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Abstract
We model takeovers as a bargaining process and explain the existence and net effect of target as well as bidder termination fees, subject to bargaining power and outside options. In equilibrium, net termination fees (target minus acquirer fees) are offered by firms with a superior bargaining position in exchange for a greater share of merger synergies. This even holds when the target negotiates with the most efficient bidder and in the absence of bidding-related costs. Using a sample of 1232 U.S. mergers from 1986 to 2003, our theoretical predictions and the concept of net termination fees find empirical support. Net termination fees and premiums are positively correlated, while net fees decrease (increase) in targets' (acquirers') bargaining power, proxied by market capitalization, and increase (decrease) in targets' (acquirers') outside options, proxied inter alia by market-to-book ratios. These results question existing explanations for termination fees and lockup options, like cost compensation, target commitment, agency costs and management entrenchment. They also imply that judicial ruling according to the more lenient business judgement is at least as justified as the application of more restrictive legal standards.

Keywords: mergers and acquisitions, bargaining power, outside option, termination fees, lockup options, stock option agreements

JEL classification: G34;C78;D44;C71

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1 Introduction

In the growing body of research in 'law and finance' a number of recent studies attempt to identify and explain the role played by termination provisions in merger agreements. Termination provisions are frequently reciprocal, i.e. they are not only an obligation for the target, but also for the bidder. However, the main focus of current research and court rulings clearly is on provisions for the target since they are arguably perceived as being to the disadvantage of its shareholders. Such provisions include termination fees (break-up fees) that have to be paid to the bidder in cash, but also so-called lockups that grant the incumbent bidder a call option on the target's shares or assets, exercisable in the event that the target cancels the agreement to accept a competing (bust-up) bid.

In the last two decades several US court rulings heightened the awareness for such bidder discrimination in merger agreements. Delaware courts repeatedly took a critical, but at times also a generous stance towards termination provisions and related deal protection devices.[1] Despite the significant judicial attention, especially with regard to target management's fiduciary duties and shareholder coercion, termination provisions are nevertheless a popular contractual device in mergers and acquisitions. Depending on the sample and period of observation up to 42% of all completed and withdrawn merger agreements include termination fees and about 17% include lockup options.[2] Moreover, the relative size of termination fees also reveals the importance of the matter.[3] In the 100% takeover of Telemate Net Software Inc. by Verso Technologies Inc. in November 2001, 25% of the transaction value of 16.1 million US$ were to be paid to the bidder if the target would have merged with another party. In other words, simply by agreeing to these terms, Tele-

[1] Prominent cases include Unocal Corp. v. Mesa Petroleum (493 A.2d 946 (Del. 1985)), Revlon Inc. v. MacAndrews & Forbes Holdings (506 A.2d 173 (Del. 1986)), Paramount Communications Inc. v. QVC Network Inc (637 A.2d 34 (1993)), and Brazen v. Bell Atlantic (695 A.2d 43 (1997)).

[2] See e.g. Bates and Lemmon (2003), Officer (2003), and Burch (2001) as well as our own data described in Section 4.

[3] In absolute terms, termination fees can reach amounts of 5.4 billion US$. See AOL / Time Warner merger with a total transaction value of 165 billion US$ (effective in 2001). The fee was to be paid by the official acquirer (AOL), while the corresponding target termination fee (of Time Warner) was 3.9 billion US$.

mate Net Software Inc. lost one quarter of its current (bid) value to any other potential acquirer.[4]

In the light of this the central question is why target managers voluntarily agree upon termination provisions, which inevitably lead to a decrease in shareholder value if the target accepts a bust-up bid. The current literature offers three explanations for this. The agency cost approach assumes that self-serving incumbent managers prefer side payments and entrenchment over shareholder value and thus use termination fees to lock into bidders who maximize their personal utility. The cost compensation approach assumes that potential acquirers bear bidding-related direct costs or opportunity costs that decrease competition for the target unless these costs are taken account of in the form of termination fees. The commitment approach argues that termination fees increase the credibility of the target's claim that the winning bid will not be reneged, which can result in generally higher takeover premiums. Although all three approaches greatly enhance our understanding of termination provisions, none of them can be fully supported in empirical testing.[5] Moreover, they do not provide a coherent explanation for acquirer termination provisions, which are often observed in combination with target termination provisions.

While previous approaches mostly consider mergers in an auction setting, we argue that takeovers and the role of termination fees in that process could alternatively be analyzed in a bargaining framework. In support of this notion, Comment and Jarrell (1987) report that four-fifths of all successful cash tender offers, which are often perceived as an attempt to bypass target management, are in fact (re)negotiated between bidders and target managers before expiration. Cramton and Schwartz (1991) state the possibility that a target board sometimes conducts preliminary auctions to discover the probable identity as well as valuation of the highest-valuing bidder and then negotiates individually

[4]Lockup options can have a similar impact. In extreme cases, bidders receive call options on target shares (that have been authorized by shareholders but are as yet unissued) with an equivalent of up to 100% of targets' currently outstanding shares. (See e.g. the takeover of E-Tek Dynamics Inc. by JDS Uniphase Corp in 2000.) The options are typically exercisable at the negotiated bid price and are in the money if a higher-valued bust-up bid is accepted by the target. Next to this financial dimension, some lockup options allow the initial bidder to effectively become a blockholder.

[5]See Burch (2001), Officer (2003), and Bates and Lemmon (2003)

with this bidder. They conjecture that boards use breakup fees to preserve their ability to conduct post-auction negotiations without discouraging entry in the preliminary auction.

From a theoretical point of view it seems that the rather stylized assumptions underlying the analysis of specific auction settings do not always apply to takeover processes. First, the parties might lack the necessary commitment power typically assumed in auctions, e.g., due to the dependence on shareholder approval of the deal. Second, it also possible that the parties' bargaining power is distributed less polarized as assumed in auction settings. Third, it seems reasonable to assume that firms in related markets, in tight oligopolies, or with competent investment advisors have a rather clear idea of potential acquirers (targets) and their willingness to pay (sell).[6] This may diminish the importance of asymmetric information in the takeover process. In the light of these three qualifications, recent contributions by Gilson and Schwartz (2005) and Hotchkiss, Qian, and Song (2005) model mergers in an incomplete contracting framework, which is in line with our understanding of takeovers as bargaining processes.

The basic setup of our model is as follows. Instead of an auction setting we suggest a simple bargaining model to capture the negotiation process within takeovers. Takeovers have a pre- and post-announcement negotiation phase. We purposely do not assume any bidding- or negotiation-related costs in order to more clearly separate the hypothesized effects. (An inclusion of such costs would rather strengthen the qualitative results of our model.) The model shows that termination fees are offered by the target in order to increase her premium, even in the absence of bidding-related costs and even when the target merges with the highest bidder. Interestingly, a number of earlier studies conjecture a similar role for termination provisions in merger negotiations.[7] In this paper we provide a corresponding theoretical model and empirical support. In contrast to earlier studies the model can also explain acquirer termination fees, which may be offered in exchange for a lower premium if other potential targets

[6] In our data base, 62% (38%) of all takeovers occur within the same two-digit (four-digit) SIC industry. Moreover, virtually all targets and acquirers use the services of financial advisors (inter alia to comply with fiduciary duties).

[7] See, among others, Comment and Jarrell (1987), Burch (2001), Officer (2003), and Bates and Lemmon (2003).

constitute relevant outside options for the acquirer.

For an intuition of the model consider the following simple example from the target's perspective. Assume that there are three firms, a target T and two potential acquirers, buyer B1 and buyer B2. In case of a merger, T and B1 create synergies of 100 units, T and B2 create 90 units. For simplicity, suppose that all firms have the same bargaining power of 1/2 and that the target negotiates first with B1, taking into account that if negotiations are unsatisfactory she could opt out and approach B2. Without the existence of an alternative buyer as an outside option, T and B1 would split the gains of trade and each get 50 units, T and B2 would each get 45 units of the synergies.

