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AN EMPIRICAL ANALYSIS OF THE IMPACT OF MERGERS AND ACQUISITIONS INVOLVING INSTITUTIONAL CROSS-OWNERS ON POST-MERGER BANKRUPTCY RISK OF ACQUIRERS IN THE UNITED STATES BETWEEN 1984 AND 2020

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Abstract

I study 1858 mergers and acquisitions by US public acquirers between 1984 and 2020 to assess the impact of cross-ownership on post-M&A acquirer bankruptcy risk. Addressing a gap in existing literature, my statistically significant findings indicate that presence of cross-ownership and a higher number of cross-owners decrease bankruptcy risk. Notably, risk is elevated with greater cross-ownership levels and larger cross-owner stakes in acquirers, explained by higher asymmetric information. Conversely, bigger cross-owner stakes in targets reduce bankruptcy risk. In conjunction with cross-ownership, greater executive motivation lowers risk, whereas interaction between higher number of cross-owners and monitoring increases post-M&A bankruptcy risk.

Keywords

Corporate Finance; Mergers and Acquisitions (M&A); Institutional Investors; Cross-Ownership; Bankruptcy Risk; Altman's Z-Score Model

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1. Introduction

In the last few decades, institutional ownership has experienced significant growth. As a result, the prevalence of institutional cross-ownership between acquirers and targets in mergers and acquisitions (M&A) deals has increased. Previous research, exemplified by Brooks, Chen, and Zeng (2018), underscores the influence of institutional cross-ownership on M&A deal characteristics and returns. However, it is equally important to explore the other side of the risk-return coin. My paper delves into the impact of M&A transactions involving institutional cross-owners on post-merger bankruptcy risk. Notably, existing literature lacks coverage of this specific relationship. Meanwhile, independent findings on institutional cross-ownership and bankruptcy risk in M&A make this intersection an intriguing research area.

One of the primary reasons often cited in literature for companies pursuing mergers is the diversification of operations with intention of reducing risk. Contrary to this notion, Furfine and Rosen (2011) demonstrate that M&A elevates default risk for acquirers, a phenomenon neither explained by acquiring risky targets nor post-merger increases in leverage. The authors propose that managerial motivations and actions lie at the heart of post-merger default risk, with expected default frequency increases of 0.33%, up from 0.82%, observed for managers with higher option-based compensation packages. Furthermore, the rise in acquirer default risk is attributed to asymmetric information, as managers conceal risk-increasing M&A activities.

Meanwhile, Brooks et al. (2018) suggest that cross-owners make decisions and navigate the field of M&A from an alternative perspective. Institutional cross-holders act as an information bridge, playing a crucial governance role that reduces information asymmetry. Additionally, they have feet in both camps, altering the nature of their incentives. With the special monitoring and greater integration capabilities that cross-owners possess, they can make higher-quality acquisition decisions and enhance post-merger performance. Further evidence from Anton et al. (2022) indicates that managerial incentives, in the form of

compensation, are less sensitive to firm performance in cases of higher common ownership, suggesting that managers may be less inclined to take on extra risk due to lower upside.

These findings lead to the hypothesis that the presence of institutional cross-owners, with their distinct information advantages, monitoring capabilities, and effects on executive motivation, should decrease post-M&A bankruptcy risk. However, there is an alternative hypothesis suggesting that cross-ownership could increase post-M&A bankruptcy risk. Ambitious managers looking to build an empire may target prospective firms with significant institutional cross-ownership. In such cases, deal negotiations might encounter less opposition due to the tendency of cross-ownership, on average, to increase M&A activity (Anton et al. 2023). Furthermore, Goranova, Dharwadkar, and Brandes (2010) suggest that possible agency problems could arise, with managers taking advantage of compromised monitoring due to owners focusing on the aggregate value derived from both sides of the M&A deal.

Another hypothesis explores the impact of asymmetric cross-holdings, proposing that greater stakes by cross-owners in either the acquirer or target have a distinct impact on post-M&A bankruptcy risk. This hypothesis is based on Harford, Jenter and Li's (2011) conclusion that cross-holdings in acquirers and targets are asymmetric, with cross-owners prioritising their focus on one of the two firms. An alternative hypothesis suggests that if the cross-ownership asymmetry concern is mitigated, and cross-owners simultaneously hold large stakes in both acquirers and targets, this affects post-M&A bankruptcy risk. Furthermore, an additional hypothesis, also based on Harford et al.'s (2011) findings, suggests that cross-holdings are too small to influence management of targets and acquirers to affect post-M&A bankruptcy risk.

Therefore, whether institutional cross-ownership reduces post-M&A bankruptcy risk, among my other novel hypotheses, is an open empirical question. Understanding this relationship will not only fill a gap in academic research but will also help corporations better comprehend their M&A strategies. This is crucial given that global M&A deal values

accounted for $3.15 trillion in 2022 (Wilmer Hale 2023). In a world where common ownership is growing in importance, with 82% of S&P500 firms sharing some shareholders, according to Columbia Law School (2019), understanding the impact on corporate risk exposure is vital.

Studying this question poses numerous challenges, including mitigating the cross-ownership asymmetry concern indicated by Harford et al. (2011) and controlling for the relative deal and firm characteristics to pinpoint the effect of cross-ownership on bankruptcy risk. Furthermore, the most significant challenge is controlling for omitted variables and bias, potentially leading to endogeneity and the violation of the zero conditional mean assumption.

I obtained my sample of 1,858 observations from the SDC, Compustat, CRSP, 13F, and IBES databases. For my dependent variable, I generated Z-Scores based on Altman (1968) at the time of acquisition, as well as one and two years after acquisition. As detailed in Section 3, I introduced multiple control and explanatory variables to discern the effects of cross-ownership on post-M&A bankruptcy risk. Moreover, I explored various mechanisms behind the effects of cross-ownership and employed clustered errors by industry times year, along with industry times year fixed effects, which partially address endogeneity concerns.

I identify that, on average, bankruptcy risk rises in the post-M&A period. However, filling a crucial gap in existing research, my study reveals statistically significant evidence emphasising the role of cross-ownership and a higher number of cross-owners in reducing post-M&A bankruptcy risk. Furthermore, I find managerial motivations, in conjunction with cross-ownership, to be risk-reducing, while identifying that greater monitoring, in combination with a higher number of cross-owners, tends to increase bankruptcy risk. Further exploration into the cross-ownership asymmetry concern reveals that cross-owners' holdings exceeding 5% in both the acquirer and the target can potentially increase post-M&A bankruptcy risk. This result is likely driven by cross-owners' higher shareholdings in the acquirer, which I find to increase bankruptcy risk. I uncover asymmetric information as a mechanism behind this risk increase.

Meanwhile, I identify that cross-owners' holdings have asymmetric effects, with higher stakes in the target reducing post-M&A bankruptcy risk. Robustness of my results is maintained even after accounting for a minimum 1% ownership per shareholder, emphasising that cross-holdings are sufficiently impactful to influence post-M&A bankruptcy risk. I find no evidence of stock deals being more prevalent in cross-owned deals, but I observe that all-cash deals reduce bankruptcy risk, while large acquisitions increase it over time.

My findings regarding the effects of M&A on bankruptcy risk align with Furfine and Rosen (2011) but offer novel insights within the cross-ownership context, consistent with Brooks et al. (2018), who found that cross-ownership improves post-M&A performance. I challenge Anton et al. (2022) on managerial motivations and advance research on monitoring and asymmetric information in cases of cross-ownership (He and Huang 2017; Brooks et al. 2018). Confirming existing research on the asymmetric effects of cross-holdings and addressing a research gap in the context of bankruptcy risk, I also challenge the notion that cross-holdings are too small to influence M&A (Harford et al. 2011). My asymmetric results align with findings on losses in post-M&A acquirer shareholder value, along with cross-owned acquirers' ability to select higher quality targets (Goranova et al. 2010; Brooks et al. 2018). Diverging from existing research on stock and cash deals, I agree with the effects of deal size (Vallascas and Hagendorff 2011; Brooks et al. 2018; Ma, Kozlovskis, and Ciemleja 2022).

2. Literature Review

A trend evident in my paper was previously highlighted by Backus, Conlon, and Sinkinson (2021), documenting a substantial increase in institutional investor influence and common ownership in the US since the 1980s. Nowadays, institutional investors hold 70-80% of publicly-traded US firms' equity (Azar, Schmalz, and Tecu 2018; Greenspon 2019). Furthermore, my research confirms the findings of Brooks et al. (2018) and Anton et al. (2023), who identify a heightened likelihood of M&A involving cross-ownership.

Brooks et al. (2018) outline the impact of institutional cross-ownership on M&A dynamics, encompassing reduced premiums, increased stock payments, lower transaction costs, enhanced transparency, and positive effects on total deal synergies and post-M&A long-term performance. These findings are confirmed by Luu, Kim, and Xu (2020) and Xia (2023). Diverging from existing literature, I do not observe higher stock payments in cross-owned deals. However, I affirm these studies by reporting statistically significant lower post-M&A bankruptcy risk in cases of cross-ownership, aligning with better post-M&A performance.

In the broader governance context, cross-holders, as proposed by Brooks et al. (2018), act from a portfolio perspective, reducing information asymmetry and mitigating costs in the M&A process. This governance role, coupled with possession of superior, timely information, allows cross-owners to be effective at monitoring and enhances the selection of M&A deal quality by mitigating information asymmetries (Carleton, Nelson, and Weisbach 1998; Chen, Harford, and Li 2007; He and Huang 2017). Numerous studies highlight cross-owner abilities to monitor both sides of the deal (Bushee 1998; Gillan and Starks 2000; Almazan et al. 2005; Chen et al. 2007; Kang, Luo, and Na 2018; He, Huang, and Zhao 2019). The link between cross-ownership and communication channels fosters strategic alliances and corporate innovation (Hoskisson et al. 2002; Jung 2013; Chemmanur, Shen, and Xie 2016). Additionally, He and Huang (2017) find that cross-held firms lead to heightened market share growth, explicit product market collaboration, increased innovation productivity, and enhanced operating profitability. My findings support existing literature on a greater presence of monitoring, but I find it to increase risk in cases with a higher number of cross-owners. Contrary to existing literature, my research indicates that cross-held acquirers experience greater levels of asymmetric information. However, cross-owners holding higher stakes in targets decreases risk, supporting existing literature in the ability to select high-quality deals.

