Two Essays in Merger Clauses

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Abstract of the Dissertation

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This dissertation studies the impact of merger clauses. Merger clauses allocate the risks between the target and the bidder, share information among different parties in the deal and manage the negotiation process and disputes.

In the first essay, I look at reverse termination fees (henceforth, referred to as RTFs). RTFs are required payments by bidders when they "walk away" from a merger or acquisition, and vary significantly in size and design. I find inefficient RTFs correlate with lower bidder returns, even in a subsample where disclosure of RTF terms lags deal announcements by more than two days. I also find inclusion of certain RTFs in consolidating industries reveals private information to the market, resulting in negative abnormal returns. Finally, I find a negative significant relationship between the probability of deal completion and inefficient and negative signal RTFs, consistent with the fact that deals with inefficiently designed RTFs signal the bidder's lower commitment to the current deal and deals with negative signal RTFs are adopted in consolidating industries where both deal competition and antitrust issues are higher than in other deal settings.

In the second essay, I construct merger clauses indices based on legal scholars' ex-ante prediction and examine the relationship between announcement returns and different types of merger clauses. I find that bidder protective clauses correlate with higher bidder returns while target protective clauses and pro-competition clauses correlate with higher target returns. I also find that bidder and target protective indices have larger impacts on announcement abnormal returns for "bad" deals than for "good" deals. Finally, I find that the inclusion of more bidder protective clauses leads to lower deal completion rates while the inclusion of more target protective clauses and pro-competition clauses has no impact on deal completion rates. These results are consistent with the expert lawyer/efficient contracting view of Cain, Macias, and Davidoff Solomon (2014), and Coates (2016), and against merger contracts as boilerplate agreements.

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Chapter 1: Reverse Termination Fees in M&A

(Jointly with John C. Coates, IV and Darius Palia)

1.1 Introduction

Reverse termination fees (RTFs) are provisions in merger and acquisition contracts that require a bidder to pay a target firm a fixed fee if a proposed acquisition is not completed, for reasons within the influence of the bidder.[1] This paper examines the impact of RTFs on the abnormal returns earned of bidders on merger announcement and on the probability of deal completion. RTFs can be a "signal" of the bidder's lower commitment to the current deal through inefficiently designed contract terms, or during industry deal waves also send a negative "signal" to the market that a given bidder's managers are not interested in being acquired.

RTFs can be efficient if they specify risks and allocate them to the party best able to bear that risk, and if the other deal terms (including price) reflect that risk allocation. The "price" of a risk allocated through an RTF would in theory be optimally based on estimates of the probability and the cost of realization of that risk. Our analysis presumes that RTFs that are not "inefficient" (as specified below) are precisely this kind of efficient risk-allocating mechanism.

But contract terms are sometimes drafted based on non-analogous precedents, or crude or stale estimates of probability and cost of risks. Such terms can even be ex ante efficient by reducing negotiation costs, but exhibit path dependence and result in terms that

[1] Davidoff Solomon (2009) and Cain et al. (2015) examine the use of RTFs by private equity firms in the financial crisis. Our sample is limited to public buyers, and overlaps little with his sample.

are ex post value loss. Practitioners anecdotally report RTFs being modeled on target termination fees (TTFs), or on RTFs in prior deals. If common, such practices could plausibly result in RTFs allocating risk based on inapt probabilities and costs, or being under- or over-priced. Given the fact that the magnitude of negative stock reactions is much larger than the size of RTFs, the "inefficient" RTFs are more likely to signal the bidder's uncertainty about the current deal which leads to lower announcement returns. Alternatively RTFs may be modeled as real options on the bidder's assets. Or RTFs may be inefficiently designed due to agency costs – they may reflect the goals of buyer managers, lawyers rather than buyer shareholders.

To empirically model these possibilities, we draw on prior theoretical work by others. First, we define an "inefficient" RTF based on the size of the fee. Afsharipour (2010)[2] and Quinn (2010) suggest that an RTF should be priced higher than a TTF to compensate for the higher costs incurred by the target if the deal does not go through, for reasons we set out in Section 2. We thus classify an RTF with a smaller or equal size than a TTF as "inefficient."[3] Second, again drawing on prior theoretical work, we define "inefficient" RTFs if they include triggers that do not reflect exogenous risk (such as regulatory review), but instead reflect (and may add to) agency costs on the part of the buyer managers. In a cash deal, or a deal where the acquirer's firm size is much larger relative to the target's firm size, an RTF with a fiduciary out trigger has been identified as legally unnecessary by others. (Quinn 2010; cf. Wulf 2004)

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[2] Afsharipour (2010) draws on practitioner interviews and news reports to suggest that the terms of RTFs in strategic deals may not have been set based on actual data or analysis about completion risks or costs.

[3] We alternatively test for RTF size inefficiency by defining RTFs as "inefficient" when the RTF fees size is equal to the TTF fee size, and zero otherwise. Using this alternate definition, none of our results change significantly (results not reported but available from the authors).

An RTF with a fiduciary out trigger could also be associated with negative announcement returns if inclusion of such an RTF sends a negative signal about the buyer. Gorton et al. (2009) show that in industries in which many firms are of similar size to the largest firm, defensive mergers are likely to happen – that is, bids by an initial bidder designed to increase size and scale to avoid being acquired by a subsequent bidder, either because of financing constraints or antitrust laws. As explained more below, we theorize that the inclusion of an RTF with a fiduciary out trigger signals that the initial bidder is unlikely and unwilling to be acquired by another firm. That signal would lead to negative stock price reactions, if market prices had previously assigned some probability that the initial bidder would itself be a target in an industry deal wave.

Figure 1 depicts the evolution of the different types of inefficient RTFs and other efficient RTFs. We analyze a large sample (819) of manually collected merger agreements for U.S. publicly traded target firms for the 11-year period 2001-11. We find no clear overall time trend in our sample period for any type of RTF.

Figure 1.1*

We find the following results. First, we find that the presence of inefficient RTFs and negative signal RTFs is in fact correlated with statistically lower average bidder abnormal returns. Second, we find that two out of three types of RTFs are associated with lower deal completion rates. This indicates that including those RTFs send out a signal of bidders' low commitment to the current deal, which leads to ex ante lower completion rates and the market's negative stock reactions. Third, we do a battery of tests to make sure that real option theory, managerial agency costs, repeat bidder / lawyer/ bidder-lawyer pair effects/ relative legal expertise of bidder and target lawyers can't explain our main results.

Fourth, we show that our findings on the bidder abnormal returns are robust to alternative event windows and control groups. We also examine our main tests in a subset of deals where contracts were publicly filed and RTFs were publicly disclosed more than two days after the underlying deal announcement, which allows us to more clearly identify the potential causal effect of RTFs, and we find that our RTF size and RTF negative signal results hold up, while our RTF trigger results fall in statistical significance. Fifth, we find evidence that the inefficient RTFs and negative signal RTFs are negatively related to the combined abnormal returns earned by the acquiring and target firms and appear to decrease value overall. This suggests that our results on bidder abnormal returns is not a reflection of a transfer of wealth from the bidder firm to the target firm, but (at least ex post) is an inefficient form of contract overall.

Our results are – as conventional in many corporate and contract law, finance and governance settings -- an array of statistically significant (or, in some cases, insignificant) correlations between quantifiable variables. We have attempted to test for the most plausible alternative hypotheses that might explain what we find, given our data. As with all event studies, we do not need to worry in any straightforward way about reverse causation: announcement returns are not directly causing the design of RTFs. However, we are (of course, given our setting) able to run a random experiment and achieve a perfectly controlled test of the theories of the impact of RTFs on bidder and target value, and we are not in this study exploiting an exogenous shock to overall RTF design that might allow us to draw stronger causal inferences; indeed, we are unaware of any such shocks. No doubt some unobserved factors – including many endogenously chosen by the same individuals who are designing and negotiating RTFs – might, in theory, contribute to the cross-

sectional differences in announcement returns that we find for inefficient and negative signal RTFs. That said, our empirical approach is consistent with most studies that examine mergers and acquisitions using abnormal returns as a dependent variable in a regression framework.

Prior research has examined the impact of the termination fee payable by the *target,* (TTFs).[4] Our sample confirms that nearly all deals involving U.S. public targets and public bidders have TTFs. We also confirm that most TTFs include fiduciary out triggers, which allow a target to terminate an initial deal to pursue an alternative "superior" offer, generally because the target board's fiduciary duties require it to do so. These prior studies did not focus on RTFs in deals involving public company bidders and targets.

The remainder of this paper proceeds as follows. Section 2 provides background information on different types of RTFs and Section 3 explains the related literature. Section 4 describes our data and variables. Our empirical results are reported in Section 5, and Section 6 presents our conclusions.

1.2 Reverse Termination Fees (RTFs)

1.2.1 General Context

In this section we explain the various types of reverse termination contract provisions found in the merger agreements for acquiring firms. Table 1.1 summarizes definitions of each variable related to RTFs.

[4] E.g., Coates and Subramanian (2000), Officer (2003), Bates and Lemmon (2003), and Boone and Mulherin (2007). As noted above, Davidoff (2009) and Cain et al. (2015) examine RTFs in private equity deals.

*** Table 1.1 ***

As general context for RTFs: negotiated M&A transactions in the US are governed by contracts. Those contracts are signed prior to a two-to-four or more month period during which shareholder votes or tenders are obtained, always for the target company and sometimes for the buyer, and regulatory review is conducted. At the end of that period, the deal is "closed" or completed. Prior to closing, and particularly prior to shareholder approval, it is possible for the deal to be terminated. The contract will specify termination rights for each party, and always includes an "outside date" (typically a year after signing) by which point either party can terminate if the deal has not yet closed. In our sample, T% of deals are terminated, and the average (median) time from signing to closing is X (Y) months.

M&A contracts anticipate the various risks that can lead to a deal failing to close. Among the ways contracts address those risks is to specify a subset of risks as the basis for specific termination rights, and to specify in some contracts the requirement that a terminating party pay the other a specified fee. TTFs are fees paid by targets; RTFs are paid by buyers. As a general matter, TTFs are typically triggered by terminations that are themselves the result of "topping bids" – the emergence of a third party that offers more for the target after the initial deal is announced but prior to closing (and particularly prior to target shareholder approval). RTFs can address a similar concern -- the possibility that a third party may bid for the initial bidder – or they can address other kinds of risks to the deal, such as the risk that the bidder may not be able to obtain financing, or the risk that the regulatory authorities may block the deal under antitrust laws. In effect, an RTF (like

a TTF) is a required payment that compensates a disappointed deal party for a risk that causes the deal to be terminated rather than completed.

In our sample overall, 37% of our sample deals contained an RTF, and 98% contained a TTF. Thus, while TTFs are (nearly) universal, RTFs are not. TTFs and RTFs also vary in their design. In particular, they can take different sizes – both in absolute terms, relative to deal size, and relative to each other. They can also be triggered by varying events. In our sample, 22% of RTFs include at least one trigger related to third party bids for bidders, while the other 14% of sample RTFs are triggered by other events.

1.2.2 Inefficient RTFs

As noted in the introduction, prior scholars have argued that some RTFs are inefficiently designed. With respect to size, legal scholars Afsharipour (2010) and Quinn (2010) observe that RTFs were in the 2000s commonly set at a size that is equal to TTFs. Afsharipour (2010) draws on practitioner interviews and news reports to theorize that the terms of RTFs in strategic deals may not have been set based on actual data or analysis about completion risks or costs, but instead simply set at a size equal to their TTF counterparts. As both Afsharipour 2010 and Quinn 2010 note, however, TTFs have long been understood as limited in size by the fiduciary duties of target boards of directors, at least in certain kinds of deals. Those duties commonly trigger litigation by shareholders, and are the subject of heightened judicial enforcement for targets under some circumstances. This has led to the view that fees of up to roughly 2% of deal size are not controversial, that fees above 6% would attract special judicial scrutiny and could lead to an injunction, and fees between 2 and 6% could be justifiable depending on the nature of

the deal currency, structure, and pre-announcement process. (It should also be noted that the Delaware courts, in particular, have resisted announcing any bright-line rules on the size of TTFs, but they have included statements consistent the summary just provided.)

In contrast to this focus on TTFs and target fiduciary duties, corporate law does not apply with the same degree of specificity or strength to bidders and RTFs. That is because acquisitions are generally protected by the "business judgment rule," while sales (by targets) are either governed by the "Revlon" doctrine, which recognizes the unique significance of the "last period" in which a company is sold, or the "Unocal" doctrine, which recognizes that targets may use takeover defenses (such as TTFs) to resist hostile bids, including topping bids. As discussed more below, if the size of target and bidder approach each other, and the deal approaches a true merger of equals, the distinction between target and bidder fades, and the different legal scrutiny brought to bear on targets and bidders likewise fades.

Finally, Afsharipour 2010 and Quinn 2010 also note that the damages from a failed bid incurred by the target is usually higher than for the bidder. That asymmetry is because the target is often viewed as "damaged goods" when the bidder terminates the transaction, but the reverse is not generally true. If an RTF is set equal in size to the TTF in the same deal, it is unlikely that they are providing the equivalent "insurance" (risk allocation). The payment to the target if an RTF with an inefficiently small fee size will not be worth as much to the target if the risk that triggers it materializes. A rational target would then demand the risk be addressed in some other way, such as in a higher overall deal price. This would result, in principle, in harm to the bidder, particularly if the risk in fact never

does materialize – by forcing the target to bear more risk than is optimal, the bidder would have underprovided insurance, and overpaid for the bundle of the deal and the RTF.