However, if T would sign such a contract with B1, it could use the premium of 50 units as a disagreement point in bust-up negotiations with B2. T would then receive 70 units from B2 (50+40*1/2) and break the contract with B1 at no additional cost. Thus, in comparison with having no 'initial' contract with B1, T would gain an additional 25 units (70-45). In anticipation of enabling this, B1 could negotiate a respective termination fee that corresponds with her bargaining power (25*1/2) and match the premium of 70 units. Now, the gains of trade with B2 are 7.5 units (90-82.5), which would still leave an incentive of 7.5*1/2 for T and B2 to break a potential contract with B1. Anticipating all this, T is able to negotiate a 75:25 split of synergies with B1 by offering a termination fee of 15 units ((75-45)*1/2) in return for an increased premium (from 50 to 75).

In other words, target T offers a termination fee so that it can use a signed contract with B1 as a disagreement point in the negotiations with B2, while possible negotiations with B2 serve as an outside option in the negotiations with B1. Such a contract will be signed by the target and B1 as long as the synergies with B2 are not lower than 60 units and not higher than 120 units. In the former, the target can not use buyer B2 as a viable outside option anymore, while in the latter a contract with B1 does not serve the target as a viable disagreement point in negotiations with B2.

As a theoretical contribution the paper explains the existence and role of termination provisions and provides a general model for bargaining in takeovers. In contrast to existing studies, which focus on the side of the target, our approach incorporates target as well as acquirer termination provisions and considers their net effects. The empirical contribution of our paper is threefold.

First, in line with our theoretical underpinning, it takes account of net termination provisions of both parties instead of target termination provisions only. Second, it emphasizes the influence of bargaining power and outside options. Third, it not only investigates the determinants for the existence of termination provisions, which prior studies have largely focused on, but also analyses the size of net termination fees in merger agreements.

The paper proceeds as follows. Section 2 reviews the existing literature, Section 3 describes the theoretical model and propositions, Section 4 reports the empirical analysis, Section 5 discusses implications and concludes.

2 The literature

For termination provisions to be effective it is irrelevant whether they are actually executed or not. The credible threat alone results in a respective anticipation of additional costs for a bust-up bid and can have two effects: First, it may have an allocative effect on the market for corporate control, such that the most efficient bidder with the highest reservation price is effectively foreclosed and can not acquire the target. Second, it may have a financial effect on target shareholder returns where the most efficient bidder wins, but the bid outcome (i.e. the price paid to target shareholders) depends on the specification of termination provisions. In one of the earliest studies on this topic Ayres (1990) shows that lockup options are unlikely to have a serious effect on allocative efficiency, because they reduce reservation prices for all bidders equally. This does not necessarily lead to lower bid outcomes, since "an auction with reduced reservation prices may produce a higher tender offer for target shareholders than no auction at all" (Ayres 1990, p.17). On this basis, several theoretical approaches attempt to explain the precise influence of termination provisions on target premiums.

The *agency cost approach* assumes that self-serving incumbent managers prefer side payments and entrenchment over shareholder value and thus choose a bidder who maximizes their personal utility function. Whenever the bidder with the highest side payments is not the most efficient bidder, the approach predicts that target managers agree upon termination provisions to lock into the preferred partner. Thus, according to the agency cost perspective, the

pure existence of termination fees indicates that neither allocative efficiency nor target shareholder return is at its optimum, since the foreclosure of bidding cuts off the most efficient bidder with the highest premium.[8]

The *cost compensation approach* assumes that potential acquirers bear some sort of bidding-related direct cost or opportunity cost.[9] If all valuations were common knowledge, only the most efficient bidder with the highest reservation price places a bid, while potential competitors quit immediately rather than participate in a costly but losing battle. Anticipating this the most efficient bidder could offer an infinitesimal amount above the target's market price and stay unchallenged. Starting from such a full-information model, Berkovitch and Khanna (1990) show that targets can employ takeover defenses for a discriminatory reduction of the highest reservation value, which 'levels the playing field' so that other bidders can also expect to win. Analogously, termination provisions could be granted to lower valuation bidders.[10]

In standard auction theory, where valuations are private information, increasing the number of bidders increases the expected revenue of the seller. However, if bidders must incur entry costs, this may not apply.[11] In more takeover related sequential auctions, Hirshleifer and Png (1989) and Fishman (1988) demonstrate that information or bidding costs may cause weaker bidders to drop out of ascending English auctions before reaching their reservation price less the costs incurred. Again, cost compensation through termination provisions can increase competition and improve the outcome. In a related argument, Kahan and Klausner (1996) point out that early bids contain valuable information (e.g. about potential synergies, financing, post-merger plans) and create positive externalities for later bidders to free ride on. In this sense,

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[8] See Burch (2001), Officer (2003), and Bates and Lemmon (2003) for a more detailed discussion.

[9] With regard to termination provisions, opportunity costs seem to be more relevant since most merger agreements settle the reimbursement of direct expenses separately. These (mostly mutual) clauses encompass all verifiable out-of-pocket expenses related to the takeover, including fees for investment banks, legal advisors, and business consultants.

[10] Alternatively, a target could also directly compensate a lower valuation bidder for making a competing offer. Klemperer (1998) cites an example where Bell South was paid US$54 million to enter a takeover battle for LIN broadcasting (original source: Economist, 15/6/1996, p.83).

[11] As Samuelson (1985) shows for procurement auctions (with direct sunk costs in preparing bids), expected net prices may not improve with the number of potential bidders.

they argue, a waiting period under the 1968 Williams Act is likely to impair the initiation of a sale process.[12] Thus, targets that want to be put 'in play' more effectively may decide to offer termination provisions as a compensation for such information externalities.

Although the above argumentations differ in their specific 'mechanics' the general implications for the cost compensation approach are similar: Independent whether initial, late, or all bidders enjoy termination provisions as a compensation for costs incurred in the takeover process, the target management is able to purposefully employ such contractual clauses to the advantage of their shareholders. As such the cost compensation approach predicts exactly the opposite of the agency cost approach, i.e. that termination provisions will be associated with higher deal premiums, higher target stock returns, and more intensive bidding.[13]

The *commitment approach* states that termination provisions are used by the target to visibly and credibly bind itself to an auction outcome. As explained by McAfee and McMillan (1987), a central assumption in auction theory is that the seller will not renege a winning bid. It might in fact be in the seller's ex post interest to renege and simply charge a price that is just below the valuation of the winning bidder. Of course, if bidders conjecture such a behavior they will not bid as high as hypothesized. The importance of commitment is even higher when we consider asymmetric bidders, which draw their valuations from different distributions. While for takeovers, such an auction environment is often more realistic, it implies that the Revenue-Equivalence Theorem breaks down and thus the optimal selling mechanism is more difficult to determine.[14] Klemperer (1998) argues that even slight bidder asymmetries can have a large negative impact on prices in English auctions. Moreover, the optimal auction allows for allocative inefficiency, in the sense that the winner is not necessarily the bidder with the highest valuation. Povel and Singh (2004) model a similar setting in which less well informed bidders

[12]Intended as an auction-promoting mechanism the notice-and-pause provisions of the Williams Act require a tender offer to remain open for 20 business days to allow competing bids to emerge.

[13]See also Burch (2001), Officer (2003), and Bates and Lemmon (2003).

[14]See Myerson (1981).

reduce competition, because they fear the winner's curse more. They propose a sequential auction, where a target consecutively offers exclusive deals, starting with the best informed bidder. Once a target has chosen an optimal auction mechanism, it faces the challenge of successfully organizing and managing such a takeover process in a controlled fashion and to credibly commit to the procedure. A termination provision that is awarded to the highest bidder could serve as a credible commitment that no renegotiation will take place. Thus, the commitment approach predicts that, although termination provisions are utilized to put an end to bidding, this has a positive impact on target premiums and announcement returns, while the number of renegotiated bids should be low.