Conversely, Goranova, Dharwadkar, and Brandes (2010) suggest potential agency problems could arise when managers take advantage of compromised monitoring, especially when owners focus on aggregate value. The authors find a positive correlation between cross-ownership and the probability of acquirers experiencing decreases in shareholder value. Brooks et al. (2018) also raise the possibility that acquiring firm managers, aiming to build an empire, might selectively choose targets with high institutional cross-ownership to encounter less resistance in deal negotiations. However, Anton et al. (2022) indicate that managerial incentives, in the form of compensation, are less sensitive to firm performance in cases of higher common ownership. Meanwhile, Matvos and Ostrovsky (2008) note that institutional shareholders of acquiring firms avoid losses at public M&A announcements through substantial holdings in both acquirer and target stocks. Voting behaviour confirms this notion, revealing a conflict of interest with non-cross-owners, as cross-owners, prioritising total portfolio effects, may vote in favour of value-destroying deals (Oldford and Otchere 2021). I expand on existing literature by finding that greater compensation in the presence of cross-ownership has a significant impact on lower bankruptcy risk. Additionally, I observe that the effects of cross-ownership are asymmetric, with greater shareholdings in the acquirer being risk-increasing, aligning with the notion that value is destroyed on the acquirer side.

In contrast, Harford et al. (2011) argue that cross-ownership does not explain value-reducing acquisitions, suggesting that the size of cross-holdings is too small to significantly impact M&A outcomes. Furthermore, Harford et al. (2011) introduce a nuance, suggesting that if the shareholdings are asymmetric at the individual cross-owner level, an institutional cross-owner may effectively focus on their position in either the acquirer or the target. Addressing concerns raised by Harford et al. (2011), Brooks et al. (2018) provide additional evidence that institutional cross-ownership increases the likelihood of completing deals with negative acquirer announcement returns. I confirm the findings of Harford et al. (2011) and find that

shareholdings in the acquirer and target are asymmetric. Furthermore, I contribute to existing literature by obtaining significant results on the impact of asymmetric holdings on bankruptcy risk. Additionally, I add to the current body of knowledge by demonstrating that cross-holdings are not too small to influence post-M&A bankruptcy risk.

My statistically significant evidence of cross-ownership's risk-reducing effects on post-M&A bankruptcy likelihood fills a gap in the existing literature and supports the coinsurance effect, suggesting that diversification can mitigate financial distress risk. Various studies endorse the bankruptcy risk-reducing effects of M&A (Amihud and Lev 1981; Leland 2007; Singhal and Zhu 2013; Koerniadi, Krishnamurti, and Tourani-Rad 2015; Chen et al. 2020).

However, beyond the scope of cross-ownership, my findings indicate that acquirer bankruptcy risk, on average, increases in the post-M&A period. This aligns with existing literature of Furfine and Rosen (2011) who find that M&A, on average, elevates default risk for acquirers. Various factors may contribute to the increased risk, with Shrieves and Stevens (1979) and Sudarsanam, Wright, and Huang (2011) identifying bankruptcy avoidance as a motivation for mergers, suggesting that targets might transfer financial risk to acquirers. Additionally, Ghosh and Jain (2000) and Morellec and Zhdanov (2008) propose that managerial actions increasing post-merger leverage could lead to changes in default risk. However, Furfine and Rosen (2011) suggest that their results are not explained by acquiring risky targets or a post-M&A tendency to increase leverage.

Furfine and Rosen (2011) propose that managerial motivations and actions play a pivotal role in heightened risk exposure, outweighing the risk-reducing effects of M&A asset diversification. Larger increases in default risk are observed in firms where CEOs receive substantial option-based compensation, recent stock performance is poor, and asymmetric information is high. This is supported by Grinstein and Hribar (2004), Cai and Vijh (2007), and Harford and Li (2007), who provide evidence that option-based compensation influences

M&A decisions, as managers aim to enhance their compensation through increased risk exposure. My contribution to this literature, from a cross-ownership perspective, reveals that cross-owned acquirers experience lower post-M&A bankruptcy risk in cases of greater managerial motivation, in the form of higher compensation.

Moreover, the higher asymmetric information driving acquirer default risk, as identified by Furfine and Rosen (2011), suggests that managers may conceal risk-increasing M&A from shareholders. Moeller et al. (2007) also note that in cases of higher asymmetric information, managers can better conceal value destruction from shareholders. I find that bankruptcy risk increases in cases of higher cross-owned stakes in the acquirer, together with greater information asymmetry. Interestingly, this effect is not observed for holdings in targets.

Additionally, Vallascas and Hagendorff (2011) reveal an increase in default risk for relatively safe acquirers, particularly in cross-border and actively diversifying deals, as well as in large M&A transactions. While my research does not yield significant evidence of the effects of cross-border and diversifying deals, I do identify that higher deal size increases post-M&A bankruptcy risk, confirming existing literature. Furthermore, Ioannou, Lois, and Makrygiannakis (2020) attribute the main drivers of bankruptcy risk to the current and debt ratios. I confirm these findings, showing the current and debt ratios to be highly significant risk drivers. Lastly, Ma, Kozlovskis, and Ciemleja (2022) find no relationship between firm size and cash payment with the financial risks of M&A. However, I develop on existing research and identify a statistically significant impact of lower post-M&A bankruptcy risk for all-cash deals, which are more common than all-stock deals.

3. Methodology, Data Sources and Sample Selection

I obtained my sample of M&A data from Securities Data Company (SDC) Platinum database of Refinitiv. The sample starts in 1984 because, according to Chen et al. (2007), information in the SDC database is less reliable before this date. The sample concludes in 2020

as I require financial data two years post-M&A completion. After applying initial filters in the SDC database, as outlined below, my sample comprised 8,162 observations.

Initially, I filtered the dataset to solely include public acquirers and targets as this is necessary to obtain cross-ownership information. I exclusively included acquirers from the United States, and I only kept transactions with a completed deal status, which is necessary to check post-merger changes in bankruptcy risk. I further filtered for deal value to be greater than $1m and only included mergers, acquisitions, and acquisitions of majority interest as per Moeller, Schlingemann and Stulz (2004) and Masulis, Wang and Xie (2007). Therefore, I excluded privatisations, repurchases, exchange offers, self-tenders, recapitalisations, spin-offs, minority stake purchases, acquisitions of remaining interest, and assets.

After applying these initial filters, I only kept deals completed within one year of announcement as per Furfine and Rosen (2011). Furthermore, I excluded companies in the financial (SIC 6000-6999) and utility (SIC 4900-4999) industries due to the unique external financing and investment opportunities of these regulated industries as per Chen et al. (2021).

I collected accounting and stock data from Compustat and Center for Research in Security Prices (CRSP) through Wharton Research Data Services. Observations were dropped if any of the following data were missing: CUSIP, closing stock price, total sales, total assets, total liabilities, current assets, current liabilities, cash and equivalents, working capital, earnings before interest and tax, retained earnings. I then linked my sample to the Thomson Financial CDA/Spectrum Institutional (13F) database and only kept acquirers and targets with available 13F information as per Brooks et al. (2018).

Based on the collected data, I constructed variables to measure the effects of cross-ownership on bankruptcy risk, while also creating control variables. I generated the following control dummy variables: All-Cash; All-Stock; Diversifying; Cross-Border; Friendly Attitude; Tender Offer. Additionally, I generated a Deal Size variable and calculated Current Ratio, Debt

Ratio and Firm Size for the time of acquisition, one year after acquisition, and two years after acquisition (Ioannou et al. 2020).

For my dependent variable, with the aim of measuring bankruptcy risk, I generated Z-Scores based on Altman (1968) for the time of acquisition, one year after acquisition, and two years after acquisition using *Z-Score Formula = (1.2 * Working Capital / Total Assets) + (1.4 * Retained Earnings / Total Assets) + (3.3 * EBIT / Total Assets) + (0.6 * Market Capitalisation / Total Liabilities) + (1 * Total Sales / Total Assets).* The measure has been widely used in numerous M&A studies and its high predictability has been confirmed by various studies (Shrieves and Stevens 1979; Mohammed and Kim-Soon 2012; Altman et al. 2016; Campello, Ladika, and Matta 2018; Deng 2019; Akbar et al. 2020; Chen et al. 2020; Ioannou et al. 2020; Ma, Kozlovskis and Ciemleja 2022; Zhang 2022).

Using 13F data, with the aim of measuring cross-ownership at time of M&A, I created a dummy variable equal to one if acquirer and target are Cross-Owned, along with a variable N Cross-Owners counting the number of cross-owners. Furthermore, I created Cross-Held Acquirer and Cross-Held Target variables to study percentages owned by cross-owners in acquirer and target, respectively. Based on the cross-ownership variables, I generated new variables restricted at minimum 1% ownership per shareholder, along with a 5% restriction on ownership in acquirer and target. Similar to Brooks et al. (2018), I place these restrictions to account for Harford et al. (2011) view that cross-holding are too small to have any real influence over companies and mitigate the cross-ownership asymmetry concern. My final sample has 1,858 observations, each representing a unique M&A transaction, which is comparable to Brooks et al. (2018) research on cross-ownership and M&A.

For robustness tests, I incorporated proxies for executive motivation, asymmetric information, and monitoring using Compustat executive compensation data, CRSP bid-ask spread data (Venkatesh and Chiang 1986), and IBES analyst coverage data (Yu 2008),

respectively. A subsample starting from 1992 was used, due to Compustat compensation data availability, resulting in 1,322 observations. I then generated interaction variables based on the proxies to study the mechanisms behind cross-ownership's effects on post-M&A bankruptcy risk. To address outliers, all continuous variables in both the sample and subsample were winsorized at 1% and 99%. Definitions of all variables can be found in the Appendix.

4. Sample Descriptive Statistics

Figure 1, based on Panel A of Table 4, illustrates the distribution of cross-ownership M&A deals between 1984 and 2020. The total number of deals per year aligns with overall M&A waves, the macroeconomic environment, and stock market performance, as documented by Shleifer and Vishny (2003) and Rhodes-Kropf, Robinson, and Viswanathan (2005). Clear fluctuations are observable around significant events such as the Dotcom bubble, the Great Financial Crisis, and the Covid-19 pandemic. Throughout the entire sample, institutional cross-ownership is apparent in 70.83% of M&A deals. However, the notable rise in the trend began only towards the end of the 1990s. In the 21st century, the lowest percentage of M&A deals occurred in 2003, with a figure of 76.19%, while the peak was in 2019, with 100% of deals in my sample having some level of cross-ownership that year. Notably, the record number of completed deals involving cross-ownership remains at 103 in 1999. Meanwhile, the mean and median number of cross-ownership deals completed per year since 2000 is 47 and 49, respectively.