In sum, based on this prior theory, RTFs that are equal to TTFs may effectively "price" the *cost* of deal failure too low. In our first operationalization of this prior theory, we thus define an RTF as "inefficient" if it is the same size or smaller than the TTF in the deal.[5] The alternative hypothesis with respect to fee size is that because the *risk* of deal failure that would trigger a TTF are in fact higher than those that would trigger an RTF, the product of greater harm but lower odds of being triggered might mean RTFs equal to TTFs are efficient. This will be the null hypothesis we test below.

In our second operationalization of RTF efficiency, we focus on RTF event triggers. Quinn (2010) suggests that fiduciary out triggers for RTFs are inefficient in the case of both cash and stock transactions. Cash deals typically create no clear legal need for "fiduciary out" terms for bidders, such as RTFs with fiduciary out triggers. RTFs with fiduciary out triggers may instead reflect path-dependence in such deals. Alternatively, they may reflect agency costs on the buyer's side – managers may be including RTFs to deter third party bids for the initial bidders, rather than truly attempting to allocate risk efficiently.

For stock transactions, the story is more complicated, depending on the relative size of bidder and target. At the limit of relative size, there is no clear distinction between a bidder and target in a stock-for-stock merger of equals (Wulf 2004); both are in a sense bidders and targets. In such deals, both parties are required by their fiduciary duties to

[5] We alternatively test for RTF size inefficiency by defining RTFs as "inefficient" when the RTF fees size is equal to the TTF fee size, and zero otherwise. Using this alternate definition, none of our results change significantly (results not reported but available from the authors).

provide "outs" to address the possibility of a subsequent bid, generating the need for both to include termination fees. In mergers of equals, neither termination fee is truly an RTF; both are really functioning as TTFs. Something similar is true for stock mergers in which the bidder is only slightly larger than the target, where stock exchange listing rules require a bidder shareholder vote to approve the issuance of more than 20% of its shares in the deal, and fiduciary duties may prevent the bidder from effectively committing to turning down a bid made a third party for the bidder that is conditioned on termination of the initial bid. (For clarity, we call subsequent bids for bidders "bid-for-bidders" in contrast to "initial bids" by the initial bidder for the initial target.)

At the opposite end of the relative size spectrum, however, bidders are much larger than the target. Such bidders do not have to get a shareholder vote due to stock exchange listing rules, and are able to commit to an initial bid, even if a subsequent bid-for-bidder is made.[6] As with cash deals, stock deals involving much larger bidder than targets do not have any clear legal reason to include fiduciary out RTFs. The difference in legal treatment suggests that RTFs with fiduciary out triggers again may reflect path dependence in negotiations, or bidder agency costs, rather than an efficient allocation of risk. We thus define an RTF as "inefficient" if it is triggered by a fiduciary out, and in robustness tests look for differences in stock price reactions across MOEs (where fiduciary out RTFs may be efficient), on the one hand, and cash deals and other stock deals (where they may not be efficient), on the other hand. In contrast to fiduciary out triggers, it is more plausible in the

[6] It remains possible that a third party might condition its bid-for-bidder on termination of the initial bid, but the initial bidder board's fiduciary duties would not generally require that board to termination the initial bid to permit the bid-for-bidder to proceed. See *Paramount Commc'n Inc. v. Time Inc,* 571 A.2d 1140, 1151 (Del 1989).

full range of deals that other event triggers – such as regulatory disapproval, financing failure or buyer breach, or even the passage of time -- could reflect an efficient allocation of risk to the initial bidder.

1.2.3 Negative Signal RTFs

We also consider the possibility that the inclusion of RTFs can send more than one kind of signal to the markets. More specifically, we hypothesize the following ways in which RTFs could send signals. First, we observe that M&A transactions commonly cluster by industry, in waves (Mitchell & Mulherin 1996; Harford 2005). Second, we note the findings of Gorton et al. 2009 that show that within a given industry deal wave, there is a game of "eat or be eaten," in which a completed deal in which one company is a bidder may reduce the odds that the same company will become a target in the same wave, such that an announced bid by one bidder may trigger a third-party bid-for-bidder. In such a setting, a bid may generate a bad signal for the initial bidder, because the bid lowers the odds that it will become a target, with attendant near-term deal premium adding to its stock price.

Third, we assume that the parties to an initial bid have private information about the likelihood that a third party might make a bid from the initial bidder. We also assume that targets will seek RTFs with fiduciary out triggers in setting where the initial bidder is more likely to be the target of a third-party bid, whereas initial bidders will be most likely to agree to include them if they are reluctant to sell to a third-party bidder (in which case the RTF will not be triggered).

Based on these assumptions, the inclusion of an RTF with a fiduciary out trigger may generate be a negative signal for the price of the initial bidder, because it conveys two types of information previously not known to the market: first, that the initial bidder less likely to be a target, because its initial bid will increase its size and make subsequent bids more difficult (either because of financing constraints or antitrust problems), and second, that the initial bidder does not expect to become the target of a bid triggered by the initial bid, as reflected in the initial bidder's willingness to agree to a fiduciary out RTF.

Other kinds of RTFs, by contrast, may reveal private information about the immediate deal, and so about the probability of deal completion, but are unlikely to reveal the same kind of private information about a bidder's non-deal related prospects. Since most deals (targets) are much smaller than bidders, and since the price impact of a given deal on a bidder is on average much smaller (+/- 3%) than the price impact of a given deal on the target (20-40%), any signal that an RTF sends about the bidder being a future target is more likely to show up in announcement effects than any signal the RTF sends about the initial deal. Thus, we expect only fiduciary out RTFs to send negative deal signals, and only in contexts where the bidder is caught up in an industry deal wave, where one deal and its terms can send plausible near term signals about future deals.

1.3 Related literature

1.3.1 Literature on merger clauses

Merger clauses are the contract provisions governing the takeover process. Analyzing those deal terms is important as it adds to our understanding of "how firms are sold". Until recently, few empirical work have been done in this area. Prior literature have

tended to focus on provisions made salient by litigated disputes, such as material adverse change clauses (Gilson and Schwartz, 2005; Denis and Macias, 2013), earn-outs (Cain, Denis and Denis, 2011; Coates 2012), lock-up options (Burch 2001) and termination provisions (Officer 2003; Bates and Lemmon, 2003; Boone and Mulherin, 2007), dispute management provisions (Palia and Scott, 2015), provisions specifying the form of the acquisition (Bates, Lemmon and Linck, 2006; Bargeron 2012; Offenberg and Pirinsky, 2015) and the deal currency (Officer, 2004, 2006).

Papers on termination clauses (Coates and Subramanian 2000; Officer 2003; Bates and Lemmon, 2003; Boone and Mulherin, 2007) focus on target termination fees (TTFs). Bates and Lemmon suggest that TTFs are efficient contracts because the target firms that have them are associated with higher deal premiums, deal completion rates and CARs. Their results reject the management entrenchment hypothesis wherein such clauses are used to entrench management at the expense of shareholders. Using SEC filings, Boone and Mulherin (2007) find that TTFs are more prevalent than is provided by SDC data set. They also show that the biased data leads to incorrect conclusions regarding TTFs.

There are two studies (Bates and Lemmon, 2003; Mahmudi, et. al., 2015) that are more related to this paper. Bates and Lemmon (2003) examine the impact of the existence of RTFs on bidder abnormal returns for a sample from 1989 to 1998 and find a statistically insignificant effect. Mahmudi, et. al. (2015) suggest that RTFs are real options on a bidder firm's assets. They find that RTFs are more likely when the asset volatility of the target and bidder firms are higher and for longer deal completion time. They also find that the abnormal returns of the combined firm are higher when the bidder's termination fee is not

equal to the target's termination fee, and that there is no relationship between RTFs and the probability of deal completion.

We differ from these papers in four ways. First, we manually collect RTFs and TTFs from the actual merger agreements, whereas they use Thomson SDC data. Previous researchers have found SDC data to be unreliable for TTFs (Boone and Mulherin 2007), consistent with our finding that 16% of RTFs (i.e. 135 out of 819 deals) are wrongly classified by SDC.[7] Second, we gather data on when deal contracts (including RTF terms and size) are filed publicly, rather than rely on dates when deals are announced (typically in a press release), which is what is included in Thomson SDC data. As we discuss more below, we find that many deal contracts are filed more than a day or two after the deal announcement; by relying on deal announcement dates, these papers fail to isolate when information about RTFs is released. Third, they examine the impact of on existence of any RTF in a merger agreement, and do not disentangle RTFs with different triggers, whereas we examine the impact of inefficient and negative signal RTFs using these triggering events. Finally, Bates and Lemmon (2003) do not examine the size of the RTF, and Mahmudi, et. al. (2015) examine the effect of RTF fee sizes on the combined firm's returns. We focus on the effects of different types of RTFs on the *bidder's* abnormal returns.

1.3.2 Literature on bidder's abnormal announcement returns

One of the more highly researched topics in the financial economics literature has been to analyze the gains made by shareholders of companies that participate in a merger and acquisition transaction. Surveys of the event study literature (Jensen and Ruback, 1983;

[7] In 117 deals, SDC omit RTFs when they are in fact present and in another 18 deals, SDC wrongly classify deals as including RTFs when they are in fact not present.

Jarrell, Brickley and Netter, 1988; Andrade, Mitchell and Stafford, 2001; Bruner, 2002; Palia, 2016) show that mergers and acquisitions generate value gains (proxied by the abnormal returns) for the combined firm, with most of the gains going to the target firm (who earn abnormal returns ranging from 20%-35%). However, especially in the post-1980s period, shareholders of acquirers earned zero or mostly negative abnormal returns.

Prior studies show that many deal and/or bidder-target characteristics generate abnormal returns for the shareholders of the bidding firm. First, bidder returns are related to the fraction of the medium of exchange that is in cash. In an asymmetric information world, the bidding firm's managers, better informed than outside investors about the value of their firm, will prefer to sell overvalued stocks that will therefore drive down its equity price. Eckbo, Giammarino, and Heinkel (1990) suggest that bidder values are higher when the bid is increasing in the fraction of cash financing used in the medium of exchange. Second, the pre-merger relative size of the merging firms is found out to be another key driver of the bidder returns. Asquith, Brunner and Mullins (1983) find bidder returns to be significantly higher when firms are closer in size as proxied by their pre-event market capitalization of equity. Moeller, Schlingemann and Stulz (2004) find that bidding firm shareholders lose considerably when they make a large acquisition. Third, mergers and acquisitions come in waves and analysis of bidder returns should be done in each sub-period or at lease control for each time period.

There have been two general strands of literature that have tried to explain merger waves. The first suggests that merger waves occur as responses to industry shocks such as technological innovations and deregulation. Such large scale reallocation of assets results in a merger wave when there is sufficient capital liquidity in terms of high stock market

valuations that can propagate the shock to a wave (Mitchell and Mulherin, 1996; Mulherin and Boone, 2000; Andrade, Mitchell and Stafford, 2001; Harford, 2005). Related to these papers is Gorton et al. 2009, which finds that when an industry-level regime shift may create value-increasing merger opportunities, potential targets may engage in defensive acquisitions, where managers acquire other firms to avoid losing private benefits from being acquired themselves.

A second strand of research on M&A waves consists of papers using behavioral theories to argue that bidders rationally use their overpriced stock to take over a target firm. (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004, 2005) They clearly shows that acquisition motives and market expectations of value increasing transactions differ across the five merger waves. Last, previous studies have used SIC codes to show that diversifying mergers are non-value maximizing for bidder shareholders in the post-1970s period. Our paper adds to the literature by identifying an important new contract provision that dissipates value for both the bidder and combined firms.

1.4 Data, Variables, and Descriptive Statistics

1.4.1 Data and variables

We begin creating our sample of merger and acquisition deals by examining Thomson Securities Data Company's (SDC) Domestic Merger Database from January 2001 through December 2011. This results in 109,098 observations. We drop any transactions where we could not obtain stock return data from the Center for Research in Security Prices (CRSP) for both bidder and target. This results in an initial sample of 8,488

observations. By construction, our sample is thus restricted to public company bidders and targets, composed primarily of "strategic" and not "financial" bidders.

We then examine SDC for these transactions. We drop deals where SDC show the name of the acquirer to be the same as the name of the target as in parent-subsidiary mergers (6,681 observations), and when SDC show the form of the deal not to be a merger as in the case of equity carve outs (281 observations). For this remaining sample we examine the SEC's Edgar database in order to obtain the firm's Form 8K. We find 280 deals where we could not find the firm's Form 8K. Among those that we find, 351 observations do not have merger agreements. This results in a sample of 895 transactions. We then manually examine the merger agreements and supplement each one with stock return data to create our independent variables. By this process we lose 76 transactions resulting in a final sample of 819 transactions. A summary of our data collection methodology is given in Table 1.2. Importantly, we isolate the date the contract is actually filed with the SEC, and inspect a subsample of deal announcements to verify that RTF terms and size are not typically included in initial press releases, are not available to investors upon announcement, and thus should have no correlation with announcement returns.

Table 1.2

For our control variables, we begin with analyzing law firm reputation. Our proxy variable for law firm reputation is the prestige rank of the law firm by Vault. The top 100 law firms are ranked by Vault each year. If the law firm is not listed in the top 100, we give it a rank 101. We define *vault_rank_acq (vault_rank_tgt*) as the law firm rank based on Vault for the acquiring (target) firm's lawyer in the year prior to the merger to avoid any

look-ahead bias. We create dummy variables for the top-tier law firms based on their appearances in the top-10 Vault's ranking list (*vault_top10_acq* and *vault_top10_tgt*). This measure of law firm reputation has been used in Palia and Scott (2015) and Whitehead (2010).