Existing empirical evidence provides no undivided support for any of the above mentioned approaches. One general finding is that termination provisions are positively related to the probability of deal completion and negatively related to the number of publicly observable takeover bids.[15] This is commonly interpreted as evidence for truncated bidding, against the auction-augmenting predictions of the cost compensation approach, and in support of the agency cost approach (see e.g. Coates and Subramanian (2000)). In line with this view, an analysis of 311 mergers between 1995 and 1997 by Hartzell, Ofek, and Yermack (2004) suggests that there is a weak negative relation between the sum of all target CEO benefit dummies and takeover premiums. Arguing more from a corporate governance point of view, Moeller (2005) corroborates this finding and shows that target shareholder control is positively correlated with takeover premiums. Like the study from Hartzell, Ofek, and Yermack (2004), this result is restricted to the friendly merger environment of the 1990s.[16]

Though agency costs in general may play a role in mergers, empirical evidence strongly questions whether termination provisions in particular are the right means to an end. Coates and Subramanian (2000), Burch (2001), Officer (2003), and Bates and Lemmon (2003) find a largely positive influence of termination fees and lockup options on target returns. For lockup options, Burch

[15] See Coates and Subramanian (2000), Burch (2001), Officer (2003), and Bates and Lemmon (2003).

[16] In fact, Moeller (2005) finds exactly the opposite relation (i.e. negative influence of target shareholder control on premia) for the more hostile environment of the 1980s.

(2001) reports higher cumulated abnormal returns for the target and for the combined company. He infers that lockup options are used by target managers to enhance their bargaining position to the benefit of their shareholders.[17] For termination fees, Officer (2003) as well as Bates and Lemmon (2003) report similar results that are inconsistent with the agency cost approach: After controlling for deal and target characteristics, both studies find that termination fees are associated with higher takeover premiums. Furthermore, Bates and Lemmon (2003) also provide some support for a positive impact of termination fees on target shareholder returns.

3 A bargaining model for mergers

Consider the following two-stage game. At the first stage (i.e. pre-announcement stage) a target firm T and a potential buyer B bargain over the division of the synergies S_1 form a potential merger. The target firm receives a premium of P_1 and the buyer receives $S_1 - P_1$. At the second stage (i.e. post-announcement stage) one or both of the firms may have the opportunity to bargain with another merger partner. The possibility to merge at the second stage gives the firms an (endogenously determined) outside option at the first stage. The expected synergies from this alternative merger are denoted by S_2^B if the buyer B chooses his outside option, the expected synergies from the outside option of the target T are S_2^T.[18] For simplicity we assume that at the second stage there are no more outside options from future deals. So at the second stage we assume that the firms will come to a bargaining solution that is characterized by the "split the difference" principle, while at the first stage the solution will

[17] Moreover, Burch (2001) finds that lockup options are associated with comparatively lower announcement returns for the bidder. This also casts doubt on the agency costs hypothesis since side payments to target management would only be rational if they benefit the eventual acquirer (due to bidding foreclosure and/or a lower premium).

[18] The model could be extended by allowing for renegotiations after the second stage bargaining. Under complete and perfect information this would not affect the results because the parties would correctly anticipate this possibility. However, in our model synergies at the second stage are in expected terms, which opens the opportunity for ex-post inefficiencies and thus incentives to renegotiate. In this case a renegotiation would still lead to qualitatively similar results. Based on our studies of existing merger contracts (SEC filings) we consider it reasonable to assume that parties do not write complex conditional contracts in this respect.

be characterized by the "outside option" principle.[19] We assume that the bargaining process follows e.g. a simple alternating offers procedure (as suggested by Rubinstein (1982)) in which the bargaining power of the target is denoted by λ.

Additionally at the first stage the firms will bargain over a termination fee. The party that decides to take the outside option after signing the first merger contract is required to pay this fee to the other party. We denote this termination fee as T_{Tar} if it is paid from target firm T to the acquirer B, and T_{Buy} if it is paid from B to T .

Consider first the *second stage* in which the target bargains with its alternative merger partner. We assume that the disagreement point of the target firm is given by what he would receive as a premium from the merger with his first bargaining partner, hence, $d_T = P_1$. Moreover, 'gains of trade' from this merger are diminished by a potential termination fee T_{Tar} that has to be paid to the first bidder. To make things interesting we assume that the second stage partners do not have any alternatives, hence $d_{B_2} = 0$.[20] Applying the generalized Nash bargaining solution, the premium from this deal should be

$$P_2^T = P_1 + \lambda_2^T (S_2^T - P_1 - T_{Tar}) \tag{1}$$

with λ_2^T being the bargaining power of the target in the second stage. At the *first stage* the two firms bargain over the premium as well as the termination fees simultaneously, taking the possible outside option into account. While bargaining over the termination fees, the firms distribute potential future benefits if one or the other firm terminates the contract. If the target terminates the contract, it receives P_2^T form the second stage merger provided that it uses

[19] According to Muttho (1999) the "split the difference" principle may be given the following interpretation: The parties bargain over the partition of S and they first of all agree to give each other the utilites that they would, respectively, obtain from not reaching an agreement, and then the parties obtain a fraction λ, and $1-\lambda$ respectively, of the remaining utility. If the parties have outside options (which are in sum smaller than S), they may strategically opt out of negotiations. The outside option principle states that if one party's outside option exceeds her share from the "split the difference" principle, then her share is equal to her outside option.

[20] Alternatively one could assume that the two partners at the second stage can also bargain with each other at the first stage. But this would cancel out possible effects form the second stage bargaining and make the entire problem completely dependend on the relative bargaining strength of the four firms.

the first contract with P_1 as a threatpoint in the second stage negotiations. If the first stage negotiation ends in disagreement, there would be no threatpoint for the second stage negotiations which would then lead to a premium of $\tilde{P}_2 = \lambda_2 S_2^T$. The difference between those two outcomes represents the 'gains of trade' for the termination fee negotiation at the first stage. From this difference the target pays T_{Tar} to the buyer. Given that both firms' disagreement payoffs are zero in this bargaining problem, the buyer receives:

$$\begin{aligned} T_{Tar} &= (1-\lambda_1)(P_2^T - \tilde{P}_2) \\ &= (1-\lambda_1)(P_1(1-\lambda_2) - \lambda_2 T_{Tar}). \end{aligned}$$

Substituting P_2^T and $\tilde{P}_2$ and solving this expression for T_{Tar}, we find:

$$T_{Tar} = \frac{(1-\lambda_1)(1-\lambda_2)}{1+(1-\lambda_1)\lambda_2} P_1. \tag{2}$$

Consider next the second stage for the case that the buyer bargains with its alternative merger partner. We assume that the disagreement point of the buyer is given by what he would receive as a synergies minus the premium from the merger with his first bargaining partner, hence, $d_B = S_1 - P_1$. As above, the 'gains of trade' from this merger are diminished by the termination fee T_{Buy} that has to be paid to the first target. Again, we also assume that the second stage partner does not have any alternatives, hence $d_{T_2} = 0$. Applying again the generalized Nash bargaining solution, the premium from this deal should be

$$P_2^B = \widetilde{\lambda}_2 (S_2^B - (S_1 - P_1) - T_{Buy}),$$

with $\widetilde{\lambda}_2$ being the bargaining power of the 'alternative' target, which represents the outside option of the bidder in the second stage. For the case that the buyer terminates the contract, he receives $S_2^B - P_2^B$ form the second stage merger if his first-stage agreement serves as a disagreement point, while he receives $S_2^B - \tilde{P}_2^B = (1-\widetilde{\lambda}_2) S_2^B$ if he negotiates without a threatpoint. From this difference he pays T_{Buy} to the target. If both firms' disagreement payoffs are again zero in this bargaining problem we get:

$$T_{Buy} = \frac{\lambda_1 \widetilde{\lambda}_2 (S_1 - P_1)}{1+\lambda_1(1-\widetilde{\lambda}_2)}. \tag{3}$$

