 8.3576 1.22 | 8.5981 1.26 | 6.8016 0.99 | 7.1547 1.05 | 7.5630 1.11 | 6.9710 1.02 |
| ACrossOwnPct | 7.3771 *** 3.56 | 7.9068 *** 3.78 | 7.5108 *** 3.63 | 5.5721 ** 2.34 | 7.6029 *** 3.67 | 9.4019 *** 4.16 |
| TCrossOwnPct | 3.2939 • 1.91 | 3.0349 • 1.75 | 3.0826 • 1.79 | 1.2982 0.67 | 3.2130 • 1.87 | 4.7018 *** 2.59 |
| AInfoAsym | 0.0957 0.32 | 0.2768 0.89 | 4.0262 *** 2.89 | 1.9173 0.98 | -1.3491 -0.08 | 16.4617 0.84 |
| TInfoAsym | 0.3032 0.90 | 0.1532 0.32 | 2.5371 • 1.78 | -0.3484 -0.17 | 29.9447 *** 3.22 | 45.9205 *** 4.47 |
| ACrossOwnPct* AInfoAsym | | -6.5394 • -1.94 | | 9.0102 1.51 | | -287.0075 *** -2.75 |
| TCrossOwnPct* TInfoAsym | | 0.9718 0.78 | | 9.1278 • 1.76 | | -218.8342 *** -3.81 |
| ALogSize | 0.4529 ** 2.39 | 0.4323 ** 2.28 | 0.4298 ** 2.27 | 0.4296 ** 2.27 | 0.5180 *** 2.68 | 0.5772 *** 3.00 |
| TLogSize | 2.1546 *** 8.85 | 2.1526 *** 8.84 | 2.1201 *** 8.60 | 2.1513 *** 8.72 | 2.2174 *** 9.11 | 2.2642 *** 9.34 |
| ALev | 0.4212 0.36 | 0.4240 0.36 | 0.4343 0.37 | 0.5053 0.43 | 0.3832 0.32 | 0.3270 0.28 |
| TLev | 1.9960 ** 2.04 | 1.9789 ** 2.03 | 1.7166 • 1.78 | 1.6539 • 1.72 | 1.7080 • 1.77 | 1.6873 • 1.76 |
| ache | 0.0000 0.48 | 0.0000 0.44 | 0.0000 0.79 | 0.0000 0.67 | 0.0000 0.40 | 0.0000 0.01 |
| tche | 0.0081 *** 16.51 | 0.0081 *** 16.52 | 0.0082 *** 16.66 | 0.0082 *** 16.67 | 0.0080 *** 16.32 | 0.0078 *** 15.97 |
| ACFtoE | -4.3313 -1.34 | -4.5615 -1.41 | -5.0725 -1.57 | -5.4152 • -1.68 | -5.3739 • -1.65 | -6.0719 • -1.88 |
| TCFtoE | -0.3925 -0.68 | -0.4350 -0.76 | -0.3764 -0.66 | -0.3644 -0.64 | -0.4123 -0.72 | -0.3383 -0.60 |
| ARet205 | -0.4198 -0.68 | -0.4509 -0.73 | -0.3496 -0.57 | -0.3500 -0.57 | -0.4159 -0.66 | -0.5907 -0.94 |
| TRet205 | 2.0078 *** 3.92 | 2.0087 *** 3.92 | 2.0792 *** 4.08 | 2.0612 *** 4.04 | 2.3182 *** 4.47 | 2.1958 *** 4.25 |
| AStd205 | 39.7048 • 1.79 | 38.5767 • 1.74 | 50.8678 ** 2.29 | 48.2329 ** 2.17 | 46.2329 ** 2.05 | 44.8162 ** 1.99 |
| TStd205 | 16.2297 1.15 | 16.7925 1.19 | 18.5462 1.32 | 18.2566 1.30 | -0.0490 0.00 | -6.8757 -0.46 |
| GrossCollateral | 6.1115 *** 3.87 | 6.1682 *** 3.90 | 6.8000 *** 4.28 | 6.8756 *** 4.33 | 5.9257 *** 3.76 | 6.0832 *** 3.87 |
| NetCollateral | -9.5478 *** -3.40 | -9.7470 *** -3.47 | -9.0120 *** -3.22 | -9.0207 *** -3.22 | -9.2480 *** -3.30 | -9.2897 *** -3.33 |
| TotalIO | -1.0309 • -1.86 | -0.9837 • -1.77 | -1.0100 • -1.82 | -0.8937 -1.61 | -0.8883 -1.59 | -0.6916 -1.24 |
| AROA | 10.2506 *** 2.74 | 9.4885 ** 2.52 | 11.8139 *** 3.15 | 12.0870 *** 3.22 | 10.5937 *** 2.85 | 10.2006 *** 2.76 |
| TROA | -0.1027 -0.08 | -0.0947 -0.08 | -0.5930 -0.51 | -0.6092 -0.53 | -0.5551 -0.48 | -0.7531 -0.65 |
| ASalesGrowth | -2.7975 • -1.84 | -2.8159 • -1.85 | -2.5099 • -1.65 | -2.4095 -1.58 | -3.0146 ** -1.98 | -3.1857 ** -2.11 |
| TSalesGrowth | -0.5395 -0.87 | -0.5796 -0.94 | -0.4225 -0.69 | -0.4503 -0.73 | -0.6784 -1.11 | -0.7236 -1.19 |
| TAnalystFollow | 0.3993 *** 10.87 | 0.4011 *** 10.92 | 0.4027 *** 10.98 | 0.4127 *** 11.20 | 0.4065 *** 11.07 | 0.3880 *** 10.57 |
| HostileDeal | 1.7918 1.31 | 1.7884 1.31 | 1.7779 1.31 | 1.8114 1.33 | 1.7272 1.27 | 1.6645 1.23 |
| CompDeal | 0.7129 0.76 | 0.7051 0.75 | 0.7617 0.82 | 0.8083 0.87 | 0.8621 0.92 | 0.6712 0.72 |
| TenderDeal | -1.1612 ** -2.32 | -1.1977 ** -2.38 | -1.1638 ** -2.33 | -1.1477 ** -2.30 | -1.1643 ** -2.33 | -1.0713 ** -2.15 |
| DiversDeal | -0.6920 -1.55 | -0.7161 -1.60 | -0.8048 • -1.80 | -0.7899 • -1.77 | -0.6911 -1.55 | -0.6886 -1.56 |
| RelSize | 0.0025 *** 6.55 | 0.0025 *** 6.51 | 0.0024 *** 6.39 | 0.0024 *** 6.43 | 0.0025 *** 6.69 | 0.0026 *** 6.78 |
| n | 2624 | 2624 | 2624 | 2624 | 2624 | 2624 |
| R-squared | 0.609 | 0.610 | 0.611 | 0.613 | 0.611 | 0.615 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |

Table 1 – Panel C

Regression of total transaction fees against cross-ownership under analyst following and cross-ownership as a percentage of total ownership cross sections. Detailed variables descriptions include in Appendix A.

| "CrossSecVar" → | Dependent variable = Transactions fees | | | |
|-------------------------------|--|----------------------|----------------------|------------------------|
| | Analyst Following | | CO / IO | |
| Intercept | 7.7748 1.13 | 7.6948 1.14 | 22.8734 *** 2.90 | 27.4800 *** 3.73 |
| ACrossOwnPct | 7.3237 *** 3.53 | 3.4035 1.28 | 7.6833 *** 3.45 | -41.9593 *** -11.33 |
| TCrossOwnPct | 3.3462 • 1.94 | -8.9956 *** -4.21 | 4.0340 ** 2.15 | -20.6355 *** -4.61 |
| ACrossSecVar | -0.0239 -0.90 | -0.0676 ** -1.97 | 0.9862 0.67 | -6.9847 *** -4.75 |
| TCrossSecVar | 0.4104 *** 10.58 | 0.0094 0.17 | -1.4319 -1.40 | -1.9345 • -1.87 |
| ACrossOwnPct* ACrossSecVar | | 0.1931 • 1.81 | | 86.9164 *** 16.34 |
| TCrossOwnPct* TCrossSecVar | | 1.0318 *** 8.49 | | 24.2591 *** 4.69 |
| ALogSize | 0.5658 ** 2.49 | 0.7944 *** 3.50 | 0.4676 ** 2.40 | 0.5209 *** 2.86 |
| TLogSize | 2.1152 *** 8.54 | 2.5233 *** 10.24 | 2.2461 *** 9.01 | 2.5577 *** 10.96 |
| ALev | 0.2291 0.19 | -0.1215 -0.10 | 0.0986 0.08 | -0.0207 -0.02 |
| TLev | 1.8106 • 1.88 | 0.9818 1.03 | 2.0313 ** 2.11 | 0.8756 0.97 |
| ache | 0.0000 0.46 | 0.0000 -0.40 | 0.0000 0.79 | 0.0001 1.26 |
| tche | 0.0081 *** 16.52 | 0.0072 *** 14.77 | 0.0072 *** 14.72 | 0.0048 *** 10.29 |
| ACFtoE | -4.8699 -1.49 | -6.3143 ** -1.97 | -4.4622 -1.39 | -3.5606 -1.19 |
| TCFtoE | -0.3335 -0.58 | -0.0976 -0.17 | -0.2528 -0.44 | 0.4404 0.82 |
| ARet205 | -0.4225 -0.68 | -0.1915 -0.32 | -0.3551 -0.58 | -0.1962 -0.34 |
| TRet205 | 2.0309 *** 3.97 | 1.9376 *** 3.86 | 1.9969 *** 3.92 | 1.6497 *** 3.47 |
| AStd205 | 41.4219 • 1.87 | 45.0341 ** 2.07 | 48.0649 ** 2.15 | 42.9372 ** 2.05 |
| TStd205 | 17.2533 1.23 | 12.0467 0.87 | 17.1170 1.20 | 3.2992 0.25 |
| GrossCollateral | 6.1498 *** 3.89 | 5.8872 *** 3.80 | 6.3949 *** 4.05 | 5.5251 *** 3.75 |
| NetCollateral | -9.5225 *** -3.39 | -9.2214 *** -3.35 | -9.8500 *** -3.50 | -9.1144 *** -3.47 |
| TotalIO | -0.9653 • -1.73 | -0.1228 -0.22 | -0.7594 -1.27 | 1.8500 *** 3.16 |
| AROA | 10.7797 *** 2.86 | 12.2597 *** 3.31 | 11.7547 *** 3.17 | 10.8513 *** 3.13 |
| TROA | -0.5029 -0.43 | -0.7041 -0.62 | -0.6506 -0.56 | -1.0246 -0.94 |
| ASalesGrowth | -2.8376 • -1.87 | -2.8533 • -1.91 | -2.5123 • -1.66 | -2.2987 -1.63 |
| TSalesGrowth | -0.5219 -0.85 | -0.6043 -1.01 | -0.4491 -0.73 | -0.4606 -0.80 |
| TAnalystFollow | | | 0.3794 10.22 | 0.3100 8.90 |
| HostileDeal | 1.7356 1.27 | 1.4361 1.07 | 1.9239 1.43 | 1.9671 1.57 |
| CompDeal | 0.7105 0.76 | 0.9402 1.03 | -0.1707 -0.18 | -0.1796 -0.21 |
| TenderDeal | -1.1866 ** -2.37 | -1.1656 ** -2.37 | -1.1209 ** -2.26 | -0.6929 -1.49 |
| DiversDeal | -0.7005 -1.57 | -0.8839 ** -2.02 | -0.6842 -1.54 | -0.5037 -1.22 |
| RelSize | 0.0025 *** 6.53 | 0.0027 *** 7.10 | 0.0023 *** 5.87 | 0.0022 *** 5.95 |
| n | 2624 | 2624 | 2560 | 2560 |
| R-squared | 0.609 | 0.625 | 0.613 | 0.664 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes |

Table 2 – Panel A

Basic regression of deal premium against cross ownership.

| | Dependent variable = Deal Premium | | | |
|-------------------------------|-----------------------------------|----------------------|----------------------|----------------------|
| Intercept | -0.2335 -1.45 | -0.2330 -1.45 | -0.1372 -0.16 | -0.1374 -0.16 |
| ACrossOwnPct | -0.8281 *** -3.65 | -0.9863 *** -3.22 | -1.0954 *** -4.69 | -1.1009 *** -3.52 |
| TCrossOwnPct | 0.7030 *** 3.70 | 0.5645 ** 2.16 | 0.6222 *** 3.23 | 0.6172 ** 2.30 |
| ACrossOwnPct*TCrossOwnPct | | 0.4722 0.77 | | 0.0168 0.03 |
| ALogSize | 0.0681 *** 3.83 | 0.0696 *** 3.89 | 0.0537 *** 2.80 | 0.0538 *** 2.79 |
| TLogSize | 0.0052 0.23 | 0.0071 0.31 | -0.0147 -0.60 | -0.0146 -0.60 |
| ALev | -0.0733 -0.60 | -0.0749 -0.61 | -0.0738 -0.58 | -0.0739 -0.58 |
| TLev | 0.7477 *** 7.24 | 0.7448 *** 7.20 | 0.8166 *** 7.71 | 0.8165 *** 7.70 |
| ache | 0.0000 ** -2.42 | 0.0000 ** -2.47 | 0.0000 ** -2.10 | 0.0000 ** -2.10 |
| tche | -0.0001 • -1.68 | -0.0001 • -1.79 | -0.0001 • -1.77 | -0.0001 • -1.75 |
| ACFtoE | -0.6169 ** -2.03 | -0.6364 ** -2.09 | -0.7706 ** -2.35 | -0.7710 ** -2.35 |
| TCFtoE | -0.0594 -1.09 | -0.0575 -1.05 | -0.0440 -0.79 | -0.0440 -0.79 |
| ARet205 | 0.0094 0.15 | 0.0106 0.16 | 0.0329 0.49 | 0.0329 0.49 |
| TRet205 | -0.3604 *** -6.84 | -0.3606 *** -6.84 | -0.3718 *** -6.92 | -0.3718 *** -6.92 |
| AStd205 | -0.9139 -0.45 | -0.9041 -0.45 | -0.5733 -0.25 | -0.5746 -0.25 |
| TStd205 | 14.1860 *** 10.71 | 14.1616 *** 10.69 | 13.2449 *** 9.56 | 13.2430 *** 9.54 |
| GrossCollateral | 0.0031 0.02 | 0.0083 0.05 | -0.0164 -0.09 | -0.0162 -0.09 |
| NetCollateral | 0.1959 0.71 | 0.1882 0.68 | 0.3014 0.96 | 0.3012 0.96 |
| TotallO | 0.1834 *** 3.15 | 0.1918 *** 3.24 | 0.1265 ** 2.06 | 0.1268 ** 2.03 |
| AROA | 0.3590 0.92 | 0.3731 0.96 | 0.7047 • 1.75 | 0.7050 • 1.75 |
| TROA | 0.2494 ** 2.30 | 0.2467 ** 2.28 | 0.3509 *** 3.15 | 0.3508 *** 3.15 |
| ASalesGrowth | -0.4257 *** -2.96 | -0.4269 *** -2.97 | -0.4131 *** -2.81 | -0.4131 *** -2.81 |
| TSalesGrowth | 0.1230 ** 2.03 | 0.1227 ** 2.02 | 0.0976 1.58 | 0.0976 1.58 |
| TAnalystFollow | -0.0122 *** -3.17 | -0.0122 *** -3.17 | -0.0052 -1.26 | -0.0052 -1.26 |
| HostileDeal | -0.2849 • -1.75 | -0.2814 • -1.73 | -0.2068 -1.26 | -0.2067 -1.26 |
| CompDeal | 0.2998 *** 2.72 | 0.2998 *** 2.72 | 0.3199 *** 2.86 | 0.3198 *** 2.86 |
| TenderDeal | 0.3397 *** 5.88 | 0.3409 *** 5.90 | 0.3316 *** 5.58 | 0.3317 *** 5.58 |
| DiversDeal | -0.1539 *** -3.36 | -0.1538 *** -3.36 | -0.1560 *** -3.15 | -0.1559 *** -3.15 |
| RelSize | 0.0005 *** 11.81 | 0.0005 *** 11.78 | 0.0005 *** 10.94 | 0.0005 *** 10.93 |
| n | 4518 | 4518 | 4518 | 4518 |
| R-squared | 0.109 | 0.109 | 0.144 | 0.144 |
| Year + Industry fixed effects | No | No | Yes | Yes |

Table 2 – Panel B

Regression of deal premium against cross-ownership under information asymmetry cross section. Detailed variables descriptions include in Appendix A.