For the reputation of an investment bank, we use a measure based on the bank's market share. Following Fang (2005), we distinguish prominent investment banks by the indicators *top_ibank_acq* (*top_ibank_tgt*) if the rank based on the league table for the acquiring (target) firm's investment bank in the year prior to the merger is lower than or equal to eight.

We create a number of deal and firm characteristic variables that might be related to bidder abnormal returns, based on prior literature. The first control variable is *lockup,* which is set to unity if the deal includes a lockup agreement involving target equity, and zero otherwise. Such agreements can substitute for TTFs, and may affect the role that RTFs might play in market evaluation of the deal or future deal prospects for the parties. The second control variable is *precomp,* which is set to unity if the deal follows a prior bid within 365 calendar days, and zero if it is an initial bid. The third control variable is *hostile,* which is set to unity if the deal is defined as ''hostile'' by SDC, and zero otherwise. The fourth control variable is *toehold_fraction,* which is set to unity if the fraction of the target's common stock owned by the bidder on the bid announcement date is greater than 5%, and zero otherwise.

We also control for the payment method variables which have been shown to affect bidder abnormal returns. For this reason, we first include *tender,* which is set to unity if the bid involved a tender offer to target shareholders, and zero otherwise. We include *stock,*

which is set to unity if the bid involved stock payment to target shareholders, and zero otherwise. Deal currency and structure variables also control for different legal requirements that rely on those deal characteristics to vary the degree and nature of court review of public company deals.

The sixth variable is *lnrelsize*, defined as the natural logarithm of target's market value less natural logarithm of acquirer's market value. Both Asquith, Brunner and Mullins (1983) and Moeller, Schlingemann and Stulz (2004) find that the pre-merger relative size of the merging firms has an impact on the bidder abnormal returns, and it is also related to the distinction between mergers of equals and other types of stock-funded deals, discussed above.

The seventh control variable is *related*, which is set to unity if the bidder is from the same industry as the target (where industry definitions are taken from Fama and French), and zero otherwise. Previous studies show that bidder abnormal returns are related to whether the merger was a diversifying or focused merger (Matsusaka 1993; Hubbard and Palia 1999; Comment and Jarrell 1995; John and Ofek 1995).

Finally, we include the acquiring and target firm's ratio of market-to-book assets (*mkttobk_acq* and *mkttobk_tgt*) as a proxy for the degree of the firm's growth opportunities (Smith and Watts, 1992), and the firms' leverage ratio (*lev_acq* and *lev_tgt*) in the fiscal year prior to the announcement year.

1.4.2 Descriptive statistics

Table 1.3 contains descriptive statistics for all RTF variables and control variables used. We find that 24% of the deals in our sample have *rtf_size*, 17% of them have *rtf_event*

and 11% of them have *rtf_signal*. We also find that 26% of the acquiring firms are advised by top-tier law firms while 17% of the target firms are advised by top-tier law firms. With respect to the investment bank advisors, we find that 50% (44%) of the deals in our sample are advised by top-tier bidder (target) investment banks. When we examine the relative size of the two merging firms, we find that the average target firm is 10% of the market capitalization of the bidder firm. We also find that 65% of the deals in our sample are financed by stock only or a combination of cash and stock.

Table 1.3

1.5 Empirical Results

1.5.1 Abnormal returns

In Panel A of Table 1.4, we calculate the mean and median bidder's daily abnormal returns around the merger agreement filing date. As noted above, market participants can only evaluate RTF terms when they have access to the merger contract. In our sample, 19% of the merger agreements are filed with the SEC at least two days after the deal announcement date. To address this issue, we use the merger agreement filing date as the event day, rather than deal announcements, as is more common in merger event studies.

In Panel B, we report two sets of bidder cumulative abnormal returns (CARs). These sets are one day before and one day after the merger agreement filing date (CAR [-1, +1]), and three days before and three days after the merger agreement filing date (CAR [-3, +3]), respectively.

Table 1.4

In Panel A, we find statistically significant negative abnormal returns especially around the merger agreement filing date in the period [-1, 0]. Roughly 59% of our sample deals have negative filing date announcement returns. In Panel B, we find that the average and median CARs for [-1, +1] and [-3, +3] are negative and statistically significant at the one-percent level. In the analysis that follows, we use the CAR [-1, +1] window as our main dependent variable, and use the CAR [-3, +3] window as a robustness test. These negative abnormal returns for bidders are consistent with prior research (e.g., Andrade et al. 2001), and with a variety of theoretical explanations offered in prior research, including hubris-driven overpayment (e.g., Roll 1986), mispricing-driven overpayment (e.g., Shleifer and Vishny 2003), signaling (Bruner 2002), and price pressure (e.g., Mitchell et al. 2004), among others.

1.5.2 Abnormal returns and RTF variables

We further explore the different effects of inefficient and negative signal RTFs on the bidder's abnormal returns in Table 1.5. In doing so, we estimate the equation: $Bidder\ CARs = \beta_1 * inefficient\ or\ negative\ signal\ RTFs + \beta_2 * X + \varepsilon$, where X is a set of control variables that are lawyer, investment bank, deal and firm characteristics and might be related to bidder abnormal returns. β_1 should be the additional effect of the RTF contract terms.

As discussed in Section II, following Quinn (2010) and Asharipour (2010), we classify RTFs as inefficient RTFs based on fee sizes and event triggers. We also define negative signal RTFs based on the signaling theory from Gorton et al. (2009). We run regressions of bidder abnormal returns on inefficient RTFs, the results of which are given

in row (1) and (2) of Table 1.5. In row (1), we measure the effect of RTFs with symmetrically sized TTFs and RTFs (*rtf_size*). In row (2), we examine the effect of RTFs with fiduciary out triggers in non-merger-of-equals deals (*rtf_event*). We define merger-of-equal (MOE) deals as transactions with stock consideration in which the relative market capitalization of the target to bidder firm is between 75% and 125%; while non-MOE deals are transactions where the relative sizes are out of this range, or which use cash consideration.

In row (3), we examine the impact a negative signal RTF (*rtf_signal*) on bidder's abnormal returns. We define negative signal RTFs as RTFs with fiduciary out triggers in an industry where defensive mergers are likely to happen. Following Gorton et al., we operationalize that idea by identifying industries characterized by a relatively equal size distribution. Specifically, we look for industries where the logarithm of the ratio of the average size of the three largest firms in the acquirer's industry to the average size of the next three largest firms is below the median. If a bidder is in such an industry, and includes an RTF with a fiduciary out trigger, we set *rtf_signal* to one, zero otherwise.

We find that deals with all three types of RTFs have significantly lower bidder abnormal returns than other deals. The economic magnitude of *rtf_event* is the largest among those three. The presence of *rtf_event* results in an overall average decrease in shareholder wealth of 3.34% ($83.5 million). The average effect of *rtf_size* and *rtf_signal* on shareholder wealth is -1.82% (-$45.5 million) and -2.41% (-$60.3 million), respectively.

Among the control variables, we find no evidence that hiring top-tier bidder law firms or investment banks has a significant value impact on the bidder's abnormal returns. We find some weak evidence that hiring top-tier target law firms decreases bidder

shareholder value. The stock dummy (*stock*) is negatively related to the bidder abnormal returns, consistent with prior research (e.g., Andrade et al. 2002).

Table 1.5

1.5.3 Deal Completion Probability and RTFs

In Table 1.6, we present results from Probit regressions wherein the dependent variable is if the deal was completed or not. We find that RTFs with symmetrically sized TTFs and RTFs are associated with lower deal completion rates. This result suggests that the inefficient RTF is a signal that bidders are uncertain of the deal, resulting in ex ante lower probability of deal completion. We also find that including a negative signal RTF is associated with a significantly lower probability of deal completion. This finding is consistent with the fact that the companies with negative signal RTFs are in consolidating industries, in which third party bidders are likely to making topping bids for targets, or alternative bids for initial bidders, and where deals may be more likely to encounter antitrust obstacles to completion.

With respect to law firm and investment bank effects, we find that top bidder *law firms* and top target *investment banks* significantly increase the probability of deal completion, consistent with Krishnan and Masulis (2013); however, top target law firms or top bidder *investment banks* are not significantly correlated with deal completion. With respect to other deal and firm characteristics, the results in Table 6 suggest that deals with prior bids (*precomp*), stock offers (*stock*) and small acquirers taking over large target firm (*lnrelsize* is high) have significantly lower probability of deal completion while deals with

target and bidder firms in the same industries (*related*) have significantly higher deal completion rates.

Table 1.6

1.5.4 Alternative Interpretations

To better interpret our results, we look at possible alternative hypotheses. First, RTFs can be seen as real options given to the bidders. Then the negative stock reaction to the RTF contracts could be a result of overpaying for the options to leave the current deal. In terms of fee sizes, the optimal contract should have the bidder's RTF higher than the target's TTF. Given that the price of a call option is negatively related to its exercise price (i.e. RTF size), the given call option is underpriced. Therefore, bidder CARs should be higher, not lower as we found. In terms of triggering events, the option to leave when there is a fiduciary out trigger in all cash or non-MOE stock deals is worthless. Therefore, we should not find a significant correlation between bidder CARs and this type of RTFs as we found. Second, we test the hypothesis that bidder manager agency costs lead them to select a suboptimal RTF. We use the insiders' ownership in the bidding firms before the merger event (*acq_insiderown*) as a proxy for managerial agency costs, regress three types of RTFs (*rtf_size, rtf_event* and *rtf_signal*) on bidders' insiders' ownership (*acq_insiderown*) and extract the residual variables (*rtf_size_res, rtf_event_res* and *rtf_signal_res*). We then run regressions of bidder abnormal returns on the residuals using the main event window [-1, +1] around the merger agreement filing date. In Panel A of Table 1.7, we find that the RTF related residuals are still negatively related with the bidder's abnormal returns suggesting that managerial agency hypothesis can't explain the negative stock reactions on inefficient

RTFs and negative signal RTFs. Third, we check if the bidders, or bidder lawyers or bidder-lawyer pairs are likely to do other bad bidding in subsequent periods and if inefficient RTFs and negative signal RTFs are associated with persistence of these categories. We create dummy variables for repeat bidders (*repeatbidder*), repeat bidder lawyers (*repeatlawyer*) and repeat bidder-lawyer pairs (*repeatbidder_lawyer*). We run regressions of three types of RTFs (*rtf_size, rtf_event* and *rtf_signal*) on those dummy variables and obtain the residual variables. In Panel B of Table 1.7, we report the results of regressions of bidder abnormal returns on the above mentioned RTF residuals. We find that the negative correlation between bidder abnormal returns and RTF residuals are unchanged. This indicates that our results on bidder abnormal returns are not driven by the effects of repeat bidders, repeat bidder lawyers or repeat bidder-lawyer pairs. Fourth, we test the hypothesis that the choice of a suboptimal RTF is due to the bargaining between bidder and target lawyers. We create dummy variable *law_lowacq_hightgt* which is equal to one if there is a less reputable bidder lawyer and reputable target lawyer. We run regressions of three types of RTFs (*rtf_size, rtf_event* and *rtf_signal*) on this dummy variable and obtain the residual variables. In Panel C of Table 1.7, we repeat our regressions of bidder abnormal returns on the new RTF residuals. We don't find evidence that the negative stock market responses of three types of RTFs are due to relative legal expertise of bidder and target lawyers as we show the RTF residuals are still negatively correlated with bidder abnormal returns.

Table 1.7

1.5.5 Robustness Tests: Alternative event window, Alternative control group, and Combined Returns

To test the robustness of our results we engage in further sets of analyses.

First, we run regressions of bidder abnormal returns on different types of RTFs using a longer event window [-3, +3] around the merger agreement filing date. In Table 1.8, we find that all our results of Table 1.5 hold, but are slightly stronger in both economic and statistical terms. Specifically, inefficient RTFs and negative signal RTFs are negatively related with the bidder's abnormal returns. These results are evidence that the efficient contract theory and the signaling theory presented above explain our main results, as they follow directly from the legal and economic differences relevant to the value and design of RTFs among these different kinds of deals.

Table 1.8

Second, we exclude those efficiently designed RTFs based on fee sizes and event triggers and those non-negative signal RTFs based on Gorton el al. (2009) model. There are 104 deals with efficient RTFs based on fee sizes, 158 deals with efficient RTFs based on event triggers and 210 deals with efficient RTFs based on Gorton el al. (2009) model. In Table 1.9, we repeat our regressions of bidder abnormal returns on inefficient RTFs using a subsample of deals excluding efficient RTFs. We find no significant change in our results.

Table 1.9

Third, in Table 1.10, we provide evidence that inefficient RTFs are correlated with a lower ***combined*** abnormal returns earned by the acquiring and target firm. The results are both qualitatively and quantitatively similar as the results for the bidder's abnormal returns

alone. This indicates that our results on RTFs are not driven by a transfer of wealth from bidder to target firms: target firms do not obtain enough more value through the deals with inefficient RTFs to compensate bidder shareholders for the negative returns in those deals. These results are consistent with the theory motivating our division of RTFs into efficient and inefficient and the ones that send negative signals and the ones that don't, rather than reflecting different bargaining outcomes or negotiation abilities for different kinds of bidders and targets.