At the *first stage*, both firms perfectly anticipate possible second stage outcomes. Applying the outside-option principle for the bargaining over the premium in the first stage merger deal, we can describe the premium as:

$$P_1 = \begin{cases} \lambda_1 S_1 & \text{if} \quad P_2^T \leq \lambda_1 S_1 \quad \text{and} \quad S_2^B - P_2^B \leq (1-\lambda_1) S_1 \\ S_1 - S_2^B + P_2^B & \text{if} \quad P_2^T \leq \lambda_1 S_1 \quad \text{and} \quad S_2^B - P_2^B > (1-\lambda_1) S_1 \\ P_2^T & \text{if} \quad P_2^T \geq \lambda_1 S_1 \quad \text{and} \quad S_2^B - P_2^B \leq (1-\lambda_1) S_1 \end{cases}$$

In order to determine the equilibrium premium and termination fees at the first stage, suppose first that the buyer B has an outside option that is larger than what he would earn form the first deal under Nash bargaining, while the target has no such outside option. The premium would then be given by $P_1 = S_1 - S_2^B + P_2^B$. Substituting this into (3) and then both, the premium and the termination fee into the second stage bargaining outcome this would imply:

$$P_2^B = \frac{\lambda_1 \widetilde{\lambda}_2 S_2^B}{\lambda_1 + 1}. \tag{4}$$

Anticipating this, the firms choose an acquirer termination fee and a premium of:

$$T_{Buy} = \frac{\lambda_1 \widetilde{\lambda}_2 S_2^B}{1 + \lambda_1} \quad \text{and} \quad P_1 = P_2^B = S_1 - \frac{(1 + \lambda_1 - \lambda_1 \widetilde{\lambda}_2)}{1 + \lambda_1} S_2^B. \tag{5}$$

Of course, this is only a valid outcome if in fact $P_1 \geq 0$ and also $S_2^B - P_2^B > (1-\lambda_1) S_1$ hold. Hence, for this solution we have to assume the following relation between the synergies of the two deals:

$$\frac{(1-\lambda_1)(\lambda_1+1)}{(1+\lambda_1-\lambda_1\widetilde{\lambda}_2)} S_1 \equiv A \leq S_2^B \leq B \equiv \frac{\lambda_1 + 1}{(1+\lambda_1-\lambda_1\widetilde{\lambda}_2)} S_1.$$

Now suppose that the target T has an outside option that is larger than what it would earn form the first deal under Nash bargaining, while the buyer does not have an alternative merger partner. The solution would then be given by $P_1 = P_2^T$. Furthermore, the termination fee would then be given by (2). Substituting both into the second stage bargaining outcome this would imply:

$$P_2^T = \frac{(1 + \lambda_2 - \lambda_2 \lambda_1) S_2^T}{2 - \lambda_1}. \tag{6}$$

Anticipating this, the firms choose a target termination fee and a premium of:

$$T_{Tar} = \frac{(1-\lambda_2)(1-\lambda_1)S_2^T}{2-\lambda_1} \quad \text{and} \quad P_1 = P_2^T = \frac{(1+\lambda_2-\lambda_2\lambda_1)S_2^T}{2-\lambda_1}. \tag{7}$$

Of course, this is only a valid outcome if in fact $S_1 - P_1 \geq 0$ and also $P_2^T \geq \lambda_1 S_1$ hold. Hence, for this solution we have to assume the following relation between the synergies of the two deals:

$$\frac{\lambda_1(2-\lambda_1)}{(1+\lambda_2-\lambda_2\lambda_1)}S_1 \equiv C \leq S_2^T \leq D \equiv \frac{2-\lambda_1}{(1+\lambda_2-\lambda_2\lambda_1)}S_1.$$

Hence, now we can conclude the following result.

Proposition 1 *The contracts will be characterized by*

i) a premium of $P_1 = \lambda_1 S_1$, *and termination fees of* $0 \leq T_{Buy} \leq \frac{\lambda_1 \widetilde{\lambda}_2 S_2^B}{1+\lambda_1}$ *and* $0 \leq T_{Tar} \leq \frac{(1-\lambda_2)(1-\lambda_1)S_2^T}{2-\lambda_1}$ *if* $S_2^B \leq A$ *and* $S_2^T \leq C$. *The negotiations will not reach the second stage, hence,* $P_2^T = P_2^B = 0$,

ii) payments specified by (5) at the first stage and by (4) at the second stage and if $A < S_2^B < B$ *and* $S_2^T < C$;

iii) payments specified by (7) at the first stage and by (6) at the second stage if $S_2^B < A$ *and* $C < S_2^T < D$.

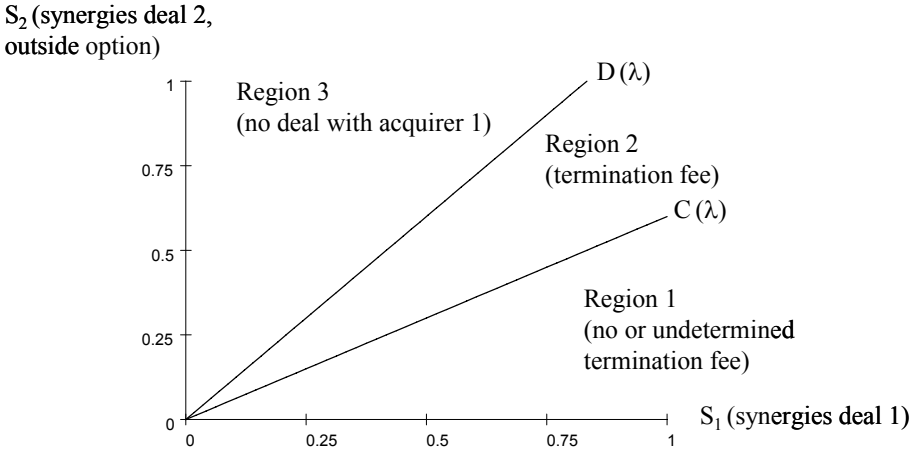
iv) There will be no contract at the first stage if $A < S_2^B$ *and* $C < S_2^T$ *or if* $B > S_2^B$ *and/or* $D > S_2^T$.

Proof. See the arguments above. ■

It is interesting to note that the bargaining partner on the second stage will not gain anything from the deal in case that the first stage firms come to an agreement. The gains of trade on that stage are completely absorbed by the two first stage firms: The second stage firm is confronted with a partner with a high disagreement point (the first stage premium) and obligations due to the termination fee.[21]

[21] For illustrative reasons assume for the moment that $\lambda_1 = \lambda_2 = \widetilde{\lambda}_2 = \frac{1}{2}$. This would lead to the following values for the payments: $P_2^B = \frac{1}{6}S_2^B$, $T_{Buy} = \frac{1}{6}S_2^B$ and $P_1 = S_1 - \frac{5}{6}S_2^B$ as specified in the contracts for the different regions defined by $A = \frac{3}{5}S_1$ and $B = \frac{6}{5}S_1$, given that the buyer has the relevant outside option in the sense of the proposition. Hence, the second stage target would get $\frac{1}{6}$ of the synergies, the buyer gets $\frac{5}{6}$, from which he pays $\frac{1}{6}$ to the first target, given that the synergies with the second target are at least larger than $\frac{3}{5}$ of the synergies with the first target but not larger than $\frac{6}{5}$, because otherwise the buyer would

The proposition states that we need to distinguish three different regions, as exemplified in Figure 1 (target's perspective) for $\lambda_1 = \lambda_2 = \widetilde{\lambda}_2 = \frac{1}{2}$ and $S_2^B = 0$. Part (i) of the proposition considers the case in which the outside option for both firms are rather low in comparison to the synergies of the deal. In this Region 1 the premium is determined by the firms' relative bargaining power. Firms may agree on symmetric or asymmetric termination fees although they do not influence allocative efficiency or bid outcomes.[22] Part (ii) and (iii) of the proposition define Region 2 in which one of the firms has a relevant outside option, while the other has not. Here the premium is determined by this relevant outside option and a termination fee is fixed that is paid to the firm that has no outside option. Finally, in Region 3, both firms' outside options are so attractive that no deal will be signed in the first stage.