In Table 1, Panel A displays firms within the distress, high bankruptcy risk, zone defined by Z-Scores at or below 1.8. The number of acquirers entering this zone increases one and two years after M&A for both the entire sample and cross-owned deals. In the entire sample, acquirers facing bankruptcy risk represent 21.10%, 24.49%, and 24.87% at the time of M&A, one year, and two years after M&A, respectively. There is no evidence of a unique effect on acquirers' bankruptcy risk in cross-ownership M&A. Panel B further validates these

findings, showing decreases in mean and median Z-Scores over time. The median Z-Score for cross-owned deals is in the safe zone at 3.37 at the time of M&A, declining to the grey zone, moderate bankruptcy risk zone from 1.81 to 2.99, with figures of 2.98 and 2.94 one and two years after M&A, respectively. Cross-owned acquirers have a slightly higher mean Z-Score.

Panel C shows that, similar to Officer (2003), 97.85% of the deals in my sample have a friendly attitude. Meanwhile, all-cash and all-stock deals represent 39.34% and 28.42% of my sample, respectively. Tender offers, industry diversifying, and cross-border deals account for 27.13%, 24.65%, and 5.92%, respectively. The percentage of cross-border deals is low due to the limited availability of 13F data on non-US targets.

Panel D highlights that the mean and median deal values for transactions involving cross-ownership are $2487.89 million and $497.07 million, respectively. Additionally, the number of cross-owners averages 41, with a median figure of 23. The maximum percentage of a target held by cross-owners is 73.62%, with mean and median values of 17.87% and 12.32%, respectively. In contrast, the cross-owners' stake in acquirers is significantly lower, with a maximum of 41.75%, a mean of 6.99%, and a median of 3.59%. The rationale behind cross-owners' stakes in targets being much larger than acquirers is that acquirer firm size is generally bigger, but this result showcases that holdings in targets and acquirers are, on average, asymmetric. Figure 2, based on Panel B of Table 4, helps visualise cross-ownership data over years and highlights how cross-ownership percentages fluctuate around the previously mentioned stock market events. However, importantly, all cross-ownership figures in Panel D experience significant decreases when controlled for a 1% minimum ownership per shareholder.

Figure 1: Graph of Distribution of Cross-Ownership Deals over Years

This figure uses data from Table 4, Panel A to visually illustrate the deal distribution for years 1984-2020 from my sample of 1858 M&A deals. Year on X axis, deal count on left Y axis.

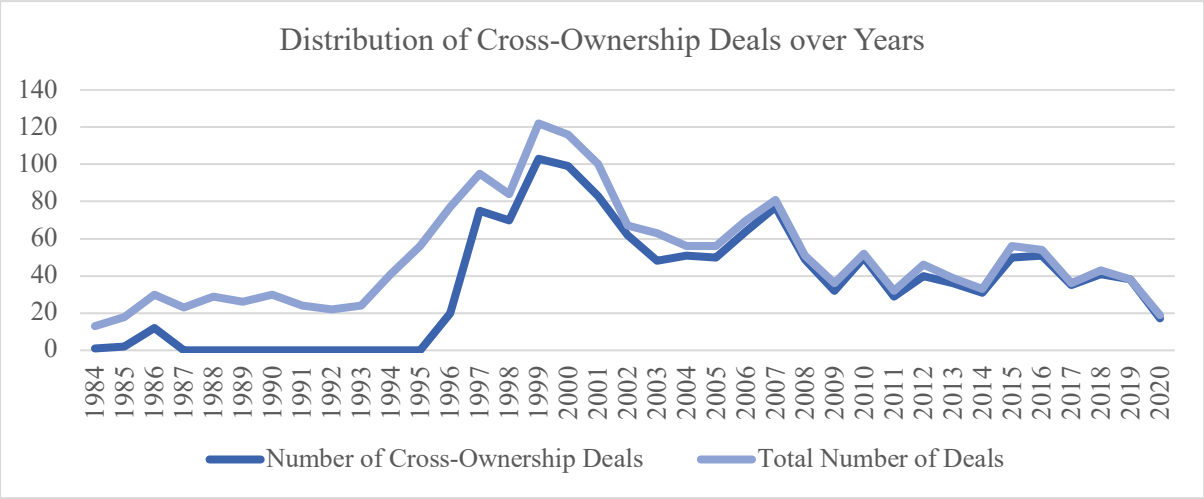

Figure 2: Graph of Distribution of Mean Cross-Ownership % over Years

This figure uses data from Table 4, Panel B to visually illustrate the mean cross-ownership data for years 1984-2020 from my sample of 1858 M&A deals. Year on X axis, mean cross-ownership percentage on left Y axis.

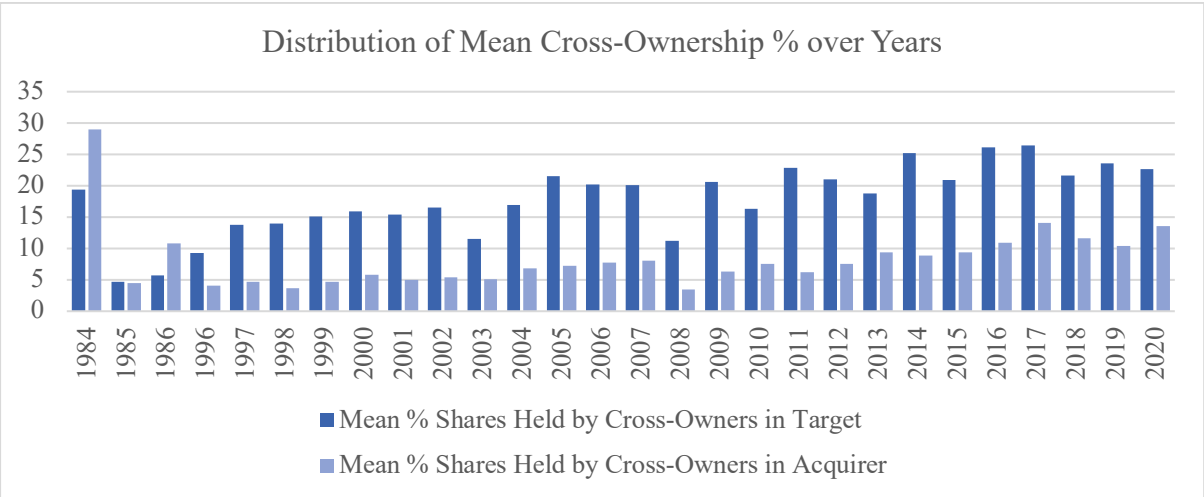

Table 1: Sample Characteristics

This table describes my sample of 1858 M&A deals between 1984 and 2020, complying with criteria as outlined in Section 3 of my paper. All continuous variables were winsorized at 1% and 99%. This table shows the proportion of firms in the high bankruptcy risk zone in Panel A; Z-Score characteristics in Panel B; Dummy variable characteristics in Panel C; Continuous variables characteristics in Panel D. All variable definitions can be found in the Appendix.

Panel A: Firms in Zone of High Bankruptcy Risk

Z-Score equal to or below 1.8	*N*	*Proportion*
Time of M&A (Cross-Owned)	275	0.2090
Time of M&A (Whole Sample)	392	0.2110
1 Year after M&A (Cross-Owned)	333	0.2530
1 Year after M&A (Whole Sample)	455	0.2449
2 Years after M&A (Cross-Owned)	331	0.2515
2 Years after M&A (Whole Sample)	462	0.2487

Panel B: Z-Score Characteristics

Z-Score	*N*	*Mean*	*Median*	*p25*	*p75*
Time of M&A (Cross-Owned)	1316	4.6091	3.3660	2.0031	5.1733
Time of M&A (Whole Sample)	1858	4.4427	3.2871	1.9935	5.1152
1 Year after M&A (Cross-Owned)	1316	3.9008	2.9807	1.7882	4.6453
1 Year after M&A (Whole Sample)	1858	3.8469	3.0032	1.8285	4.6440
2 Years after M&A (Cross-Owned)	1316	3.4926	2.9376	1.7969	4.3368
2 Years after M&A (Whole Sample)	1858	3.4703	2.9339	1.8015	4.3831

Panel C: Dummy Variables Characteristics

Deal Characteristics	*N*	*Proportion*
Cross-Owned	1316	0.7083
Cross-Owned$_{5\%min}$	479	0.2578
All-Cash	731	0.3934
All-Stock	528	0.2842
Diversifying	458	0.2465
Cross-Border	110	0.0592
Friendly Attitude	1818	0.9785
Tender Offer	504	0.2713

Panel D: Continuous Variables Characteristics

Deal Characteristics	*N*	*Proportion*	*Mean*	*Median*
Deal Value (Cross-Owned)	1316	0.7083	2487.8870	497.0700
Deal Value (Whole Sample)	1858	1.0000	1867.3030	305.4235
Deal Size (Cross-Owned)	1316	0.7083	6.2662	6.2087
Deal Size (Whole Sample)	1858	1.0000	5.7691	5.7217
N Cross-Owners	1316	0.7083	41.3131	23.0000
N Cross-Owners$_{1\%min}$	1134	0.6103	5.7743	4.0000
Cross-Held Target	1316	0.7083	17.8685	12.3201
Cross-Held Acquirer	1316	0.7083	6.9885	3.5931
Cross-Held Target$_{1\%min}$	1031	0.5549	2.8955	1.7982
Cross-Held Acquirer$_{1\%min}$	591	0.3181	2.2612	1.6358

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Deal Characteristics	*p25*	*p75*	*Min*	*Max*
Deal Value (Cross-Owned)	166.1885	1703.3060	2.9940	89555.3500
Deal Value (Whole Sample)	88.2900	1094.4430	1.8000	89555.3500
Deal Size (Cross-Owned)	5.1131	7.4403	1.0986	10.1159
Deal Size (Whole Sample)	4.4806	6.9980	1.0986	10.1159
N Cross-Owners	6.0000	58.0000	1.0000	361.0000
N Cross-Owners$_{1\%min}$	2.0000	8.0000	1.0000	34.0000
Cross-Held Target	4.2983	26.0532	0.0009	73.6235
Cross-Held Acquirer	1.1828	9.2361	0.0001	41.7476
Cross-Held Target$_{1\%min}$	1.2759	3.0667	1.0015	14.8643
Cross-Held Acquirer$_{1\%min}$	1.2308	2.4250	1.0040	7.0524

4. Empirical Analyses

In Table 2, Panel A demonstrates t-tests on the impact of cross-ownership on bankruptcy risk, firm, and deal characteristics. Statistically significant at a 5% level, on average, the Z-Score at time of M&A for cross-owned acquirers is higher by 0.5702, suggesting lower exposure to bankruptcy risk. Cross-owned firms are more likely to participate in all-cash deals and less likely to engage in all-stock deals, both significant at 1%. Furthermore, M&A deals involving cross-owners, significant at 1%, are more likely to be friendly and less likely to be diversifying. Acquirer firm size, significant at 1%, is considerably bigger in cross-ownership deals. The mean deal value for cross-owned deals is $2487.89 million, compared to $360.50 million for non-cross-owned deals, suggesting that the cross-owned deal size, statistically significant at 1%, is much larger. However, cross-owned acquirers do not appear to considerably differ in terms of financial characteristics, such as the debt and current ratios.

