UNIVERSITY OF CALIFORNIA,
IRVINE

When Friends Become Foes: Disclosure Decisions After Failed M&A Deals

DISSERTATION

Submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Management

by

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2023

DEDICATION

To my parents, wife, and son

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ACKNOWLEDGEMENTS

I am extremely grateful to my dissertation chairs, Professor Ben Lourie and Professor Terry Shevlin, for their invaluable advice throughout my five-year academic journey. From our very first conversation, your passion and dedication to research have been a constant source of inspiration for me. I feel incredibly fortunate to have learned from two of the most accomplished minds in the field of accounting research. Thank you for everything you have done for me.

I would also like to express my deep appreciation to the other members of my committee, Professor Elizabeth Chuk and Professor Devin Shanthikumar. Your invaluable feedback has significantly helped me refine my work. I am truly grateful for the countless hours you have dedicated to my academic success.

I also thank seminar participants at University of California-Irvine, University of Hawaii at Manoa, Chinese University of Hong Kong, Hong Kong Baptist University, the 2022 AAA Western Region Meeting, the 2022 AAA/Deloitte Foundation/J. Michael Cook Doctoral Consortium, and the 2022 AAA Annual Meeting for helpful comments and suggestions. I gratefully acknowledge the generous financial support from the Paul Merage School of Business and the Deloitte Foundation.

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ABSTRACT OF THE DISSERTATION

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By

Il Sun Yoo

Doctor of Philosophy in Management

University of California, Irvine, 2023

Professor Ben Lourie, Co-chair

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In this paper, I examine the effects of failed M&A deals on firms' disclosure decisions. As a firm's detailed proprietary information is shared with the counterparty during an M&A deal, the value of the information declines if the deal fails. As a result, it becomes less costly for the firm to disclose the information publicly. Consistent with this reasoning, I find increases in the disclosure of proprietary information in the year after firms experience failed deals. I strengthen my inference through a quasi-natural experiment based on the Federal Trade Commission's guidance, which constrains the exchange of proprietary information during M&A deals. I also provide evidence that investor demand contributes to this effect. Finally, consistent with the notion that increased disclosure of proprietary information effectively reduces information asymmetry, I find decreases in information asymmetry between firms and their investors after failed deals. Overall, my study sheds light on how failed deals affect the disclosure decisions and information environment of the firms involved.

CHAPTER 1. Introduction

In this paper, I investigate the effects of failed M&A deals on firms' disclosure decisions. Prior literature has examined disclosure policies around M&A transactions. For example, managers strategically disclose information to influence investors' responses to deal announcements and to affect their own or counterparties' stock prices during negotiations (e.g., Kimbrough and Louis 2011; Ahern and Sosyura 2014; Kim et al. 2020). Managers also adjust disclosure to manage investor and board expectations post-M&A (e.g., Bens et al. 2012). Yet, despite the breadth of this literature, little is known about whether and how M&A deal failure affects firms' disclosure decisions. While failed deals occur less frequently than completed deals, they are economically important enough in their own right to be worthy of study. According to Bloomberg data, the total value of failed M&A deals worldwide between 1998 and 2021 was approximately $15.1 trillion, which accounts for 22% of the total value of all M&A deals during that period.[1] Furthermore, anecdotal evidence suggests that deal failure is of great interest to capital market participants, including investors and regulators (e.g., Feuer 2022).

I hypothesize that public disclosure of proprietary information increases after firms experience failed M&A deals. In M&A transactions, it is common for the two parties (i.e., the target and the bidder) to exchange detailed proprietary information to make informed decisions. If an M&A deal fails, such proprietary information, which has been shared with the counterparty in the deal process, loses some of its value, because the counterparty has the potential to exploit it.[2]

[1] The total number of failed M&A deals worldwide between 1998 and 2021 was approximately 24,846, which represents 5% of the total number of all M&A deals during that period. In my sample, 7% were involved in failed deals out of all the firm-years involved in M&A deals.

[2] Two parties typically sign a non-disclosure agreement (NDA) when they enter into an M&A deal. Nevertheless, M&A lawyers suggest that NDAs do not fully prevent firms from exploiting information exchanged during deal negotiations, because the damage caused by a breach of an NDA is difficult to prove in practice (Indap 2020). See Section 2.1 for more examples and a detailed discussion.

The reduced value of proprietary information will then make it less costly for the firm to publicly disclose the information.

Nevertheless, it is not obvious *ex ante* that reductions in the costs of disclosure following failed deals are large enough to alter firms' decisions to publicly disclose proprietary information. In the event of deal failure, a firm's proprietary information becomes known to only one other firm (i.e., the counterparty), but there may still be several other parties who stand to profit from the public disclosure of such information.[3] Overall, whether public disclosure of proprietary information increases following failed deals is an empirical question.

To examine this research question, I use firms' propensities to redact confidential portions of material contracts in their 10-K filings as a measure of the disclosure of proprietary information. The SEC requires firms to file their material contracts as exhibits in their filings. However, if the contracts contain confidential information, firms are allowed to redact such information by submitting confidential treatment requests to the SEC. Given the proprietary nature of redacted information, prior studies often use the propensity to redact material contracts as an inverse measure of proprietary information disclosure (e.g., Verrecchia and Weber 2006; Boone et al. 2016; Glaeser 2018).

In addition, I use firms' propensities to conceal the names of their major customers in the segment reporting as an additional inverse measure of proprietary information disclosure (e.g., Ellis et al. 2012; Li et al. 2018). This measure is also well suited to operationalizing the construct of proprietary information disclosure because customer-specific information, such as customer

[3] Such proprietary information can also become known to more than one firm after a failed M&A deal if the information is transmitted to third parties. For example, there was a terminated deal between TargetSmart and GHP in 2017, and TargetSmart sued GHP for allegedly sharing its trade secrets with Catalist, which was a client of GHP as well as one of TargetSmart's competitors (Wilson 2018).

lists, is considered to be among the most competitively sensitive trade secrets (e.g., Federal Trade Commission 2018).

Using Compustat and the Bloomberg Terminal Database, I construct a sample of U.S. firm-years from 1998 to 2020, which includes firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals. I use two types of samples to test my hypothesis: (i) the pooled sample, which includes all firm-years, and (ii) the subsample, which only includes firm-years involved in either failed deals or completed deals. The pooled sample allows me to compare firm-years involved in failed deals with all other firm-years in Compustat. The subsample allows me to directly compare firm-years involved in failed deals with firm-years involved in completed deals.

My findings are consistent with my hypothesis that public disclosure of proprietary information increases after failed deals. Specifically, firms are 24% less likely to redact material contracts in their 10-K filings in the year after they experience failed deals. This effect is observed among both targets and bidders, with the effect being stronger for targets. Additionally, I find a decrease in the likelihood of concealing customer identities in the segment reporting in the year after firms experience failed deals, which aligns with the findings from the redactions.

In my next analysis, I utilize a recent regulatory event that generates variation in the extent of proprietary information exchange during M&A deals as a quasi-natural experiment to strengthen the causal inference. In March 2018, the U.S. Federal Trade Commission (FTC) issued new guidance emphasizing that exchanging competitively sensitive information before closing deals can constitute an antitrust violation, as it has the potential to endanger competition.[4] In the

[4] Related antitrust laws include Section 1 of the Sherman Act and the HSR Act. Under these laws, the exchange of competitively sensitive information can be the subject of penalties and active enforcement (e.g., Kolasky and Bell 2018).

guidance, the FTC provides specific recommendations for firms to avoid such regulatory risks. For example, firms are advised to "redact documents and information to shield customer identities and other information" in the deal process (Federal Trade Commission 2018). Overall, the FTC guidance is likely to constrain the exchange of proprietary information during deals, thus mitigating the increase in the disclosure of proprietary information following deal failure.

A benefit of this setting is that the FTC guidance primarily affects domestic deals (i.e., deals between U.S. firms).[5] Therefore, failed deals between a U.S. firm and a foreign firm can serve as the control group, while failed deals between U.S. firms serve as the treatment group. Using a difference-in-differences approach, I find that decreases in redactions in the 10-K and customer identity concealment in the segment reporting after failed deals are mitigated for the treatment group relative to the control group following the announcement of the FTC guidance. These results reinforce my argument that changes in the disclosure of proprietary information after failed deals result from the exchange of such information during the deals.

Next, I further explore deal-related factors that may affect the effects of failed deals on proprietary information disclosure. First, reductions in the value of proprietary information (i.e., the cost of disclosing it) after failed deals are likely to be larger when counterparties are product market peers, because they generally have stronger incentives to exploit such information. Therefore, I expect the effects to be stronger for failed deals between product market peers. Second, it is unlikely that firms actively exchange information during hostile deals. Thus, I expect the effects to be concentrated among non-hostile failed deals. Third, after failed deals, investors may demand more information, thus contributing to the increase in the disclosure of proprietary information. In particular, firms are likely to have stronger incentives to cater to these increased

[5] Transactions with foreign firms are often excluded from U.S. antitrust laws. For example, the Foreign Trade Antitrust Improvements Act ("FTAIA") serves to limit the application of US antitrust laws to foreign conduct (15 U.S.C. § 6a).

investor demands when they experience more volatile or negative stock returns following failed deals. My results are consistent with these predictions.

To provide more insight into the effects of failed deals on firms' disclosure decisions, I also examine changes in management earnings forecasts following failed deals. Prior research suggests that management earnings forecasts contain significantly less proprietary information relative to other disclosures (e.g., material contracts and customer lists), because they aggregate information rather than revealing the granular level of detail that is readily exploitable by competitors (e.g., Lang and Sul 2014; Park et al. 2019). I find no evidence of changes in management earnings forecasts after firms experience failed deals. Taken together with my main results, this result suggests that the effects of failed deals on firms' disclosure decisions are concentrated in disclosures of more specific and granular proprietary information.