| "InfoAsym" → | Dependent variable = Deal Premium | | | | | |
|-------------------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | R&D expenditures | | Intangible assets | | Bid-ask spread | |
| Intercept | -0.1498 -0.17 | -0.1589 -0.18 | -0.1668 -0.19 | -0.1508 -0.18 | -0.1753 -0.20 | -0.1475 -0.17 |
| ACrossOwnPct | -1.0866 *** -4.65 | -1.1009 *** -4.67 | -1.0994 *** -4.71 | -1.1096 *** -4.19 | -1.0673 *** -4.57 | -1.0210 *** -3.99 |
| TCrossOwnPct | 0.6190 *** 3.22 | 0.6033 *** 3.11 | 0.6101 *** 3.17 | 0.4613 ** 2.15 | 0.6202 *** 3.22 | 0.4949 ** 2.40 |
| AInfoAsym | -0.0001 -0.01 | -0.0022 -0.14 | 0.0327 0.21 | 0.0427 0.20 | -3.4605 * -1.90 | -3.1257 -1.56 |
| TInfoAsym | -0.0429 -1.27 | -0.0655 -1.48 | 0.3069 * 1.86 | 0.0518 0.22 | 2.7014 *** 2.93 | 1.9643 * 1.95 |
| ACrossOwnPct* AInfoAsym | | 0.1972 0.46 | | -0.0577 -0.08 | | -1.0471 -0.10 |
| TCrossOwnPct* TInfoAsym | | 0.1056 0.72 | | 0.9588 1.54 | | 11.3818 * 1.87 |
| ALogSize | 0.0552 *** 2.87 | 0.0561 *** 2.92 | 0.0557 *** 2.89 | 0.0558 *** 2.90 | 0.0522 *** 2.66 | 0.0514 *** 2.61 |
| TLogSize | -0.0149 -0.61 | -0.0145 -0.60 | -0.0215 -0.87 | -0.0193 -0.78 | -0.0089 -0.36 | -0.0111 -0.45 |
| ALev | -0.0748 -0.58 | -0.0759 -0.59 | -0.0772 -0.60 | -0.0817 -0.64 | -0.0666 -0.52 | -0.0618 -0.48 |
| TLev | 0.7934 *** 7.38 | 0.7911 *** 7.36 | 0.8133 *** 7.68 | 0.8149 *** 7.69 | 0.8064 *** 7.62 | 0.8044 *** 7.60 |
| ache | 0.0000 ** -2.09 | 0.0000 ** -2.13 | 0.0000 ** -2.03 | 0.0000 ** -2.06 | 0.0000 ** -2.01 | 0.0000 * -1.91 |
| tche | -0.0001 * -1.76 | -0.0001 * -1.75 | -0.0001 -1.56 | -0.0001 -1.57 | -0.0001 * -1.84 | -0.0001 * -1.75 |
| ACFtoE | -0.7833 ** -2.39 | -0.7741 ** -2.36 | -0.7963 ** -2.43 | -0.8213 ** -2.50 | -0.7937 ** -2.40 | -0.7885 ** -2.39 |
| TCFtoE | -0.0386 -0.69 | -0.0381 -0.68 | -0.0429 -0.77 | -0.0418 -0.75 | -0.0437 -0.79 | -0.0464 -0.84 |
| ARet205 | 0.0321 0.48 | 0.0323 0.49 | 0.0346 0.52 | 0.0366 0.55 | 0.0178 0.26 | 0.0213 0.32 |
| TRet205 | -0.3707 *** -6.90 | -0.3723 *** -6.92 | -0.3701 *** -6.89 | -0.3710 *** -6.90 | -0.3499 *** -6.44 | -0.3444 *** -6.33 |
| AStd205 | -0.5290 -0.23 | -0.5110 -0.22 | -0.2058 -0.09 | -0.2475 -0.11 | 0.8300 0.35 | 0.8248 0.35 |
| TStd205 | 13.1951 *** 9.52 | 13.1464 *** 9.47 | 13.2423 *** 9.55 | 13.2401 *** 9.55 | 11.4498 *** 7.55 | 11.6570 *** 7.66 |
| GrossCollateral | -0.0282 -0.16 | -0.0206 -0.11 | 0.0052 0.03 | 0.0080 0.04 | -0.0050 -0.03 | -0.0141 -0.08 |
| NetCollateral | 0.3174 1.01 | 0.3111 0.99 | 0.3194 1.02 | 0.3197 1.02 | 0.2778 0.89 | 0.2882 0.92 |
| TotalIO | 0.1259 ** 2.05 | 0.1242 ** 2.02 | 0.1318 ** 2.14 | 0.1364 ** 2.21 | 0.1263 ** 2.04 | 0.1193 * 1.92 |
| AROA | 0.7299 * 1.81 | 0.7334 * 1.81 | 0.7174 * 1.77 | 0.7393 * 1.82 | 0.7367 * 1.83 | 0.7418 * 1.84 |
| TROA | 0.2934 ** 2.44 | 0.2852 ** 2.37 | 0.3457 *** 3.11 | 0.3510 *** 3.15 | 0.3231 *** 2.89 | 0.3336 *** 2.99 |
| ASalesGrowth | -0.4122 *** -2.81 | -0.4120 *** -2.80 | -0.4119 *** -2.80 | -0.4134 *** -2.81 | -0.4138 *** -2.81 | -0.4048 *** -2.75 |
| TSalesGrowth | 0.1008 1.63 | 0.0977 1.57 | 0.1060 * 1.71 | 0.1036 * 1.67 | 0.0820 1.32 | 0.0796 1.29 |
| TAnalystFollow | -0.0053 -1.29 | -0.0054 -1.30 | -0.0050 -1.22 | -0.0049 -1.17 | -0.0048 -1.17 | -0.0040 -0.97 |
| HostileDeal | -0.2083 -1.27 | -0.2062 -1.25 | -0.2001 -1.22 | -0.1929 -1.17 | -0.2129 -1.30 | -0.2079 -1.27 |
| CompDeal | 0.3177 *** 2.84 | 0.3203 *** 2.86 | 0.3243 *** 2.90 | 0.3254 *** 2.91 | 0.3322 *** 2.97 | 0.3361 *** 3.01 |
| TenderDeal | 0.3313 *** 5.58 | 0.3283 *** 5.51 | 0.3313 *** 5.58 | 0.3324 *** 5.60 | 0.3340 *** 5.63 | 0.3311 *** 5.58 |
| DiversDeal | -0.1572 *** -3.18 | -0.1556 *** -3.14 | -0.1640 *** -3.30 | -0.1636 *** -3.30 | -0.1557 *** -3.15 | -0.1538 *** -3.11 |
| RelSize | 0.0005 *** 10.95 | 0.0005 *** 10.97 | 0.0005 *** 10.91 | 0.0005 *** 10.89 | 0.0005 *** 11.05 | 0.0005 *** 11.05 |
| n | 4518 | 4518 | 4518 | 4518 | 4518 | 4518 |
| R-squared | 0.145 | 0.145 | 0.145 | 0.146 | 0.146 | 0.147 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |

Table 2 – Panel C

Regression of deal premium against cross-ownership under analyst following and cross-ownership as a percentage of total ownership cross sections. Detailed variables descriptions include in Appendix A.

| "CrossSecVar" → | Dependent variable = Deal Premium | | | |
|-------------------------------|-----------------------------------|----------------------|----------------------|----------------------|
| | Analyst Following | | CO / IO | |
| Intercept | -0.0546 -0.06 | -0.0509 -0.06 | 0.3346 0.36 | 0.3091 0.33 |
| ACrossOwnPct | -1.0871 *** -4.66 | -1.1685 *** -3.80 | -0.5547 ** -2.22 | -0.0613 -0.14 |
| TCrossOwnPct | 0.6112 *** 3.17 | 0.6384 *** 2.64 | 0.8736 *** 4.31 | 0.6231 1.19 |
| ACrossSecVar | 0.0037 1.32 | 0.0028 0.79 | -0.8379 *** -5.37 | -0.7606 *** -4.59 |
| TCrossSecVar | -0.0067 -1.57 | -0.0060 -0.97 | -0.0392 -0.38 | -0.0746 -0.67 |
| ACrossOwnPct* ACrossSecVar | | 0.0049 0.41 | | -0.8711 -1.39 |
| TCrossOwnPct* TCrossSecVar | | -0.0034 -0.26 | | 0.3718 0.61 |
| ALogSize | 0.0350 1.47 | 0.0365 1.50 | 0.0246 1.23 | 0.0234 1.17 |
| TLogSize | -0.0082 -0.33 | -0.0090 -0.35 | 0.0373 1.48 | 0.0357 1.42 |
| ALev | -0.0446 -0.34 | -0.0458 -0.35 | -0.0171 -0.13 | -0.0147 -0.11 |
| TLev | 0.8198 *** 7.74 | 0.8194 *** 7.71 | 0.7442 *** 7.06 | 0.7501 *** 7.11 |
| ache | 0.0000 ** -1.98 | 0.0000 ** -1.96 | 0.0000 -1.62 | 0.0000 • -1.70 |
| tche | -0.0001 • -1.76 | -0.0001 • -1.73 | -0.0001 ** -2.02 | -0.0001 • -1.72 |
| ACFtoE | -0.7047 ** -2.13 | -0.6998 ** -2.10 | -0.7824 ** -2.41 | -0.7715 ** -2.37 |
| TCFtoE | -0.0429 -0.77 | -0.0442 -0.79 | -0.0144 -0.26 | -0.0169 -0.30 |
| ARet205 | 0.0297 0.45 | 0.0299 0.45 | 0.0436 0.66 | 0.0429 0.65 |
| TRet205 | -0.3734 *** -6.95 | -0.3738 *** -6.95 | -0.3646 *** -6.81 | -0.3621 *** -6.76 |
| AStd205 | -0.8448 -0.36 | -0.8663 -0.37 | -0.3066 -0.13 | -0.2953 -0.13 |
| TStd205 | 13.1982 *** 9.52 | 13.2116 *** 9.53 | 14.3050 *** 10.22 | 14.3917 *** 10.27 |
| GrossCollateral | -0.0243 -0.13 | -0.0231 -0.13 | 0.0674 0.38 | 0.0696 0.39 |
| NetCollateral | 0.2883 0.92 | 0.2907 0.93 | 0.2331 0.74 | 0.2336 0.75 |
| TotalIO | 0.1193 • 1.93 | 0.1210 • 1.92 | 0.0712 1.09 | 0.0652 0.96 |
| AROA | 0.5957 1.45 | 0.5943 1.45 | 0.8477 ** 2.13 | 0.8402 ** 2.11 |
| TROA | 0.3567 *** 3.20 | 0.3566 *** 3.20 | 0.3355 *** 2.99 | 0.3418 *** 3.04 |
| ASalesGrowth | -0.4071 *** -2.77 | -0.4086 *** -2.78 | -0.3757 ** -2.54 | -0.3768 ** -2.55 |
| TSalesGrowth | 0.0975 1.58 | 0.0979 1.59 | 0.0844 1.36 | 0.0882 1.42 |
| TAnalystFollow | | | -0.0037 -0.90 | -0.0032 -0.78 |
| HostileDeal | -0.2034 -1.24 | -0.2028 -1.23 | -0.1679 -1.03 | -0.1699 -1.05 |
| CompDeal | 0.3192 *** 2.86 | 0.3189 *** 2.85 | 0.3168 *** 2.88 | 0.3199 *** 2.90 |
| TenderDeal | 0.3344 *** 5.63 | 0.3334 *** 5.61 | 0.3132 *** 5.37 | 0.3119 *** 5.34 |
| DiversDeal | -0.1523 *** -3.07 | -0.1525 *** -3.08 | -0.1368 *** -2.79 | -0.1376 *** -2.81 |
| RelSize | 0.0005 *** 10.94 | 0.0005 *** 10.93 | 0.0005 *** 11.13 | 0.0005 *** 11.19 |
| n | 4518 | 4518 | 4342 | 4342 |
| R-squared | 0.145 | 0.145 | 0.158 | 0.159 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes |

Table 3 – Panel A

Basic regression of cash consideration percentage against cross ownership.

| | Dependent variable = Cash Consideration | | | |
|-------------------------------|---|------------------------|------------------------|------------------------|
| Intercept | 105.9365 *** 30.37 | 105.9533 *** 30.37 | 102.8772 *** 8.04 | 102.9040 *** 8.05 |
| ACrossOwnPct | -15.8936 *** -3.76 | -11.8293 ** -2.10 | -10.5187 ** -2.43 | -7.4838 -1.31 |
| TCrossOwnPct | 5.4363 1.55 | 9.2443 • 1.87 | 3.3432 0.95 | 6.2372 1.25 |
| ACrossOwnPct*TCrossOwnPct | | -13.0401 -1.09 | | -9.9116 -0.81 |
| ALogSize | 0.8505 ** 2.30 | 0.8173 ** 2.21 | 1.7334 *** 4.35 | 1.7081 *** 4.27 |
| TLogSize | -2.3560 *** -5.01 | -2.4193 *** -5.11 | -1.2597 *** -2.59 | -1.3131 *** -2.67 |
| ALev | 1.2262 0.48 | 1.2138 0.47 | -0.9655 -0.35 | -0.9685 -0.36 |
| TLev | -8.4009 *** -4.00 | -8.2978 *** -3.94 | -10.6032 *** -4.94 | -10.5087 *** -4.89 |
| ache | 0.0003 *** 3.13 | 0.0004 *** 3.18 | 0.0003 *** 2.84 | 0.0003 *** 2.89 |
| tche | -0.0005 -0.48 | -0.0004 -0.31 | 0.0001 0.09 | 0.0002 0.21 |
| ACFtoE | 20.9298 *** 3.29 | 21.3860 *** 3.35 | 16.2647 ** 2.43 | 16.6085 ** 2.48 |
| TCFtoE | -2.4787 ** -2.08 | -2.5427 ** -2.13 | -2.5713 ** -2.15 | -2.6193 ** -2.18 |
| ARet205 | -5.1838 *** -3.45 | -5.1416 *** -3.42 | -4.1194 *** -2.69 | -4.0684 *** -2.65 |
| TRet205 | 0.3148 0.28 | 0.3036 0.27 | 0.6248 0.55 | 0.6093 0.54 |
| AStd205 | -233.0748 *** -5.01 | -232.8591 *** -5.00 | -158.7422 *** -3.01 | -157.0767 *** -2.98 |
| TStd205 | -78.6329 *** -2.75 | -78.1626 *** -2.73 | -17.1552 -0.58 | -16.4750 -0.56 |
| GrossCollateral | 2.8327 0.82 | 2.7194 0.79 | 4.6713 1.27 | 4.6054 1.25 |
| NetCollateral | -17.5880 *** -3.06 | -17.5031 *** -3.05 | -18.1836 *** -2.74 | -18.1599 *** -2.74 |
| TotalIO | -2.9609 ** -2.47 | -3.1394 *** -2.60 | -1.2285 -0.98 | -1.3663 -1.08 |
| AROA | 14.9384 • 1.82 | 14.7418 • 1.79 | 14.4886 • 1.71 | 14.3335 • 1.69 |
| TROA | 4.5276 • 1.79 | 4.6741 • 1.85 | 1.7935 0.70 | 1.9363 0.75 |
| ASalesGrowth | 4.0898 1.30 | 4.0075 1.28 | 5.7309 • 1.80 | 5.6913 • 1.79 |
| TSalesGrowth | 0.7913 0.56 | 0.8207 0.58 | 0.1040 0.07 | 0.1213 0.09 |
| TAnalystFollow | 0.0390 0.53 | 0.0416 0.56 | -0.1928 ** -2.44 | -0.1902 ** -2.41 |
| HostileDeal | 9.4137 *** 3.20 | 9.2677 *** 3.15 | 8.0885 *** 2.71 | 7.9725 *** 2.67 |
| CompDeal | -0.6844 -0.36 | -0.6835 -0.36 | -1.4134 -0.74 | -1.3983 -0.73 |
| TenderDeal | 10.0245 *** 10.08 | 9.9645 *** 10.01 | 10.5037 *** 10.21 | 10.4560 *** 10.15 |
| DiversDeal | 2.7498 *** 2.94 | 2.7159 *** 2.90 | 1.9279 • 1.89 | 1.9021 • 1.86 |
| RelSize | -0.0090 *** -10.00 | -0.0089 *** -9.91 | -0.0090 *** -9.89 | -0.0089 *** -9.85 |
| n | 2773 | 2773 | 2773 | 2773 |
| R-squared | 0.214 | 0.215 | 0.278 | 0.278 |
| Year + Industry fixed effects | No | No | Yes | Yes |

Table 3 – Panel B

Regression of cash consideration percentage against cross-ownership under information asymmetry cross section. Detailed variables descriptions include in Appendix A.

| "InfoAsym" → | Dependent variable = Cash Consideration | | | | | |
|-------------------------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|
| | R&D expenditures | | Intangible assets | | Bid-ask spread | |
| Intercept | 104.7022 *** 8.19 | 104.2314 *** 8.16 | 103.9263 *** 8.11 | 104.2515 *** 8.13 | 101.8217 *** 7.95 | 101.2911 *** 7.90 |
| ACrossOwnPct | -10.2845 ** -2.38 | -11.4213 *** -2.62 | -10.4624 ** -2.42 | -11.9939 ** -2.38 | -10.9513 ** -2.53 | -10.5170 ** -2.19 |
| TCrossOwnPct | 3.3081 0.94 | 2.3882 0.67 | 3.8122 1.08 | 1.0689 0.27 | 3.2681 0.93 | 4.0975 1.08 |
| AInfoAsym | -6.2133 *** -3.33 | -8.8773 *** -3.40 | -2.6577 -0.80 | -4.3070 -0.96 | 86.1421 ** 2.25 | 92.1471 ** 2.18 |
| TInfoAsym | -0.2265 -0.30 | -1.5669 -1.53 | -7.8373 ** -2.45 | -12.2978 *** -2.69 | -19.6731 -0.99 | -12.1947 -0.56 |
| ACrossOwnPct* AInfoAsym | | 19.4689 1.64 | | 7.2783 0.51 | | -102.9434 -0.46 |
| TCrossOwnPct* TInfoAsym | | 4.9307 * 1.80 | | 15.2478 1.30 | | -112.2534 -0.93 |
| ALogSize | 1.6893 *** 4.24 | 1.8015 *** 4.49 | 1.7044 *** 4.26 | 1.6953 *** 4.24 | 1.8963 *** 4.65 | 1.9183 *** 4.68 |
| TLogSize | -1.2523 *** -2.58 | -1.2526 *** -2.58 | -1.1223 ** -2.27 | -1.0488 ** -2.11 | -1.2624 *** -2.58 | -1.2071 ** -2.45 |
| ALev | -1.1551 -0.42 | -1.4572 -0.54 | -0.9484 -0.35 | -0.8746 -0.32 | -1.0682 -0.39 | -1.1204 -0.41 |
| TLev | -11.1189 *** -5.12 | -11.1793 *** -5.16 | -10.2983 *** -4.80 | -10.3193 *** -4.80 | -10.6604 *** -4.97 | -10.7073 *** -4.99 |
| ache | 0.0003 *** 2.92 | 0.0003 *** 2.73 | 0.0003 *** 2.60 | 0.0003 *** 2.58 | 0.0003 *** 2.58 | 0.0003 ** 2.51 |
| tche | 0.0001 0.08 | 0.0001 0.09 | -0.0003 -0.23 | -0.0003 -0.22 | 0.0001 0.09 | 0.0000 0.03 |
| ACFtoE | 15.4073 ** 2.31 | 15.6965 ** 2.35 | 17.3125 *** 2.58 | 17.0050 ** 2.54 | 14.9396 ** 2.22 | 14.7499 ** 2.19 |
| TCFtoE | -2.6593 ** -2.22 | -2.6576 ** -2.22 | -2.6442 ** -2.21 | -2.6170 ** -2.18 | -2.6453 ** -2.21 | -2.6145 ** -2.18 |
| ARet205 | -4.2782 *** -2.79 | -4.1564 *** -2.72 | -4.1684 *** -2.72 | -4.2419 *** -2.77 | -3.6498 ** -2.36 | -3.6819 ** -2.38 |
| TRet205 | 0.6490 0.57 | 0.4901 0.43 | 0.5273 0.46 | 0.5046 0.44 | 0.5598 0.49 | 0.5278 0.46 |
| AStd205 | -150.8874 *** -2.86 | -145.1984 *** -2.75 | -171.8487 *** -3.24 | -172.8976 *** -3.26 | -182.9742 *** -3.41 | -183.0821 *** -3.41 |
| TStd205 | -16.8901 -0.57 | -22.1706 -0.75 | -16.2752 -0.55 | -15.0235 -0.51 | -4.4145 -0.14 | -6.4463 -0.20 |
| GrossCollateral | 4.5856 1.24 | 4.7494 1.29 | 3.7594 1.01 | 3.7807 1.02 | 4.5047 1.22 | 4.6426 1.26 |
| NetCollateral | -18.4776 *** -2.79 | -18.3331 *** -2.77 | -18.9853 *** -2.86 | -18.9738 *** -2.86 | -17.8222 *** -2.69 | -17.9829 *** -2.71 |
| TotalIO | -1.1383 -0.91 | -1.2504 -1.00 | -1.4012 -1.12 | -1.3431 -1.07 | -1.0161 -0.81 | -0.9632 -0.76 |
| AROA | 12.0605 1.42 | 12.7021 1.49 | 13.7836 1.62 | 14.3934 * 1.69 | 15.4176 * 1.82 | 15.2207 * 1.79 |
| TROA | 0.5956 0.22 | 0.2904 0.11 | 2.3147 0.90 | 2.3624 0.91 | 1.7553 0.68 | 1.5729 0.61 |
| ASalesGrowth | 6.1281 * 1.93 | 6.4941 ** 2.04 | 5.6398 * 1.77 | 5.7389 * 1.80 | 5.4828 * 1.72 | 5.3810 * 1.69 |
| TSalesGrowth | 0.1291 0.09 | 0.0138 0.01 | -0.1229 -0.09 | -0.1694 -0.12 | 0.2513 0.18 | 0.1916 0.13 |
| TAnalystFollow | -0.1846 -2.34 | -0.1910 -2.42 | -0.1829 -2.32 | -0.1819 -2.30 | -0.1981 -2.51 | -0.2094 -2.63 |
| HostileDeal | 8.1053 *** 2.73 | 8.1739 *** 2.75 | 7.9193 *** 2.66 | 8.0989 *** 2.72 | 8.2219 *** 2.76 | 8.2183 *** 2.76 |
| CompDeal | -1.6051 -0.84 | -1.4581 -0.77 | -1.5470 -0.81 | -1.4849 -0.78 | -1.5020 -0.79 | -1.5492 -0.81 |
| TenderDeal | 10.4892 *** 10.22 | 10.3480 *** 10.06 | 10.4969 *** 10.22 | 10.5348 *** 10.25 | 10.4649 *** 10.17 | 10.5401 *** 10.22 |
| DiversDeal | 1.8142 * 1.78 | 1.8946 * 1.86 | 2.2458 ** 2.18 | 2.2887 ** 2.23 | 1.9004 * 1.86 | 1.8682 * 1.83 |
| RelSize | -9.0553 *** -10.01 | -8.9611 *** -9.91 | -8.9235 *** -9.86 | -8.9302 *** -9.87 | -9.0115 *** -9.96 | -9.0118 *** -9.95 |
| n | 2773 | 2773 | 2773 | 2773 | 2773 | 2773 |
| R-squared | 0.281 | 0.283 | 0.280 | 0.281 | 0.279 | 0.280 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |

Table 3 – Panel C

Regression of cash consideration percentage against cross-ownership under analyst following and cross-ownership as a percentage of total ownership cross sections. Detailed variables descriptions include in Appendix A.

| "CrossSecVar" → | Dependent variable = Cash Consideration | | | |
|-------------------------------|---|------------------------|------------------------|------------------------|
| | Analyst Following | | CO / IO | |
| Intercept | 100.5240 *** 7.83 | 100.7006 *** 7.84 | 101.6271 *** 7.29 | 100.2834 *** 7.20 |
| ACrossOwnPet | -11.2036 *** -2.59 | -14.0846 *** -2.58 | -9.1615 • -1.84 | 11.3568 1.25 |
| TCrossOwnPet | 3.8617 1.09 | 4.6492 1.04 | 5.9863 1.49 | 6.3898 0.61 |
| ACrossSecVar | -0.1052 ** -2.04 | -0.1427 ** -2.11 | -1.6945 -0.51 | 1.7764 0.50 |
| TCrossSecVar | -0.1603 ** -1.99 | -0.1261 -1.05 | -4.4139 ** -2.00 | -5.1158 ** -2.14 |
| ACrossOwnPet* ACrossSecVar | | 0.2200 0.88 | | -35.5539 *** -2.71 |
| TCrossOwnPet* TCrossSecVar | | -0.1444 -0.56 | | 1.2530 0.10 |
| ALogSize | 2.1962 *** 4.79 | 2.2486 *** 4.83 | 2.0051 *** 4.77 | 1.9895 *** 4.74 |
| TLogSize | -1.4270 *** -2.89 | -1.4671 *** -2.91 | -1.1920 ** -2.31 | -1.3335 ** -2.57 |
| ALev | -2.0178 -0.73 | -2.0547 -0.74 | -0.3674 -0.13 | -0.2469 -0.09 |
| TLev | -10.6466 *** -4.96 | -10.6163 *** -4.94 | -10.6030 *** -4.77 | -10.2185 *** -4.59 |
| ache | 0.0003 *** 2.68 | 0.0003 *** 2.67 | 0.0003 ** 2.42 | 0.0003 ** 2.32 |
| tche | 0.0001 0.11 | 0.0001 0.12 | 0.0002 0.18 | 0.0009 0.69 |
| ACFtoE | 14.7775 ** 2.20 | 14.8785 ** 2.20 | 12.6540 • 1.85 | 12.8968 • 1.89 |
| TCFtoE | -2.5678 ** -2.15 | -2.6154 ** -2.18 | -2.4576 ** -1.96 | -2.6147 ** -2.09 |
| ARet205 | -4.0127 *** -2.62 | -4.0128 *** -2.62 | -3.6968 ** -2.37 | -3.5200 ** -2.25 |
| TRet205 | 0.7147 0.63 | 0.7062 0.62 | 0.1776 0.15 | 0.2606 0.22 |
| AStd205 | -149.3362 *** -2.82 | -150.1339 *** -2.84 | -189.0376 *** -3.47 | -182.7052 *** -3.35 |
| TStd205 | -16.1672 -0.55 | -15.2373 -0.51 | -8.2972 -0.27 | -2.8475 -0.09 |
| GrossCollateral | 4.7633 1.29 | 4.7275 1.28 | 4.1634 1.10 | 4.1778 1.10 |
| NetCollateral | -17.7620 *** -2.68 | -17.5208 *** -2.64 | -17.2445 ** -2.52 | -17.1182 ** -2.50 |
| TotallO | -0.6424 -0.50 | -0.6349 -0.49 | -1.6750 -1.24 | -2.3065 -1.64 |
| AROA | 17.3951 ** 2.03 | 17.2927 ** 2.02 | 17.8410 ** 2.04 | 18.3228 ** 2.10 |
| TROA | 1.4711 0.57 | 1.4641 0.57 | 0.7871 0.30 | 1.2293 0.46 |
| ASalesGrowth | 5.3264 • 1.67 | 5.2572 • 1.65 | 5.4753 • 1.68 | 5.4196 • 1.66 |
| TSalesGrowth | 0.0320 0.02 | 0.0586 0.04 | 0.0474 0.03 | 0.2272 0.15 |
| TAnalystFollow | | | -0.1825 -2.21 | -0.1626 -1.96 |
| HostileDeal | 8.1119 *** 2.72 | 8.1519 *** 2.74 | 7.4684 ** 2.46 | 7.3407 ** 2.42 |
| CompDeal | -1.4253 -0.75 | -1.4425 -0.76 | -1.0223 -0.53 | -0.8938 -0.46 |
| TenderDeal | 10.3758 *** 10.08 | 10.3531 *** 10.04 | 10.6571 *** 10.18 | 10.5466 *** 10.06 |
| DiversDeal | 1.8506 • 1.81 | 1.8568 • 1.82 | 1.7229 • 1.65 | 1.6404 1.57 |
| RelSize | -8.9399 *** -9.88 | -8.9245 *** -9.85 | -8.8613 *** -9.49 | -8.7728 *** -9.40 |
| n | 2773 | 2773 | 2647 | 2647 |
| R-squared | 0.279 | 0.279 | 0.287 | 0.289 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes |

Table 4 – Panel A

Basic regression of synergies against cross ownership.