Regions defined by Proposition 1

For successful mergers (Region 1 and 2 in Figure 1) we can conclude that the larger the target's outside option S_2 for any given synergies S_1, the higher the likelihood that a termination fee will exist (i.e. that the deal will be positioned in Region 2). This is according to intuition since termination fees

directly contact the second target without signing any contract with the first target. If the target's outside option is the relevant one, the payments are $P_2^T = \frac{5}{6}S_2^T$ and $T_{Tar} = \frac{1}{6}S_2^T$ and $P_1 = \frac{5}{6}S_2^T$ and the regions for the synergies are $C = \frac{3}{5}S_1$ and $D = \frac{6}{5}S_1$.

[22] Unilateral or bilateral cost compensation may be a reason for (moderate) termination fees in this region. This is supported by the fact that some termination fees are payable in the absence of a bust-up bid. As noted by Officer (2003), this type of fee structure is most compatible with cost compensation arguments, since the target (and third parties) may free ride on private information revealed by the bidder before the cancellation.

are only offered when the outside option is greater than the target's share of current synergies, determined by its bargaining power. In line with this, the comparative static properties of the functions $A(\lambda)$ (or $C(\lambda)$) and $B(\lambda)$ (or $D(\lambda)$) in the proposition reveal that Region 2 is reduced (enlarged) with an increase in the target's (acquirer's) bargaining power. Thus, the likelihood of target termination arrangements decreases with a target's bargaining power λ. Furthermore, since the premium ceteris paribus increases in the target's outside option S_2, we can also predict that the likelihood of target termination fees is positively related to targets' share of synergies (premiums). Of course, all of the above arguments hold analogously for the buyer's side.

Note that the model in principle allows for reciprocal termination fees, in the sense that the target termination fee T_{Tar} as well as the acquirer termination fee T_{Buy} have to be interpreted as the net payment from one firm to the other. For given values of bargaining power we see a simple monotonous relation between the net termination fees and the premium which can be summarized in the following corollary:

Corollary 1 *In the negotiation over the termination fee, a higher premium leads to a higher target (lower acquirer) termination fee.*

Proof. See the arguments in the appendix. ■

Obviously, if we consider the negotiations over the termination fees separately, we see that the target "pays" for a higher share of the synergies by accepting a higher fee. Moreover, the higher the target's bargaining power, the larger his share as we can see from the inverse of (2). On the other hand, if we only consider the negotiations over the division of synergies, they are either only determined by the firms' relative bargaining power and independent form any termination fee agreements, because outside options are not relevant (part (i) of Proposition 1). Or, if one firm has an outside option, this outside option together with a given termination fee determines the division of synergies. For a structural analysis of part (iii) of Proposition 1 we can substitute the solution $P_1 = P_2^T$ in (1) and solve for P_1. Furthermore, we can also deduct the acquirer's share and come to the following functions:

$$\begin{aligned} P_1 &= S_2^T - T_{Tar} \\ S_1 - P_1 &= S_1 - S_2^T + T_{Tar} \end{aligned} \tag{8}$$

Note that the one structural equation for the premium given by (8) predicts a negative relation between premium and termination fee, while the other given by the inverse of (2) predicts a positive relation. Taking both the structural equations into account we find a positive relation between the premium and the target termination fee. For the situation where the acquirer's outside option is relevant (part (ii) of Proposition 1) we can find analogous relations, which are included in the following corollary:

Corollary 2 *In the simultaneous negotiations over termination fee and premium, a higher target (acquirer) termination fee leads to a higher (lower) premium.*

Proof. See the arguments in the appendix. ■

If the negotiations are influenced by the outside option, the reduced forms in (7) and (5) show that both termination fees and the respective premiums are functions of the relative bargaining power of the two firms as well as of the value of the outside option. The more bargaining power a target firm has the larger its share from the synergies. Moreover, the target firm is interested to pay a lower termination fee in case of contract breech. Assuming for simplicity that $\lambda_1 = \lambda_2 = \widetilde{\lambda}_2$, and analyzing comparative static properties of (7) as well as (5) we can furthermore conclude the following two propositions:

Proposition 2 *The target termination fee T_{Tar} is a decreasing function of the target's bargaining power while the premium $P_1 = P_2^T$ is an increasing function of the target's bargaining power (with the same absolute slope). The acquirer termination fee T_{Buy} and the premium $P_1 = P_2^B$ are both increasing functions of the target's bargaining power (with the same slope).*

Proof. See the arguments in the appendix. ■

The effect of the value of the outside option on the negotiations is also straightforward. Considering the case in which the target has an outside option, we see that the higher the outside option, the more likely will the firms agree upon a termination fee. Furthermore, the higher the outside option, the higher is also the termination fee.[23] This property is summarized in the following proposition:

[23] Analogous arguments could be made if the acquirer had an outside option.

Proposition 3 *The target termination fee T_{Tar} as well as the premium $P_1 = P_2^T$ are increasing functions of the target's outside option S_2^T. The outside option has a stronger influence on the premium than on the target's termination fee.*

Proof. See the arguments in the appendix. ■

The following section empirically analyzes these theoretical findings.

4 Empirical analysis

4.1 Data description and definition of variables

We start from a sample of successful acquisition announcements constructed from the Securities Data Company's (SDC) U.S. Mergers and Acquisitions Database. The sample of acquisitions meets the following criteria: (1) The acquisition is announced in the period from 1986 to 2004.[24] (2) Acquirer holds less than 50% of target shares at announcement and more than 50% after completion of the merger. (3) The deal value is equal to or greater than $1 million and greater than 1% of the acquirer's market value. (4) The acquirer and the target are U.S. public firms. (5) The acquirer did not announce a self-tender or any other kind of repurchase. (6) Acquirers have Standard Industrial Classification (SIC) codes outside the ranges 9111-9999 (public administration; unspecified) and 6000-6999 (financial). (7) Financial data on the acquirer is available from Thomson Datastream and Worldscope. We find 1232 observations that meet these criteria and report all variables.

Table 1 defines the variables used in our analysis and shows bidder, target, and deal characteristics. The mean, median and distribution of the variables are in line with prior records and analyses. Similar to Andrade, Mitchell, and Stafford (2001), targets receive an average premium of 37%, while acquirers experience an abnormal announcement return of -1.2%. In accordance with other studies in this field we find that about 14% of targets sign (net) lockups, while 49% of targets commit themselves to net termination fees averaging at

[24] 1985 is the first year for which SDC reports the use of termination fees in successful mergers (3 cases). Due to lack of data in other variables none of these observations were included in our analysis.

about 3% of the target's pre-announcement market valuation.[25] Other deal characteristics also correspond to prior studies. A large proportion of deals is 'friendly' (i.e. the target does not publicly oppose the merger) and also does not involve any competing bids in the six months before (PREBID) or after (POSTBID) the announcement. On average, 29% of targets are acquired with at least 90% cash in consideration while 29% of all transactions involve tender offers. Furthermore, 38% (62%) of mergers involve firms with the same 4-digit (2-digit) SIC code.

[insert Table 1 here]

The main dependent variables in our analysis are the target's PREMIUM (as a proxy for the target's share of total synergies), the size and existence of net termination fees (NETFEE, DNETFEE), the existence of net lockups (DLOCKUP), and a combination thereof (DNETPROV). As shown in Proposition 1, our model considers the *net* effect of target and bidder termination fees, which corresponds to the effective bargaining position of the players. We therefore define NETFEE as 'gross' target termination fee minus 'gross' acquirer termination fee. When NETFEE is positive (negative) it can be interpreted as a net *target (acquirer)* termination fee. Following, among others, Betton and Eckbo (2000), and Schwert (2000), we compute PREMIUM as the acquirer's final offer divided by the target's pre-bid market value of equity (43 days prior to announcement) minus one. By taking the final offer we are able to incorporate all price amendments that may be triggered by competing bids, even after the announcement of the successful bid.[26] Furthermore, this allows us to include POSTBID, as an exogenous proxy for post-announcement and pre-consummation bidding intensity, into our econometric model. In order to capture the buyer's share of synergies (as counterpiece to the target's bargaining result PREMIUM) we also include the bidder's abnormal stock return on the announcement day (–1,0) in our regressions (BCAR).[27]

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[25] Please see Coates and Subramanian (2000), Burch (2001), Officer (2003), and Bates and Lemmon (2003).