In a final set of analyses, I examine the effect of failed M&A deals on information asymmetry. Prior work suggests that proprietary information disclosure reduces information asymmetry more effectively than other types of disclosures because proprietary information is by nature more firm-specific (e.g., Kim et al. 2021). Consistent with this notion, I find that information asymmetry between firms and their investors decreases following failed deals, as reflected in reductions in return volatility and analyst forecast errors.

My research contributes to the M&A literature by shedding light on the effect of failed M&A deals on managerial decisions. While the existing literature has extensively examined the consequences of completed M&A deals (e.g., Healy et al. 1992; Bliss and Rosen 2001; Grinstein and Hribar 2004; Harford and Li 2007; Bens et al. 2012), the impact of failed M&A deals has received relatively little attention (e.g., Wong and O'Sullivan 2002). Some prior studies in finance have examined stock market reactions, financial performance, and management turnover

following failed deals (e.g., Denis and Serrano 1996; Malmendier et al. 2016; Boyson et al. 2017), but there is scant evidence about whether and how they affect managerial decisions. My research helps to fill this gap in the M&A literature by documenting the effects of failed M&A deals on managers' disclosure decisions.

This study is also related to prior studies on voluntary disclosure surrounding M&A transactions. Prior research suggests that firms use disclosure to affect investor reactions around M&A announcements, influence their own and counterparties' stock prices during negotiations, and manage investor and board expectations following M&A transactions (e.g., Kimbrough and Louis 2011; Ge and Lennox 2011; Bens et al. 2012; Ahern and Sosyura 2014; Kim et al. 2020). My research adds to this line of literature by examining how firms' voluntary disclosure decisions are affected by deal failure.

This study also contributes to the literature on proprietary costs of disclosure. Prior empirical research in this area has focused largely on relatively unclear proxies for proprietary costs that are based on product market competition and has found mixed results (e.g., Beyer et al. 2010; Berger 2011). To better capture variation in proprietary costs, a few recent studies use the setting of state-level trade secret protection laws, which are expected to impact proprietary costs at the state level, and show that increased proprietary costs reduce voluntary disclosure (e.g., Li et al. 2018; Aobdia 2018; Glaeser 2018; Kim et al. 2021).[6] In this study, I examine unique firm-specific events, failed deals, which generate firm-level variation in proprietary costs. Moreover, different from the trade secret protection laws increasing proprietary costs, failed M&A deals lead to a reduction in proprietary costs. Overall, my study broadens the generalizability of the proprietary cost hypothesis (Glaeser and Guay 2017).

[6] These laws include the Uniform Trade Secrets Act (UTSA), the Inevitable Disclosure Doctrine (IDD), and enforceability regarding noncompete agreements.

The remainder of the paper is organized as follows. Section 2 presents background information, related literature, and hypothesis development. Section 3 presents data and research design. Section 4 summarizes my findings. Section 5 provides the conclusion.

CHAPTER 2. Background, Related Literature, and Hypothesis Development

2.1. Failed M&A Deals

An M&A transaction is one of the most significant corporate transactions, and it involves several steps that often take several months. The process typically begins in one of two ways (Boone and Mulherin 2007; Marquardt and Zur 2015). The first possibility is that a target negotiates with a single bidder. Although either party can initiate this type of M&A transaction, it is more commonly initiated by the bidder. The target and the bidder engage in extensive, private discussions to determine whether they are a good fit and what synergies could be created by merging. If both parties agree to proceed with the transaction, they sign non-disclosure agreements (NDAs) and begin due diligence and negotiations related to various aspects of the integration, such as acquisition prices and payment methods. The second possibility is that a target is auctioned among multiple bidders. Typically, the target initiates this type of M&A transaction by reaching out to a list of potential bidders. Interested bidders who sign NDAs are granted access to a "data room" and conduct preliminary due diligence on the target. Bidders then submit their bids, and after the winning bid is chosen, the bidder and the target initiate more comprehensive due diligence and negotiation processes.[7]

[7] I do not attempt to identify whether an M&A transaction began with a negotiation between a single bidder and a target or an auction involving multiple bidders since it requires extensive hand collection of data (e.g., data collected from the merger background section of the SEC filings, such as 14A, S-4, and 14D (e.g., Boone and Mulherin 2007)). Even if a deal begins with an auction, it is necessary that the winning bidder and the target engage in comprehensive due diligence and negotiations, similar to deals that begin with one-to-one negotiations. Therefore, it is likely that both situations will lead to changes in the disclosure of proprietary information in the event of deal failure.

Although bidders are typically responsible for performing due diligence, targets may also choose to conduct their own investigations of bidders and request additional information (Graebner et al. 2010; Golubov et al. 2013; Unkovic 2014; Humphreys 2022). First, if the bidder proposes to pay in stock, the target must certify the bidder's stock price because the bidder has incentives to inflate its stock price. The target may also need to assess the potential risks and benefits of merging with or being acquired by the bidder, as the target shareholders become partial owners of the bidder and benefit from synergies. Second, if the transaction involves deferred payments, the target must ensure that the bidder has the financial capacity to fulfill the purchase price. Third, in the case of horizontal mergers, it is common for both parties to share information to assess potential synergies (e.g., MacDonald and Lublin 1998).

This description demonstrates how every step of the deal process requires much discussion and information-sharing between the two parties. Moreover, the information shared includes competitively sensitive proprietary information (e.g., Federal Trade Commission 2018). There are several reasons why firms are willing to share such sensitive information with counterparties during M&A deals. First, these information exchanges allow the merging parties to better assess the value of businesses and potential synergies, thereby facilitating the completion of deals. For example, in an interview with the *Wall Street Journal*, the CEO of PhyCor Inc stated that "a big mistake you can make is not getting enough information to decide whether to complete a deal" (MacDonald and Lublin 1998). Second, managers themselves also have strong incentives to share important information with counterparties to complete deals. For example, managers usually experience an increase in compensation after the completion of deals (Bliss and Rosen 2001; Grinstein and Hribar 2004; Harford and Li 2007). Third, firms may exchange private information to coordinate with each other until deals are consummated (e.g., Kepler 2021; Stewart 2021).

However, M&A deals can collapse despite such information exchanges. Specifically, the total value (the number) of M&A deals that were terminated between 1998 and 2021 in all countries is approximately $15.1 trillion (24,846). The economic magnitude is likely even larger, as there may have been additional failed deals that were not publicly announced. While the specific reasons for the terminations of deals are varied, the most common one is firms' disagreements over valuation (e.g., Bahreini et al. 2019). Prior studies also show several determinants of deal completion rates. For example, deals are more likely to close when two parties use the same auditor, when targets exhibit higher accounting quality, when there are termination fees, and when acquirers are able to affect targets' stock prices (e.g., Skaife and Wangerin 2013; Marquardt and Zur 2015; Dhaliwal et al. 2016; Bates and Lemmon 2003; Kim et al. 2020). Using hand-collected data from news articles, Malmendier et al. (2016) and Aboody et al. (2021) suggest that some of the failed deals are driven by target firms. In addition, M&A deals can also be terminated because of regulatory challenges by antitrust authorities, especially if certain mergers can substantially diminish competition and harm consumers (e.g., Mehta et al. 2020).

Regardless of the reason behind deal failures, firms' proprietary information shared with counterparties can be exploited in various ways after the failures. First, if two firms operate in the same industry, the information shared during the deal process may be very relevant and useful for each party, which may generate strong incentives for them to exploit it to improve their competitive positions. For example, after the deal between Staples and Office Depot collapsed, the two companies adjusted their business strategies (e.g., regarding delivery services and product developments) using what they had learned from each other during the deal process (MacDonald and Lublin 1998).

Second, information shared between two parties during deals can be transmitted to third parties (e.g., one party's competitor) after the deals are terminated. In 2017, during the terminated acquisition deal between TargetSmart and GHP, TargetSmart alleged that GHP shared its trade secrets with Catalist, which was a client of GHP as well as one of TargetSmart's competitors (Wilson 2018).

Third, after a deal between a bidder and a target is terminated, the bidder may decide to acquire the target's rival firm instead. Akhigbe et al. (2000) suggest that deal failure leads to significant positive returns for the target firm's rivals because they could potentially become acquisition targets. If the target's rival is acquired by the bidder, the information that the target has shared with the bidder may be transmitted to the rival.

Last, after deal failures, some firms start their own businesses in the industries in which their counterparties in failed deals operate. To facilitate the new businesses, those firms may exploit information obtained from their counterparties in the deal process. For example, after the termination of the deal between Urban Outfitters and Le Tote in 2020, Urban Outfitters launched its own business, Nuuly, which is a direct rival of Le Tote. Le Tote alleges that Urban Outfitters could have only built the new business if it misappropriated information shared during the M&A discussions (Indap 2020).

Furthermore, although NDAs are common in M&A transactions, breaches of NDAs are rarely litigated (e.g., MacDonald and Lublin 1998; Hennes and Zou 2019). This is mainly because damages caused by an NDA breach are difficult to prove (e.g., Hennes and Zou 2019). In an interview with *Financial Times*, an M&A lawyer explicitly stated that "it's difficult to show in practice confidential information was misused" (Indap 2020). Overall, NDAs do not appear to fully prevent companies from exploiting information exchanged during M&A deals.

2.2. Disclosure Incentives

Theoretically, if disclosure is costless, managers have incentives to disclose all their private information to maximize firm value (e.g., Beyer et al. 2010). By disclosing more information, managers can reduce information asymmetry between managers and investors, and obtain various capital market benefits, such as increased liquidity and decreased costs of capital, as a result (e.g., Amihud and Mendelson,1986; Diamond and Verrecchia 1991; Kim and Verrecchia 1994; Welker 1995; Leuz and Verrecchia 2000; Easley and O'Hara 2004). If firms do not disclose any information, investors may interpret it as a bad sign potentially causing them to revise their beliefs about firm value downward (e.g., Beyer et al. 2010).