| | Dependent variable = Synergies | | | |
|-------------------------------|--------------------------------|---------------------|--------------------|--------------------|
| Intercept | 0.1046 0.28 | 0.1052 0.28 | 0.4774 0.29 | 0.5004 0.31 |
| ACrossOwnPct | 0.4203 0.88 | 0.6753 1.05 | 0.3563 0.72 | 0.6954 1.05 |
| TCrossOwnPct | 0.1393 0.34 | 0.3704 0.66 | 0.1698 0.41 | 0.4813 0.83 |
| ACrossOwnPct*TCrossOwnPct | | -0.8141 -0.60 | | -1.0965 -0.78 |
| ALogSize | -0.0370 -0.93 | -0.0395 -0.98 | -0.0645 -1.47 | -0.0679 -1.54 |
| TLogSize | 0.0105 0.21 | 0.0071 0.14 | -0.0318 -0.59 | -0.0370 -0.68 |
| ALev | 0.2921 1.03 | 0.2942 1.04 | 0.2347 0.78 | 0.2394 0.79 |
| TLev | 0.3506 1.48 | 0.3539 1.50 | 0.3434 1.39 | 0.3498 1.42 |
| ache | 0.0000 -1.18 | 0.0000 -1.14 | 0.0000 -1.19 | 0.0000 -1.14 |
| tche | -0.0001 -0.44 | 0.0000 -0.35 | 0.0000 -0.26 | 0.0000 -0.15 |
| ACFtoE | 0.0733 0.10 | 0.1052 0.15 | 0.5564 0.73 | 0.5872 0.77 |
| TCFtoE | -0.1198 -0.97 | -0.1233 -1.00 | -0.0975 -0.77 | -0.1015 -0.80 |
| ARet205 | -0.0764 -0.50 | -0.0785 -0.51 | -0.1160 -0.73 | -0.1169 -0.74 |
| TRet205 | -0.1915 -1.55 | -0.1904 -1.54 | -0.1895 -1.50 | -0.1883 -1.49 |
| AStd205 | -9.4505 ** -2.02 | -9.4927 ** -2.03 | -9.1008 * -1.67 | -9.0445 * -1.66 |
| TStd205 | 6.8077 ** 2.24 | 6.8540 ** 2.26 | 7.5796 ** 2.36 | 7.7016 ** 2.39 |
| GrossCollateral | 0.0369 0.10 | 0.0301 0.08 | 0.0864 0.21 | 0.0785 0.19 |
| NetCollateral | -0.2162 -0.36 | -0.2058 -0.34 | -0.6821 -0.97 | -0.6714 -0.95 |
| TotalIO | -0.0926 -0.72 | -0.1030 -0.79 | -0.0694 -0.51 | -0.0837 -0.61 |
| AROA | 1.2237 1.35 | 1.2001 1.32 | 1.4527 1.54 | 1.4325 1.52 |
| TROA | -0.2302 -0.89 | -0.2267 -0.88 | -0.2428 -0.90 | -0.2360 -0.88 |
| ASalesGrowth | -0.3177 -0.94 | -0.3150 -0.93 | -0.2986 -0.86 | -0.2965 -0.85 |
| TSalesGrowth | -0.0103 -0.07 | -0.0084 -0.06 | 0.0107 0.07 | 0.0120 0.08 |
| TAnalystFollow | 0.0033 0.39 | 0.0034 0.40 | 0.0093 1.03 | 0.0096 1.06 |
| HostileDeal | 0.0682 0.17 | 0.0607 0.16 | 0.1272 0.32 | 0.1182 0.30 |
| CompDeal | -0.0630 -0.24 | -0.0621 -0.24 | -0.0117 -0.04 | -0.0089 -0.03 |
| TenderDeal | -0.0095 -0.07 | -0.0125 -0.09 | -0.0124 -0.09 | -0.0174 -0.13 |
| DiversDeal | -0.0519 -0.49 | -0.0519 -0.49 | -0.0774 -0.66 | -0.0779 -0.67 |
| RelSize | 0.0000 -0.09 | 0.0000 -0.06 | 0.0000 -0.47 | 0.0000 -0.45 |
| n | 5388 | 5388 | 5388 | 5388 |
| R-squared | 0.006 | 0.006 | 0.020 | 0.020 |
| Year + Industry fixed effects | No | No | Yes | Yes |

Table 4 – Panel B

Regression of synergies against cross-ownership under information asymmetry cross section. Detailed variables descriptions include in Appendix A.

| "InfoAsym" → | Dependent variable = Synergies | | | | | |
|-------------------------------|--------------------------------|---------------------|--------------------|--------------------|--------------------|--------------------|
| | R&D expenditures | | Intangible assets | | Bid-ask spread | |
| Intercept | 0.4658 0.28 | 0.4603 0.28 | 0.5132 0.31 | 0.5043 0.31 | 0.2636 0.16 | 0.2565 0.16 |
| ACrossOwnPct | 0.3663 0.74 | 0.3438 0.69 | 0.3572 0.72 | 0.4150 0.73 | 0.3930 0.79 | 0.1546 0.28 |
| TCrossOwnPct | 0.1613 0.39 | 0.0841 0.20 | 0.1697 0.41 | 0.3808 0.82 | 0.1365 0.33 | 0.2484 0.55 |
| AInfoAsym | 0.0054 0.20 | 0.0056 0.19 | -0.1397 -0.37 | -0.0964 -0.19 | -2.0874 -0.50 | -3.8000 -0.85 |
| TInfoAsym | -0.1360 • -1.65 | -0.2378 •• -2.21 | 0.0257 0.07 | 0.3906 0.73 | 7.8127 ••• 3.61 | 8.2635 ••• 3.53 |
| ACrossOwnPct* AInfoAsym | | 0.2637 0.24 | | -0.2241 -0.14 | | 20.7726 0.95 |
| TCrossOwnPct* TInfoAsym | | 0.5210 1.43 | | -1.3898 -0.96 | | -5.6221 -0.40 |
| ALogSize | -0.0602 -1.37 | -0.0583 -1.33 | -0.0632 -1.44 | -0.0636 -1.45 | -0.0531 -1.18 | -0.0549 -1.22 |
| TLogSize | -0.0327 -0.61 | -0.0310 -0.58 | -0.0334 -0.62 | -0.0374 -0.69 | -0.0108 -0.20 | -0.0116 -0.21 |
| ALev | 0.2277 0.75 | 0.2221 0.74 | 0.2324 0.77 | 0.2368 0.78 | 0.2197 0.73 | 0.2186 0.72 |
| TLev | 0.2772 1.11 | 0.2704 1.08 | 0.3462 1.40 | 0.3456 1.40 | 0.3174 1.29 | 0.3154 1.28 |
| ache | 0.0000 -1.17 | 0.0000 -1.23 | 0.0000 -1.22 | 0.0000 -1.21 | 0.0000 -1.20 | 0.0000 -1.16 |
| tche | 0.0000 -0.26 | 0.0000 -0.24 | 0.0000 -0.26 | 0.0000 -0.24 | -0.0001 -0.43 | 0.0000 -0.38 |
| ACFtoE | 0.5132 0.67 | 0.5267 0.69 | 0.5684 0.74 | 0.5995 0.78 | 0.3831 0.50 | 0.3910 0.51 |
| TCFtoE | -0.0847 -0.67 | -0.0843 -0.67 | -0.0960 -0.76 | -0.0980 -0.77 | -0.1042 -0.82 | -0.1039 -0.82 |
| ARet205 | -0.1179 -0.75 | -0.1167 -0.74 | -0.1178 -0.74 | -0.1183 -0.75 | -0.1178 -0.74 | -0.1169 -0.73 |
| TRet205 | -0.1907 -1.51 | -0.1976 -1.56 | -0.1894 -1.49 | -0.1864 -1.47 | -0.1214 -0.95 | -0.1229 -0.96 |
| AStd205 | -8.9649 • -1.65 | -8.8778 -1.63 | -9.2559 • -1.69 | -9.2270 • -1.68 | -6.8921 -1.24 | -6.6373 -1.19 |
| TStd205 | 7.4302 •• 2.31 | 7.2532 •• 2.26 | 7.5230 •• 2.34 | 7.5025 •• 2.33 | 2.6419 0.76 | 2.6467 0.76 |
| GrossCollateral | 0.0575 0.14 | 0.0791 0.20 | 0.0738 0.18 | 0.0690 0.17 | 0.0833 0.21 | 0.0921 0.23 |
| NetCollateral | -0.6451 -0.91 | -0.6636 -0.94 | -0.6987 -0.99 | -0.7008 -0.99 | -0.6983 -0.99 | -0.7068 -1.00 |
| TotalO | -0.0670 -0.49 | -0.0702 -0.51 | -0.0692 -0.51 | -0.0745 -0.55 | -0.0348 -0.25 | -0.0248 -0.18 |
| AROA | 1.5232 1.61 | 1.4889 1.57 | 1.4061 1.48 | 1.3714 1.44 | 1.5588 • 1.65 | 1.5679 • 1.66 |
| TROA | -0.4004 -1.40 | -0.4299 -1.50 | -0.2388 -0.89 | -0.2442 -0.91 | -0.3122 -1.16 | -0.3129 -1.16 |
| ASalesGrowth | -0.2978 -0.86 | -0.2959 -0.85 | -0.3083 -0.89 | -0.3076 -0.88 | -0.3377 -0.97 | -0.3290 -0.94 |
| TSalesGrowth | 0.0230 0.16 | 0.0109 0.08 | 0.0124 0.09 | 0.0164 0.11 | -0.0387 -0.27 | -0.0384 -0.27 |
| TAnalystFollow | 0.0092 1.01 | 0.0090 0.99 | 0.0094 1.03 | 0.0092 1.01 | 0.0113 1.24 | 0.0115 1.25 |
| HostileDeal | 0.1235 0.31 | 0.1327 0.33 | 0.1295 0.32 | 0.1159 0.29 | 0.1254 0.31 | 0.1229 0.31 |
| CompDeal | -0.0186 -0.07 | -0.0094 -0.04 | -0.0110 -0.04 | -0.0086 -0.03 | 0.0220 0.08 | 0.0236 0.09 |
| TenderDeal | -0.0133 -0.10 | -0.0272 -0.20 | -0.0118 -0.08 | -0.0133 -0.10 | -0.0135 -0.10 | -0.0155 -0.11 |
| DiversDeal | -0.0821 -0.70 | -0.0799 -0.68 | -0.0769 -0.65 | -0.0791 -0.67 | -0.0731 -0.62 | -0.0725 -0.62 |
| RelSize | -0.0456 -0.44 | -0.0434 -0.42 | -0.0473 -0.46 | -0.0470 -0.45 | -0.0447 -0.43 | -0.0445 -0.43 |
| n | 5388 | 5388 | 5388 | 5388 | 5388 | 5388 |
| R-squared | 0.021 | 0.021 | 0.020 | 0.020 | 0.023 | 0.023 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |

Table 4 – Panel C

Regression of synergies against cross-ownership under analyst following and cross-ownership as a percentage of total ownership cross sections. Detailed variables descriptions include in Appendix A.