Table 1.10

1.5.6 Additional Tests of Subsample with Delayed Contract Filings

One concern about our findings is that our results may be driven less by market responses to RTFs than by market responses to the overall deal. Indeed, some legal scholars have claimed that contract terms have no observable average impact on market prices (Manns and Anderson 2013). To address this concern, we exploit the fact that the market does not learn about the fact, size, or triggers for RTFs for more than two days in nearly a fifth of our deals. For that subsample, we can examine the market response to the contract filings, and know that the market has already had two days to impound the impact of the deal itself. We present the results of regressing cumulative abnormal returns against our three RTF variables. For this regression, we omit controls that are observable as of the date of the deal announcement, since their fact, and their interactions with the fact of the deal, will already be reflected in market prices by the time the contracts are on file. We retain our lawyer and banker controls, because those professionals are commonly identified in the SEC filings that include the deal contracts, and not in earlier press releases. Our findings are unchanged if we omit those controls as well. The results are in Table 1.11.

As can be seen, our results for rtf_size and rtf_signal persist largely intact, while our results for rtf_trigger fall in statistical significance (although the coefficient remains negative and similar). We view these results as consistent with the idea that the specific deal terms, such as RTFs can have an independent impact on bidder valuations, separate from the impact of the fact of the deal to which they relate, and as corroborating our overall finding that inefficient RTFs and negative-signal RTFs are associated with negative stock market responses.

Table 1.11

1.6 Conclusions

In this paper, we have provided the first, detailed analysis of reverse termination fees in a large hand-coded sample of acquisitions for U.S. public companies. We have found that RTFs are correlated with significant buyer stock price reactions, and that those reactions vary with the structure and design of the RTFs. RTFs that are theoretically more likely to be inefficient – those that are equal in size to the corresponding TTFs and those that are triggered by fiduciary outs by the buyers – are correlated with significant negative abnormal returns.

These results are consistent with some RTFs being well-designed for the deals in which they are included, while other RTFs reflect transaction-cost minimizing ways of negotiating and structuring deal terms – path-dependence – where RTFs simply reflect symmetrical versions of TTFs, and are not well-adapted to the specifics of a given deal. In some deal settings, such as mergers of equals, that symmetry is sensible; in those deals, RTFs and TTFs cannot actually be distinguished, since there are no true buyers or targets

in such deals. In other deal settings, such as cash deals or deals where buyers are significantly larger, use of RTFs with symmetric fees and symmetric fiduciary-duty based triggers makes less sense, since buyers and targets are unlikely to face similarly sized costs from broken deals, and since the law does not impose the same fiduciary-duty based limits on the ability of a buyer to ignore a subsequent bid, as it does on a target who receives such a third-party bid. We interpret the negative correlation between inefficiently designed RTFs and bidder announcement returns as a signal of the bidder's low commitment to the current deal.

We also find evidence consistent with Gorton et al.'s (2009) eat or be eaten model. The inclusion of RTFs with fiduciary out triggers within an industry where defensive mergers are likely to happen could generate some of the negative initial bid stock price reactions for deals that include such RTFs. The negative stock price reactions could be explained by the fact that the initial bidder is less likely and more reluctant to be taken over by a subsequent bidder. We think further research on the subsets of deals contained within clear industry deal waves is promising, as the impact of any given deal in such a setting may have clear implications for other deals.

These results suggest that deal lawyers and other participants could do well to consider the event triggers and size of RTFs more carefully, rather than to rely on deal precedent and symmetry to generate negotiation outcomes. Consistent with this implication, RTFs with symmetric fees have been declining over time, albeit not consistently – in an unreported regression of RTFs with symmetric fee sizes over time, the sign on the time variable is negative and statistically significant at the $p<.0001$ level. This

is consistent with a learning story, in which more deal participants have come to realize the potential inefficiencies of symmetric RTFs over time.

Our results also suggest that bidders should be mindful of the potential market reactions to the structure and choice of deal terms. While our research design does not allow us to make strong claims about causality, we do find that some RTFs correlate consistently and strongly with negative stock price reactions controlling for other factors that influence those overall market reactions. That suggests that bidders may be able to influence market perceptions of the likelihood of deal completion and the implications of a subsequent bid-for-bidder through their choice of deal terms.

Figure 1.1: Inefficient RTFs, Negative Signal RTFs and Other RTFs

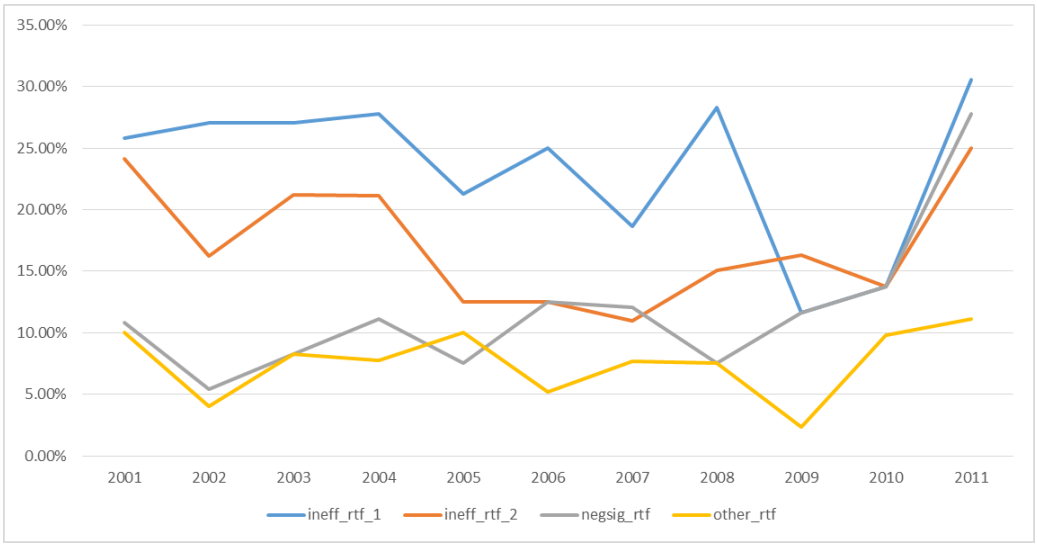

Table 1.1: Variable Definitions

Variable	Definition
rtf_size	Dummy variable for inefficient RTF based on the size of the fee. It's equal to unity if both a bidder and target termination provision are included with the bidder termination fee (only topping bid fees) less than or equal to the target termination fee, and zero otherwise.
rtf_event	Dummy variable for inefficient RTF based on its triggering events. It's equal to unity if a bidder termination provision with a fiduciary out trigger is included in a cash deal or a deal where the acquirer's firm size is much larger relative to the target's firm size, and zero otherwise.
rtf_signal	Dummy variable for negative signal RTF based on Gorton et al. (2009). It's equal to unity if a bidder termination provision with a fiduciary out trigger is included in an industry where the logarithm of the ratio of the average size of the three largest firms in the acquirer's industry to the average size of the next three largest firms is below the median level, and zero otherwise.
vault_top10_acq	Dummy variable equal to unity if the rank based on Vault for the acquiring firm's lawyer in the year prior to the merger is lower than or equal to 10, and zero otherwise.
vault_top10_tgt	Dummy variable equal to unity if the rank based on Vault for the target firm's lawyer in the year prior to the merger is lower than or equal to 10, and zero otherwise.
top_ibank_acq	Dummy variable equal to unity if the rank based on the league table for the acquiring firm's investment bank in the year prior to the merger is lower than or equal to 8, and zero otherwise.
top_ibank_tgt	Dummy variable equal to unity if the rank based on the league table for the target firm's investment bank in the year prior to the merger is lower than or equal to 8, and zero otherwise.
lockup	Dummy variable equal to unity if the deal includes a lockup agreement involving target equity, and zero otherwise.
precomp	Dummy variable equal to unity if the deal follows a prior bid within 365 calendar days, and zero if it is an initial bid.
hostile	Dummy variable equal to unity if the deal is defined as ''hostile'' by SDC, and zero otherwise.
toehold_fraction	A continuous measure of the fraction of target shares held by the bidder prior to announcement (toehold shares).
tender	Dummy variable equal to unity if the bid is structured as a tender offer, and zero otherwise.
Stock	Dummy variable equal to unity if the bid includes equity, and zero otherwise.

related	Dummy variable equal to unity if the bidder is from the same industry as the target (where industry definitions are taken from Fama and French) and zero otherwise
lnrelsize	The natural logarithm of target's market value less natural logarithm of acquirer's market value.
mkttobk_tgt	The target firm's market-to-book ratio in the fiscal year prior to the merger.
mkttobk_acq	The acquiring firm's market-to-book ratio in the fiscal year prior to the merger.
lev_tgt	The target firm's total debt divided by its total assets in the year prior to the merger.
lev_acq	The acquiring firm's total debt divided by its total assets in the year prior to the merger.

Table 1.2: Sample Creation Methodology

Sample Creation	# of observations
U.S. domestic mergers from SDC (2001-2011)	109,098
Dropped if no stock return data from CRSP	(100,610)
Initial Sample	8,488
Dropped if acquirer name equal to target name in SDC (e.g. parent-subsidiary Mergers)	(6,681)
Dropped if the form is not "merger" in SDC (e.g. equity carve outs)	(281)
Dropped if form 8K is not filed with the SEC	(280)
Dropped if no merger agreement in form 8K	(351)
Dropped if any independent variables in regression are missing	(76)
Final Sample	819

Table 1.3: Descriptive Statistics

All variables related to reverse termination fees are defined in Table 1.

Variable	Mean	Median	Standard Deviation
rtf_size	0.24	0.00	0.43
rtf_event	0.17	0.00	0.38
rtf_signal	0.11	0.00	0.31
vault_top10_acq	0.26	0.00	0.44
vault_top10_tgt	0.17	0.00	0.38
top_ibank_acq	0.50	0.00	0.50
top_ibank_tgt	0.44	0.00	0.50
lockup	0.03	0.00	0.16
precomp	0.06	0.00	0.23
hostile	0.01	0.00	0.08
toehold_fraction	0.31	0.00	2.70
tender	0.16	0.00	0.36
stock	0.65	1.00	0.48
related	0.69	1.00	0.46
lnrelsize	-2.28	-2.06	1.79
mkttobk_tgt	1.79	1.31	1.47
mkttobk_acq	1.94	1.45	1.45
lev_tgt	0.18	0.13	0.20
lev_acq	0.20	0.16	0.18

Table 1.4: Bidder Abnormal Returns

This table contains means and medians for bidder announcement abnormal returns in 819 public deals from 2001 to 2011. Panel A reports bidder daily abnormal returns. Panel B reports bidder cumulative abnormal returns over two periods, i.e. event day –1 to event day +1, event day –3 to event day +3, where event day 0 is the merger agreement filing date. The abnormal returns are measured relative to a market model estimated for the bidder over a 240-day period ending 60 days prior to merger agreement filing date. ***, **, * are for a two-tailed t-test and indicates statistical significance at the 1%, 5%, or 10% level, respectively.

Panel A: Daily Abnormal Returns		
Date	Mean	Median
-3	-0.01%	-0.08%
-2	-0.01%	-0.12%
-1	-0.50%***	-0.25%***
0	-0.95%***	-0.46%***
+1	0.15%	-0.07%
+2	-0.08%	-0.06%
+3	-0.03%	-0.11%
Panel B: Cumulative Abnormal Returns [CAR]		
CAR[periods]	Mean	Median
CAR[-1,+1]	-1.31%***	-0.71%***
CAR[-3, +3]	-1.45%***	-1.33%***

Table 1.5: Bidder CARs and RTFs

This table reports the OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in Table 1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.0182**		
	(-2.14)		
rtf_event		-0.0334***	
		(-3.21)	
rtf_signal			-0.0241**
			(-2.00)
vault_top10_acq	0.0042	0.0028	0.0039
	(0.68)	(0.45)	(0.63)
vault_top10_tgt	-0.0113	-0.0103	-0.0123*
	(-1.52)	(-1.42)	(-1.66)
top_ibank_acq	0.0002	0.0015	0.0008
	(0.04)	(0.25)	(0.14)
top_ibank_tgt	0.0003	0.0016	0.0004
	(0.04)	(0.25)	(0.06)
lockup	-0.0033	-0.0084	-0.0003
	(-0.18)	(-0.46)	(-0.01)
precomp	0.0080	0.0045	0.0075
	(0.67)	(0.38)	(0.63)
hostile	0.0506***	0.0454***	0.0498***
	(2.90)	(2.81)	(3.17)
toehold_fraction	-0.0001	-0.0001	-0.0001
	(-0.23)	(-0.09)	(-0.12)
tender	0.0093	0.0080	0.0106
	(1.36)	(1.19)	(1.56)
stock	-0.0195***	-0.0159***	-0.0190***
	(-3.26)	(-2.70)	(-3.16)
lnrelsize	-0.0012	-0.0009	-0.0018
	(-0.57)	(-0.42)	(-0.86)
related	-0.0008	-0.0006	-0.0006
	(-0.14)	(-0.11)	(-0.10)
mkttobk_tgt	-0.0006	-0.0012	-0.0007
	(-0.34)	(-0.68)	(-0.38)
mkttobk_acq	-0.0016	-0.0010	-0.0013
	(-0.74)	(-0.46)	(-0.59)
lev_tgt	0.0098	0.0101	0.0102
	(0.56)	(0.57)	(0.58)
lev_acq	0.0109	0.0144	0.0142
	(0.52)	(0.69)	(0.66)
n	772	772	772
Adjusted R^2	0.048	0.060	0.047