However, it is uncommon for firms to disclose all information due to the costs associated with disclosure. One of these costs is the proprietary cost, which refers to a loss in competitive position from disclosing proprietary information. Specifically, such information revealed through public disclosure can be exploited by competitors to the disadvantage of the disclosing firm. Therefore, prior theoretical work generally predicts a negative association between disclosures and proprietary costs (e.g., Verrecchia 1983; Verrecchia 2001; Dye 2001). In line with the prediction, about three-fifths of CFOs state that one of the biggest barriers to voluntary disclosure is the concern about giving away proprietary information to competitors (Graham et al. 2005).

While the theoretical relationship between proprietary costs and firm disclosure decisions is unambiguous, prior empirical evidence in this area is somewhat mixed (e.g., Beyer et al. 2010; Berger 2011). The mixed results may be attributed to several reasons. First, product market competition has commonly been used to proxy for proprietary costs, but the association between product market competition and proprietary costs is theoretically unclear (e.g., Lang and Sul 2014). Second, both product market competition and disclosure are multidimensional (Cao et al. 2018;

Glaeser and Landsman 2019). Third, the industry-level proxies may have substantial measurement errors. For example, Ali et al. (2009) suggest that proxies only using public firms in Compustat present significant measurement errors when compared to those using both public and private firms in the U.S. Census data.

Several recent studies aim to address these limitations by using state-level trade secret protection laws because such laws are expected to reduce the leakage of proprietary information, thus potentially increasing proprietary costs. For example, Aobdia (2018) uses state-level variation in non-compete agreement enforcement—which is expected to reduce information leakage from employee transfers—to measure proprietary costs of disclosure. His results are consistent with higher enforcement of non-compete agreements increasing the proprietary costs of disclosure.

Li et al. (2018) and Kim et al. (2021) exploit the adoption of the Inevitable Disclosure Doctrine (IDD) by U.S. state courts, which prevents employees who have knowledge of their firm's trade secrets from working for rival firms. The IDD adoption is expected to reduce the likelihood of information leakage from employee turnover, thereby increasing the proprietary costs of disclosure. Consistent with this expectation, Li et al. (2018) show that firms reduce the disclosure of proprietary information (as proxied by customer identity disclosure) following the adoption of the IDD. Consistent with the decreased disclosure of proprietary information after the IDD adoption, Kim et al. (2021) show a reduction in the amount of firm-specific information incorporated into stock prices (as proxied by stock price synchronicity) after the IDD adoption.

Further, Glaeser (2018) uses the staggered adoption of the Uniform Trade Secrets Act (UTSA) as a shock that increases trade secrecy, therefore increasing the proprietary costs of disclosure. His results suggest that firms headquartered in states that adopt the UTSA decrease the

disclosure of proprietary information (as proxied by redactions in 10-K filings) but increase the disclosure of nonproprietary information (as proxied by management earnings forecasts).

Different from the trade secret protection laws increasing proprietary costs, failed M&A deals are expected to affect firms' disclosure incentives through a reduction in proprietary costs. During an M&A transaction, two firms exchange detailed proprietary information. However, M&A deals can fail before closing. In such cases, a firm's proprietary information, which has become known to the counterparty in the deal process, loses some of its value, because the counterparty has the potential to exploit it.[8] The reduced value of the information, in turn, decreases the marginal costs (benefits) of disclosing (withholding) the information, thus increasing the optimal level of disclosing the information. Therefore, I hypothesize that public disclosure of proprietary information increases in the year after firms experience failed M&A deals.

CHAPTER 3. Data and Research Design

3.1. Data, Sample, and Main Variables

I obtain M&A data from the Bloomberg Terminal. The database includes both completed and terminated deals that were publicly announced, along with their respective completion and termination dates. Specifically, completed deals are labeled as "Completed" and terminated deals are labeled as "Terminated" or "Withdrawn" in the database. To examine the effects of failed deals on firm disclosure choices, I use non-hostile deals because firms are not likely to exchange information in hostile deals. Using this dataset, I construct an indicator variable that equals one if the firm is involved in at least one failed M&A deal in a given year. In addition, I also construct

[8] By definition, proprietary information derives economic value from its secrecy. This suggests that whether and to what extent proprietary information is known by others is a key factor in determining the value of that information.

an indicator variable that equals one if the firm is only involved in a completed M&A deal in a given year.

Next, as my main measure of the disclosure of proprietary information, I use firms' propensities to redact confidential portions of material contracts in their 10-K filings. The SEC requires firms to file their material contracts as exhibits in their filings. However, if the contracts contain confidential information, firms can redact such information by submitting confidential treatment requests to the SEC. To collect information on redacted material contracts, I use a text search in the EDGAR database. First, I identify exhibits in 10-K filings that contain mentions of redaction-related words, such as "confidential information", "confidential treatment", "confidential request", "redacted", "redaction", "CT order", "FOIA", "rule 406", or "rule 24b-2" (Glaeser 2018). Next, using the exhibits identified from the EDGAR database, I construct an indicator variable that equals one if the 10K filing includes a redacted exhibit, and zero otherwise (*Redacted 10K*) as an inverse measure of proprietary information disclosure.

I merge the datasets described above with firm-year observations in Compustat, which range from 1998 to 2020.[9] Starting with 194,429 U.S. firm-year observations available in Compustat during the period, I remove utilities firms and financial firms. I also exclude observations that have missing values for necessary variables. The sample selection criteria lead to 74,428 firm-year observations. My tests on the propensity to redact material contracts in the 10-K begin in 2001 because the full text of electronic filings in the EDGAR database is available since 2001, while all other tests begin in 1998.

[9] Since the comprehensive M&A dataset is available from 1998 in the Bloomberg Terminal, my sample starts from 1998. Also, because I use changes in dependent variables from year t to year t+1, my sample ends in 2020 because financial information for 2022 is not available yet.

3.2. Research Design

To test my main hypothesis, I use two types of samples: (i) a pooled sample, which includes all firm-years (i.e., firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals), and (ii) a subsample, which only includes firm-years involved in either failed deals or completed deals. The pooled sample allows me to compare firm-years involved in failed deals with all other firm-years. The subsample allows me to directly compare firm-years involved in failed deals with firm-years involved in completed deals.[10] For the full sample, I estimate the following model:

$$\Delta Redacted\ 10K_{it+1} = \beta_1 Failed\ Deal_{it} + \beta_2 Completed\ Deal_{it} + Controls_{it} + Ind\ FE + Year\ FE + \epsilon_{it+1} \quad (1)$$

I use the change in *Redacted 10K* from year t to year t+1 as my dependent variable. My variable of interest is *Failed Deal,* defined as an indicator variable that equals one if the firm is involved in at least one failed M&A deal in the year, and zero otherwise. Further, to gain insight into the effects of completed deals on proprietary information disclosure, I also include *Completed Deal,* which is an indicator variable that equals one if the firm is only involved in a completed M&A deal in the year, and zero otherwise.

The set of control variables is chosen based on the related disclosure literature (e.g., Ellis et al. 2012; Merkley 2014; Li et al. 2018). I control for firm size, ROA, and leverage. In addition, I control for market-to-book ratio, intangible assets, and advertising expenditure, which can be correlated with proprietary costs of disclosure. To control for firms' level of transparency and compliance, I add an indicator of whether the firm is audited by a big N auditor. To control for information demands and capital market benefits, I add annual abnormal returns, analyst coverage,

[10] The subsample tests can help address potential concerns that unobservable factors in the deal process may have influenced my results. This is because firms are likely to encounter such factors in both completed and failed deals.

and equity issuance. Furthermore, I add industry fixed effects (2-digit SIC) and year fixed effects to control for time-invariant industry-specific characteristics and time-specific characteristics that could bias the estimates. I cluster standard errors by firm and year to correct potential cross-sectional and time-series dependence (Peterson 2009; Gow et al. 2010).

For the subsample which only includes firm-years involved in either failed deals or completed deals, I use the following model:

$$\Delta Redacted\ 10K_{it+1} = \beta_1 Failed\ Deal_{it} + Controls_{it} + Ind\ FE + Year\ FE + \epsilon_{it+1} \quad (2)$$

In this model, *Completed Deal* is omitted because *Failed Deal* and *Completed Deal* are perfectly collinear when using the subsample. I also add industry fixed effects (2-digit SIC) and year fixed effects. The control variables are the same as in Equation (1).

CHAPTER 4. Results

4.1. Summary Statistics and Descriptive Statistics

Table 1, Panel A presents the summary statistics for M&A deals across all countries, extracted from the Bloomberg Terminal Database. This table indicates that between 1998 and 2021, 24,846 M&A deals failed worldwide, representing 5% of all deals, with a total value of $15.1 trillion, equivalent to 22% of all deals. Figure 1 illustrates the changes in the ratio of the number of failed deals to the number of all deals (Panel A) and the ratio of the value of failed deals to the value of all deals (Panel B), based on the information in Table 1, Panel A. Overall, the table and figure demonstrate an increasing trend in the number and value of failed M&A deals for the past two decades.

Table 1, Panel B presents deal failure rates as the ratio of the number of failed deals to the number of all deals, categorized by deal size. The table suggests that large deals are more likely to fail compared to small deals. Specifically, deals valued under $1 billion had a failure rate of 4.7%,

those valued between $1 billion and $5 billion had a failure rate of 16.8%, and those valued over $5 billion had a failure rate of 26.4%.

Table 2 provides the sample distribution and descriptive statistics for the full sample of firm-years used in my tests. Panel A shows the sample distribution by industry. Firm-year observations involved in failed deals are distributed across all industries in my sample, ranging from 45 to 433. Panel B presents the descriptive statistics for all variables. The mean of 0.024 (0.318) for *Failed Deal (Completed Deal)* indicates that 2.4% (31.8%) of firm-year observations experience a failed deal (a completed deal) in my sample. In addition, the mean of 0.238 for *Redacted 10K* indicates that 23.8% of firm-year observations redact at least one exhibit in the 10-K.