| "CrossSecVar" → | Dependent variable = Synergies | | | |
|-------------------------------|--------------------------------|--------------------|-------------------|-------------------|
| | Analyst Following | | CO / IO | |
| Intercept | 0.3993 0.24 | 0.3892 0.24 | 0.6526 0.35 | 0.6405 0.34 |
| ACrossOwnPct | 0.3287 0.66 | -0.2953 -0.46 | 0.7131 1.27 | 1.1236 1.12 |
| TCrossOwnPct | 0.1996 0.48 | 0.3635 0.69 | 0.4039 0.87 | 0.0940 0.08 |
| ACrossSecVar | -0.0040 -0.66 | -0.0112 -1.46 | -0.3950 -1.09 | -0.3279 -0.85 |
| TCrossSecVar | 0.0108 1.15 | 0.0158 1.17 | -0.1470 -0.61 | -0.1854 -0.71 |
| ACrossOwnPct* ACrossSecVar | | 0.0426 1.57 | | -0.7248 -0.49 |
| TCrossOwnPct* TCrossSecVar | | -0.0263 -0.86 | | 0.4298 0.30 |
| ALogSize | -0.0466 -0.91 | -0.0351 -0.67 | -0.0664 -1.40 | -0.0672 -1.42 |
| TLogSize | -0.0394 -0.72 | -0.0442 -0.79 | -0.0397 -0.69 | -0.0409 -0.71 |
| ALev | 0.2008 0.66 | 0.1835 0.60 | 0.1843 0.58 | 0.1877 0.59 |
| TLev | 0.3433 1.39 | 0.3456 1.40 | 0.3809 1.48 | 0.3852 1.49 |
| ache | 0.0000 -1.25 | 0.0000 -1.24 | 0.0000 -1.25 | 0.0000 -1.28 |
| tche | 0.0000 -0.26 | 0.0000 -0.21 | 0.0000 -0.13 | 0.0000 -0.06 |
| ACFtoE | 0.4865 0.63 | 0.5024 0.65 | 0.3803 0.48 | 0.3844 0.48 |
| TCFtoE | -0.0996 -0.79 | -0.1098 -0.87 | -0.1122 -0.85 | -0.1137 -0.86 |
| ARet205 | -0.1143 -0.72 | -0.1128 -0.71 | -0.0872 -0.53 | -0.0881 -0.53 |
| TRet205 | -0.1878 -1.48 | -0.1894 -1.49 | -0.1935 -1.47 | -0.1912 -1.45 |
| AStd205 | -8.8682 -1.62 | -9.0138 • -1.65 | -9.2191 -1.61 | -9.2226 -1.61 |
| TStd205 | 7.6465 ** 2.38 | 7.7402 ** 2.41 | 7.8163 ** 2.31 | 7.8734 ** 2.32 |
| GrossCollateral | 0.0928 0.23 | 0.1030 0.25 | 0.1823 0.43 | 0.1829 0.43 |
| NetCollateral | -0.6696 -0.95 | -0.6555 -0.93 | -0.8208 -1.11 | -0.8188 -1.10 |
| TotalIO | -0.0519 -0.37 | -0.0429 -0.31 | -0.1803 -1.23 | -0.1809 -1.20 |
| AROA | 1.5542 1.63 | 1.5525 1.62 | 1.6803 • 1.71 | 1.6721 • 1.70 |
| TROA | -0.2454 -0.91 | -0.2411 -0.90 | -0.2634 -0.93 | -0.2580 -0.92 |
| ASalesGrowth | -0.3048 -0.88 | -0.3196 -0.92 | -0.3110 -0.85 | -0.3116 -0.86 |
| TSalesGrowth | 0.0118 0.08 | 0.0187 0.13 | 0.0091 0.06 | 0.0123 0.08 |
| TAnalystFollow | | | 0.0119 1.25 | 0.0124 1.28 |
| HostileDeal | 0.1255 0.31 | 0.1343 0.34 | 0.1219 0.30 | 0.1199 0.29 |
| CompDeal | -0.0105 -0.04 | -0.0090 -0.03 | 0.0058 0.02 | 0.0094 0.03 |
| TenderDeal | -0.0168 -0.12 | -0.0208 -0.15 | -0.0400 -0.28 | -0.0403 -0.28 |
| DiversDeal | -0.0809 -0.69 | -0.0826 -0.70 | -0.0785 -0.65 | -0.0780 -0.64 |
| RelSize | -0.0470 -0.46 | -0.0389 -0.38 | -0.0357 -0.33 | -0.0327 -0.30 |
| n | 5388 | 5388 | 5143 | 5143 |
| R-squared | 0.020 | 0.021 | 0.021 | 0.021 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes |

Table 5 – Panel A

Basic regression of completion variable against cross ownership.

| | Dependent Variable = Completion Probability | |
|-------------------------------|---|-----------------------|
| Intercept | 0.7052 *** 14.83 | 0.7188 *** 15.39 |
| ACrossOwnPct | -0.3411 ** 2.17 | 0.1475 0.22 |
| TCrossOwnPct | -0.5531 *** 7.56 | -0.1254 0.21 |
| ACrossOwnPct*TCrossOwnPct | | -1.4775 *** 5.16 |
| ALogSize | 0.1554 *** 60.70 | 0.1498 *** 55.68 |
| TLogSize | -0.1377 *** 31.09 | -0.1444 *** 33.75 |
| ALev | -0.4996 *** 12.63 | -0.4971 *** 12.50 |
| TLev | 0.0490 0.17 | 0.0598 0.25 |
| ache | 0.0000 *** 6.32 | 0.0000 *** 5.60 |
| tche | -0.0002 *** 25.80 | -0.0002 *** 22.28 |
| ACFtoE | -0.9025 *** 7.42 | -0.8544 *** 6.62 |
| TCFtoE | 0.0151 0.06 | 0.0119 0.04 |
| ARet205 | 0.1943 *** 6.29 | 0.1916 *** 6.12 |
| TRet205 | -0.0013 0.00 | -0.0023 0.00 |
| AStd205 | 1.8210 0.64 | 1.6932 0.55 |
| TStd205 | -1.2600 0.71 | -1.2361 0.69 |
| GrossCollateral | 0.2481 * 1.78 | 0.2337 1.58 |
| NetCollateral | -0.2455 0.67 | -0.2310 0.59 |
| TotalIO | 0.4627 *** 45.84 | 0.4425 *** 41.18 |
| AROA | 0.5206 1.31 | 0.4774 1.10 |
| TROA | 0.3563 *** 7.72 | 0.3611 *** 7.92 |
| ASalesGrowth | -0.0605 0.14 | -0.0536 0.11 |
| TSalesGrowth | 0.0764 1.26 | 0.0784 1.33 |
| TAnalystFollow | -0.0137 *** 13.10 | -0.0135 *** 12.59 |
| HostileDeal | -2.3384 *** 221.22 | -2.3471 *** 222.58 |
| CompDeal | -1.4359 *** 184.95 | -1.4377 *** 184.97 |
| TenderDeal | 1.8252 *** 258.39 | 1.8209 *** 257.04 |
| DiversDeal | -0.0617 1.28 | -0.0609 1.25 |
| RelSize | 0.0910 *** 4.21 | 0.0946 *** 4.54 |
| n | 7992 | 7992 |
| R-squared | 0.128 | 0.129 |
| Year + Industry fixed effects | Yes | Yes |

Table 5 – Panel B

Regression of completed variable against cross-ownership under information asymmetry cross section. Detailed variables descriptions include in Appendix A.