Table 1.6: Deal completion rates and RTFs

This table reports the Probit regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is the dummy variable for deal completion and it equals to unity when the deal is completed, and zero otherwise. All independent variables are defined in Table 1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a one-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.2530*		
	(-1.55)		
rtf_event		0.0599	
		(0.31)	
rtf_signal			-0.7086***
			(-3.29)
vault_top10_acq	0.4813***	0.4734***	0.4732***
	(2.36)	(2.35)	(2.32)
vault_top10_tgt	-0.0196	-0.0457	-0.0215
	(-0.11)	(-0.25)	(-0.12)
top_ibank_acq	0.1274	0.1239	0.1723
	(0.77)	(0.76)	(1.04)
top_ibank_tgt	0.2565*	0.2240*	0.3235**
	(1.52)	(1.34)	(1.90)
lockup	-0.2815	-0.2442	-0.2259
	(-0.73)	(-0.64)	(-0.55)
precomp	-1.2018***	-1.1796***	-1.3038***
	(-4.65)	(-4.62)	(-5.18)
hostile	0.3449	0.4370	0.3096
	(0.44)	(0.55)	(0.38)
toehold_fraction	0.0038	0.0032	0.0042
	(0.20)	(0.16)	(0.19)
tender	-0.2764	-0.2480	-0.3116
	(-1.07)	(-0.96)	(-1.19)
stock	-0.5200***	-0.5832***	-0.5242***
	(-2.18)	(-2.38)	(-2.04)
lnrelsize	-0.1192***	-0.1476***	-0.1138***
	(-2.11)	(-2.73)	(-2.01)
related	0.2055*	0.2206*	0.2330*
	(1.38)	(1.47)	(1.52)
mkttobk_tgt	-0.0007	-0.0040	-0.0089
	(-0.01)	(-0.07)	(-0.15)
mkttobk_acq	0.0384	0.0296	0.0594
	(0.62)	(0.50)	(0.88)
lev_tgt	-0.2960	-0.3295	-0.2918
	(-0.68)	(-0.73)	(-0.67)
lev_acq	0.3361	0.3767	0.4656
	(0.67)	(0.74)	(0.97)
n	745	745	745
Pseudo R^2	0.178	0.174	0.196

Table 1.7: Tests for Alternative Hypotheses

This table reports the second-stage OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. In Panel A, *rtf_size_res* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_size* on *acq_insiderown*). *rtf_event_res* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_event* on *acq_insiderown*). *rtf_signal_res* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_signal* on *acq_insiderown*). *acq_insiderown* is defined as the insiders' ownership in the bidding firms before the merger event. In Panel B.1, *rtf_size_res_v2* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_size* on *repeatbidder*). *rtf_event_res_v2* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_event* on *repeatbidder*). *rtf_signal_res_v2* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_signal* on *repeatbidder*). *repeatbidder* is equal to one if there is a repeat bidder in the subsequent deal and zero otherwise. In Panel B.2, *rtf_size_res_v3* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_size* on *repeatlawyer*). *rtf_event_res_v4* is defined as the residual variable from the first stage regression (i.e. regress *rtf_event* on *repeatlawyer*). *rtf_signal_res_v4* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_signal* on *repeatlawyer*). *repeatlawyer* is equal to one if there is a repeat bidder side lawyer in the subsequent deal and zero otherwise. In Panel B.3, *rtf_size_res_v4* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_size* on *repeatbidder_lawyer*). *rtf_event_res_v4* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_event* on *repeatbidder_lawyer*). *rtf_signal_res_v4* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_signal* on *repeatbidder_lawyer*). *repeatbidder_lawyer* is equal to one if there is a bidder-lawyer pair in the subsequent deal and zero otherwise. In Panel C, *rtf_size_res_v5* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_size* on *law_lowacq_hightgt*). *rtf_event_res_v5* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_event* on *law_lowacq_hightgt*). *rtf_signal_res_v5* is defined as the residual variable from the first-stage regression (i.e. regress *rtf_signal* on *law_lowacq_hightgt*). *law_lowacq_hightgt* is equal to one if there is a less reputable bidder lawyer (i.e. *vault_top10_acq* equal to zero) and reputable target lawyer (i.e. *vault_top10_tgt* equal to one) and zero otherwise. All control variables are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

Panel A: Managerial Agency Hypothesis			
	(1)	(2)	(3)
rtf_size_res	-0.0355**		
	(-2.17)		
rtf_event_res		-0.0510***	
		(-3.20)	
rtf_signal_res			-0.0311**
			(-2.02)
n	772	772	772
Adjusted R^2	0.048	0.060	0.047
Panel B.1: Repeat Bidder Hypothesis			
	(1)	(2)	(3)
rtf_size_res_v2	-0.0284*		
	(-1.78)		
rtf_event_res_v2		-0.0482***	
		(-2.96)	
rtf_signal_res_v2			-0.0302*
			(-1.89)
n	772	772	772
Adjusted R^2	0.045	0.057	0.046

Panel B.2: Repeat Lawyer Hypothesis			
	(1)	(2)	(3)
rtf_size_res_v3	-0.0348**		
	(-2.13)		
rtf_event_res_v3		-0.0512***	
		(-3.13)	
rtf_signal_res_v3			-0.0309**
			(-2.00)
n	772	772	772
Adjusted R^2	0.048	0.060	0.047
Panel B.3: Repeat Bidder-Lawyer Pair Hypothesis			
	(1)	(2)	(3)
rtf_size_res_v4	-0.0331**		
	(-2.11)		
rtf_event_res_v4		-0.0514***	
		(-3.19)	
rtf_signal_res_v4			-0.0314**
			(-1.97)
n	772	772	772
Adjusted R^2	0.047	0.059	0.047
Panel C: Bargaining Hypothesis			
	(1)	(2)	(3)
rtf_size_res_v5	-0.0367**		
	(-2.25)		
rtf_event_res_v5		-0.0515***	
		(-3.21)	
rtf_signal_res_v5			-0.0332**
			(-2.17)
n	772	772	772
Adjusted R^2	0.048	0.060	0.048

Table 1.8: Bidder CARs and RTFs with Alternative Event Window

This table reports the OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 3 to event day +3, where event day 0 is the merger agreement filing date. All independent variables are defined in Table 1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.0266**		
	(-2.41)		
rtf_event		-0.0468***	
		(-3.51)	
rtf_signal			-0.0463***
			(-3.40)
vault_top10_acq	0.0091	0.0071	0.0083
	(1.21)	(0.95)	(1.12)
vault_top10_tgt	-0.0114	-0.0100	-0.0130
	(-1.20)	(-1.08)	(-1.39)
top_ibank_acq	-0.0045	-0.0026	-0.0035
	(-0.62)	(-0.36)	(-0.48)
top_ibank_tgt	-0.0021	-0.0002	-0.0013
	(-0.27)	(-0.03)	(-0.18)
lockup	-0.0186	-0.0256	-0.0139
	(-0.73)	(-0.98)	(-0.56)
precomp	0.0008	-0.0041	-0.0002
	(0.06)	(-0.30)	(-0.01)
hostile	0.0899**	0.0829**	0.0866**
	(2.09)	(2.01)	(2.17)
toehold_fraction	-0.0015*	-0.0013	-0.0014
	(-1.88)	(-1.56)	(-1.59)
tender	0.0112	0.0095	0.0128
	(1.22)	(1.06)	(1.41)
stock	-0.0207***	-0.0156**	-0.0190**
	(-2.75)	(-2.15)	(-2.49)
lnrelsize	-0.0000	0.0003	-0.0005
	(-0.02)	(0.10)	(-0.20)
related	0.0070	0.0073	0.0072
	(0.96)	(1.01)	(0.97)
mkttobk_tgt	-0.0012	-0.0021	-0.0012
	(-0.40)	(-0.73)	(-0.41)
mkttobk_acq	-0.0053**	-0.0045*	-0.0046*
	(-1.99)	(-1.70)	(-1.72)
lev_tgt	0.0043	0.0048	0.0053
	(0.20)	(0.22)	(0.24)
lev_acq	0.0126	0.0175	0.0188
	(0.48)	(0.67)	(0.70)
n	772	772	772
Adjusted R^2	0.045	0.060	0.052

Table 1.9: Bidder CARs and RTFs with Alternative Control Group

This table reports the OLS regression results for a sample of public deals from 2001 to 2011 excluding the ones with efficient RTFs or non-negative signal RTFs. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in Table 1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.0209**		
	(-2.30)		
rtf_event		-0.0368***	
		(-3.29)	
rtf_signal			-0.0328**
			(-2.43)
vault_top10_acq	0.0009	0.0020	-0.0015
	(0.13)	(0.32)	(-0.24)
vault_top10_tgt	-0.0088	-0.0117	-0.0044
	(-1.04)	(-1.42)	(-0.55)
top_ibank_acq	0.0025	0.0026	0.0078
	(0.40)	(0.41)	(1.34)
top_ibank_tgt	0.0026	-0.0039	-0.0054
	(0.39)	(-0.59)	(-0.86)
lockup	-0.0040	-0.0030	-0.0081
	(-0.20)	(-0.15)	(-0.40)
precomp	0.0094	0.0058	0.0088
	(0.71)	(0.39)	(0.69)
hostile	0.0399**	0.0303	0.0250
	(2.13)	(1.57)	(1.16)
toehold_fraction	-0.0004	-0.0002	-0.0002
	(-0.57)	(-0.34)	(-0.23)
tender	0.0089	0.0081	0.0070
	(1.22)	(1.18)	(1.00)
stock	-0.0194***	-0.0179**	-0.0143**
	(-2.91)	(-2.57)	(-2.06)
lnrelsize	-0.0002	0.0014	0.0014
	(-0.10)	(0.61)	(0.60)
related	-0.0051	-0.0080	-0.0139**
	(-0.80)	(-1.23)	(-2.22)
mkttobk_tgt	-0.0001	-0.0010	-0.0023
	(-0.08)	(-0.43)	(-1.01)
mkttobk_acq	0.0002	0.0001	0.0014
	(0.09)	(0.02)	(0.64)
lev_tgt	0.0100	0.0117	-0.0038
	(0.52)	(0.60)	(-0.19)
lev_acq	0.0159	0.0078	0.0240
	(0.73)	(0.32)	(1.24)
n	674	620	570
Adjusted R^2	0.040	0.049	0.018

Table 1.10: Combined Bidder and Target CARs and RTFs

This table reports the OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is the value-weighted combined firm's cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in Table 1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicates statistical significance at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.0157**		
	(-2.18)		
rtf_event		-0.0332***	
		(-3.94)	
rtf_signal			-0.0312***
			(-3.14)
vault_top10_acq	0.0024	0.0010	0.0019
	(0.48)	(0.20)	(0.37)
vault_top10_tgt	-0.0147**	-0.0135**	-0.0156**
	(-2.35)	(-2.25)	(-2.52)
top_ibank_acq	-0.0025	-0.0012	-0.0019
	(-0.46)	(-0.23)	(-0.36)
top_ibank_tgt	0.0003	0.0018	0.0009
	(0.05)	(0.30)	(0.15)
lockup	-0.0008	-0.0062	0.0021
	(-0.06)	(-0.42)	(0.15)
precomp	0.0034	-0.0001	0.0028
	(0.33)	(-0.01)	(0.26)
hostile	0.0371*	0.0314*	0.0344**
	(1.92)	(1.74)	(2.02)
toehold_fraction	-0.0006	-0.0005	-0.0005
	(-0.89)	(-0.71)	(-0.76)
tender	0.0134*	0.0118	0.0142*
	(1.70)	(1.51)	(1.79)
stock	-0.0240***	-0.0202***	-0.0227***
	(-4.19)	(-3.47)	(-3.97)
lnrelsize	0.0088***	0.0093***	0.0086***
	(4.31)	(4.61)	(4.25)
related	0.0017	0.0018	0.0017
	(0.32)	(0.35)	(0.33)
mkttobk_tgt	-0.0021	-0.0027*	-0.0021
	(-1.35)	(-1.70)	(-1.29)
mkttobk_acq	0.0000	0.0007	0.0005
	(0.02)	(0.36)	(0.28)
lev_tgt	0.0152	0.0156	0.0158
	(1.01)	(1.02)	(1.05)
lev_acq	0.0141	0.0175	0.0182
	(0.86)	(1.06)	(1.11)
n	772	772	772
Adjusted R^2	0.071	0.088	0.079

Table 1.11: Bidder CARs for Subsample with Delayed Contract Filings

This table reports the OLS regression results for a subsample of public deals from 2001 to 2011 with the merger agreement filing date more than 2 days after the deal announcement. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in Table 1. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * are for a two-tailed t-test and indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)
rtf_size	-0.0268**		
	(-2.29)		
rtf_event		-0.0187	
		(-1.56)	
rtf_signal			-0.0206*
			(-1.69)
vault_top10_acq	0.0214**	0.0238**	0.0250**
	(2.02)	(2.19)	(2.27)
vault_top10_tgt	0.0025	-0.0033	-0.0021
	(0.21)	(-0.29)	(-0.18)
top_ibank_acq	-0.0004	0.0016	0.0008
	(-0.04)	(0.15)	(0.08)
top_ibank_tgt	0.0017	0.0003	0.0011
	(0.15)	(0.03)	(0.09)
lockup	0.0199	0.0169	0.0208
	(0.97)	(0.81)	(0.99)
n	217	217	217
Adjusted R^2	0.032	0.013	0.010

Chapter 2: ARE MERGER CLAUSES VALUE RELEVANT TO BIDDER AND TARGET SHARHOLDERS?