4.2. Main Results: The Effects of Failed M&A Deals on Redactions

I estimate Equations (1) and (2) to examine the effects of failed M&A deals on redactions in the 10-K filings. The results are reported in Table 3, Columns 1 (Panel A) and 3 (Panel B). First, Column 1 presents the result from the full sample (Equation (1)). The coefficient on *Failed Deal* is negative and significant at the 1 % level, suggesting that firms are less likely to redact material contracts in the year after they experience failed deals. In terms of economic significance, the likelihood of redaction decreases by 24% (0.058/0.238).[11] I do not expect a similar change in redactions following completed deals. Specifically, deal completion is not likely to affect the value of proprietary information or the cost of disclosing the information because the two parties become a single firm, or one-party gains control of the other. Consistent with this expectation, the coefficient on *Completed Deal* is not significant at conventional levels, as seen in Column 1.

[11] In untabulated analyses, I re-estimate Equation (1) using (i) firm fixed effects and year fixed effects and (ii) firm fixed effects and industry-year fixed effects. The results are all robust when using the alternative sets of fixed effects. I also find that the results obtained from the Bloomberg M&A database and the SDC M&A database are consistent.

Moreover, I conduct the F-test to examine whether the coefficient on *Failed Deal* and *Completed Deal* is significantly different. The F-statistic reported in Column 1 suggests a statistically significant difference between them. In addition, Column 3 presents the result from the subsample including only the firm-years involved in either failed deals or completed deals (Equation (2)). My result continues to hold when using the subsample.

In the following analysis, I examine whether the changes in redactions after failed deals are driven by targets or bidders. During the negotiation and due diligence stages, it is typical for targets to share confidential information for valuation purposes. However, there are also situations where bidders may need to share information during the deal process. For instance, in the case of horizontal mergers or mergers of equals, both parties (i.e., the target and the bidder) commonly exchange information to evaluate potential synergies. Furthermore, the target company may request private information about the bidder or perform due diligence on the bidder to ensure that the bidder is a viable business if part of the transaction consideration includes stocks of the bidder. Even if it is a cash deal, the target may have to obtain additional information to confirm that the bidder has the financial capacity to pay the purchase price, especially when the transaction involves deferred payments.

To examine whether the changes in redactions after failed deals are driven by targets or bidders, I disaggregate *Failed Deal* into two variables: *Failed Deal_Target* and *Failed Deal_Bidder*. *Failed Deal_Target* is an indicator variable that equals one if the firm is involved in a failed deal as a target, and zero otherwise. *Failed Deal_Bidder* is an indicator variable that equals one if the firm is involved in a failed deal as a bidder, and zero otherwise.

I report the results in Table 3, Columns 2 (Panel A) and 4 (Panel B). In both columns, I find that both targets and bidders are less likely to redact material contracts in the 10-K filings in

the year after they experience failed deals. However, consistent with the fact that targets generally share more information than bidders, the economic magnitude is larger for targets than bidders by 81% ((0.078-0.043)/0.043).

4.3. Additional Measure of Proprietary Information Disclosure: The Effects of Failed M&A Deals on Customer Identity Concealment

In this section, I use firms' propensities to conceal the names of their major customer as an additional measure of the disclosure of proprietary information (e.g., Li et al. 2018). This measure is also well suited to operationalizing the construct of proprietary information disclosure because customer-specific information, such as customer lists, is considered to be among the most competitively sensitive trade secrets (e.g., Federal Trade Commission 2018). In particular, revealing the identities of customers may lead a product market rival to approach those customers in an attempt to capture the trading relationships. Furthermore, customer-specific information allows competitors to infer a firm's productive capacity, pricing strategy, and cost structure (e.g., Ellis et al. 2012).

The SEC requires public firms to report the existence of and sales to any customer that represents 10% or more of firm sales (i.e., major customers). However, there is great variation in reporting practices regarding customer names when firms report them (e.g., Li et al. 2018). Moreover, penalties for noncompliance with customer reporting requirements are rare, thus making customer name disclosure largely voluntary (Ellis et al. 2012).

Compustat records such customer-related disclosures from firms' filings. If a customer's name is not revealed in the customer reporting, it is stated as "Not Reported" in the Compustat Customer Segment File. Using this dataset, I construct a firm-year level indicator variable that equals one if the firm conceals customer identity information for at least one reported customer in

the year, and zero otherwise (*Unidentified Customer*), which is also an inverse measure of proprietary information disclosure. My tests on the propensity to conceal customer identities in customer reporting exclude observations without customer reporting, leading to a reduction in the sample size.

I estimate Equations (1) and (2) using the changes in *Unidentified Customer* from year t to year t+1 as dependent variables. Consistent with the results from redactions, the coefficients on *Failed Deal* in Table 4 are all negative and significant at conventional levels. These results suggest that firms are less likely to conceal customer identities in the year after they experience failed deals. Additionally, in Panel A, the coefficient on *Completed Deal* suggests no significant changes in the likelihood of concealing customer identities after firms experience completed deals, and the F-statistic shows that the coefficients on *Failed Deal* and *Completed Deal* are significantly different.

4.4. Dynamic Analysis

Next, I conduct a dynamic analysis using the equation modified based on equation (1): Δ*Redacted 10K (*Δ*Unidentified Customer)* = β1*Failed Deal* $_{-1}$ + β2*Failed Deal* + β3*Failed Deal* $_{+1}$ + β4*Failed Deal* $_{+2}$ + Controls + Fixed effects. *Failed Deal* $_{-1}$ is an indicator variable that equals one if the firm will be involved in a failed deal in one year, and zero otherwise. *Failed Deal* $_{+1}$ is an indicator variable that equals one if the firm was involved in a failed deal one year ago, and zero otherwise. *Failed Deal* $_{+2}$ is an indicator variable that equals one if the firm was involved in a failed deal two years ago, and zero otherwise.

In Figure 2, I plot the coefficient estimates and standard errors obtained from the model. The coefficient plots suggest that my main results are not driven by preexisting disclosure trends between firms involved in failed deals and other firms. Specifically, firms increase redactions and

do not change customer identity concealment in year t-1 and year t before they significantly reduce redactions and customer identity concealment in year t+1.

It is worth noting that in year t+2, there are significant increases in redactions and customer identity concealment, which partially or fully offset the decreases observed in year t+1. Specifically, the coefficients on *Failed Deal* $_{+1}$ and *Failed Deal* $_{+2}$ are -0.048 and 0.024 for redactions, and -0.020 and 0.021 for customer identity concealment. Overall, these results indicate that firms tend to revert to their previous levels of disclosure after disclosing proprietary information that was exchanged during failed deals. While prior research suggests that disclosure policies are generally sticky over time (e.g., Bushee et al. 2004), disclosure policies for proprietary information seem very sensitive to changes in its value.

4.5. Quasi-natural Experiment

As a quasi-natural experiment setting to further strengthen identification, I use a recent regulatory event that generates a plausibly exogenous variation in the level of proprietary information exchange during M&A deals. In March 2018, the U.S. Federal Trade Commission (FTC) announced new guidance suggesting that sharing competitively sensitive information during M&A deals can constitute an antitrust violation because such information-sharing has the potential to harm competition. The FTC also indicates that, under Section 1 of the Sherman Act and the HSR Act (related antitrust laws), the discovery of unnecessary information exchanges during M&A deals can lead to enforcement actions.[12]

This setting has several advantages. First, the announcement of the FTC guidelines is unlikely to have a significant impact on proprietary information exchanges during foreign deals (i.e., deals between a U.S. firm and a foreign firm) because transactions with foreign firms are

[12] See https://www.ftc.gov/news-events/blogs/competition-matters/2018/03/avoiding-antitrust-pitfalls-during-pre-merger

often excluded from U.S. antitrust laws. For example, the Foreign Trade Antitrust Improvements Act ("FTAIA") serves to limit the reach of U.S. antitrust laws with respect to certain anticompetitive conduct occurring overseas, such as international mergers and acquisitions (e.g., Giudice 2015; Donovan 2020). Therefore, I can implement a difference-in-differences design using firm-years involved in failed deals between U.S. firms as the treatment group and firm-years involved in failed deals between a U.S. firm and a foreign firm as the control group.

Second, the FTC provides very clear guidelines that deter firms from exchanging proprietary information during deals; for example, they advise firms to "mask customer identities and aggregate all competitive information" and "redact documents and information to shield customer identities and other information" in the deal process Therefore, the announcement of the FTC guidelines can serve as an effective shock in my tests that focus on proprietary information.

If a firm does not exchange proprietary information with its counterparty during an M&A deal due to the FTC's guidelines, the value of such information (i.e., the costs of disclosing it) may not change even if the deal fails. Therefore, after the announcement of the FTC guidelines, deal failure is less likely to increase the public disclosure of proprietary information. To test this prediction, I implement a difference-in-differences design using the following model:

$$\Delta Redacted\ 10K\ (\Delta Unidentified\ Customer)_{it+1} = \beta_1 Post \times US\ Counterparty_{it} + \beta_2 US\ Counterparty_{it} + Controls_{it} + Ind\ FE + Year\ FE + \epsilon_{it+1} \quad (3)$$

In this test, I use a sample of firm-years involved in failed deals. *Post* is an indicator variable that equals one if the failed deal occurs in or after 2018 (in which the FTC announces the guidelines), and zero otherwise. *Post* is subsumed by year fixed effects. Firm-years involved in failed deals with U.S. counterparties are assigned to the treatment group, and firm-years involved in failed deals with foreign counterparties are assigned to the control group. Specifically, the treatment variable *US counterparty* is defined as an indicator variable that equals one if the firm's

counterparty in the failed deal is a U.S. firm, and zero otherwise. The control variables are the same as in equations (1) and (2). When using the sample of firm-years involved in failed deals, I cluster standard errors by industry and year instead of firm and year because time-series dependence (i.e., correlation across years for a given firm) is not likely to be a concern. I expect that the decreases in redactions and customer identity concealment (i.e., the increase in the disclosure of proprietary information) are mitigated for the treatment group relative to the control group following the announcement of the FTC guidelines. Based on this prediction, I expect β_1, my variable of interest, to be positive.