| "InfoAsym" → | Dependent variable = Deal Premium | | | | | |
|-------------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | R&D expenditures | | Intangible assets | | Bid-ask spread | |
| Intercept | 0.7340 *** 15.84 | 0.7370 *** 15.95 | 0.8068 *** 18.91 | 0.8068 *** 18.91 | 0.7088 *** 14.55 | 0.7934 *** 17.96 |
| ACrossOwnPct | -0.3394 ** 2.15 | -0.3219 • 1.92 | -0.2829 1.48 | -0.0929 0.12 | -0.3405 ** 2.16 | -0.6197 *** 5.72 |
| TCrossOwnPct | -0.5533 *** 7.56 | -0.5216 *** 6.60 | -0.5375 *** 7.11 | -0.4649 *** 4.16 | -0.5526 *** 7.54 | -0.6269 *** 8.15 |
| AInfoAsym | -0.0100 0.79 | -0.0062 0.26 | -0.5957 *** 11.61 | -0.3910 *** 2.80 | -0.1647 0.01 | -2.9530 ** 2.31 |
| TInfoAsym | -0.0367 0.96 | 0.0027 0.00 | -0.1567 0.71 | -0.0526 0.04 | -0.0355 0.00 | -0.8145 0.57 |
| ACrossOwnPct* AInfoAsym | | -0.1986 0.53 | | -0.9942 • 1.79 | | 46.2186 *** 10.94 |
| TCrossOwnPct* TInfoAsym | | -0.2175 1.62 | | -0.3365 0.24 | | 16.3309 *** 4.43 |
| ALogSize | 0.1558 *** 60.62 | 0.1552 *** 60.04 | 0.1667 *** 67.65 | 0.1652 *** 66.22 | 0.1549 *** 58.12 | 0.1476 *** 52.19 |
| TLogSize | -0.1381 *** 31.22 | -0.1389 *** 31.55 | -0.1366 *** 29.69 | -0.1405 *** 31.15 | -0.1378 *** 30.85 | -0.1424 *** 32.71 |
| ALev | -0.5063 *** 12.94 | -0.5106 *** 13.14 | -0.5196 *** 13.62 | -0.5220 *** 13.71 | -0.4982 *** 12.47 | -0.4941 *** 12.24 |
| TLev | 0.0250 0.04 | 0.0285 0.05 | 0.0528 0.19 | 0.0600 0.25 | 0.0493 0.17 | 0.0353 0.09 |
| ache | 0.0000 *** 6.19 | 0.0000 *** 5.77 | 0.0000 *** 8.95 | 0.0000 *** 9.12 | 0.0000 *** 6.26 | 0.0000 *** 4.21 |
| tche | -0.0002 *** 25.70 | -0.0002 *** 25.99 | -0.0002 *** 25.25 | -0.0002 *** 24.23 | -0.0002 *** 25.75 | -0.0002 *** 21.56 |
| ACFtoE | -0.9227 *** 7.75 | -0.9258 *** 7.80 | -0.9164 *** 7.62 | -0.8863 *** 7.11 | -0.9022 *** 7.42 | -0.8884 *** 7.17 |
| TCFtoE | 0.0190 0.10 | 0.0196 0.10 | 0.0214 0.12 | 0.0204 0.11 | 0.0153 0.06 | 0.0122 0.04 |
| ARet205 | 0.1907 *** 6.05 | 0.1883 *** 5.89 | 0.1901 *** 6.00 | 0.1889 *** 5.93 | 0.1932 *** 6.09 | 0.1909 *** 5.93 |
| TRet205 | 0.0017 0.00 | 0.0054 0.01 | -0.0038 0.00 | -0.0007 0.00 | -0.0018 0.00 | 0.0045 0.00 |
| AStd205 | 1.7199 0.57 | 1.7178 0.57 | 1.3499 0.35 | 1.2224 0.29 | 1.8588 0.62 | 1.8488 0.61 |
| TStd205 | -1.2541 0.71 | -1.2339 0.68 | -1.4057 0.89 | -1.4781 0.98 | -1.2227 0.55 | -1.1817 0.51 |
| GrossCollateral | 0.2445 • 1.72 | 0.2352 1.59 | 0.2144 1.32 | 0.2043 1.20 | 0.2487 • 1.78 | 0.2594 • 1.94 |
| NetCollateral | -0.2464 0.67 | -0.2401 0.64 | -0.3987 • 1.74 | -0.3889 • 1.65 | -0.2456 0.67 | -0.2709 0.81 |
| TotalO | 0.4623 *** 45.77 | 0.4660 *** 46.38 | 0.4707 *** 47.31 | 0.4625 *** 45.38 | 0.4618 *** 45.24 | 0.4666 *** 45.30 |
| AROA | 0.5191 1.29 | 0.5211 1.30 | 0.3008 0.43 | 0.2935 0.41 | 0.5193 1.30 | 0.5338 1.37 |
| TROA | 0.3029 *** 4.84 | 0.3103 *** 5.07 | 0.3524 *** 7.51 | 0.3578 *** 7.73 | 0.3571 *** 7.70 | 0.3505 *** 7.37 |
| ASalesGrowth | -0.0538 0.11 | -0.0406 0.06 | -0.0944 0.33 | -0.0917 0.31 | -0.0595 0.13 | -0.0136 0.01 |
| TSalesGrowth | 0.0810 1.42 | 0.0846 1.54 | 0.0802 1.38 | 0.0798 1.37 | 0.0766 1.26 | 0.0786 1.32 |
| TAnalystFollow | -0.0137 13.14 | -0.0137 13.05 | -0.0145 14.53 | -0.0148 15.01 | -0.0137 13.09 | -0.0122 10.15 |
| HostileDeal | -2.3406 *** 221.42 | -2.3434 *** 221.81 | -2.3549 *** 223.28 | -2.3565 *** 223.72 | -2.3384 *** 221.17 | -2.3497 *** 223.34 |
| CompDeal | -1.4368 *** 185.03 | -1.4391 *** 185.49 | -1.4362 *** 184.52 | -1.4378 *** 184.83 | -1.4361 *** 184.71 | -1.4387 *** 184.59 |
| TenderDeal | 1.8267 *** 258.61 | 1.8308 *** 259.62 | 1.8235 *** 258.32 | 1.8230 *** 258.13 | 1.8251 *** 258.32 | 1.8184 *** 255.62 |
| DiversDeal | -0.0642 1.39 | -0.0674 1.53 | -0.0774 ** 2.01 | -0.0771 ** 1.99 | -0.0616 1.28 | -0.0587 1.16 |
| RelSize | 0.0921 *** 4.31 | 0.0914 *** 4.25 | 0.0995 *** 5.00 | 0.0998 *** 5.03 | 0.0909 *** 4.20 | 0.0902 *** 4.12 |
| n | 7992 | 7992 | 7992 | 7992 | 7992 | 7992 |
| R-squared | 0.128 | 0.129 | 0.130 | 0.130 | 0.128 | 0.131 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |

Table 5 – Panel C

Regression of completed variable against cross-ownership under analyst following and cross-ownership as a percentage of total ownership cross sections. Detailed variables descriptions include in Appendix A.

| "CrossSecVar" → | Dependent variable = Deal Premium | | | |
|-------------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------|
| | Analyst Following | | CO / IO | |
| Intercept | 0.6999 *** 14.52 | 0.6959 *** 14.34 | 0.9324 *** 21.64 | 0.9073 *** 20.30 |
| ACrossOwnPct | -0.3530 ** 2.28 | -0.1134 0.15 | -0.1930 0.56 | 1.0067 *** 3.99 |
| TCrossOwnPct | -0.5436 *** 7.19 | -0.4383 *** 2.85 | -0.4511 *** 4.09 | -0.9823 *** 3.16 |
| ACrossSecVar | -0.0011 0.14 | 0.0020 0.29 | -0.1004 0.40 | 0.0782 0.21 |
| TCrossSecVar | -0.0132 *** 10.57 | -0.0106 *** 3.36 | 0.0401 0.12 | -0.0391 0.09 |
| ACrossOwnPct* ACrossSecVar | | -0.0159 1.56 | | -1.9520 *** 7.89 |
| TCrossOwnPct* TCrossSecVar | | -0.0041 0.09 | | 0.7609 1.39 |
| ALogSize | 0.1592 *** 50.30 | 0.1530 *** 45.04 | 0.1325 *** 36.52 | 0.1302 *** 35.22 |
| TLogSize | -0.1403 *** 29.85 | -0.1440 *** 30.11 | -0.1576 *** 34.61 | -0.1619 *** 36.08 |
| ALev | -0.5075 *** 12.74 | -0.4981 *** 12.26 | -0.3793 *** 6.40 | -0.3660 *** 5.95 |
| TLev | 0.0503 0.18 | 0.0568 0.22 | 0.0364 0.08 | 0.0521 0.17 |
| ache | 0.0000 *** 6.43 | 0.0000 *** 5.81 | 0.0000 *** 3.03 | 0.0000 *** 3.75 |
| tche | -0.0002 *** 25.61 | -0.0002 *** 24.31 | -0.0002 *** 23.59 | -0.0002 *** 18.61 |
| ACFtoE | -0.9166 *** 7.56 | -0.8868 *** 7.02 | -0.9266 *** 7.13 | -0.9187 *** 7.00 |
| TCFtoE | 0.0144 0.05 | 0.0133 0.05 | 0.0118 0.03 | 0.0096 0.02 |
| ARet205 | 0.1950 *** 6.33 | 0.1921 *** 6.14 | 0.1739 *** 4.48 | 0.1734 *** 4.47 |
| TRet205 | -0.0011 0.00 | 0.0020 0.00 | -0.0028 0.00 | 0.0000 0.00 |
| AStd205 | 1.8597 0.66 | 1.9086 0.70 | 0.8014 0.11 | 0.7608 0.10 |
| TStd205 | -1.2532 0.71 | -1.2019 0.65 | -0.8340 0.26 | -0.7274 0.20 |
| GrossCollateral | 0.2500 • 1.80 | 0.2473 • 1.77 | 0.2247 1.35 | 0.2196 1.29 |
| NetCollateral | -0.2422 0.65 | -0.2400 0.64 | -0.1971 0.40 | -0.1759 0.31 |
| TotalIO | 0.4667 *** 45.46 | 0.4542 *** 42.30 | 0.4093 *** 31.47 | 0.3931 *** 26.99 |
| AROA | 0.5496 1.42 | 0.5278 1.30 | 0.3262 0.47 | 0.3103 0.43 |
| TROA | 0.3563 *** 7.72 | 0.3597 *** 7.85 | 0.4197 *** 9.43 | 0.4291 *** 9.85 |
| ASalesGrowth | -0.0629 0.15 | -0.0559 0.12 | -0.0890 0.27 | -0.0850 0.24 |
| TSalesGrowth | 0.0763 1.26 | 0.0757 1.24 | 0.0468 0.42 | 0.0535 0.54 |
| TAnalystFollow | | | -0.0108 7.42 | -0.0099 6.10 |
| HostileDeal | -2.3391 *** 221.36 | -2.3384 *** 221.24 | -2.3825 *** 216.12 | -2.3824 *** 215.83 |
| CompDeal | -1.4357 *** 184.87 | -1.4378 *** 185.18 | -1.4685 *** 183.55 | -1.4666 *** 182.38 |
| TenderDeal | 1.8252 *** 258.29 | 1.8247 *** 258.23 | 1.8820 *** 253.20 | 1.8762 *** 251.64 |
| DiversDeal | -0.0626 1.32 | -0.0592 1.18 | -0.0573 1.03 | -0.0558 0.97 |
| RelSize | 0.0910 *** 4.21 | 0.0892 *** 4.05 | 0.1166 *** 6.06 | 0.1209 *** 6.49 |
| n | 7992 | 7992 | 7529 | 7529 |
| R-squared | 0.128 | 0.129 | 0.131 | 0.132 |
| Year + Industry fixed effects | Yes | Yes | Yes | Yes |

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