(Jointly with John C. Coates, IV and Darius Palia)

2.1 Introduction

A large financial economics literature [1] has found that shareholders earn significant abnormal returns over the market on announcement of a merger and acquisition transaction. These studies have found that target shareholders earn positive abnormal returns of between 20 percent and 35 percent, whereas bidder shareholders earn zero to small negative abnormal returns. However, every merger and acquisition deal is governed by a set of contracts terms that are described in detail in the merger agreement filed with the SEC. These contract terms often called "merger clauses" are negotiated between the bidder and target in order to communicate deal terms, specify risk sharing between the parties, and describes dispute management provisions in case of litigation (see Coates 2015 for a detailed description of these clauses).

This paper examines the impact of merger clauses on the abnormal returns earned by target and bidder firms, respectively. In doing so, this paper makes the following contributions: First, we manually collect detailed information for a large set of merger clauses for 819 U.S. publicly traded target firms for the period 2001-2011. Second, based on legal scholars' ex-ante predictions we create three merger clause indices[2], namely the

[1] See the surveys of Jensen and Ruback (1983), Jarrell, Brickley and Netter (1988), Andrade, Mitchell and Stafford (2001), and Bruner (2002).

[2] See Section II of this paper for detailed description of the various merger clauses and the three indices that are used to capture them.

bidder protective clause index, the target protective clause index, and pro-competition clause index, that encapsulate many merger clauses used in legal practice. Merger clauses included are reverse termination fees, termination fees, termination duration, MAC clauses, match rights, buyer financing conditions, buyer shareholder approval conditions, go shop provisions and walk away rights. Third, we examine if the merger clause indices are related to the abnormal returns earned by target and bidder firms, respectively; fourth, we examine if the merger clause indices are related to the probability of deal completion. And finally, fifth, we examine if there is a differential effect on the relationship between merger clause indices and abnormal returns for stock and cash financed deals.

There are two opposing a priori views on the expected relationship between merger clauses and the abnormal returns earned by target and bidder firms. One the one hand, merger clauses might not have any significant effect on the abnormal returns as they are "boilerplate" agreements charged by overpaid lawyers (see Manns and Anderson (2012), and Manns and Anderson (2016)). On the other hand, merger clauses might have a significant effect because they are drafted by expert lawyers in efficient contracts that modify to fit each individual deal. Such contract language modifications evolve either in reaction to new case law or statutes or financial risks, or by learning from the 'best practices' of other deal lawyers (see Cain, Macias, and Davidoff Solomon (2014), and Coates (2016)).

We also examine if these merger indices have a differential effect among "bad" and "good" deals. We use an ex-ante definition of "good" and "bad" deals. Specifically, we

define a "good" deals when the transaction involves the use of cash only as the medium of exchange, and all other transactions as "bad" deals. [3]

We find the following results. First, we find that bidder protective merger clauses increase the bidder's abnormal returns. Second, we find that target protective clauses increases the target's abnormal returns. Third, we find that pro-competition merger clauses result in higher abnormal returns for targets, but have no significant effect for bidders. These results show that merger clauses have a significant impact on the abnormal returns of bidder and target firms which is consistent with the expert drafting view of Cain, Macias, and Davidoff Solomon (2014) and Coates (2016), and against the boilerplate view of Manns and Anderson (2012), and Manns and Anderson (2016).

Fourth, we find that buyer protective clauses decrease the probability of deal completion, whereas the target protective and pro-competition clauses have an insignificant impact on the probability of deal completion. Fifth, we find that the bidder and target protective indices to be more positively related to abnormal returns for "bad' deals than for "good" deals. Additionally, we find that the effect of pro-competition indices on target abnormal returns is on average larger for "good' deals than for "bad" deals but the difference is not statistically significant at the usual cutoff level.

A few studies have examined the impact of one merger clauses on bidder and/or target abnormal returns. Officer (2003) finds that termination fees increase the target's abnormal returns while having no impact on the bidder's abnormal returns. Bates and Lemmon (2003) find that target termination fees are not related to bidder and target

[3] We do not have enough deals that involve the use of stock only as the medium of exchange.

abnormal returns, whereas bidder termination fees are negatively related to target abnormal returns. Mahmudi, Virani and Zhao (2016) find that bidder termination fees increase abnormal returns when the bidder fee is not equal to the target fee. Coates, Palia and Wu (2017) find that bidder termination fees, which are theorized by others to reflect inefficient design, or to send a negative value signal from managers seeking to "eat" rather than "be eaten" in consolidating industries, correlate with lower bidder returns. But Coates (2015) points out that many contract terms are typically chosen together in a package of negotiated terms. Accordingly, we differ from this literature in the following ways. First, we create merger clauses indices so as to aggregate the impact of clauses that ex-ante seem to capture the same economic argument. Second, we manually collected merger clauses whereas the prior studies use SDC data. We find that SDC often has incorrect information than those specified in the merger agreement. Third, we have included data on new clauses which become popular in recent years (for example, go shop provisions and match rights provisions), and sometimes have more details about a merger clause (for example, fee triggers for termination clauses and reverse termination clauses).

This paper proceeds as follows. Section 2.2 provides background information on three groups of merger clauses and Section 2.3 explains the related literature. Section 2.4 describes our data and index construction. Our empirical results are reported in Section 2.5, and Section 6 presents our conclusions.

2.2 Value-Relevant Merger Clauses

In this section we explain in detail the value-relevant merger clauses and how we categorize them based on legal scholars' ex-ante predictions. Table 2.1 summarizes the definitions of each value-relevant merger clause and its category.

*** Tables 2.1***

2.2.1 Bidder Protective Clauses

Bidder protective clauses address two types of risks. First, if the target is less valuable than what the bidder initially thought and there are other deals superior to the current transaction, they can give the bidder a right to walk away from the deal. Second, if the financing condition, regulatory approval process, time to deal completion or other contract risks are much worse for this deal than what bidder initially thought, the bidder can also use these protective clauses to abandon the deal. Bidder protective clauses include reverse termination fees (henceforth, referred to as RTFs), termination duration, financing condition, bidder shareholder approval and material adverse changes (henceforth, referred to as MAC).

RTFs are provisions in merger contracts that permit a bidder to terminate a proposed acquisition of a target firm for a fixed fee. RTFs can be efficient if they specify risks and allocate them to the party best able to bear that risk, and if the other deal terms (including price) reflect that risk allocation. The "price" of a risk allocated through an RTF would in theory be optimally based on estimates of the probability and the cost of realization of that risk. But contract terms are sometimes drafted based on non-analogous precedents, or crude or stale estimates of probability and cost of risks. Such terms can even

be ex ante efficient by reducing negotiation costs, but exhibit path dependence and result in terms that are ex post value loss. To empirically model these possibilities, we draw on prior theoretical work by others. First, we define an "inefficient" RTF based on the size of the fee. Afsharipour (2010) and Quinn (2010) suggest that an RTF should be priced higher than a TTF to compensate for the higher costs incurred by the target if the deal does not go through. We thus classify an RTF with a smaller or equal size than a TTF as "inefficient." Second, again drawing on prior theoretical work, we define "inefficient" RTFs if they include triggers that do not reflect exogenous risk (such as regulatory review), but instead reflect (and may add to) agency costs on the part of the buyer managers. In a cash deal, or a deal where the acquirer's firm size is much larger relative to the target's firm size, an RTF with a fiduciary out trigger has been identified as legally unnecessary by others. (Quinn 2010; cf. Wulf 2004) We then define an "efficient" RTF as the one with fee size higher than a TTF and without a fiduciary out trigger in a cash deal or a non-MOE stock deal.

Termination date is the date both parties specify in the termination section of the merger agreement. We define termination duration as the time between deal announcement and that specified date. This is the time period both parties are committed to the deal. Both parties have the right to walk away from the deal once they cannot consummate it by the termination date. For a good deal, a longer duration should be beneficial to the bidder as it gives the parties more time to get the deal done, and prevents one or both from walking away at the termination date. However, having a longer duration for a bad deal gives the bidder more exposure to deal failure risks and should be costly to the bidder.

Financing condition is a condition to the bidder's obligation and let the bidder refuse to close the deal unless he is able to get enough financing to fund the deal.

For the tender offer deals, having shareholder approval rights in the buyer condition section of a merger agreement offers certain protection for the bidder's shareholders.

MAC clauses permit a bidder to cancel the deal, without penalty, if a material adverse event (henceforth, referred to as MAE) occurs between the deal announcement and completion. MAEs include terms that deal with the target's financial condition, the target's or bidder's ability to close the deal, securities or purchased assets and etc. The bidder's exit right encourages the target to make synergy investments that would enhance the value of the combined entity. Gilson and Schwartz (2005) show that MAC clauses protect the bidder and allocate endogenous risk to the target.

2.2.2 Target Protective Clauses

Target protective clauses include termination duration, MAC exceptions and walkaway clauses. They protect the target under different adverse events specified in the contract terms.

A longer termination duration will keep both parties committed to the deal for a longer horizon. Once the deal is signed, the target has the greatest interest in trying to keep the deal intact as it is to receive a more or less certain premium.

MAC exception events limit the strength of a bidder's abandonment option. The exceptions specify domains over which a MAC event cannot occur. And they include a

change in trading price or volume of company's stock, changes in interest or exchange rates, war, terrorism, acts of God, political volatility, legal change, national and international calamities and etc. Gilson and Schwartz (2005) argue that they protect the target and impose exogenous risk on the bidder.

Walkaway clauses provide the target the ability to walk away if there's a big drop in the bidder's share price and this level of price drop is measured as a percentage decrease from the deal announcement stock price or a relative decrease to the index level. They protect the target's market downside risk when the bidder uses stocks as its deal currency.

2.2.3 Pro Competition Clauses

Pro competition clauses manage the bidding and deal negotiation process. They either give the target rights to solicit or consider competitive bids or give the initial bidder rights to match superior third party offers. Termination fees (henceforth, referred to as TFs), go-shop clauses and match rights fall into this category.

TFs are compensatory payments made by the target to the bidder if the target cannot consummate the deal. Most of TFs are triggered if the target's board decides that a proposed third party offer is superior to the current deal before the vote of the target's shareholders. Using SEC filings that correctly identifies the incidence of termination fee clause, Boone and Mulherin (2007) provide evidence that TFs enhance rather than impede takeover competition.

Go-shop provisions become an important innovative deal-making technology during the private equity boom of 2005-2007. With this affirmative right, the target has

thirty to fifty days to find a topping bid after announcing the deal. Subramanian (2007) examines the effects of go-shop provisions and shows that they yield more aggregate search, significant post-signing competition, and slightly higher returns to target shareholders than traditional no-shop deals. And this finding is consistent with the view that a go-shop clause is an efficient contract design which culminates the takeover competition and works to the target's advantage.

Match rights provide the initial bidder a cushion of time and detailed information about any competing bid before the target terminates the current deal and pursues a superior offer. It offers the right-holder the time and information with which to determine whether or not to meet the second bid. Therefore, it places the initial bidder in a superior position relative to the subsequent bidders. But Quinn (2011) argues that reasonable uses of match rights may reduce the initial bidder's uncertainty costs and induce it to make transaction-specific investments.

2.2.4 Value-Relevant Merger Clauses Indices

In section 2.2.1-2.2.3 we provide detailed descriptions of all the value-relevant merger clauses and divide them into three groups based on legal scholars' ex-ante predictions. We build an aggregate index for each group of merger clauses in the same spirit of the Entrenchment Index created by Bebchuk, Cohen, and Ferrell (2009). For most of the clauses, we add one point to the relevant indices for its existence. These clauses include financing condition, buyer shareholder approval, match rights, go-shop clauses and walkaway clauses.

There are several exceptions: RTFs, termination duration, MAC clauses, MAC Exclusions and TFs. As noted earlier, we only code "efficiently" designed RTFs as one of the bidder protective clauses and give one point to the bidder protective index for its existence. Termination duration has different impacts on the bidder and the target shareholders, as is discussed in section II. We calculate the median number of termination duration and label a deal as having a longer (shorter) termination duration if its termination duration is greater (less) than the median level. As we explain in section II, a longer termination duration is bidder protective for a "good" deal and we add one point to the bidder protective index if a "good" deal has an above-median termination duration. On the other hand, a shorter termination duration is bidder protective and target protective for a "bad" deal. Therefore, we add one point to the bidder protective index and the target protective index if a "bad" deal has a below-median termination duration. For all the deals, we don't include termination duration in the bidder protective index since it has opposite effects on the bidder CARs while we give one point to the target protective index if a deal has a below-median termination duration. Legal scholars such as Gilson and Schwartz (2005) have suggested that MAC clauses protect the bidder and MAC exclusions protect the target. We follow Talley (2009) and use MEPerc, which measures the total number of MAC/MAE provisions relative to the total number of provisions (MAC/MAEs plus exceptions), as a proxy for MAC clauses and its exclusions. MEPerc is a convenient scoring rule, as it is bounded theoretically below by zero and above by (approximately) one, thereby facilitating the construction of our indices. We add MEPerc to the bidder protective index and add (1-MEPerc) to the target protective index. For TTFs we only code

the existence of the ones triggered by competitive bid outs and add that to the target protective index.

2.3 Related literature

The prior literature on value-relevant merger clauses is limited. A few of them examine the relationship between an individual merger clause and bidder or target abnormal returns. Officer (2003) and Bates and Lemmon (2003) show that termination fees are efficient contract terms in the sense that they result in higher deal premiums, deal completion rates and target CARs. Bates and Lemmon (2003) also find that bidder's termination fees are used to secure a fraction of target wealth gains in deals with higher negotiation and bid failure costs. Mahmudi, Virani and Zhao (2016) suggest that RTFs are real options on a firm's assets and they find that the abnormal returns of the combined firm are higher when the bidder's termination fee is not equal to the target's termination fee. Coates, Palia and Wu (2017) find that RTFs can be inefficiently designed, or during industry deal waves also send a negative "signal" to the market that a given bidder's managers are not interested in being acquired, resulting in lower bidder abnormal returns.