[26] For a robustness check we also computed premium measures used by Officer (2003) and Bates and Lemmon (2003). They did not change the regression results qualitatively.

[27] We calculate market model abnormal returns as defined in Brown and Warner (1985) using the S&P500 index and an estimation interval from -200 to -40 days before the event.

We include the market values of both merger partners (BSIZE, TSIZE) as proxies for their respective bargaining power. This is consistent with Schwert (2000), who infers that larger targets bargain more aggressively in order to improve the terms of a takeover offer. For outside options we define the following four variables. To measure the liquidity or activity of the merger market as a proxy for the general availability of other merger partners as possible outside options we include the number of all completed and withdrawn deals announced in the calendar quarter prior to the event (ACTIVITY). In order to complement the number of deals with a price-related measure, we also include the median premium offered in all (un)successful bids in the calendar quarter prior the event (PREMLAG). This variable can be interpreted as a proxy for outside options of the target, which increases in bidders' overall demand for targets and their general willingness to pay. Furthermore we also include the market-to-book (M/B) ratios of the bidder (BM2B) and the target (TM2B) to capture any kind of outside option or alternative investment opportunity, including other more profitable internal or external non-merger projects.[28] Table 1 further contains standard control variables that prior studies have shown to influence target premiums and termination provisions. In particular, we focus on Officer (2003) and Bates and Lemmon (2003) for termination fees, and Burch (2001) for lockups.

Table 2 shows the distribution of mergers in our sample across years. In general, the development of the number of mergers in our sample compares well to the number of all domestic US bids in the SDC data base. Corresponding to earlier findings, target premiums and bidder returns are quite stable across years.[29] With few exceptions this stability over time also applies to the size of net terminations fees. However, with regard to the number of deals with target (and acquirer) termination fees, we find an increase over time until 1998/1999, not only in absolute terms but also in relation to all sample mergers in the respective year.[30] Also the number of net termination fees, which are defined as the difference between target and acquirer termination fees, increases markedly during this period. Interestingly, net lockups were more common than net

[28] For a similar interpretation of the M/B ratio, see, e.g., Schwert (2000) and Hotchkiss, Qian, and Song (2005).

[29] See e.g. Andrade, Mitchell, and Stafford (2001).

[30] For similar results, see Officer (2003) and Bates and Lemmon (2003).

termination fees at the end of the 80s but decreased in relative importance from 1990 onwards. It seems that termination fees as a contracting technology developed later and less explosive than lockups.[31]

[insert Table 2 here]

According to Coates and Subramanian (2000) the judicial decisions in the Paramount (1994) and Brazen (1997) were largely in favor of termination fees. While the Paramount decision was still ambiguous, the ruling in Brazen v. Bell Atlantic[32] can be viewed as a substantial endorsement of termination fees.[33] We find a clear jump in the fraction of deals employing net termination fees after the Brazen decision (%NETFEE more than doubles), but, in contrast to Officer (2003), less so after the Paramount decision, especially with regard to net fees. We nevertheless control for both events in our analysis.

Table 3 reports the pairwise correlation coefficients for the principal variables in our analysis. In line with the above quoted merger literature, target premiums are higher when the deals involve tender offers or cash payments, and lower when the target has a high market capitalization. Although the existence of net termination fees shows no univariate correlation with the bid premium, the size of net termination fees has a significant positive impact. Merger market activity (ACTIVITY), as a general proxy for outside options, reports a positive pairwise relationship both with the size and existence of net termination fees. PREMLAG (and PREMIUM) is negatively related to ACTIVITY, which is in line with our notion of a merger market equilibrium that moves along a demand function for targets. In support of target size as bargaining power proxy we also find a significant negative correlation with the net termination fee, although the buyer's size seems to have no univariate impact. In the next section, multivariate testing will show how robust these preliminary indications are.

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[31] Also see Officer (2003) for similar results. Using our merger sample query in the SDC data base we find the first entries for net lockups as early as 1984 (6 cases) followed by 23 cases in 1985.

[32] 695 A.2d 43 (1997)

[33] In the Paramount case the court struck down a termination fee and a lockup option. However, most criticism was directed against the lockup option and not against the termination fee of 1,8% of the deal value (US$ 100 million).

[insert Table 3 here]

4.2 Empirical results

As stipulated in the propositions and corollaries in Section 3, our model makes several predictions about (i) bargaining-related determinants of termination provisions, (ii) the influence of termination provisions, bargaining power and outside options on the target's premium, and (iii) structural results of simultaneous negotiations over the split of synergies and termination fees. Most of these predictions refer to the size of termination fees as well as to the likelihood of their existence. In the following three subsections we will therefore structure our empirical tests along both of these aspects.

4.2.1 The determinants of termination provisions

Based on Proposition 1 (and the explanations in connection with Figure 1) we can hypothesize that the likelihood of net target termination fees, (i) increases in the premium, (ii) decreases (increases) in the target's (acquirer's) bargaining power, and (iii) increases (decreases) in the target's (acquirer's) outside option. Based on Proposition 2 and 3, as well as Corollary 1, we find that the above relations also apply to the size of the net termination fee.

The design of corresponding empirical tests, as reported in Table 4, is as follows. Columns 1 to 3 refer to probit models that analyze the likelihood of net target termination provisions. The dependent in Columns 1 and 2 is an indicator variable equal to one if the target agreed to either a net lockup option or a positive net termination fee, otherwise zero. For robustness and more detail we rerun the probit regression on an indicator of net target termination fees only, controlling for lockups (see Column 3). Finally, Column 4 shows a corresponding OLS regression on the size of net termination fees (in percent of the target's market value 42 days prior to the announcement). Since we want to separate the size effect of termination fees from the effect of their existence (as studied in Columns 1-3), the analysis in Column 4 is based on a subsample of 645 observations where net termination fees are actually employed, i.e. where the dependent variable NETFEE is not zero.

[insert Table 4 here]

The empirical results in Table 4 strongly support the prediction of Proposition 1 and Corollary 1 that the likelihood and the size of net target termination fees increase in the target's premium. Columns 1-4 show that the premium has a statistically significant positive effect on the employment of net target termination provisions and on fee size. The intuition behind this finding is straightforward. Since targets can trade promised termination fee dollars for hard premium dollars (without inferring causality), both sides of the equation should be positively related, after controlling for bargaining power, outside option effects, and the acquirer's share of synergies. We use the bidder abnormal stock return (BCAR, in percentages) to control for the latter. This is done to ensure that the result is not influenced by higher total synergies altogether. Since the firm sizes of target and bidder are also included (BSIZE, TSIZE, in absolute terms), all relevant elements for the approximation of total synergies (and for the acquirer's share thereof) are taken account of.

However, even when termination fee dollars can be exchanged for premium dollars, both parties should be interested to promise as little as possible for as much as possible in return. Propositions 1 and 2 state accordingly that the bargaining power of the target (acquirer) should have a negative (positive) influence on the likelihood and size of the target's net termination fee. As can be seen from Columns 1-4 in Table 4, our proxy for target's bargaining power (TSIZE) has indeed a significant negative impact, while the bidder's bargaining power (BSIZE) is significantly positively related. The empirical results therefore principally support our notion that targets accepts (higher) termination provisions in order to strategically negotiate higher premiums, while, at the same time, they use their bargaining power to promise as little as possible for as much as possible.

According to Proposition 1 the probability that a net termination fee is agreed upon is positively influenced by the outside option of the two merger parties. The intuition is that an increase in outside options for the target increases her chances to 'buy' in a disagreement point and to offer the buyer a termination fee in return for a higher premium. As expected, in Table 4, the coefficients for outside options of the acquirer (specifically BM2B) are negative, while the coefficients for the target's outside options (specifically TM2B and PREMLAG) are positive. However, none of the outside option proxies in Columns 1 to 3 has a statistically significant impact on the likelihood

of termination fees.[34] Note that this does not apply to Column 4, which reports a significant positive (negative) impact of target (acquirer) outside options on the size of net termination fees, in support of Proposition 3. This also corresponds to Schwert (2000) and Comment and Schwert (1995), who find that variables that probably reflect the bargaining power of the firm, such as firm size, contribute most explanatory power, while M/B and other performance variables are less strong predictors.