Table 5 presents the results from estimating Equation (3). Consistent with my expectation, the coefficients on *Post* × *US counterparty* are positive and significant at conventional levels in all columns. Specifically, these results suggest that the decreases in redactions in the 10-K and customer identity concealment in the segment reporting after failed deals are mitigated for the treatment group relative to the control group following the announcement of the FTC guidance. These results reinforce my argument that increases in the disclosure of proprietary information after failed deals result from the exchange of such information during the deals.

4.6. Cross-sectional Variation in the Effects of Failed M&A Deals

Using several deal-related factors, I further explore potential cross-sectional variations in the effects of failed deals on proprietary information disclosure. First, I compare failed deals between firms in the same product market with failed deals between firms in different product markets. The increase in proprietary information disclosure is likely to be more pronounced when the reductions in the value of proprietary information (i.e., the cost of disclosing it) following failed deals are likely to be larger. In particular, if the counterparty is a peer in the same product market, a firm's proprietary information is more likely to be exploited following deal failure (i.e., larger

reductions in the value of proprietary information and the cost of disclosing it). Thus, I predict that the increase in proprietary information disclosure is more pronounced when counterparties are product market peers. To test this prediction, I use a sample of firm-years involved in failed deals, and estimate the following model:

$$\Delta Redacted\ 10K\ (\Delta Unidentified\ Customer)_{it+1} = \beta_1 Ind\ Peer\ Counterpary_{it} + Controls_{it} + Ind\ FE + Year\ FE + \epsilon_{it+1} \quad (4)$$

Ind Peer Counterparty is an indicator variable that equals one if the counterparty in the failed deal is a product market peer operating in the same industry (four digit SIC), and zero otherwise. The control variables are the same as in equations (1), (2), and (3). I expect β_1 to be negative.

In Table 6, Columns 1 and 2, I provide evidence consistent with my expectation. Specifically, the significantly negative coefficients on *Ind Peer Counterparty* in both columns suggest that the reductions in the likelihood of redactions and customer concealment after failed deals are more pronounced when counterparties in failed deals are product market peers.[13]

Second, I compare non-hostile failed deals with hostile failed deals. Firms are not likely to exchange information during hostile deals, and thus I expect that the effects of failed deals on firms' disclosures of proprietary information are concentrated among non-hostile failed deals.

As I focus only on non-hostile deals in other tests, I add firm-years involved in hostile failed deals (88 firm-years involved in hostile failed deals for the redaction analysis and 48 firm-years involved in hostile failed deals for the customer concealment analysis) in this test. Next, I replace *Ind Peer Counterparty* with *Hostile Failed Deal* in equation (4). *Hostile Failed Deal* is

[13] Besides product market competition, I also anticipate that failed deals would have a more significant impact when the two parties are in technological competition because reductions in the value of proprietary information after failed deals are also likely to be large in such cases. To measure technological competition between two parties, I create an interaction term between *Ind Peer Counterparty* and *Ind Level Innovation*, which is defined as the natural logarithm of the average number of patents issued across firms in the industry in a given year. My results show a significantly negative coefficient on *Ind Peer Counterparty* × *Ind Level Innovation* for redactions, suggesting the likelihood of redactions after failed deals decreases to a greater extent when there is a higher level of technological competition between the two parties.

defined as an indicator variable that equals one if the firm is involved in a hostile failed deal in the year, and zero otherwise. I expect β_1 to be positive.

The results are reported in Table 6, Columns 3 and 4. Consistent with my expectation, the coefficient on *Hostile Failed Deal* is positive and significant in Column 4. While still positive, the coefficient on *Hostile Failed Deal* is not statistically significant in Column 3, which might be partly due to a very small number of firm-years involved in hostile failed deals in the sample.

Third, investors' information demands after failed M&A deals may also contribute to the increase in the disclosure of proprietary information. Specifically, investors may demand more information after a failed deal because they may be concerned about potential issues related to the deal failure. If this is the case, firms' incentives to cater to the increased investor demand are likely to be stronger when there is greater information uncertainty or when investors' reactions to deal failure are negative. Thus, I expect that the increase in the disclosure of proprietary information after failed deals are more pronounced for firms experiencing more volatile stock returns or negative stock returns following failed deals.

To test this prediction, I replace *Ind Peer Counterparty* with *Ret Vol After Fail* or *Neg Ret After Fail* in equation (4). *Ret Vol After Fail* is defined as the standard deviation of monthly market-adjusted returns for the six months after the failed deal. *Neg Ret After Fail* is defined as an indicator variable that equals one if the cumulative market-adjusted stock return for the six months after the failed deal is negative, and zero otherwise. I expect β_1 to be negative.

I report the results in Table 6, Columns 5, 6, 7, and 8. Consistent with my prediction, the coefficients on *Ret Vol After Fail* and the coefficients on *Neg Ret After Fail* are overall negative and significant, except for Column 7. These results suggest that the reductions in the likelihood of redactions and customer concealment after failed deals are more pronounced for firms

experiencing more volatile stock returns or negative stock returns following failed deals. Overall, not only reductions in proprietary costs but also increases in investor demand appear to contribute to the increases in the disclosure of proprietary information after failed deals.

4.7. The Effects of Failed M&A Deals on Management Earnings Forecasts

I also examine the effects of failed M&A deals on management earnings forecasts. Management earnings forecasts only provide a summary measure that aggregates all the determinants of firms' future performance (e.g., Heinle et al. 2022). Thus, they are expected to contain significantly less proprietary information, relative to other types of disclosures, such as material contracts and customer lists, which provide more granular information that is readily exploitable by competitors.[14]

I construct two measures using management earnings forecasts, *Earnings Guider* and *# Earnings Guide. Earnings Guider* is an indicator variable that equals one if the firm's management issues at least one annual earnings forecast in the year, and zero otherwise. *# Earnings Guide* is defined as the natural logarithm of the number of annual earnings forecasts issued by the firm's management in the year.

I estimate equations (1) and (2) using changes in those management earnings forecasts variables from year t to year t+1 as dependent variables. The results are reported in Table 7. The coefficients on *Failed Deal* are not significant at conventional levels in all columns, suggesting

[14] Management earnings forecasts may also provide competitively sensitive information that can be valuable to product market competitors, such as future performance and market demand (e.g., Bamber and Cheon 1998; Li 2010; Ali et al. 2014; Huang et al. 2017). However, it might be difficult for competitors to infer granular proprietary information, which is much more useful for them, from management earnings forecasts, because management earnings forecasts aggregate all the determinants of firms' future performance (e.g., Lang and Sul, 2014; Glaeser 2018; Park et al. 2019; Heinle et al. 2022; Kim et al. 2021). Therefore, prior studies often use management earnings forecasts as a proxy for the disclosure of nonproprietary information.

that the effects of failed M&A deals on firms' disclosure decisions are concentrated in disclosures of more specific and granular proprietary information (e.g., material contracts and customer lists).

However, the coefficients on *Completed Deal* in Panel A are significantly positive, suggesting that firms increase management earnings forecasts after deal completion. These results are consistent with post-M&A investor pressure (e.g., Bens et al. 2012). Collectively, while firms increase the disclosure of proprietary information after failed deals, they increase the disclosure of nonproprietary information after completed deals.

4.8. The Effects of Failed M&A Deals on Information Asymmetry

Prior work suggests that disclosures of proprietary information reduce information asymmetry more effectively compared to other types of disclosures (e.g., disclosures of nonproprietary information) by providing more firm-specific information (e.g., Kim et al. 2021). To explore whether and how increased disclosure of proprietary information following deal failure affects information asymmetry between the firm and its investors, I examine changes in return volatility and analyst forecast errors after failed deals (e.g., Glaeser 2018; Huang et al. 2021). Return volatility is defined as the standard deviation of monthly market-adjusted returns in the year, and analyst forecast error is the absolute value of the difference between the median consensus forecast and actual earnings, scaled by the absolute value of the median consensus forecast.

I estimate equations (1) and (2) using the change in return volatility from year t to year t+1 ($\Delta Ret\ Vol_{t+1}$) and the change in analyst forecast errors from year t to year t+1 ($\Delta Analyst\ Error_{t+1}$) as dependent variables. Results are reported in Table 8. The coefficients on *Failed Deal* are negative and significant in all columns. The results suggest that return volatility and analyst forecast errors significantly decline following failed deals, consistent with the notion that increased

disclosure of proprietary information effectively reduces information asymmetry in the capital market.

4.9. Additional Untabulated Analysis: Examining Mechanisms of the Effects of Failed M&A Deals on Bidders

Table 3 suggests that both targets and bidders increase their disclosure of proprietary information following failed deals, although the effects are stronger for targets. In this section, I examine whether the effects on bidders are more pronounced in situations where they are likely to share proprietary information during the deal process, such as in horizontal merger deals and stock deals.

First, I examine whether the effects of failed deals on bidders' proprietary information disclosure are stronger for deals between firms in the same industry (i.e., horizontal mergers). It is common for both parties to exchange proprietary information to accurately assess potential synergies during horizontal mergers. For instance, during the deal between Staples and Office Depot, a significant amount of trade secrets were exchanged. Following the collapse of the deal, the CEO of Staples stated in an interview with the *Wall Street Journal* that "because we're in such a competitive business, going to school with our biggest and strongest competitor was a terrific learning experience" (MacDonald and Lublin, 1998).