There are many papers that examine individual merger clauses but do not relate them to bidder or target abnormal returns. Denis and Macias (2013) argue that MAC clauses have an economically important impact on the takeover dynamics. They show that deals with fewer MAC exclusions are associated with higher arbitrage spreads and deal premiums. Legal scholars also examine some of the protective or pro-competition

provisions such as MAC clauses (Gilson and Schwartz, 2005), go-shop clauses (Subramanian 2007) and match rights (Quinn 2011).

Our paper contributes to this literature in the following ways. First, we systematically examine the overall wealth effects of protective clauses and pro-competition clauses by creating value-relevant merger clauses indices. Second, we use manually coded data from SEC filings to better identify merger contract provisions.

2.4 Data and Value-Relevant Merger Clauses Indexes

2.4.1 Data

We begin creating our sample of merger and acquisition deals by examining Thomson Securities Data Company's (SDC) Domestic Merger Database from January 2001 through December 2011. This results in 109,098 observations. We drop any transactions where we could not obtain stock return data from the Center for Research in Security Prices (CRSP). This results in an initial sample of 8,488 observations. We then examine SDC for these transactions. We drop deals where SDC show the name of the acquirer to be the same as the name of the target as in parent-subsidiary mergers (6,681 observations), and when SDC show the form of the deal not to be a merger as in the case of equity carve outs (281 observations). For this remaining sample we go to SEC's Edgar database in order to obtain the firm's Form 8K. We find 280 deals where we could not find the firm's Form 8K. Among those that we find, 351 observations do not have merger agreements. This results in a sample of 895 transactions. We then manually examine the merger agreements and supplement each one with stock return data to create our

independent variables. By this process we lose 76 transactions resulting in a final sample of 819 transactions. A summary of our data collection methodology is given in Table 2.2.

Table 2.2

2.4.2 Value-Relevant Merger Clauses Indexes

Panel A of Table 2.3 contains descriptive statistics for value-relevant merger clauses indices. The average level of buyer protective index is 0.61 with a standard deviation of 0.53. On average the value of pro-competition index for our sample is 1.85 with a standard deviation of 0.43. The average level of target protective index is 1.43 and its standard deviation is 0.57. Panel B of Table 2.3 shows the raw correlation between these three indices. All these pairwise correlation coefficients are very small and this is consistent with our ex-ante predictions that merger clauses in different groups address different types of risk. Panel C of Table 2.3 provides descriptive statistics of individual merger clauses which are the components of these indices. TFs triggered by competitive bid outs (97%) and match rights (86%) are quite common provisions and this explains the high level of pro-competition index. Financing condition (9%) and buyer shareholder approval (1%) are really rare in our sample and it's the efficient RTFs (14%) and MAC clauses (with a MEPerc score of 0.32) that are driving the buyer protective index. Among the target protective clauses, 16% of the deals have walkaway provisions and the proxy for MAC exclusions is 1-MEPerc which has an average value of 0.68 for our sample deals.

Table 2.3

2.5 Empirical Results

2.5.1 Abnormal returns

In Panel A and C of Table 2.4, we calculate the mean and median bidder's and target's daily abnormal returns around the merger agreement filing date. As noted above, market participants can only evaluate RTF terms when they have access to the merger contract. In our sample, 19% of the merger agreements are filed with the SEC at least two days after the deal announcement date. To address this issue, we use the merger agreement filing date as the event day, rather than deal announcements, as is more common in merger event studies.

In Panel B and D, we report two sets of bidder and target cumulative abnormal returns (CARs). These sets are one day before and one day after the merger agreement filing date (CAR [-1, +1]), and three days before and three days after the merger agreement filing date (CAR [-3, +3]), respectively.

Table 2.4

In Panel A, we find statistically significant negative abnormal returns especially around the merger agreement filing date in the period [-1, 0]. Roughly 59% of our sample deals have negative filing date announcement returns. In Panel C, we find statistically significant negative abnormal returns especially around the merger agreement filing date in the period [-3, +1]. In Panel B, we find that the average and median CARs for [-1, +1] and [-3, +3] are negative and statistically significant at the one-percent level. In Panel D, we find that the average and median CARs for [-1, +1] and [-3, +3] are positive and statistically significant at the one-percent level. In the analysis that follows, we use the

CAR [-1, +1] window as our main dependent variable, and use the CAR [-3, +3] window as a robustness test.

2.5.2 Abnormal returns and Value-Relevant Merger Clauses Indexes

We then examine the effects of the three types of merger clauses on announcement CARs. In Table 2.5 we present regressions of bidder and target three-day period [-1, +1] announcement CARs on three merger clauses indices and deal and firm characteristic variables. In row (1), we find that a one standard deviation increase in bidder protective index value results in an increase in bidder announcement CARs of 1.02% (0.53 * 1.93%) and it translates into a shareholder wealth gain of $25.6 million for a median sized acquiring firm. This result is statistically significant at the 1% level. We don't find any evidence that target protective and pro-competition indices have impacts on bidder returns. In row (2), we estimate a more fully specified regression model. We add agency proxies including the firms' free cash flow (*fcf_tgt* and *fcf_acq*) and the fractional ownership of the managers (*tgt_insiderown* and *acq_insiderown*) prior to the bid and proxies for information asymmetry between targets and bidders including the firms' market-to-book ratios (*mkttobk_tgt* and *mkttobk_acq*) prior to the bid. The coefficient on bidder protective index remains positive and the significance level is unchanged. We do find some weak evidence that deals with higher value of target protective indices have lower bidder announcement CARs. This might be driven by the fact that deals with higher number of MAE exclusion events limit the bidders' walk away rights and therefore lead to lower bidder returns. But we still don't find any value effect of pro-competition clauses on bidder returns. In row (3) and (4), we summarize regressions of target announcement CARs on merger clauses

indices and various control variables. We find that a one standard deviation increase in target protective index value results in at least an increase in target announcement CARs of 1.45% (0.57 * 2.54%) and it translates into a shareholder wealth gain of $3.40 million for a median sized target firm. This result is statistically significant at the 10% level. We also find that a one standard deviation increase in pro-competition index value results in at least an increase in target announcement CARs of 1.96% (0.43 * 4.56%) and it translates into a shareholder wealth gain of $4.61 million for a median sized target firm. This result is statistically significant at the 5% level. All the evidence is consistent with the efficient contracting hypothesis that bidder protective clauses benefit bidder shareholders while target protective clauses and pro- competition clauses benefit target shareholders. [4]

Among the control variables, the signs are similar to those found in many previous studies of merger announcement returns, although some are insignificantly different from zero. Deals with higher percentage of cash as their currency have higher announcement period returns. Announcement CARs are lower if the target firms' sizes are higher comparing to the bidder firms' sizes.

Table 2.5

In Table 2.6, we run the same set of regressions using a longer event window [-3, +3] around the merger agreement filing date to test the robustness of our results. We find that all our results of Table 2.5 hold, but are slightly stronger in both economic and statistical terms.

[4] All our results hold when we include E-index in our regressions (results are not reported but are available from the authors).

Table 2.6

2.5.3 Deal Completion Probability and RTFs

In Table 2.7, we estimate probit models wherein the dependent variable is if the deal was completed or not. To the extent that bidder protective clauses give the bidder's option to abandon the acquisition, we expect the value of bidder protective index to be negatively associated with the probability that the acquisition is completed. Consistent with our prediction, the results in row (1) and (4) indicate that having more bidder protective clauses significantly lowers the deal completion rates. A one standard deviation increase in the value of bidder protective index results in a negative 15.2% change in the probability of completion. This result is statistically significant at the 5% level. The results in row (2) and (4) suggest that pro-competition clauses do not truncate the natural bidding process by letting self-interested target managers to hand-select friendly bidder in exchange for a side payment. With respect to target protective clauses, we don't find evidence that including such clauses lowers the deal completion rates. Our interpretation for this result is that target protective clauses not only include the provisions giving targets the walk away rights, but also the provisions limiting bidders' abandon options. The two types of contracts have opposite effects on deal completion rates and therefore cancel each other out when we run regressions of deal completion rates on the aggregate target protective index.

Table 2.7

2.5.4 Subsample Analysis: Abnormal returns and Value-Relevant Merger Clauses Indexes in Good and Bad deals

Under the efficient contracting hypothesis, we would expect the bidder and target protective indices to be more positively related to abnormal returns for "bad' deals than for "good" deals. Additionally, we would expect the pro-competition indices to be more positively related to abnormal returns for "good' deals than for "bad" deals. To further test the efficient contracting hypothesis and the robustness of our results, we separate our sample into all cash deals and stock deals. Our assumption for this subsample analysis is that in an asymmetric information world, using overvalued stocks as deal currency is a signal for value destruction. In Panel A of Table 2.8, we find that among stock financed deals, deals with more bidder protective provisions are associated with significantly higher bidder announcement CARs while deals with more target protective provisions and pro-competition provisions are associated with significantly higher target announcement CARs. In Panel B of Table 2.8, we find that among all cash financed deals, bidder protective clauses have no impact on bidder shareholder wealth while target protective clauses have negative impact on target shareholder wealth. We also find that the pro-competition indices are associated with higher target abnormal returns. In Panel C of Table 2.8, we report the differences of regression coefficients on merger clauses indices between stock financed deals and all cash financed deals. Consistent with the efficient contracting hypothesis, we find that the bidder and target protective indices have larger value impact for "bad' deals than for "good" deals. We also find that the effect of pro-competition indices on target abnormal returns is on average larger for "good' deals than for "bad" deals but the difference is not at a statistically significant level at the usual cutoff level.

Table 2.8

2.6 Conclusions

In this paper, we examine the patterns among M&A contracts, which are typically chosen together in a package of negotiated terms. We build merger clauses indices that are based on legal scholars' ex-ant predictions in the spirit of the Entrenchment Index of Bebchuk, Cohen, and Ferrell, (2009). We find that all three indices exhibit wide variations which allows us to examine their impact on the abnormal returns earned by bidder and target shareholder. First, we find provide evidence that buyer protective index, which is built on RTFs, termination duration, financing condition, buyer shareholder approvals and MAC clauses, is positively related to bidder announcement CARs. Second, we find that a higher value of target protective index, which is built on termination duration, walkaway clauses and MAC exclusions, results in a higher target announcement CARs. Finally, we show that pro-competition index, which is built on TTFs, match rights and go-shop clauses, is positively related to target announcement CARs.

Our results for merger clauses are not consistent with the "boilerplate" hypothesis, in which the merger agreement consists of standardized contract terms that has no economically consequential market reaction on the announcement of the merger (see Manns and Anderson (2012), and Manns and Anderson (2016)). We find strong evidence that the heavily negotiated M&A contracts are value relevant to bidder and target shareholders. We also find that the bidder and target protective indices have larger value impact for "bad' deals than for "good" deals. Given the substantial growth of the M&A contracts, our findings are consistent with the argument that merger clauses have a significant effect because they are drafted by expert lawyers in efficient contracts that are

modified to fit each individual deal (see Cain, Macias, and Davidoff Solomon (2014), and Coates (2016)).

While our research design does not allow us to make strong claims about causality, we do find that merger clauses indices correlate consistently and strongly with stock price reactions while controlling for other factors that influence market reactions. Our empirical design and evidence suggest that future research on abnormal returns earned by bidders and targets should include these merger indices.

Table 2.1: Variable Definitions

Panel A: Merger Clauses Variables	
Variable	Definition
eff_rtf	Dummy variable equal to unity when the reverse termination fee clause is efficient based on its triggering events. Inefficient RTF is defined as a bidder termination provision with a fiduciary out trigger is included in a cash deal or a deal where the acquirer's firm size is much larger relative to the target's firm size.
long_term_dur	Dummy variable equal to unity if termination duration is higher than the median, and zero otherwise.
financingcondition	Dummy variable equal to unity if the agreement includes a buyer financing condition section, and zero otherwise.
buyerapproval	Dummy variable equal to unity if the tender offer is used and the agreement includes a buyer shareholder approval condition section, and zero otherwise.
MEPerc[5]	Quasi-percentage of total MAC/MAE provisions to total of all provisions = totmac / (totmac+ totexc + 1), where totexc = total number of MAC/MAE Exclusions.
competitivebidout	Dummy variable equal to unity when the termination fee clause is triggered by an alternative bid, and zero otherwise.
matchrightspresence	Dummy variable equal to unity if the agreement includes a right for the acquirer firms to respond to topping bids, and zero otherwise.
goshoppresence	Dummy variable equal to unity if the agreement includes a right for target to solicit topping bids for X days after signing, and zero otherwise.
walkawaypresence	Dummy variable equal to unity if the agreement provide targets the ability to walk away if the buyer's stock price falls by X%, absolutely or relative to an index, and zero otherwise.

Panel B: Merger Clauses Indices	
Variable	Definition
buyer_protective_index	For all deals, *buyer_protective_index = eff_rtf + financingcondition + buyerapproval + MEPerc; For "good" deals, buyer_protective_index = eff_rtf + financingcondition + buyerapproval + MEPerc + long_term_dur; For "bad" deals, buyer_protective_index = eff_rtf + financingcondition + buyerapproval + MEPerc + (1 - long_term_dur).*
target_protective_index	For all deals, *target_protective_index = (1 - long_term_dur) + walkawaypresence + (1 - MEPerc); For "good" deals, target_protective_index = (1 - MEPerc); For "bad" deals, target_protective_index = (1 - long_term_dur) + walkawaypresence + (1 - MEPerc).*

[5] Use the MAC Score variable in Table 3 of Talley (2009).

competition_index	For all deals, *competition_index = competitivebidout + matchrightspresence + goshoppresence*.