Panel B presents results of multivariate regressions analysing the impact of cross-ownership on bankruptcy risk, measured by the Z-Score. All models utilise clustered standard errors by industry times year and account for industry times year fixed effects, partially addressing endogeneity concerns. The p-values of all regressions indicate their statistical

significance at the 1% level, which also applies to all intercepts and the Current Ratio, Debt Ratio, and Firm Size control variables. The regression specification equation is outlined below.

$$Z\text{-}Score_{i,t} = \alpha + \beta_1 Cross\text{-}Owned_{i,r} + \beta_2 N\ Cross\text{-}Owners_{i,r} + \beta_3 Cross\text{-}Held\ Acquirer_{i,r} + \beta_4 Cross\text{-}Held\ Target_{i,r} + \beta_5 All\text{-}Cash_i + \beta_6 All\text{-}Stock_i + \beta_7 Diversifying_i + \beta_8 Cross\text{-}Border_i + \beta_9 Friendly\ Attitude_i + \beta_{10} Tender\ Offer_i + \beta_{11} Deal\ Size_i + \beta_{12} Current\ Ratio_{i,t} + \beta_{13} Debt\ Ratio_{i,t} + \beta_{14} Firm\ Size_{i,t} + FE_{j,t} + \varepsilon_{i,t}$$

Indices refer to M&A transaction *(i)*; year *(t)*; industry *(j)*. Indices *(r)* refer to columns 1, 2, and 3 using variables *Cross-Owned, N Cross-Owners, Cross-Held Acquirer,* and *Cross-Held Target*. Meanwhile, columns 4, 5, and 6 place further restrictions on cross-ownership and use variables $Cross\text{-}Owned_{5\%min}$, $N\ Cross\text{-}Owners_{1\%min}$, $Cross\text{-}Held\ Acquirer_{1\%min}$, and $Cross\text{-}Held\ Target_{1\%min}$. For interpretation purposes, coefficients from Panel B were X-Standardised with data from Panel D of Table 4 via $std\beta_X = unstd\beta_X * SD_X$ (Williams 2020).

Acquirer and target being cross-owned by at least one institutional investor is statistically significant at a 1% level. A one standard deviation increase, leads to a 0.4393 increase in the Z-Score at the time of M&A. The effect persists after M&A, with a 0.3151 increase in the Z-Score, significant at 1%, two years after M&A. This suggests that M&A involving cross-ownership decreases bankruptcy risk. However, no statistical significance is observed when restricting cross-ownership to a minimum 5% holding in both target and acquirer. This lack of significance could be attributed to holdings being mostly asymmetric or the absence of a substantial influence of cross-owners.

Nevertheless, additional evidence, significant at 5% one year after M&A, indicates a 2.0613 increase in the Z-Score for a one standard deviation increase in the number of cross-owners, restricted to a minimum 1% holding per shareholder for greater robustness. This strengthens the view of the bankruptcy risk-reducing tendencies of cross-ownership.

When examining asymmetric holdings, higher stakes by cross-owners in the acquirer indicate increases in bankruptcy risk. A one standard deviation increase in cross-owners' shareholdings in the acquirer results in a 0.4098 decrease in the Z-Score, significant at 1%, at the time of M&A. One year after M&A, significance decreases to 10%, but a negative effect of 0.1248 on the Z-Score remains evident. Interestingly, two years after M&A, when ownership is restricted to a minimum of 1% per shareholder for greater result robustness, a one standard deviation increase in cross-owners' stake in the acquirer leads to a 0.7840 decrease in the Z-Score with 10% statistical significance, thereby providing further evidence of higher bankruptcy risk. This could be attributed to managers of cross-owned acquirers facing less pressure to perform well or cross-owners focusing on aggregate value and voting in favour of value-destroying M&A.

On the other hand, there is an 0.1624 increase in the Z-Score two years after M&A when cross-owners hold one standard deviation more shares in the target, observed at 1% statistical significance level. When applying the same 1% restriction per shareholder, statistical significance remains at 1%, and the effect becomes even more pronounced, showing a 1.6163 increase in the Z-Score. This suggests that higher stakes in the target held by cross-owners contribute to a reduction in post-M&A acquirer bankruptcy risk. This could be due to an improved informational flow between acquirer and target. With greater cross-ownership of the target, there may be less resistance in negotiations and higher knowledge of quality deals, enhancing acquirer's financial strength.

All-stock deals show risk-reducing tendencies at time of M&A, but statistical significance disappears post-M&A. Interestingly, all-cash deals are statistically significant at a 1% level in all regressions, exhibiting risk-reducing tendencies towards bankruptcy. This implies that utilising available cash for investment strengthens the acquirer's financial position. Furthermore, deal size, significant at 1% at the time of M&A and 5% two years after, exhibits

changing dynamics in its relationship with bankruptcy risk over time. Initially, greater deal size reduces bankruptcy risk, but two years after M&A, a one standard deviation higher deal size decreases the Z-Score by 0.3233, thereby elevating bankruptcy risk. This suggests that large acquisitions may not pay off over time and could increase bankruptcy risk.

Table 2: Empirical Analyses

Panel A of Table 2 contains t-tests with Z-Score, firm, and deal characteristics as the dependant variables and cross-ownership as the explanatory variable. Panel B contains multivariate regressions with Z-Score as the dependant variable and cross-ownership, firm, and deal characteristics as independent variables. Cross-Owned, All Cash, All Stock, Diversification, Cross-Border, Friendly Attitude, Tender Offer are dummy variables. N Cross-Owners, Target Owners in Acq., Acq. Owners in Target, Deal Value, Deal Size, Current Ratio, Cash Ratio, Debt Ratio, Firm Size are continuous variables. Some variables ($_t$) vary over time. Indices ($_r$) indicate that columns 1, 2, and 3 use variables Cross-Owned, N Cross-Owners, Cross-Held Acquirer, and Cross-Held Target. Meanwhile, columns 4, 5, and 6 place further restrictions on cross-ownership and use variables Cross-Owned$_{5\%min}$, N Cross-Owners$_{1\%min}$, Cross-Held Acquirer$_{1\%min}$, and Cross-Held Target$_{1\%min}$. Additionally, industry times year fixed effects and standard errors clustered by industry times year are present in these regressions. All variable definitions can be found in the Appendix. The figures are based on a sample of 1858 M&A deals between 1984 and 2020 as described in Section 3. Statistical significance of p-values is indicated by *, **, *** for 10%, 5%, and 1% level, respectively.

Panel A: T-Test on Difference between Not Cross-Owned and Cross-Owned Means

	Not Cross-Owned	Cross-Owned	Difference	T-Statistic
Z-Score	4.0389	4.6091	-0.5702**	-2.2326
All-Cash	0.3266	0.4210	-0.0944***	-3.7990
All-Stock	0.3801	0.2447	0.1354***	5.9340
Diversifying	0.2878	0.2295	0.0583***	2.6559
Cross-Border	0.0609	0.0585	0.0024	0.1971
Friendly Attitude	0.9576	0.9871	-0.0295***	-3.9997
Tender Offer	0.2841	0.2660	0.0182	0.8007
Deal Value	360.4991	2487.8870	-2127.3880***	-6.7357
Deal Size	4.5621	6.2662	-1.7041***	-20.0134
Current Ratio	2.3587	2.2070	0.1516*	1.8790
Debt Ratio	0.5149	0.5221	-0.0071	-0.6832
Firm Size	6.4442	8.3731	-1.9289***	-21.0752
N	542	1316		

Panel B: Multivariate Regressions Analysing Impact of Cross-Ownership on Z-Score

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross-Owned$_r$	0.9661***	0.6876**	0.6931***	-0.2703	-0.1260	0.1952
	(2.82)	(2.56)	(2.79)	(-0.95)	(-0.48)	(0.87)
N Cross-Owners$_r$	0.0015	-0.0004	-0.0023	0.0443*	0.0475**	0.0121
	(0.59)	(-0.22)	(-1.1)	(1.89)	(2.09)	(0.78)
Cross-Held Acquirer$_r$	-0.0514***	-0.0157*	-0.0068	-0.1231**	-0.0309	-0.0983*
	(-3.49)	(-1.84)	(-0.73)	(-2.19)	(-0.55)	(-1.94)
Cross-Held Target$_r$	0.0209***	0.0141**	0.0095***	0.0822	0.0322	0.0949***
	(3.07)	(2.17)	(2.01)	(1.47)	(0.92)	(2.83)
All-Cash	0.8065***	0.6454***	0.4726***	0.8763***	0.6759***	0.5068***
	(3.91)	(4.18)	(3.06)	(4.31)	(4.3)	(3.22)
All-Stock	0.9211**	0.4729	-0.0087	0.9610***	0.4882	0.0087
	(2.56)	(1.44)	(-0.03)	(2.63)	(1.48)	(0.03)
Diversifying	0.1091	-0.1624	-0.0814	0.1066	-0.1627	-0.0975
	(0.49)	(-0.9)	(-0.46)	(0.46)	(-0.88)	(-0.55)
Cross-Border	-0.1902	-0.0100	0.0984	-0.2430	-0.0222	0.1400
	(-0.52)	(-0.03)	(0.41)	(-0.68)	(-0.08)	(0.6)
Friendly Attitude	-0.2921	-0.4486	0.1561	-0.1342	-0.3664	0.2354
	(-0.7)	(-0.92)	(0.44)	(-0.33)	(-0.75)	(0.67)
Tender Offer	-0.3769**	-0.2679	-0.2198	-0.3541*	-0.2554	-0.2049
	(-1.99)	(-1.62)	(-1.36)	(-1.87)	(-1.51)	(-1.23)
Deal Size	0.2577***	-0.1185	-0.1758**	0.2905***	-0.1103	-0.1734**
	(2.71)	(-1.5)	(-2.3)	(3.49)	(-1.59)	(-2.39)
Current Ratio$_t$	0.6749***	0.5703***	0.6112***	0.6822***	0.5807***	0.6199***
	(5.27)	(5.52)	(6.73)	(5.33)	(5.6)	(6.86)
Debt Ratio$_t$	-11.0575***	-9.8104***	-8.2491***	-11.2370***	-9.8477***	-8.2699***
	(-12.44)	(-11.13)	(-13.68)	(-12.54)	(-11.02)	(-13.51)
Firm Size$_t$	0.2335***	0.5367***	0.6295***	0.3115***	0.5803***	0.6411***
	(2.8)	(6.14)	(6.8)	(3.92)	(6.45)	(7.19)
Y * Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Er	Yes	Yes	Yes	Yes	Yes	Yes
N	1858	1858	1858	1858	1858	1858
R^2	0.4726	0.4890	0.5227	0.4685	0.4868	0.5235