To test this prediction, I estimate the equation below using a sample that includes firm-years involved in completed deals and firm-years involved in failed deals as bidders. This sample allows me to compare firm-years involved in failed deals as bidders with firm-years involved in completed deals. Since horizontal mergers mean mergers between firms operating in the same industry, I use *Ind Peer Counterparty*, which is an indicator variable that equals one if the

counterparty in the failed deal is a product market peer operating in the same industry. I expect β_3 to be negative.

$$\Delta Redacted\ 10K\ (\Delta Unidentified\ Customer)_{it+1} = \beta_1 Failed\ Deal\_Bidder_{it} + \beta_2 Ind\ Peer\ Counterparty_{it} + \beta_3 Failed\ Deal\_Bidder_{it} \times Ind\ Peer\ Counterparty_{it} + Controls_{it} + Ind\ FE + Year\ FE + \epsilon_{it+1} \quad (5)$$

Second, I examine whether the effects of failed deals on bidders' proprietary information disclosure are stronger for stock deals. In the case of stock deals, the target needs to assess the bidder's stock price. For example, Golubov et al. (2013) state that "target firm shareholder wealth in stock swap transactions depends on the value of the bidder's shares, while the bidder has the incentives to inflate its stock price. This motivates the target to carry out a due diligence investigation that will certify the bidder's value."

To test this prediction, I estimate Equation (5) by replacing *Ind Peer Counterparty* with *All Stock Deal*, which is an indicator variable that equals one if the payment is made entirely with stocks, and zero otherwise. For these tests, I only utilize deals with information about the payment type. I also expect β_3 to be negative.

I find results consistent with my expectations. Specifically, the coefficients on *Failed Deal_Bidder* × *Ind Peer Counterparty* are negative and significant for both redactions and customer identity concealment. The coefficient on *Failed Deal_Bidder* × *All Stock Deal* is also negative and significant for customer concealment while that is not significant for redactions. Overall, these results suggest that the effects of failed M&A deals on bidders' propensities to redact material contracts and conceal customer identities are stronger when horizontal merger deals or stock deals fail.

CHAPTER 5. Conclusion

During an M&A transaction, two firms exchange detailed business-related information, including proprietary information. However, a number of M&A deals fail before closing. In such cases, a firm's proprietary information— shared with the counterparty in the deal process—will lose some of its value because it can be exploited by the counterparty. The reduced value of the information then leads to a reduction in the marginal costs (benefits) of disclosing (withholding) the information. In turn, the optimal level of disclosing the information is expected to increase.

Consistent with my prediction, I find increased public disclosure of proprietary information after firms experience failed deals. I strengthen my argument through a quasi-natural experiment based on the Federal Trade Commission's guidance, which constrains the exchange of proprietary information during M&A deals. I also show that investor information demands contribute to this effect. Finally, consistent with the increased disclosure of proprietary information, I find decreases in information asymmetry between firms and their investors after failed deals.

An M&A transaction is one of the most sizable business transactions, and it is therefore of great interest to capital market participants. Prior research has broadly examined voluntary disclosure around completed M&A deals, but little is known about whether and how M&A deal failure affects it although the size and number of failed deals is not trivial. My research contributes to the M&A and disclosure literature by shedding light on the effects of failed M&A deals on firm disclosure decisions and capital markets.

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Appendix A. Variable definitions

Variable	Description
Failed Deal	An indicator variable that equals one if the firm is involved in at least one failed M&A deal in the year, and zero otherwise.
Failed Deal_Target	An indicator variable that equals one if the firm is involved in a failed deal as a target, and zero otherwise.
Failed Deal_Bidder	An indicator variable that equals one if the firm is involved in a failed deal as a bidder, and zero otherwise.
Completed Deal	An indicator variable that equals one if the firm is only involved in a completed deal in the year, and zero otherwise.
Redacted 10K	An indicator variable that equals one if the 10-K filing includes at least one redacted exhibit, and zero otherwise.
Unidentified Customer	An indicator variable that equals one if the firm conceals customer identity information for at least one reported customer in the year, and zero otherwise.
Earnings Guider	An indicator variable that equals one if the firm's management issues at least one annual earnings forecast in the year, and zero otherwise.
# Earnings Guide	The natural logarithm of the number of annual earnings forecasts issued by the firm's management in the year.
Ret Vol	The standard deviation of monthly market-adjusted returns in the year.
Analyst Error	The absolute value of the difference between the median consensus forecast and actual EPS, scaled by the absolute value of the median consensus forecast.
Firm Size	Firm size measured as the natural logarithm of the total asset at the end of the year.
ROA	The ratio of net income to total assets in the year.
Leverage	The ratio of total debt to total assets at the end of the year.
MTB	The ratio of market value of equity to book value of equity at the end of the year.
Intangible	The ratio of intangible assets to total assets at the end of the year.
Advertising	The ratio of advertising expenses to sales in the year.
Big N	An indicator variable that equals one if the firm is audited by a big N auditor in the year, and zero otherwise.
Ann Ret	Yearly market-adjusted stock return in the year.

# Analysts	The natural logarithm of the number of analysts following the firm in the year.
Equity Issue	The ratio of net equity issuance to total assets in the year.
Ind Peer Counterparty	An indicator variable that equals one if the counterparty in the failed deal is a product market peer operating in the same industry (four digit SIC), and zero otherwise.
Ret Vol After Fail	The standard deviation of monthly market-adjusted returns for the six months after the failed deal.
Neg Ret After Fail	An indicator variable that equals one if the cumulative market-adjusted return for the six months after the failed deal is negative, and zero otherwise.
US Counterparty	An indicator variable that equals one if the counterparty in the failed deal is a U.S. firm, and zero otherwise.
Post	An indicator variable that equals one if the failed deal occurs in or after 2018 (in which the FTC announces the guidelines regarding information exchanges during M&A deals), and zero otherwise.
Hostile Failed Deal	An indicator variable that equals one if the firm is involved in a hostile failed deal in the year, and zero otherwise.
All Stock Deal	An indicator variable that equals one if the payment is made entirely with stocks, and zero otherwise

Appendix B. Example of variation in redactions following failed deals

This appendix provides an example of variation in redactions around deal failure using International Paper Company, which experienced a failed deal in 2018. (1) shows the company's 10-K filing in 2018. There are 8 exhibits filed in the 10-K filing in that year, and the company redacted EX-10.27 as shown in (2). Lastly, (3) shows the company's 10-K filing in 2019 with 15 exhibits filed together. Different from 2018, the company did not redact any of the exhibits in 2019.

(1) 10-K filing for 2018

Filing Date
2019-02-20
Accepted
2019-02-20 16:24:56
Documents
174

Period of Report
2018-12-31

Interactive Data

Document Format Files

Seq	Description	Document	Type
1	10-K	a10-k123118.htm	10-K
2	EXHIBIT 10.27	ip-20181231exhibit1027.htm	EX-10.27
3	EXHIBIT 21	ip-20181231exhibit21.htm	EX-21
4	EXHIBIT 23.1	ip-20181231exhibit231.htm	EX-23.1
5	EXHIBIT 23.2	ip-20181231exhibit232.htm	EX-23.2
6	EXHIBIT 31.1	ip-20181231exhibit311.htm	EX-31.1
7	EXHIBIT 31.2	ip-20181231exhibit312.htm	EX-31.2
8	EXHIBIT 32	ip-20181231exhibit32.htm	EX-32
9	EXHIBIT 99.1	ip-20181231exhibit991ilimfs.htm	EX-99.1

(2) Redacted exhibit in 2018

EX-10.27 2 ip-20181231exhibit1027.htm EXHIBIT 10.27

Exhibit 10.27

EXECUTION VERSION

THE USE OF THE FOLLOWING NOTATION IN THIS EXHIBIT INDICATES THAT THE CONFIDENTIAL PORTION HAS BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT AND THE OMITTED MATERIAL HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION: [***]

COMMITMENT AGREEMENT

September 25, 2018 (the "Commitment Agreement Date")

The Prudential Insurance Company of America ("Prudential") is pleased to provide, on the following terms, the non-participating single premium group annuity contract, supported by a dedicated separate account and guaranteed by its general account (the "Contract") for the Retirement Plan of International Paper Company (the "Plan") in consideration of the mutual promises made and representations, warranties and covenants contained in this Commitment Agreement (this "Commitment Agreement"). For purposes of this Commitment Agreement, capitalized terms will have the meaning set forth in paragraph 10. By signing this Commitment Agreement, Prudential and International Paper Company (the "Company"), and State Street Global Advisors Trust Company, acting solely in its capacity as the independent fiduciary of the Plan (the "Independent Fiduciary"), agree as follows:

(3) 10-K filing for 2019

Filing Date
2020-02-19
Accepted
2020-02-19 14:44:30
Documents
184

Period of Report
2019-12-31

Interactive Data

Document Format Files

Seq	Description	Document	Type
1	10-K	a10-k123119.htm iXBRL	10-K
2	EXHIBIT 4.13	ip-20191231exhibit413.htm	EX-4.13
3	EXHIBIT 10.8	ip-20191231exhibit108.htm	EX-10.8
4	EXHIBIT 10.9	ip-20191231exhibit109.htm	EX-10.9
5	EXHIBIT 10.10	ip-20191231exhibit1010.htm	EX-10.10
6	EXHIBIT 10.11	ip-20191231exhibit1011.htm	EX-10.11
7	EXHIBIT 10.12	ip-20191231exhibit1012.htm	EX-10.12
8	EXHIBIT 10.20	ip-20191231exhibit1020.htm	EX-10.20
9	EXHIBIT 10.21	ip-20191231exhibit1021.htm	EX-10.21
10	EXHIBIT 21	ip-20191231exhibit21.htm	EX-21
11	EXHIBIT 23.1	ip-20191231exhibit231.htm	EX-23.1
12	EXHIBIT 23.2	ip-20191231exhibit232.htm	EX-23.2
13	EXHIBIT 31.1	ip-20191231exhibit311.htm	EX-31.1
14	EXHIBIT 31.2	ip-20191231exhibit312.htm	EX-31.2
15	EXHIBIT 32	ip-20191231exhibit32.htm	EX-32
16	EXHIBIT 99.1	ip20191231exhibit991.htm	EX-99.1