Panel C: Control Variables

Variable	Definition
toehold_fraction	A continuous measure of the fraction of target shares held by the bidder prior to announcement (toehold shares).
related	Dummy variable equal to unity if the bidder is from the same industry as the target (where industry definitions are taken from Fama and French) and zero otherwise
lnrelsize	The natural logarithm of target's market value less natural logarithm of acquirer's market value.
complete	Dummy variable equal to unity if the deal is completed, and zero otherwise.
tender	Dummy variable equal to unity if the bid is structured as a tender offer, and zero otherwise.
cashpct	The percentage of cash that is used in the merger.
mkttobk_tgt	The target firm's market-to-book ratio in the fiscal year prior to the merger.
mkttobk_acq	The acquiring firm's market-to-book ratio in the fiscal year prior to the merger.
lev_tgt	The target firm's total debt divided by its total assets in the year prior to the merger.
lev_acq	The acquiring firm's total debt divided by its total assets in the year prior to the merger.
fcf_tgt	The target firm's free cash flow in the year prior to the merger.
fcf_acq	The acquiring firm's free cash flow in the year prior to the merger.
tgt_insiderown	The fractional ownership of the target firm's officers and directors in the year prior to the merger.
acq_insiderown	The fractional ownership of the acquiring firm's officers and directors in the year prior to the merger.

Table 2.2: Sample Creation Methodology

Sample Creation	# of observations
U.S. domestic mergers from SDC (2001-2011)	109,098
Dropped if no stock return data from CRSP	(100,610)
Initial Sample	8,488
Dropped if acquirer name equal to target name in SDC (e.g. parent-subsidiary mergers)	(6,681)
Dropped if the form is not "merger" in SDC (e.g. equity carve outs)	(281)
Dropped if form 8K is not filed with the SEC	(280)
Dropped if no merger agreement in form 8K	(351)
Dropped if any independent variables in regression are missing	(76)
Final Sample	819

Table 2.3: Descriptive Statistics

This table reports descriptive statistics for merger clauses indices and individual merger clauses. All variables are defined in Table 2.1.

Panel A: Descriptive statistics for value-relevant merger clauses indexes			
Variable	Mean	Median	Standard Deviation
buyer_protective_index	0.61	0.36	0.53
competition_index	1.85	2.00	0.43
target_protective_index	1.34	1.57	0.57
Panel B: Correlations between indexes			
	buyer_protective_index	*competition_index*	*target_protective_index*
buyer_protective_index	1.0000		
competition_index	-0.0004	1.0000	
target_protective_index	-0.0519	-0.0320	1.0000
Panel C: Descriptive statistics for individual merger clauses			
Variable	Mean	Median	Standard Deviation
eff_rtf	0.19	0	0.39
financingcondition	0.09	0	0.29
buyerapproval	0.01	0	0.09
MEPerc	0.32	0.29	0.15
competitivebidout	0.97	1	0.17
matchrightspresence	0.86	1	0.35
goshoppresence	0.01	0	0.12
long_term_dur	0.50	1	0.50
walkawaypresence	0.16	0	0.37

Table 2.4: Bidder and Target Announcement Abnormal Returns

This table contains means and medians for bidder announcement abnormal returns in 819 public deals from 2001 to 2011. Panel A and C report bidder and target daily abnormal returns. Panel B and D report bidder and target cumulative abnormal returns over two periods, i.e. event day –1 to event day +1, event day –3 to event day +3, where event day 0 is the merger agreement filing date. The abnormal returns are measured relative to a market model estimated for the bidder over a 240-day period ending 60 days prior to bid announcement. ***, **, * indicates statistical significance at the 1%, 5%, or 10% level, respectively.

Panel A: Bidder Daily Abnormal Returns		
Date	Mean	Median
-3	-0.01%	-0.08%
-2	-0.01%	-0.12%
-1	-0.50%***	-0.25%***
0	-0.95%***	-0.46%***
+1	0.15%	-0.07%
+2	-0.08%	-0.06%
+3	-0.03%	-0.11%
Panel B: Bidder Cumulative Abnormal Returns [CAR]		
CAR[periods]	Mean	Median
CAR[-1,+1]	-1.31%***	-0.71%***
CAR[-3,+3]	-1.45%***	-1.33%***
Panel C: Target Daily Abnormal Returns		
Date	Mean	Median
-3	2.81%***	0.39%***
-2	2.28%***	0.12%***
-1	6.11%***	0.56%***
0	12.11%***	1.68%***
+1	0.67%***	-0.06%
+2	-0.14%	-0.11%
+3	-0.05%	-0.17%***
Panel B: Target Cumulative Abnormal Returns [CAR]		
CAR[periods]	Mean	Median
CAR[-1,+1]	18.90%***	12.71%***
CAR[-3, +3]	23.79%***	18.90%***

Table 2.5: CARs and Value-Relevant Merger Clauses Indexes

This table reports the OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in previous tables. Year dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	Bidder CAR [-1, +1]		Target CAR [-1, +1]	
	(1)	(2)	(3)	(4)
buyer_protective_index	0.0193***	0.0210***	-0.0055	0.0049
	(2.99)	(2.97)	(-0.32)	(0.25)
competition_index	0.0033	0.0131	0.0456**	0.0664***
	(0.40)	(1.02)	(2.54)	(2.58)
target_protective_index	-0.0078	-0.0096*	0.0254*	0.0343*
	(-1.60)	(-1.73)	(1.67)	(1.90)
toehold	0.0035	0.0208	-0.0799	-0.0630
	(0.22)	(1.08)	(-1.64)	(-1.12)
related	-0.0024	0.0019	-0.0038	0.0079
	(-0.42)	(0.32)	(-0.17)	(0.32)
relsize	-0.0002***	-0.0001**	-0.0010***	-0.0010***
	(-3.72)	(-2.06)	(-4.27)	(-4.04)
complete	0.0033	-0.0046	0.0824**	0.1004***
	(0.26)	(-0.32)	(2.32)	(2.64)
tender	0.0048	0.0124*	0.0791*	0.0948**
	(0.77)	(1.78)	(1.96)	(2.04)
cashpct	0.0003***	0.0003***	0.0009***	0.0008***
	(3.85)	(3.57)	(3.17)	(2.59)
mkttobk_tgt		-0.0023		-0.0197***
		(-1.26)		(-3.05)
lev_tgt		0.0032		-0.0395
		(0.18)		(-0.69)
fcf_tgt		-0.0000***		-0.0000
		(-10.45)		(-1.47)
tgt_insiderown		0.0394		-0.1095
		(1.41)		(-0.90)
mkttobk_acq		-0.0028		0.0150*
		(-1.24)		(1.95)
lev_acq		0.0132		0.0728
		(0.63)		(0.95)
fcf_acq		-0.0000		0.0000*
		(-0.11)		(1.69)
acq_insiderown		-0.0425		0.0283
		(-0.51)		(0.20)
n	818	680	818	680
Adjusted R^2	0.043	0.077	0.089	0.106

Table 2.6: CARs and Value-Relevant Merger Clauses Indexes with Alternative Event Window

This table reports the OLS regression results for a sample of 819 public deals from 2001 to 2011. The dependent variables are bidder and target cumulative abnormal returns over event day – 3 to event day +3, where event day 0 is the merger agreement filing date. All independent variables are defined in previous tables. Year dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	Bidder CAR [-3, +3]		Target CAR [-3, +3]	
	(1)	(2)	(3)	(4)
buyer_protective_index	0.0294***	0.0224**	-0.0220	-0.0206
	(2.79)	(2.58)	(-1.15)	(-0.98)
competition_index	-0.0035	0.0198	0.0618**	0.1084***
	(-0.27)	(1.17)	(2.53)	(3.12)
target_protective_index	-0.0087	-0.0070	0.0302*	0.0412**
	(-1.39)	(-1.00)	(1.77)	(2.04)
toehold	-0.0311	0.0016	-0.1375**	-0.0784
	(-1.42)	(0.06)	(-2.30)	(-1.33)
related	0.0063	0.0085	0.0031	0.0187
	(0.84)	(1.14)	(0.13)	(0.72)
relsize	-0.0001	-0.0001	-0.0010***	-0.0009***
	(-0.56)	(-1.44)	(-3.24)	(-3.20)
complete	0.0112	0.0090	0.0774*	0.0817
	(0.72)	(0.52)	(1.68)	(1.59)
tender	0.0061	0.0159*	0.0967**	0.1104**
	(0.72)	(1.75)	(2.29)	(2.40)
cashpct	0.0003***	0.0004***	0.0010***	0.0008***
	(3.86)	(3.71)	(3.54)	(2.61)
mkttobk_tgt		-0.0018		-0.0174**
		(-0.66)		(-2.17)
lev_tgt		0.0005		-0.0748
		(0.02)		(-1.15)
fcf_tgt		-0.0000***		-0.0000***
		(-7.06)		(-5.41)
tgt_insiderown		0.0769**		-0.0113
		(2.27)		(-0.08)
mkttobk_acq		-0.0066**		0.0103
		(-2.26)		(1.27)
lev_acq		0.0122		0.0615
		(0.46)		(0.64)
fcf_acq		0.0000		0.0000
		(0.54)		(1.23)
acq_insiderown		-0.0473		-0.0903
		(-0.39)		(-0.72)
n	818	680	818	680
Adjusted R^2	0.034	0.061	0.093	0.103

Table 2.7: Deal Completion Rates and Value-Relevant Merger Clauses Indexes

This table reports the Probit regression results for a sample of 819 public deals from 2001 to 2011. The dependent variable is the dummy variable for deal completion and it equals to unity when the deal is completed, and zero otherwise. All independent variables are defined in Table 2.1. Year dummies and industry dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

	(1)	(2)	(3)	(4)
buyer_protective_index	-0.2868***			-0.2866**
	(-2.59)			(-2.56)
competition_index		0.0982		0.1013
		(0.58)		(0.60)
target_protective_inde x			0.0305	0.0206
			(0.23)	(0.16)
toehold	0.2556	0.1827	0.1975	0.2653
	(0.57)	(0.40)	(0.43)	(0.60)
ln_mve_tgt	0.0146	0.0153	0.0207	0.0150
	(0.32)	(0.35)	(0.45)	(0.32)
tender	-0.2278	-0.2383	-0.2323	-0.2361
	(-1.00)	(-1.04)	(-1.01)	(-1.03)
cashpct	0.0073***	0.0076***	0.0076***	0.0073***
	(3.75)	(3.90)	(3.88)	(3.79)
tgt_reg_ind	0.0578	0.0922	0.0725	0.0836
	(0.35)	(0.54)	(0.45)	(0.49)
tgt_tech_ind	-0.2520	-0.2384	-0.2259	-0.2564
	(-1.29)	(-1.23)	(-1.18)	(-1.33)
t_vol	19.7586	12.1472	12.9604	18.7770
	(0.67)	(0.42)	(0.45)	(0.64)
n	818	817	818	817
Pseudo R^2	0.081	0.069	0.068	0.081

Table 2.8: CARs and Value-Relevant Merger Clauses Indices in Stock Financed Deals and in All Cash Financed Deals

Panel A reports the OLS regression results for a sample of 532 stock financed public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in previous tables. All independent variables and year dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively. Panel B reports the OLS regression results for a sample of 287 all cash financed public deals from 2001 to 2011. The dependent variable is bidder cumulative abnormal returns over event day – 1 to event day +1, where event day 0 is the merger agreement filing date. All independent variables are defined in previous tables. All independent variables and year dummies are included but their coefficients are not reported. *t*-statistics are computed based on robust standard errors that incorporate firm-level clustering and are reported in parentheses. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively. Panel C reports the differences of regression coefficients on merger clauses indices between stock financed deals and all cash financed deals. ***, **, * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, or 10% level, respectively.

Panel A: Stock Financed Deals (i.e. 532 deals)				
	Bidder CAR [-1, +1]	Bidder CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-3, +3]
	(1)	(2)	(3)	(4)
buyer_protective_index	0.0189**	0.0203**	0.0116	-0.0013
	(2.21)	(1.99)	(0.56)	(-0.06)
competition_index	0.0073	0.0149	0.0560**	0.0965**
	(0.48)	(0.76)	(2.03)	(2.53)
target_protective_index	-0.0216**	-0.0203*	0.0300	0.0559**
	(-2.56)	(-1.92)	(1.45)	(2.26)
Panel B: All Cash Financed Deals (i.e. 287 deals)				
	Bidder CAR [-1, +1]	Bidder CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-3, +3]
	(1)	(2)	(3)	(4)
buyer_protective_index	0.0067	0.0045	-0.0228	-0.0312
	(1.29)	(0.64)	(-0.79)	(-1.17)
competition_index	0.0176	0.0359	0.1183**	0.1701***
	(1.09)	(1.50)	(2.02)	(2.67)
target_protective_index	0.0107	-0.0071	-0.2756*	-0.3404**
	(0.36)	(-0.20)	(-1.73)	(-2.32)
Panel C: Difference between Stock Financed Deals and All Cash Financed Deals				
	Bidder CAR [-1, +1]	Bidder CAR [-3, +3]	Target CAR [-1, +1]	Target CAR [-3, +3]
	(1)	(2)	(3)	(4)
buyer_protective_index	0.0122**	0.0158*	0.0344	0.0299
competition_index	-0.0103	-0.021	-0.0623	-0.0736
target_protective_index	-0.0323	-0.0132	0.3056	0.3963*

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