5. Robustness Tests

In Table 4, Panel A displays t-tests, all statistically significant at a 1% level, revealing that, on average, cross-owned acquirers have higher executive motivation through compensation and are subject to greater levels of asymmetric information and monitoring.

Panels B, C, D, and E provide insight into the mechanisms behind the effects of cross-ownership on the Z-Score. Models are based on a subsample of 1,322 M&A deals between 1992 and 2020 due to Compustat data availability. All models utilise clustered standard errors by industry times year and account for industry times year fixed effects, partially addressing endogeneity concerns. All regressions and intercepts are statistically significant at the 1% level.

Indices *(r)* refer to columns 1, 2, and 3 using variables *Cross * Motivation, N Cross * Monitoring, Cross-Acq * Asm Info,* and *Cross-Target * Asm Info*. Meanwhile, columns 4, 5, and 6 place further restrictions and use variables $Cross_{5\%min}$ * *Motivation, N* $Cross_{1\%min}$ * *Monitoring,* $Cross\text{-}Acq_{1\%min}$ * *Asm Info,* and $Cross\text{-}Target_{1\%min}$ * *Asm Info*. Other variables are restricted *(r)* in the same manner as in Section 4. For interpretation purposes, coefficients were X-Standardised with data from Panel D of Table 4 via $std\beta_X = unstd\beta_X * SD_X$ (Williams 2020).

Panel B reveals that one year post-M&A, a one standard deviation increase in the interaction between executive motivation and cross-ownership, significant at 5%, results in a 0.7287 increase in the Z-Score. This indicates that greater executive motivation, manifested through higher compensation within the context of cross-ownership, has a negative impact on bankruptcy risk. Notably, significance at 5% and a 0.7359 increase in the Z-Score persist when controlling for a minimum 5% ownership by cross-holders in both the acquirer and target. Furthermore, cross-ownership exceeding 5% in both the acquirer and target is itself significant at 5%. A one standard deviation increase in this scenario results in a 0.7656 decrease in the Z-Score one year post-M&A, indicating that higher levels of cross-ownership may elevate risk. This is likely driven by the observed increase in risk and underlying explanation behind larger stakes in the acquirer, given that a 5% cross-owned stake in the acquirer surpasses the median.

In Panel C, greater monitoring is significant at 1% in all regressions and exerts a risk-reducing effect on bankruptcy risk. However, when examining the interaction between monitoring and the number of cross-owners, a one standard deviation increase in both results

in a 0.7371 reduction in the Z-Score two years post-M&A, with statistical significance of 1%. The effect persists when restricting ownership to a minimum of 1% per shareholder. This suggests that with a higher number of cross-owners, risk-reducing effects of greater monitoring are diminished, underscoring the importance of ownership concentration in monitoring.

Panel D reveals that the rise in post-M&A bankruptcy risk due to higher stakes held by cross-owners in the acquirer is now clarified by the interaction with increased asymmetric information. A one standard deviation increase in the interaction variable, significant at 1% when constrained to a minimum holding of 1% per owner, demonstrates a 0.7040 and 0.6636 decrease in the Z-Score one and two years after M&A, respectively. In contrast, Panel E shows asymmetric information does not explain effects behind cross-owners' holdings in the target.

Table 3: Robustness Tests

Panel A of Table 3 contains t-tests with Exec Motivation, Asymmetric Info, and Monitoring as the dependant variables and cross-ownership as the explanatory variable. Panels B, C, D, and E contain multivariate regressions with Z-Score as the dependant variable and cross-ownership, mechanisms, firm, and deal characteristics as independent variables. Cross-Owned, All Cash, All Stock, Diversification, Cross-Border, Friendly Attitude, Tender Offer are dummy variables. N Cross-Owners, Cross-Held Acquirer, Cross-Held Target, Deal Value, Deal Size, Current Ratio, Cash Ratio, Debt Ratio, Firm Size, Exec Motivation, Asymmetric Info, Monitoring, Cross * Motivation, N Cross * Monitoring, Cross-Acq * Asm Info, and Cross-Target * Asm Info are continuous variables. Some variables ($_t$) vary over time. Indices ($_r$) indicate that columns 1, 2, and 3 use variables Cross * Motivation, N Cross * Monitoring, Cross-Acq * Asm Info, and Cross-Target * Asm Info. Meanwhile, columns 4, 5, and 6 place further restrictions on cross-ownership and use variables $\text{Cross}_{5\%min}$ * Motivation, N $\text{Cross}_{1\%min}$ * Monitoring, $\text{Cross-Acq}_{1\%min}$ * Asm Info, and $\text{Cross-Target}_{1\%min}$ * Asm Info. Other variables are restricted ($_r$) in the same manner as in Section 4. Additionally, industry times year fixed effects and standard errors clustered by industry times year are present in all regressions. All variable definitions and full tables (Table 5) can be found in the Appendix. Models are based on a subsample of 1322 M&A deals between 1992 and 2020 as described in Section 3. Statistical significance is indicated by *, **, *** for 10%, 5%, and 1% level, respectively.

Panel A: T Test on Difference between Not Cross-Owned and Cross-Owned Means

	Not Cross-Owned	Cross-Owned	Difference	T-Statistic
Exec Motivation	5.3902	7.5312	-2.1410***	-10.8451
Asymmetric Info	1.2652	1.5704	-0.3052***	-4.7188
Monitoring	13.0189	16.0946	-3.0757***	-4.4035
N	212	1110		

Panel B: Interaction between Cross-Ownership and Exec Motivation (Cut Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross * Motivation$_r$	0.2199	0.2001**	0.0684	0.0836	0.1892**	0.0540
	(1.34)	(2.51)	(0.95)	(0.48)	(2.56)	(0.83)
Cross-Owned$_r$	0.5583	0.1911	0.8718	-1.1950	-1.6287**	-0.2883
	(0.56)	(0.33)	(1.44)	(-0.86)	(-2.4)	(-0.57)
Exec Motivation	-0.0079	-0.0434	0.0169	0.1622	0.0864	0.0694
	(-0.07)	(-0.57)	(0.23)	(1.32)	(1.44)	(1.49)
N	1322	1322	1322	1322	1322	1322
R^2	0.4832	0.5175	0.5338	0.4758	0.5129	0.5320

Panel C: Interaction between N Cross-Owners and Monitoring (Cut Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
N Cross * Monitoring$_r$	-0.0010***	-0.0005**	-0.0006***	-0.0015	-0.0005	-0.0040**
	(-3.42)	(-2.24)	(-2.86)	(-0.58)	(-0.18)	(-2.17)
N of Cross-Owners$_r$	0.0246***	0.0134**	0.0129**	0.0693	0.0499	0.0802**
	(3.53)	(2.45)	(2.57)	(1.51)	(1.31)	(2.48)
Monitoring	0.1555***	0.0890***	0.0617***	0.1253***	0.0740***	0.0571***
	(5.18)	(4.34)	(2.99)	(4.49)	(3.79)	(2.88)
N	1322	1322	1322	1322	1322	1322
R^2	0.5011	0.5239	0.5404	0.4899	0.5178	0.5364

Panel D: Interaction between Cross-Held Acquirer and Asymmetric Info (Cut Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross-Acq * Asm Info$_r$	-0.0244*	-0.0303**	-0.0241**	-0.2724***	-0.2675***	-0.2521***
	(-1.94)	(-2.35)	(-2.53)	(-3.63)	(-3.01)	(-3.69)
Cross-Held Acquirer$_r$	-0.0597**	0.0074	0.0160	0.1199	0.2690	0.2311**
	(-2.12)	(0.28)	(0.75)	(0.81)	(1.57)	(1.98)
Asymmetric Info	1.6698***	1.1159***	0.7080***	1.7067***	1.1242***	0.7707***
	(9.41)	(7.37)	(4.84)	(9.28)	(7.71)	(4.95)
N	1322	1322	1322	1322	1322	1322
R^2	0.5210	0.5400	0.5468	0.5157	0.5366	0.5491

Panel E: Interaction between Cross-Held Target and Asymmetric Info (Cut Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross-Target * Asm Info$_r$	0.0074	0.0022	-0.0020	0.0037	-0.0285	-0.0070
	(1.02)	(0.37)	(-0.37)	(0.07)	(-0.55)	(-0.15)
Cross-Held Target$_r$	0.0031	0.0071	0.0120	0.0669	0.0764	0.1000*
	(0.27)	(0.77)	(1.28)	(1.08)	(1.2)	(1.82)
Asymmetric Info	1.4471***	0.9423***	0.6253***	1.5301***	1.0115***	0.6286***
	(8.48)	(5.86)	(4.34)	(6.85)	(6.13)	(4.97)
N	1322	1322	1322	1322	1322	1322
R^2	0.5207	0.5382	0.5453	0.5130	0.5328	0.5442

6. Conclusions, Limitations, and Future Research Avenues

In summary, my research reveals an overall increase in post-M&A bankruptcy risk. However, I provide compelling evidence that the presence of cross-ownership, along with a higher number of cross-owners, serves as a mitigating factor, decreasing post-M&A bankruptcy risk. This risk reduction is further influenced by the conjunction of cross-ownership with greater executive motivation. Nevertheless, I find that the risk-reducing effects of monitoring are diminished in an interaction with a higher number of cross-owners. Notably, I identify a significant relationship between cross-owners holding larger stakes in the acquirer and increased bankruptcy risk, while higher shareholdings in the target are associated with decreased risk. The effect of elevated bankruptcy risk in cases of greater cross-holdings in the acquirer is further explained by the interaction with more asymmetric information, which interestingly, I find to be higher for cross-owned acquirers. I document that cross-owners hold a much larger percentage of targets' equity compared to acquirers. Further exploration into cross-ownership dynamics, aimed at addressing the cross-ownership asymmetry concern, reveals that cross-owners' holdings exceeding 5% in both the acquirer and the target can potentially increase post-M&A bankruptcy risk, which is likely driven by the risk associated with larger stakes in the acquirer. The robustness of my results is maintained after accounting

for a minimum 1% ownership per shareholder, underscoring the substantial impact of cross-holdings on post-M&A bankruptcy risk. Lastly, my findings indicate no evidence of stock deals being more prevalent in cross-owned deals. Interestingly, I observe that all-cash deals are more common and reduce bankruptcy risk, while large acquisitions increase it over time.