A cross-check of the control variables shows no surprises. The results with regard to tender offers, hostility, and cash payments are fully consistent with previous studies (see e.g. Officer (2003)) and correspond to our bargaining framework.[35] Moreover, like Officer (2003), we find little support for the contention that competitive bidding before or after the successful initial announcement of a merger significantly influence the arrangement of termination provisions in the final and approved version of the contract. Interestingly, we find no impact of the Paramount (1994) and Brazen (1997) decisions on net termination provisions. This indicates that the increase of 'gross' target termination provisions found in previous studies can alternatively be explained by collateral developments of acquirer termination fees in combination with other bargaining-related counterbalances.

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[34] Unreported regressions show that this is partially due to the inclusion of time and industry dummies, as well as other time-related controls, like PARAMT94, BRAZEN97. This is not too surprising, since it is well-known that mergers tend to cluster over time and industries (Andrade and Stafford 2004). If outside options also cluster over time, this can lead to the observed neutralization effect. Schwert (2000) comes to similar conclusions. He furthermore argues, that periodical changes in takover and defense technologies can have a similar influence on, in our case, the availability and relevance of outside options.

[35] Following Comment and Jarrell (1987) and Schwert (2000), we can assume that most tender offers and even hostile deals are negotiated before consummation. Since tender offers have ceteris paribus more aggressive acquirers, TENDER can also be interpreted as an indicator for stronger bargaining power of the bidder. Accordingly, we observe an impact similar to BSIZE. HOSTILE describes an aggressive public reaction by the target and can analogously be interpreted as bargaining power of the target; or simply as a reduced likelihood of negotiations. The latter may also explain the negative impact of CASH. Since (tender) offers involving stock are mostly negotiated, CASH emphasizes deals that are not negotiated.

4.2.2 The influence of termination provisions and bargaining positions on the premium

Proposition 1 to 3 and Corollary 2 predict that takeover premiums (i) increase in the existence and size of net termination fees, (ii) are independent of the existence of 'gross' termination fees if they are reciprocal and symmetric, (iii) increase (decrease) in the targets' (acquirers') outside options, (iv) increase (decrease) in targets' (acquirers') bargaining power.

[insert Table 5 here]

Columns 1-2 in Table 5 show that the existence of net termination provisions (DNETPROV), fees (DNETFEE), and lockups (DNETLOCK) have a positive influence on the premium. Column 3 shows that the same holds for the size of net termination fees (NETFEE) when they are not zero. Thus, interpreted in the framework of our model, the target seems to be able to materialize its superior bargaining position by offering termination provisions.

Interestingly, such a relation can not be shown for 'gross' termination provisions (DTPROV) if we analyze the sub-sample where net termination fees are zero. The corresponding results in Column 4 support Proposition 1, which predicts that symmetric reciprocal fees do not influence the premium. The intuition behind this prediction is that neither of the two merger parties has a superior bargaining position, leading to a Nash bargaining split of synergies, in conjunction with equal fees for both or none at all. As reported in Column 4, the insignificant coefficient of DTPROV corroborates our view that target (or acquirer) fees do not play a role in strategic bargaining, when they are reciprocal.

With regard to outside options, we find that the impact on the target's premium is rather limited. This especially applies to the M/B ratio, which we primarily interpret as a proxy for non-merger outside options. It shows a weak support for our model on the bidder's side (BM2B) with t-values between 1.60 and 1.77 in Column 1 to 3. Contrasting this, PREMLAG, which proxies targets' outside options (i.e. acquirers' demand and willingness to pay), consistently shows the expected positive correlation with targets' share of synergies. With all due caution, this may indicate that merger-related outside options are more reliable predictors for premiums than non-merger outside options.

In line with prior merger studies, we not only find that hostile and horizontal takeovers are more expensive for acquirers, but also that premiums are lower when targets are large, i.e. more complex to merge with and, on average, less profitable than smaller firms. Note, that this result does not stand in contradiction to our model, which states that the absolute premium (not PREMIUM as a percentage of target size) depends positively on absolute target size (bargaining power).[36] However, it shows that bargaining power is just one of several factors that determine the size of premiums. Interestingly, the proxy for the buyer's share of synergies (BCAR) shows a strong negative relation with the target's PREMIUM. This suggests that there principally exists an ex ante 'pie' of synergies (gains of trade), which the two parties negotiate about.

Table 4 and 5 contain evidence on the effect of termination fees on premiums and vice versa, both of which imply that the dependent and independent variable are endogenous. Since this can lead to a simultaneity bias in the above stand-alone regressions we will estimate a simultaneous-equations system in the next subsection.

4.2.3 Simultaneous determination of termination fees and premiums

Not only in our theoretical model, but also in reality, termination fees and the splitting of total merger synergies are almost certainly negotiated and determined simultaneously. To account for such endogeneity we estimate a three-stage least squares model with three structural equations for the simultaneous estimation of the target's share of synergies (PREMIUM), the corresponding buyer's share of synergies (BSYN), and the size of non-zero net termination fees (NETFEE) as dependent variables.[37] Equations (2) and (8) in Section 3 provide the structural model, which shows that the termination fee is primarily determined by firms' bargaining power, while the sharing of synergies mainly

[36] A rerun of the regressions in Columns 1 to 4 with absolute premiums as dependent variable robustly supports this prediction. Due spatial constraints and its peripheral importance, we do not report detailed results.

[37] Analogous to PREMIUM (target's absolute synergies as percent of TSIZE) the dependent variable BSYN (buyer's absolute synergies as percent of TSIZE) is computed as BCAR*BSIZE/TSIZE.

depends on outside options. Proposition 1 and 3 as well as Corollary 2 predict that the target's (the acquirer's) share of synergy (i) increases (decreases) in the net termination fee, (ii) increases (decreases) in the target's outside option, (iii) increases (increases) in total synergies, while Proposition 1 and 2 predict that the net termination fee simultaneously decreases (increases) in the target's (acquirer's) bargaining power.

[insert Table 6 here]

Table 6 reports the results of the corresponding three-stage least squares regression with instruments for PREMIUM and NETFEE. In support of the results in Table 4 we find that the target's (acquirer's) bargaining power (TSIZE, BSIZE) have a negative (positive) impact on net termination fees. With regard to the impact of outside options on the premium, we also find support for the results of Table 5. As expected, the signs of the coefficients of PREMLAG, BM2B, and TM2B change when estimating the acquirer's share of synergies (in Column 2) instead of the target's share of synergies (in Column 1). PREMLAG turns out to have a significant negative influence on BSYN.

Naturally, higher total merger synergies (SYNERGY), calculated as PREMIUM*TSIZE plus BCAR*BSIZE, increase the return of both sides of the merger. However, as the instruments for net terminations fees and premium show, only the target is able to trade the one against the other. Acquirers do not seem to gain or lose from termination fee clauses. This suggests that when higher than average synergies exist, targets are able to capture these in exchange for higher termination fees.

Overall, Table 6 allows the following conclusions about the impact of bargaining power on premiums and termination fees. As shown in Table 5 smaller (larger) targets receive higher (lower) premiums. Since premiums are positively related with termination fees, smaller targets accept larger net termination fees. However, their relatively large premiums primarily result from higher synergies (that small firms are able to attain by offering fees), and not necessarily from higher bargaining power. Larger targets, in contrast, generally face lower premiums and proportionately lower net fees, but may also have greater bargaining power to reduce termination fees even further. In other

words, even though larger targets generate smaller premiums, they enjoy a significantly better fee-to-premium ratio.[38]

5 Implications and conclusion

In contrast to existing approaches, we model takeovers as a bargaining process with reciprocal termination provisions. As a theoretical contribution, this allows us to explain the net effect of termination provisions in both directions: from the target to the acquirer and vice versa. In equilibrium, net termination provisions are accepted when they can be traded for a higher share of merger synergies, subject to firms' bargaining power and outside options. We can show that this even holds when the current bargaining partner represents the highest of all potential bidders and even when there are no bidding or contracting costs. Empirically, the concept of net effects of termination provisions finds robust support. In simultaneous as well as stand-alone estimations we find positive correlations between net termination fees and premiums. Furthermore, the target's (acquirer's) bargaining power decreases (increases) the size and likelihood of net termination provisions, while proxies for targets' (acquirers') outside options moderately increase (decrease) net termination fees.