Figure 1. Failed M&A deals over time

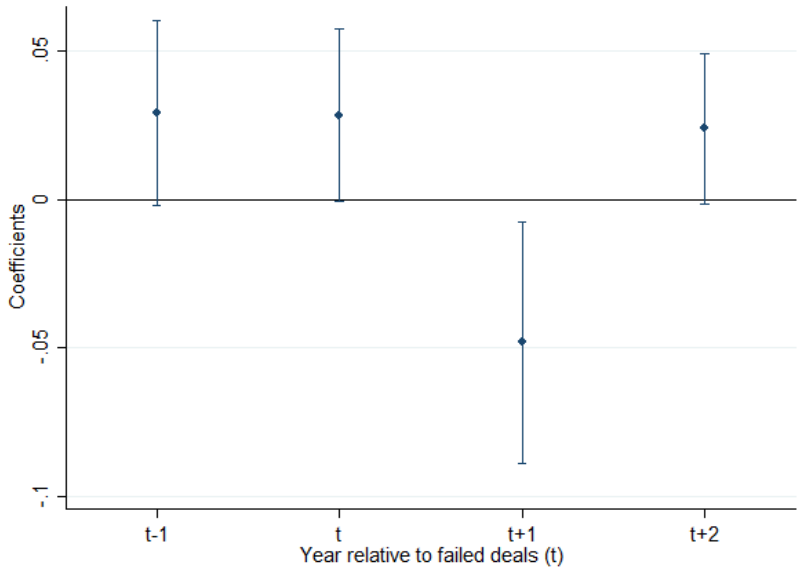
Panel A. The ratio of the number of failed deals to the number of all deals over time

Panel B. The ratio of the value of failed deals to the value of all deals over time

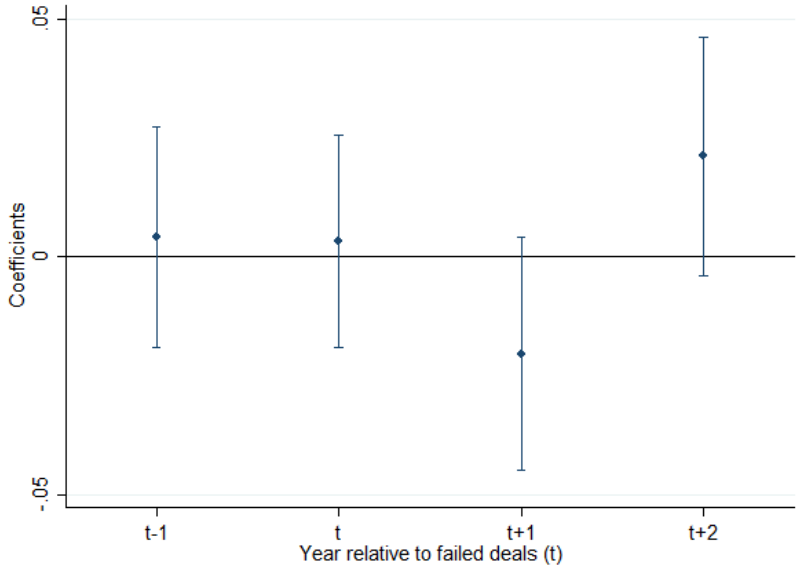
This figure plots the ratio of the number of failed deals to the number of all deals (Panel A) and the ratio of the value of failed deals to the value of all deals (Panel B) in all countries from 1998 to 2021. Data on M&A deals are obtained from Bloomberg.

Figure 2. Coefficient plots

Panel A. Redacted 10K



Panel B. Unidentified Customer



This figure presents coefficient estimates and standard errors obtained from the following OLS regressions: Δ*Redacted 10K* (Δ*Unidentified Customer*) = β1*Failed Deal* $_{-1}$ + β2*Failed Deal* + β3*Failed Deal* $_{+1}$ + β4*Failed Deal* $_{+2}$ + Controls + Fixed Effects.

Table 1. Summary of failed M&A deals
Panel A. Completed or failed M&A deals in all countries by year

Year	Number of deals				Value of deals (in trillion)			
	Completed Deals	%	Failed Deals	%	Completed Deals	%	Failed Deals	%
1998	14447	96%	646	4%	2.1	93%	0.2	7%
1999	16656	95%	872	5%	2.6	76%	0.8	24%
2000	21959	95%	1236	5%	2.7	88%	0.4	12%
2001	18786	95%	996	5%	1.4	86%	0.2	14%
2002	16082	96%	754	4%	1.0	93%	0.1	7%
2003	16492	96%	640	4%	1.1	87%	0.2	13%
2004	18789	97%	651	3%	1.7	90%	0.2	10%
2005	21302	97%	582	3%	2.3	90%	0.3	10%
2006	24395	97%	700	3%	3.1	83%	0.6	17%
2007	27725	97%	907	3%	3.4	82%	0.8	18%
2008	22088	96%	959	4%	1.9	79%	0.5	21%
2009	17418	96%	708	4%	1.4	91%	0.1	9%
2010	20222	97%	567	3%	1.8	85%	0.3	15%
2011	20623	98%	397	2%	1.9	89%	0.2	11%
2012	19927	98%	385	2%	1.8	91%	0.2	9%
2013	20209	97%	521	3%	1.9	87%	0.3	13%
2014	21059	93%	1472	7%	2.7	72%	1.1	28%
2015	22435	92%	2028	8%	3.3	67%	1.6	33%
2016	23930	92%	1991	8%	2.8	69%	1.3	31%
2017	25078	93%	1771	7%	2.6	58%	1.9	42%
2018	24704	93%	1841	7%	2.9	70%	1.2	30%
2019	23394	94%	1524	6%	2.8	72%	1.1	28%
2020	20409	96%	788	4%	2.2	75%	0.7	25%
2021	28611	94%	1910	6%	3.2	77%	1.0	23%
	506740	95%	24846	5%	54.6	78%	15.1	22%

Panel B. M&A deal failure rate (the ratio of the number of failed deals to the number of all deals): By deal size

Deal Size	Failure Rate
Under 1 billion	4.7%
Between 1 billion and 5 billion	16.8%
Over 5 billion	26.4%
Undisclosed deal value	3.9%

This table presents summary statistics for failed M&A deals that occurred in all countries from 1998 to 2021. Panel A summarizes the number and the value of completed deals and failed deals. Panel B displays M&A deal failure rates by deal size. Data on M&A deals are obtained from Bloomberg.

Table 2. Sample industry distribution and descriptive statistics

Panel A. Sample distribution by industry

Industry Group	# All Firm-years	# Firm-years Involved in Completed deals	% Firm-years Involved in Completed deals	# Firm-years Involved in Failed deals	% Firm-years Involved in Failed deals
Business Equipment	17,981	6,652	37.0%	433	2.4%
Chemicals	2,125	722	34.0%	57	2.7%
Consumer Durables	2,240	642	28.7%	45	2.0%
Consumer Non-Durables	4,558	1,419	31.1%	116	2.5%
Energy	3,786	1,257	33.2%	96	2.5%
Healthcare	12,038	2,666	22.1%	205	1.7%
Manufacturing	9,094	3,151	34.6%	194	2.1%
Telecommunications	2,372	865	36.5%	109	4.6%
Wholesales and Retails	9,320	2,713	29.1%	248	2.7%
Other	10,914	3,564	32.7%	303	2.8%
Total	74,428	23,651	31.8%	1,806	2.4%

Panel B. Descriptive statistics

VARIABLES	N	Mean	SD	p25	Median	p75
Failed Deal	74428	0.024	0.154	0.000	0.000	0.000
Completed Deal	74428	0.318	0.466	0.000	0.000	1.000
Redacted 10K	60545	0.238	0.426	0.000	0.000	0.000
Unidentified Customer	33459	0.663	0.473	0.000	1.000	1.000
Earnings Guider	74428	0.247	0.431	0.000	0.000	0.000
# Earnings Guide	74428	0.359	0.673	0.000	0.000	0.000
Ret Vol	72930	0.150	0.101	0.081	0.122	0.185
Analyst Error	50059	0.573	1.707	0.034	0.105	0.329
Firm Size	74428	5.850	2.073	4.293	5.781	7.308
ROA	74428	-0.091	0.345	-0.095	0.022	0.069
Leverage	74428	0.228	0.232	0.014	0.179	0.358
MTB	74428	3.127	5.831	1.116	2.020	3.735
Intangible	74428	0.162	0.196	0.000	0.078	0.266
Advertising	74428	0.012	0.032	0.000	0.000	0.008
Big N	74428	0.763	0.425	1.000	1.000	1.000
Ann Ret	74428	0.049	0.620	-0.272	0.022	0.323
# Analysts	74428	1.589	1.085	0.693	1.792	2.485
Equity Issue	74428	0.053	0.196	-0.005	0.001	0.015

This table presents the sample distribution by industry (Panel A) and descriptive statistics (Panel B) for the full sample used in my tests. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%.