My study has several limitations that open avenues for future research. Firstly, determining the true extent of common ownership is a challenging task due to limitations in data availability and complexity. The fact that institutions also own each other, coupled with the need to include holdings of investors beyond the 13F database, could potentially reveal much higher levels of common ownership. Additionally, considering Distance-to-Default as an alternative measure of default risk, derived from Black and Scholes (1973) and Merton (1974), could enhance the robustness of my results. Both Z-Score and Distance-to-Default are widely used by practitioners and academics to predict default (Bharath and Shumway 2008). Campello, Ladika, and Matta (2018) note that each conveys unique information about a firm's financial conditions. Z-Score relies on accounting ratios, successfully predicting bankruptcy, while Distance-to-Default depends on a firm's market value and the volatility of its assets.

Furthering understanding of the mechanisms behind the impact of cross-ownership on bankruptcy risk and examining the risk dynamics three to five years post-M&A represent important avenues for future research. An intriguing approach would involve delving into the real influence of cross-owners in transactions and understanding their effects on management, providing more meaningful findings. Additionally, the development of a robust cross-ownership measure that considers the extent of holdings in both the target and acquirer would be a crucial direction for future research. Finally, addressing one of the key limitations of my research, exploring effective ways to control for endogeneity concerns to confirm robustness of my results is essential for advanced research in the area.

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Appendix

Variable Definitions

Variable Name	*Data Source*	*Definition*
Z-Score	Compustat and CRSP	1.2 * (Working Capital / Total Assets) + 1.4 * (Retained Earnings / Total Assets) + 3.3 * (EBIT / Total Assets) + 0.6 * (Market Capitalisation / Total Liabilities) + 1 * (Total Sales / Total Assets)
Safe Zone	Compustat and CRSP	Low likelihood of bankruptcy with Z-Scores exceeding 2.99
Grey Zone	Compustat and CRSP	Moderate risk of bankruptcy with Z-Scores from 1.81 to 2.99
Distress Zone	Compustat and CRSP	High likelihood of bankruptcy with Z-Scores below 1.81
Cross-Ownership	SDC and 13F	Institutional investors holding shares in both target and acquirer at time of M&A
Cross-Owned	SDC and 13F	Dummy variable equal to 1 if acquirer and target are cross-owned by at least 1 institutional investor at time of M&A and equal to 0 if not
Cross-Owned$_{5\%min}$	SDC and 13F	Dummy variable equal to 1 if cross-owners hold at least 5% in acquirer and minimum of 5% in target at time of M&A and equal to 0 if not
N Cross-Owners	SDC and 13F	Equal to the number of cross-owners between target and acquirer at time of M&A
N Cross-Owners$_{1\%min}$	SDC and 13F	Equal to the number of cross-owners between target and acquirer at time of M&A, restricted at minimum 1% ownership per shareholder
Cross-Held Acquirer	SDC, 13F and CRSP	Percentage cross-holders own in acquirer at time of M&A
Cross-Held Acquirer$_{1\%min}$	SDC, 13F and CRSP	Percentage cross-holders own in acquirer at time of M&A, restricted at minimum 1% ownership per shareholder
Cross-Held Target	SDC, 13F and CRSP	Percentage cross-holders own in target at time of M&A
Cross-Held Target$_{1\%min}$	SDC, 13F and CRSP	Percentage cross-holders own in target at time of M&A, restricted at minimum 1% ownership per shareholder
All-Cash	SDC	Dummy variable equal to 1 if payment is 100% cash and equal to 0 in all other scenarios
All-Stock	SDC	Dummy variable equal to 1 if payment is 100% stock and equal to 0 in all other scenarios
Diversifying	SDC	Dummy variable equal to 1 if deal is industry diversifying and equal to 0 if same industry
Cross-Border	SDC	Dummy variable equal to 1 if deal is cross-border and equal to 0 if domestic
Friendly Attitude	SDC	Dummy variable equal to 1 if deal has a friendly attitude and equal to 0 in all other scenarios

Continued on Next Page

Variable Name	*Data Source*	*Definition*
Tender Offer	SDC	Dummy variable equal to 1 if tender offer was present and equal to 0 in all other scenarios
Deal Value	SDC	Value of M&A deal in USD millions
Deal Size	SDC	Natural Logarithm of Deal Value
Current Ratio	Compustat	Current Assets / Current Liabilities
Debt Ratio	Compustat	Total Liabilities / Total Assets
Firm Size	Compustat	Natural Logarithm of Total Assets
Exec Motivation	Compustat	Natural Logarithm of (Total Compensation - Salary - Bonus)
Monitoring	CRSP	Number of Analyst Estimates
Asymmetric Info	IBES	Natural Logarithm of Bid-Ask Spread
Cross * Motivation	SDC, 13F and Compustat	Exec Motivation * Cross-Owned
$\text{Cross}_{5\%min}$ * Motivation	SDC, 13F and Compustat	Exec Motivation * $\text{Cross-Owned}_{5\%min}$
N Cross * Monitoring	SDC, 13F and CRSP	Monitoring * N Cross-Owners
$\text{N Cross}_{1\%min}$ * Monitoring	SDC, 13F and CRSP	Monitoring * $\text{N Cross-Owners}_{1\%min}$
Cross-Acq * Asm Info	SDC, 13F, CRSP and IBES	Asymmetric Info * Cross-Held Acquirer
$\text{Cross-Acq}_{1\%min}$ * Asm Info	SDC, 13F, CRSP and IBES	Asymmetric Info * $\text{Cross-Held Acquirer}_{1\%min}$
Cross-Target * Asm Info	SDC, 13F, CRSP and IBES	Asymmetric Info * Cross-Held Target
$\text{Cross-Target}_{1\%min}$ * Asm Info	SDC, 13F, CRSP and IBES	Asymmetric Info * $\text{Cross-Held Target}_{1\%min}$

Table 4: Extra Tables

This table describes my sample of 1858 M&A deals between 1984 and 2020, complying with criteria as outlined in Section 3 of my paper. All continuous variables were winsorized at 1% and 99%. This table shows the distribution of cross-ownership deals over years in Panel A; Z-Score and cross-ownership mean and median data over years in Panel B; Continuous control variable characteristics in Panel C; Standard deviations for sample and subsample in Panel D. All variable definitions can be found in the Appendix.

Panel A: Distribution of Cross-Ownership Deals over Years

Year	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Proportion Cross-Owned	0.0769	0.1111	0.4000	0.0000	0.0000	0.0000	0.0000
Number Cross-Owned	1	2	12	0	0	0	0
Number Deals/Year	13	18	30	23	29	26	30
Year	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**
Proportion Cross-Owned	0.0000	0.0000	0.0000	0.0000	0.0000	0.2597	0.7895
Number Cross-Owned	0	0	0	0	0	20	75
Number Deals/Year	24	22	24	41	56	77	95
Year	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Proportion Cross-Owned	0.8333	0.8443	0.8534	0.8300	0.9254	0.7619	0.9107
Number Cross-Owned	70	103	99	83	62	48	51
Number Deals/Year	84	122	116	100	67	63	56
Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Proportion Cross-Owned	0.8929	0.9143	0.9506	0.9608	0.8889	0.9615	0.9063
Number Cross-Owned	50	64	77	49	32	50	29
Number Deals/Year	56	70	81	51	36	52	32
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Proportion Cross-Owned	0.8696	0.9231	0.9394	0.8929	0.9444	0.9722	0.9535
Number Cross-Owned	40	36	31	50	51	35	41
Number Deals/Year	46	39	33	56	54	36	43
Year	**2019**	**2020**	**Total**				
Proportion Cross-Owned	1.0000	0.8947	0.7083				
Number Cross-Owned	38	17	1316				
Number Deals/Year	38	19	1858				

Panel B: Z-Score and Cross-Ownership Data over Years

Year	*Median Z-Score at Time of M&A*	*Mean % Shares Held by Cross-Owners in Target*	*Mean % Shares Held by Cross-Owners in Acquirer*	*Median % Shares Held by Cross-Owners in Target*	*Median % Shares Held by Cross-Owners in Acquirer*
1984	2.9259	19.3750	29.0011	19.3750	29.0011
1985	2.7678	4.6851	4.4823	4.6851	4.4823
1986	2.6654	5.7538	10.8512	1.3201	5.6562
1987	2.9264	0.0000	0.0000	0.0000	0.0000
1988	2.6928	0.0000	0.0000	0.0000	0.0000
1989	3.1735	0.0000	0.0000	0.0000	0.0000
1990	3.8237	0.0000	0.0000	0.0000	0.0000
1991	3.1911	0.0000	0.0000	0.0000	0.0000
1992	3.2991	0.0000	0.0000	0.0000	0.0000
1993	2.9503	0.0000	0.0000	0.0000	0.0000
1994	2.9901	0.0000	0.0000	0.0000	0.0000
1995	3.2153	0.0000	0.0000	0.0000	0.0000
1996	4.0043	9.2436	4.0796	6.0012	2.4844
1997	3.9985	13.7546	4.6987	10.7799	2.6208
1998	4.0711	13.9340	3.7124	7.1628	2.0445
1999	3.9553	15.1113	4.6526	10.2994	2.7007
2000	4.1279	15.8957	5.7665	10.5818	2.7939
2001	3.6848	15.3629	4.9531	8.1624	2.2657
2002	4.1919	16.5802	5.4083	10.3622	2.5343
2003	2.9380	11.5556	5.1320	5.9172	1.9590
2004	3.5144	16.9633	6.8698	13.3038	4.0525
2005	3.4816	21.5694	7.2774	16.5394	5.3057
2006	3.6104	20.1885	7.7166	14.5037	3.6598
2007	3.7104	20.1029	8.0426	16.4831	5.9453
2008	3.1403	11.1820	3.4519	5.5549	2.2512
2009	2.9596	20.5793	6.3642	13.6499	2.3437
2010	3.4567	16.3468	7.5103	11.0752	4.7991
2011	2.3789	22.8493	6.2124	18.8167	3.9321
2012	3.1184	21.0205	7.5025	14.0166	6.6902
2013	2.7340	18.7730	9.3961	13.4311	7.8638
2014	2.9249	25.2090	8.8980	21.4927	6.7639
2015	2.3992	20.8856	9.3641	19.5359	5.0478
2016	2.4615	26.0865	10.9629	23.3268	8.4135
2017	2.8713	26.4494	14.0450	21.2812	10.3660
2018	2.6972	21.6289	11.6095	14.1350	4.4820
2019	2.4320	23.6231	10.4435	18.4612	3.5512
2020	2.1254	22.6091	13.5435	18.0981	12.1751

Panel C: Continuous Control Variables Characteristics

Deal Characteristics	*N*	*Mean*	*Median*	*p25*	*p75*
Current Ratio$_{t0}$	1858	2.2513	1.7883	1.2862	2.6713
Debt Ratio$_{t0}$	1858	0.5200	0.5212	0.3796	0.6561
Firm Size$_{t0}$	1858	7.8105	7.7895	6.3554	9.3170
Current Ratio$_{t1}$	1858	2.1265	1.7154	1.2372	2.5016
Debt Ratio$_{t1}$	1858	0.5352	0.5320	0.4055	0.6650
Firm Size$_{t1}$	1858	7.9887	7.9077	6.5488	9.5002
Current Ratio$_{t2}$	1858	2.0782	1.6964	1.2126	2.5016
Debt Ratio$_{t2}$	1858	0.5461	0.5467	0.4121	0.6704
Firm Size$_{t2}$	1858	8.0421	7.9625	6.6341	9.5573

Panel D: Standard Deviations for Variables used in Regressions

Standard Deviations (Sample)		*Standard Deviations (Subsample)*	
Cross-Owned	0.4547	Cross-Owned	0.3671
Cross-Owned$_{5\%min}$	0.4375	Cross-Owned$_{5\%min}$	0.4700
N Cross-Owners	46.5138	N Cross-Owners	51.2901
N Cross-Owners$_{1\%min}$	4.8331	N Cross-Owners$_{1\%min}$	5.1790
Cross-Held Acquirer	7.9714	Cross-Held Acquirer	8.2954
Cross-Held Acquirer$_{1\%min}$	1.3794	Cross-Held Acquirer$_{1\%min}$	1.3787
Cross-Held Target	17.0321	Cross-Held Target	18.1998
Cross-Held Target$_{1\%min}$	2.5958	Cross-Held Target$_{1\%min}$	2.6970
All-Cash	0.4886	All-Cash	0.4947
All-Stock	0.4511	All-Stock	0.4334
Diversifying	0.4311	Diversifying	0.4200
Cross-Border	0.2361	Cross-Border	0.2343
Friendly Attitude	0.1452	Friendly Attitude	0.1308
Tender Offer	0.4447	Tender Offer	0.4476
Deal Size	1.8391	Deal Size	1.7461
		Exec Motivation	2.7477
		Monitoring	9.3836
		Asymmetric Info	0.8697
		Cross * Motivation	3.6426
		Cross$_{5\%min}$ * Motivation	3.8888
		N Cross * Monitoring	1283.0320
		N Cross$_{1\%min}$ * Monitoring	103.2192
		Cross-Acq * Asm Info	18.5820
		Cross-Acq$_{1\%min}$ * Asm Info	2.6317
		Cross-Target * Asm Info	36.8226
		Cross-Target$_{1\%min}$ * Asm Info	4.9384

Table 5: Robustness Tests (Full Tables)

Panels A, B, C, and D of Table 5 contain multivariate regressions with Z-Score as the dependant variable and cross-ownership, mechanisms, firm, and deal characteristics as independent variables. Cross-Owned, All Cash, All Stock, Diversification, Cross-Border, Friendly Attitude, Tender Offer are dummy variables. N Cross-Owners, Cross-Held Acquirer, Cross-Held Target, Deal Value, Deal Size, Current Ratio, Cash Ratio, Debt Ratio, Firm Size, Exec Motivation, Asymmetric Info, Monitoring, Cross * Motivation, N Cross * Monitoring, Cross-Acq * Asm Info, and Cross-Target * Asm Info are continuous variables. Some variables ($_t$) vary over time. Indices ($_r$) indicate that columns 1, 2, and 3 use variables Cross * Motivation, N Cross * Monitoring, Cross-Acq * Asm Info, and Cross-Target * Asm Info. Meanwhile, columns 4, 5, and 6 place further restrictions on cross-ownership and use variables $Cross_{5\%min}$ * Motivation, N $Cross_{1\%min}$ * Monitoring, $Cross\text{-}Acq_{1\%min}$ * Asm Info, and $Cross\text{-}Target_{1\%min}$ * Asm Info. Other variables are restricted ($_r$) in the same manner as in Section 4. Additionally, industry times year fixed effects and standard errors clustered by industry times year are present in these regressions. All variable definitions can be found in the Appendix. The models are based on a subsample of 1322 M&A deals between 1992 and 2020 as described in Section 3. Statistical significance of p-values is indicated by *, **, *** for 10%, 5%, and 1% level, respectively.

Panel A: Interaction between Cross-Ownership and Exec Motivation (Full Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross * $Motivation_r$	0.2199	0.2001**	0.0684	0.0836	0.1892**	0.0540
	(1.34)	(2.51)	(0.95)	(0.48)	(2.56)	(0.83)
Cross-$Owned_r$	0.5583	0.1911	0.8718	-1.1950	-1.6287**	-0.2883
	(0.56)	(0.33)	(1.44)	(-0.86)	(-2.4)	(-0.57)
Exec Motivation	-0.0079	-0.0434	0.0169	0.1622	0.0864	0.0694
	(-0.07)	(-0.57)	(0.23)	(1.32)	(1.44)	(1.49)
N of Cross-$Owners_r$	0.0018	0.0014	-0.0004	0.0425*	0.0418*	0.0123
	(0.52)	(0.67)	(-0.18)	(1.73)	(1.83)	(0.75)
Cross-Held $Acquirer_r$	-0.0621***	-0.0214**	-0.0128*	-0.2175***	-0.0859	-0.1389**
	(-4.3)	(-2.13)	(-1.26)	(-2.81)	(-1.28)	(-2.45)
Cross-Held $Target_r$	0.0164**	0.0111	0.0091	0.0619	0.0325	0.0865**
	(2.28)	(1.6)	(1.68)	(1.32)	(0.84)	(2.34)
All-Cash	0.5469**	0.3841**	0.2751	0.6416***	0.4498***	0.3362**
	(2.26)	(2.44)	(1.65)	(2.76)	(2.99)	(2)
All-Stock	1.0547**	0.5959*	0.0349	1.1145***	0.6220*	0.0498
	(2.59)	(1.72)	(0.13)	(2.75)	(1.77)	(0.19)
Diversifying	0.4484*	0.1167	0.0952	0.5226*	0.1359	0.1242
	(1.84)	(0.53)	(0.47)	(1.98)	(0.55)	(0.58)
Cross-Border	0.1662	0.2587	0.5334**	-0.0096	0.1157	0.4761*
	(0.37)	(0.71)	(2.08)	(-0.02)	(0.31)	(1.86)
Friendly Attitude	-0.3337	-0.1560	0.2692	-0.1789	-0.1296	0.3360
	(-0.56)	(-0.22)	(0.57)	(-0.31)	(-0.19)	(0.73)
Tender Offer	-0.3871*	-0.2214	-0.2409	-0.3275	-0.2001	-0.2190
	(-1.78)	(-1.29)	(-1.43)	(-1.43)	(-1.1)	(-1.23)
Deal Size	0.1879	-0.1995**	-0.1933***	0.2798***	-0.1364**	-0.1508***
	(1.41)	(-2.51)	(-2.88)	(2.53)	(-2.02)	(-2.69)
Current $Ratio_t$	0.6045***	0.4930***	0.5256***	0.5917***	0.4861***	0.5214***
	(4.27)	(3.94)	(4.88)	(4.34)	(3.98)	(4.96)
Debt $Ratio_t$	-12.8668***	-11.1987***	-9.3208***	-13.1580***	-11.3198***	-9.3488***
	(-8.59)	(-7.83)	(-9.22)	(-8.77)	(-8.02)	(-9.26)
Firm $Size_t$	0.0925	0.4114***	0.4556***	0.1313	0.4435***	0.4581***
	(0.76)	(3.49)	(4.79)	(1.13)	(3.85)	(5.32)
Y * Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Er	Yes	Yes	Yes	Yes	Yes	Yes
N	1322	1322	1322	1322	1322	1322
R^2	0.4832	0.5175	0.5338	0.4758	0.5129	0.5320