Table 3. The effects of failed M&A deals on redactions

	Panel A. Pooled Sample		**Panel B. Failed Deal vs Completed Deal**	
VARIABLES	(1) ΔRedacted 10K $_{t+1}$	(2) ΔRedacted 10K $_{t+1}$	(3) ΔRedacted 10K $_{t+1}$	(4) ΔRedacted 10K $_{t+1}$
Failed Deal	**-0.058*** **		**-0.060*** **	
	(-3.27)		**(-3.17)**	
Failed Deal_Target		**-0.078*** **		**-0.082*** **
		(-3.01)		**(-3.19)**
Failed Deal_Bidder		**-0.043***		**-0.043***
		(-1.83)		**(-1.73)**
Completed Deal	0.000	0.000		
	(0.05)	(0.08)		
Firm Size	0.005***	0.005***	0.005*	0.005*
	(3.45)	(3.44)	(1.90)	(1.81)
ROA	0.002	0.002	0.003	0.003
	(1.33)	(1.35)	(1.10)	(1.14)
Leverage	-0.041***	-0.041***	-0.054***	-0.053***
	(-4.12)	(-4.07)	(-3.83)	(-3.69)
MTB	0.001	0.001	-0.000	-0.000
	(1.48)	(1.47)	(-0.46)	(-0.49)
Intangible	-0.009	-0.009	-0.020	-0.021
	(-1.08)	(-1.07)	(-1.41)	(-1.45)
Advertising	-0.037	-0.036	-0.280**	-0.278**
	(-0.84)	(-0.83)	(-2.41)	(-2.39)
Big N	-0.014***	-0.014***	-0.015	-0.014
	(-3.51)	(-3.41)	(-1.45)	(-1.39)
Ann Ret	0.003	0.003	-0.002	-0.001
	(0.63)	(0.64)	(-0.19)	(-0.16)
# Analysts	-0.003	-0.003	0.002	0.002
	(-0.91)	(-0.91)	(0.25)	(0.26)
Equity Issue	0.016	0.016	0.002	0.000
	(1.26)	(1.25)	(0.05)	(0.01)
F-stat: *Failed Deal* vs *Completed Deal*	9.05***			
Observations	60,545	60,545	20,286	20,286
Fixed Effects	Ind, Year	Ind, Year	Ind, Year	Ind, Year
R-squared	0.011	0.011	0.013	0.013

The table presents results from models that test the effects of failed M&A deals on proprietary information disclosure (redactions). In Panel A, the sample includes all firm-years, including firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals. In Panel B, the sample only includes firm-years involved in either failed deals or completed deals. In both panels, the dependent variable is *Redacted 10K* in year t+1 minus *Redacted 10K* in year t. *Failed Deal* is an indicator

variable that equals one if the firm is involved in at least one failed deal in the year, and zero otherwise. *Failed Deal_Target* is an indicator variable that equals one if the firm is involved in a failed deal as a target, and zero otherwise. *Failed Deal_Bidder* is an indicator variable that equals one if the firm is involved in a failed deal as a bidder, and zero otherwise. *Completed Deal* is an indicator variable that equals one if the firm is only involved in a completed deal in the year, and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by firm and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.

Table 4. Alternative measure of proprietary information disclosure

VARIABLES	**Panel A. Pooled Sample** (1) Δ*Unidentified Customer* $_{t+1}$	**Panel B. Failed Deal vs Completed Deal** (2) Δ*Unidentified Customer* $_{t+1}$
Failed Deal	**-0.024****	**-0.020****
	(-2.31)	**(-2.17)**
Completed Deal	-0.003	
	(-0.69)	
F-stat: *Failed Deal* vs *Completed Deal*	5.37**	
Observations	33,459	11,103
Controls	Yes	Yes
Fixed Effects	Ind, Year	Ind, Year
R-squared	0.003	0.007

The table presents results from models that test the effects of failed M&A deals on proprietary information disclosure using an alternative measure (customer name concealment). In Panel A, the sample includes all firm-years, including firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals. In Panel B, the sample only includes firm-years involved in either failed deals or completed deals. In both panels, the dependent variable is *Unidentified Customer* in year t+1 minus *Unidentified Customer* in year t. *Failed Deal* is an indicator variable that equals one if the firm is involved in at least one failed deal in the year, and zero otherwise. *Completed Deal* is an indicator variable that equals one if the firm is only involved in a completed deal in the year, and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by firm and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.

Table 5. Quasi-natural experiment

VARIABLES	(1) Δ*Redacted 10K* $_{t+1}$	(2) Δ*Unidentified Customer* $_{t+1}$
Post* × *US Counterparty	**0.141***** **(3.04)**	**0.084**** **(2.26)**
US Counterparty	-0.062 (-1.23)	-0.005 (-0.17)
Observations	1,373	701
Controls	Yes	Yes
Fixed Effects	Ind, Year	Ind, Year
R-squared	0.070	0.114

The table presents results from the model that examines whether the effects of failed M&A deals on proprietary information disclosure are mitigated by the FTC guidelines. In all columns, a sample of firm-years involved in failed deals is used. The dependent variables are *Redacted 10K* in year t+1 minus *Redacted 10K* in year t in Column 1, and *Unidentified Customer* in year t+1 minus *Unidentified Customer* in year t in Column 2. *US Counterparty* is an indicator variable that equals one if the counterparty in the failed deal is a U.S. firm, and zero otherwise. *Post* is an indicator variable that equals one if the failed deal occurs in or after 2018 (in which the FTC announces the guidelines), and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by industry and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.

Table 6. Exploring cross-sectional variations using deal-related factors

VARIABLES	(1) ΔRedacted 10K $_{t+1}$	(2) ΔUnidentified Customer $_{t+1}$	(3) ΔRedacted 10K $_{t+1}$	(4) ΔUnidentified Customer $_{t+1}$	(5) ΔRedacted 10K $_{t+1}$	(6) ΔUnidentified Customer $_{t+1}$	(7) ΔRedacted 10K $_{t+1}$	(8) ΔUnidentified Customer $_{t+1}$
Ind Peer Counterparty	**-0.091***	**-0.084*****						
	(-1.74)	**(-3.16)**						
Hostile Failed Deal			**0.050**	**0.075***				
			(1.13)	**(1.75)**				
Ret Vol After Fail					**-0.242*****	**-0.245*****		
					(-4.87)	**(-3.30)**		
Neg Ret After Fail							**-0.045**	**-0.051****
							(-1.31)	**(-2.21)**
Observations	1,373	701	1,461	749	1,324	681	1,338	682
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Ind, Year	Ind, Year	Ind, Year	Ind, Year	Ind, Year	Ind, Year	Ind, Year	Ind, Year
R-squared	0.067	0.105	0.063	0.108	0.073	0.124	0.071	0.124

The table presents results from the model that examines cross-sectional variations in the effects of failed M&A deals on proprietary information disclosure. In all columns, a sample of firm-years involved in failed deals is used. The dependent variables are *Redacted 10K* in year t+1 minus *Redacted 10K* in year t in Columns 1, 3, 5, and 7, and *Unidentified Customer* in year t+1 minus *Unidentified Customer* in year t in Columns 2, 4, 6, and 8. *Ind Peer Counterparty* is an indicator variable that equals one if the counterparty in the failed deal is a product market peer operating in the same industry (four digit SIC), and zero otherwise. *Hostile Failed Deal* is an indicator variable that equals one if the firm is involved in a hostile failed deal in the year, and zero otherwise. *Ret Vol After Fail* is the standard deviation of monthly market-adjusted returns for the six months after the failed deal. *Neg Ret After Fail* is an indicator variable that equals one if the cumulative market-adjusted return for the six months after the failed deal is negative, and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by industry and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.

Table 7. The effects of failed M&A deals on management earnings forecasts

	Panel A. Pooled sample		Panel B. Failed deals vs Completed deals	
VARIABLES	(1) Δ*Earnings Guider* $_{t+1}$	(2) Δ*#Earnings Guide* $_{t+1}$	(3) Δ*Earnings Guider* $_{t+1}$	(4) Δ*#Earnings Guide* $_{t+1}$
Failed Deal	**-0.002**	**-0.000**	**-0.009**	**-0.011**
	(-0.17)	**(-0.04)**	**(-1.00)**	**(-0.99)**
Completed Deal	0.012***	0.018***		
	(4.60)	(8.24)		
F-stat: *Failed Deal* vs *Completed Deal*	2.44	2.57		
Observations	74,428	74,428	25,457	25,457
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Ind, Year	Ind, Year	Ind, Year	Ind, Year
R-squared	0.023	0.031	0.036	0.048

The table presents results from models that test the effects of failed M&A deals on management earnings forecasts. In Panel A, the sample includes all firm-years, including firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals. In Panel B, the sample only includes firm-years involved in either failed deals or completed deals. The dependent variables are *Earnings Guider* in year t+1 minus *Earnings Guider* in year t in Columns 1 and 3, and *#Earnings Guide* in year t+1 minus *#Earnings Guide* in year t in Columns 2 and 4. *Failed Deal* is an indicator variable that equals one if the firm is involved in at least one failed deal in the year, and zero otherwise. *Completed Deal* is an indicator variable that equals one if the firm is only involved in a completed deal in the year, and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by firm and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.

Table 8. The effects of failed M&A deals on information asymmetry

	Panel A. Pooled sample		**Panel B. Failed deals vs Completed deals**	
VARIABLES	(1) Δ*Ret Vol* $_{t+1}$	(2) Δ*Analyst Error* $_{t+1}$	(3) Δ*Ret Vol* $_{t+1}$	(4) Δ*Analyst Error* $_{t+1}$
Failed Deal	**-0.009****	**-0.129****	**-0.011*****	**-0.111****
	(-2.79)	**(-2.37)**	**(-3.44)**	**(-2.17)**
Completed Deal	0.002***	-0.003		
	(2.93)	(-0.14)		
F-stat: *Failed Deal* vs *Completed Deal*	11.35***	5.92**		
Observations	72,930	50,059	25,006	19,830
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Ind, Year	Ind, Year	Ind, Year	Ind, Year
R-squared	0.232	0.007	0.207	0.014

The table presents results from models that test the effects of failed M&A deals on information asymmetry. In Panel A, the sample includes all firm-years, including firm-years involved in failed deals, firm-years involved in completed deals, and firm-years not involved in any deals. In Panel B, the sample only includes firm-years involved in either failed deals or completed deals. The dependent variables are *Ret Vol* in year t+1 minus *Ret Vol* in year t in Columns 1 and 3, and *Analyst Error* in year t+1 minus *Analyst Error* in year t in Columns 2 and 4. *Failed Deal* is an indicator variable that equals one if the firm is involved in at least one failed deal in the year, and zero otherwise. *Completed Deal* is an indicator variable that equals one if the firm is only involved in a completed deal in the year, and zero otherwise. All variables are defined in Appendix A. All continuous variables are winsorized at 1 and 99%. Standard errors are clustered by firm and year. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using two-tailed tests.