Panel B: Interaction between N Cross-Owners and Monitoring (Full Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
N Cross * $Monitoring_r$	-0.0010***	-0.0005**	-0.0006***	-0.0015	-0.0005	-0.0040**
	(-3.42)	(-2.24)	(-2.86)	(-0.58)	(-0.18)	(-2.17)
N of $Cross\text{-}Owners_r$	0.0246***	0.0134**	0.0129**	0.0693	0.0499	0.0802**
	(3.53)	(2.45)	(2.57)	(1.51)	(1.31)	(2.48)
Monitoring	0.1555***	0.0890***	0.0617***	0.1253***	0.0740***	0.0571***
	(5.18)	(4.34)	(2.99)	(4.49)	(3.79)	(2.88)
$Cross\text{-}Owned_r$	1.5917***	1.2014***	1.1494***	-0.4433	-0.0670	0.1233
	(3.02)	(2.84)	(2.74)	(-1.5)	(-0.28)	(0.62)
Cross-Held $Acquirer_r$	-0.0684***	-0.0232***	-0.0175	-0.2131***	-0.0999	-0.1545***
	(-5.01)	(-2.13)	(-1.54)	(-3.3)	(-1.43)	(-2.72)
Cross-Held $Target_r$	0.0124*	0.0087	0.0070	0.0334	0.0108	0.0714**
	(1.9)	(1.3)	(1.33)	(0.76)	(0.29)	(1.98)
All-Cash	0.4586*	0.2975*	0.2386	0.4649*	0.2976*	0.2470
	(1.75)	(1.75)	(1.4)	(1.95)	(1.81)	(1.45)
All-Stock	0.9685**	0.5555	0.0073	0.9978**	0.5641	0.0322
	(2.46)	(1.62)	(0.03)	(2.5)	(1.65)	(0.12)
Diversifying	0.5908**	0.1901	0.1545	0.6824**	0.2495	0.1889
	(2.24)	(0.82)	(0.73)	(2.43)	(1.01)	(0.85)
Cross-Border	-0.1261	0.0918	0.4205	-0.2049	0.0149	0.3887
	(-0.28)	(0.24)	(1.61)	(-0.45)	(0.04)	(1.49)
Friendly Attitude	-0.2957	-0.1496	0.2747	-0.2274	-0.1150	0.3268
	(-0.48)	(-0.22)	(0.58)	(-0.38)	(-0.17)	(0.7)
Tender Offer	-0.2630	-0.1406	-0.1980	-0.1920	-0.1130	-0.1360
	(-1.24)	(-0.87)	(-1.28)	(-0.87)	(-0.66)	(-0.84)
Deal Size	0.1917	-0.1914***	-0.1965***	0.2697**	-0.1344*	-0.1587***
	(1.35)	(-2.36)	(-2.91)	(2.43)	(-1.91)	(-2.78)
Current $Ratio_t$	0.6040***	0.5004***	0.5306***	0.5888***	0.4884***	0.5205***
	(3.9)	(3.87)	(4.85)	(3.92)	(3.84)	(4.83)
Debt $Ratio_t$	-11.3098***	-10.3000***	-8.9002***	-11.4679***	-10.3938***	-8.9375***
	(-8.64)	(-8.12)	(-9.65)	(-8.75)	(-8.2)	(-9.63)
Firm $Size_t$	-0.3624***	0.1536	0.2940***	-0.2458**	0.2231**	0.3429***
	(-2.95)	(1.52)	(2.75)	(-2.09)	(2.29)	(3.36)
Y * Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Er	Yes	Yes	Yes	Yes	Yes	Yes
N	1322	1322	1322	1322	1322	1322
R^2	0.5011	0.5239	0.5404	0.4899	0.5178	0.5364

Panel C: Interaction between Cross-Held Acquirer and Asymmetric Info (Full Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross-Acq * Asm Info$_r$	-0.0244*	-0.0303**	-0.0241**	-0.2724***	-0.2675***	-0.2521***
	(-1.94)	(-2.35)	(-2.53)	(-3.63)	(-3.01)	(-3.69)
Cross-Held Acquirer$_r$	-0.0597**	0.0074	0.0160	0.1199	0.2690	0.2311**
	(-2.12)	(0.28)	(0.75)	(0.81)	(1.57)	(1.98)
Asymmetric Info	1.6698***	1.1159***	0.7080***	1.7067***	1.1242***	0.7707***
	(9.41)	(7.37)	(4.84)	(9.28)	(7.71)	(4.95)
Cross-Owned$_r$	1.7385***	1.2451***	1.1946***	-0.9467***	-0.4071	-0.0240
	(3.29)	(2.93)	(2.69)	(-3.05)	(-1.45)	(-0.11)
N of Cross-Owners$_r$	0.0070**	0.0056***	0.0022	0.0305	0.0354	0.0097
	(2.09)	(2.54)	(1.08)	(1.38)	(1.65)	(0.64)
Cross-Held Target$_r$	0.0146**	0.0099	0.0080	0.0645	0.0269	0.0825**
	(2.23)	(1.5)	(1.55)	(1.53)	(0.75)	(2.23)
All-Cash	0.5385**	0.3707**	0.2597*	0.6924***	0.4728***	0.3579**
	(2.37)	(2.61)	(1.7)	(3.26)	(3.7)	(2.39)
All-Stock	0.9538**	0.5389	-0.0081	1.0209**	0.5721	0.0015
	(2.43)	(1.51)	(-0.03)	(2.59)	(1.6)	(0.01)
Diversifying	0.3920*	0.0604	0.0690	0.5444**	0.1541	0.1218
	(1.68)	(0.27)	(0.34)	(2.19)	(0.63)	(0.56)
Cross-Border	0.1041	0.2499	0.5399**	-0.0880	0.1114	0.4863**
	(0.23)	(0.72)	(2.23)	(-0.21)	(0.34)	(2.13)
Friendly Attitude	-0.3551	-0.1608	0.2333	-0.1298	-0.0254	0.3538
	(-0.57)	(-0.22)	(0.48)	(-0.22)	(-0.04)	(0.76)
Tender Offer	-0.3353	-0.1832	-0.2142	-0.3052	-0.1859	-0.2189
	(-1.61)	(-1.05)	(-1.29)	(-1.45)	(-1.04)	(-1.27)
Deal Size	0.0345	-0.3015***	-0.2606***	0.2054**	-0.1778**	-0.1809***
	(0.29)	(-3.39)	(-3.88)	(2.1)	(-2.41)	(-3.13)
Current Ratio$_t$	0.4928***	0.4086***	0.4773***	0.4962***	0.4212***	0.4811***
	(3.53)	(3.3)	(4.51)	(3.71)	(3.49)	(4.65)
Debt Ratio$_t$	-12.1978***	-10.8695***	-9.0908***	-12.4801***	-10.9815***	-9.1489***
	(-9.43)	(-8.24)	(-9.46)	(-9.66)	(-8.37)	(-9.66)
Firm Size$_t$	-0.0118	0.3448***	0.4226***	0.0630	0.4016***	0.4424***
	(-0.11)	(3.68)	(4.84)	(0.65)	(4.27)	(5.47)
Y * Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Er	Yes	Yes	Yes	Yes	Yes	Yes
N	1322	1322	1322	1322	1322	1322
R^2	0.5210	0.5400	0.5468	0.5157	0.5366	0.5491

Panel D: Interaction between Cross-Held Target and Asymmetric Info (Full Table)

	Time of M&A	1 Year after M&A	2 Years after M&A	Time of M&A	1 Year after M&A	2 Years after M&A
	(1)	(2)	(3)	(4)	(5)	(6)
Cross-Target * Asm Info$_r$	0.0074	0.0022	-0.0020	0.0037	-0.0285	-0.0070
	(1.02)	(0.37)	(-0.37)	(0.07)	(-0.55)	(-0.15)
Cross-Held Target$_r$	0.0031	0.0071	0.0120	0.0669	0.0764	0.1000*
	(0.27)	(0.77)	(1.28)	(1.08)	(1.2)	(1.82)
Asymmetric Info	1.4471***	0.9423***	0.6253***	1.5301***	1.0115***	0.6286***
	(8.48)	(5.86)	(4.34)	(6.85)	(6.13)	(4.97)
Cross-Owned$_r$	1.8305***	1.3233***	1.2386***	-0.9395***	-0.4031	-0.0207
	(3.54)	(3.13)	(2.84)	(-3.02)	(-1.44)	(-0.09)
N of Cross-Owners$_r$	0.0059*	0.0043*	0.0014	0.0261	0.0315	0.0059
	(1.75)	(1.96)	(0.62)	(1.17)	(1.46)	(0.39)
Cross-Held Acquirer$_r$	-0.1063***	-0.0494***	-0.0287**	-0.3313***	-0.1768**	-0.1885***
	(-6.44)	(-4.08)	(-2.34)	(-4.55)	(-2.58)	(-2.95)
All-Cash	0.5879***	0.4071***	0.2763*	0.6816***	0.4728***	0.3535**
	(2.67)	(2.93)	(1.8)	(3.07)	(3.57)	(2.35)
All-Stock	0.9727**	0.5592	0.0090	1.0491***	0.6036*	0.0312
	(2.49)	(1.58)	(0.03)	(2.64)	(1.7)	(0.12)
Diversifying	0.4300*	0.0854	0.0771	0.5727**	0.1756	0.1469
	(1.84)	(0.39)	(0.37)	(2.29)	(0.71)	(0.68)
Cross-Border	0.0427	0.1978	0.5128**	-0.1505	0.0443	0.4271*
	(0.1)	(0.56)	(2.1)	(-0.35)	(0.13)	(1.8)
Friendly Attitude	-0.3252	-0.1370	0.2460	-0.1239	-0.0352	0.3534
	(-0.53)	(-0.19)	(0.51)	(-0.22)	(-0.05)	(0.77)
Tender Offer	-0.3376	-0.1815	-0.2103	-0.2698	-0.1632	-0.1894
	(-1.62)	(-1.05)	(-1.27)	(-1.27)	(-0.92)	(-1.09)
Deal Size	0.0602	-0.2779***	-0.2465***	0.2063**	-0.1790**	-0.1788***
	(0.51)	(-3.24)	(-3.57)	(2.14)	(-2.43)	(-3.06)
Current Ratio$_t$	0.4919***	0.4095***	0.4806***	0.4935***	0.4150***	0.4779***
	(3.56)	(3.32)	(4.58)	(3.7)	(3.41)	(4.66)
Debt Ratio$_t$	-12.2064***	-10.8852***	-9.0728***	-12.4637***	-11.0210***	-9.1260***
	(-9.44)	(-8.22)	(-9.3)	(-9.57)	(-8.28)	(-9.46)
Firm Size$_t$	-0.0150	0.3395***	0.4165***	0.0576	0.3942***	0.4331***
	(-0.14)	(3.55)	(4.75)	(0.59)	(4.13)	(5.2)
Y * Ind FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Er	Yes	Yes	Yes	Yes	Yes	Yes
N	1322	1322	1322	1322	1322	1322
R^2	0.5207	0.5382	0.5453	0.5130	0.5328	0.5442