In a review of theoretical approaches, our findings do not categorically rule out existing explanations of termination fees, but suggest that bargaining effects should be considered as additional, maybe even decisive determinants. From the positive relation between net fees and premiums we can infer that agency costs hardly serve as an exclusive explanation for deal protection devices.[39] Certainly, only an unconditionally benign perception of target management rules out entrenchment as a motive, but it does not seem to manifest itself in termination clauses on average. As an alternative approach, cost compensation and liquidated damages might play a role (as successfully argued in Brazen v. Bell Atlantic), but some of our findings question their general impact. Although larger targets (i.e., more complex deals) should lead to more

[38] Separate cross-checks with the fee/premium ratio as dependent variable support this finding.

[39] For a similar conclusion see, inter alia, Officer (2003) and Burch (2001). We also find little evidence that bid competition is negatively related to termination fees in the final contract (see Table 4). Officer (2003) reports similar evidence for multivariate regressions.

bidding-related costs and greater free-riding problems we do not find evidence for larger compensation in fees (see Table 4).[40] Second, 'gross' termination fees in reciprocal arrangements should have the same (positive) influence on premiums like net termination fees, which stands in direct contrast to our results in Table 5. The latter also casts doubt on the explanatory power of the commitment approach, which mainly explains target but not acquirer termination fees. Overall, we interpret the evidence on termination provisions to the benefit of target shareholders, where possible cost compensation and commitment effects are amplified in line with the bargaining position of merger parties.

Delaware courts have struggled to find a legal standard for termination provisions (Levy 2002). In principle, our evidence supports the business judgement rule as the traditional standard.[41] The ever present threat of entrenchment may justify less lenient approaches, where the board must prove that deal protection clauses are not preclusive or coercive (enhanced scrutiny approach), or that the transaction was a product of both 'fair dealing' and 'fair price' (entire fairness standard). An elaborate form of assessing the propriety of termination fees (in bankruptcy asset sales) is the best interest standard, for which the Hubb court introduced a seven-factor analysis.[42]

However, we advise caution with the adoption of too detailed assessments, since they rely on specific and sometimes incoherent assumptions. In re America West Airlines, Inc., the court rejected the business judgement rule in favor

[40] Also see Markell (1992), who points out that bids are primarily induced through future benefits of the deal and not through the prospect of immediately being compensated for costs. Furthermore, he argues that, in order to reduce bidding-related costs, targets could also increase the available information about themselves.

[41] Under the business judgment rule, director liability is predicated upon gross negligence. Judicial analysis is mostly limited to a procedural review, whether business decisions were taken on an informed basis, in good faith, and without self-interest. If that is fulfilled, courts will respect business decisions without holding the directors liable for unanticipated losses.

[42] See Levy (2002) for an excellent review and discussion of these approaches. Levy (2002) also translates the Hubb court analysis for bankruptcy asset sales into the following seven-factor test for takeovers: (i) Whether the fee correlates with the maximization of shareholder value; (ii) Whether the underlying negotiated agreement is an arms-length transaction between merger partners; (iii) Whether the directors followed a reasonable decision-making process; (iv) Whether the fee constitutes a fair and reasonable percentage of the proposed purchase price; (v) Whether the dollar amount of the fee is so substantial that it deters or chills other potential bidders; (vi) Whether other provisions exist in the merger agreement that are detrimental to the shareholders; (vii) Whether there is a substantial adverse impact to shareholders' legal and statutory right to vote.

of the best interest standard. It reasoned that a termination fee would "not induce further bidding or bidding generally". As our analysis shows, this is no prerequisite since termination fees can still be used to increase prices, not only in the absence of an actual bust-up bid, but also when negotiating with the highest bidder. Even when bargaining with the second-highest bidder, since the target will not rationally sacrifice her outside option, an optimal net termination provision can extract maximum possible rents by rendering the highest bidder indifferent to making an offer. Thus, the absence of a bust-up bid might convey the impression of foreclosure, but does not necessarily harm target shareholders. In equilibrium, termination provisions with the second-highest bidder do not constitute a breach of fiduciary duties by target management.

These findings also challenge (i) the definition of 'preclusive' or 'coercive' in enhanced scrutiny approaches, as well as (ii) some of Hubb court factors that assess whether unreasonably large termination fees provide a 'chilling effect' on potential bust-up bidders. In Phelps Dodge Corp. v. Cyprus Amax Minerals Co. (No. 17398; Sept. 27, 1999), the Delaware Court of Chancery accepted a termination fee of 6.3% of the transaction value, but also stated that this "probably stretches the definition [of range of reasonableness] beyond its breaking point." Contrasting this with our model, armchair calculations suggest that fees of up to $\frac{1}{6}$ of the highest bid price can in principle be justified, provided that the target has duly considered all interested parties in the bargaining process (including the plaintiff) and that she has equal bargaining power. In other words, if a maximum fee of 6.3% would be adopted as a general threshold, as also suggested by Bainbridge (1990) for lockups (maximum 10%), targets' potential to increase their premium by accepting a higher termination fee could in some cases be restricted to about one third.

In weighting the arguments, we find the more lenient business judgement rule at least as justified as more restrictive legal standards. While the former offers more potential to bargain for higher premiums at the cost of cases with undetected entrenchment, the latter more effectively prevents agency costs but runs the risk of taxing target shareholders. We hope for further research on this trade-off since we believe that a conclusive legal standard is yet to be found.

6 Appendix

Proof of Corollary 1: Consider the following derivatives from equation (2) and (3) respectively:

$$\frac{\partial T_{Tar}}{\partial P_1} = \frac{\partial \frac{P_1(1-\lambda_1)(1-\lambda_2)}{1+(1-\lambda_1)\lambda_2}}{\partial P_1} = \frac{(\lambda_1 - 1)(\lambda_2 - 1)}{1 + \lambda_2 - \lambda_1\lambda_2} > 0$$

$$\frac{\partial T_{Buy}}{\partial P_1} = \frac{\partial \frac{\lambda_1\lambda_2(S_1-P_1)}{1+\lambda_1(1-\lambda_2)}}{\partial P_1} = \frac{\lambda_2}{\lambda_1\lambda_2 - \lambda_1 - 1} < 0$$

Proof of Corollary 2: To see that the overall effect of T_{Tar} on P_1 is positive, combine the equations for P_1:

$$\begin{aligned} P_1 &= S_2 - T_{Tar} \\ P_1 &= \frac{1 + (1-\lambda_1)\lambda_2}{(1-\lambda_1)(1-\lambda_2)} T_{Tar} \end{aligned}$$

such that:

$$\begin{aligned} S_2 - T_{Tar} &= \frac{1 + (1-\lambda_1)\lambda_2}{(1-\lambda_1)(1-\lambda_2)} T_{Tar} \\ S_2 &= T_{Tar}\left(\frac{1 + (1-\lambda_1)\lambda_2}{(1-\lambda_1)(1-\lambda_2)} + 1\right). \end{aligned}$$

Taking (3) and $S_1 - P_1 = S_2^B - T_{Buy}$ we can prove the acquirer's side analogously.

Proof of Proposition 2: Consider for $\lambda_1 = \lambda_2 = \widetilde{\lambda}_2 = \lambda$ the following derivatives from equation (7):

$$\frac{\partial T_{Tar}}{\partial \lambda} = -\frac{(\lambda - 3)(\lambda - 1) S_2^T}{(\lambda - 2)^2} < 0 \quad \text{and} \quad \frac{\partial P_2^T}{\partial \lambda} = \frac{(\lambda - 3)(\lambda - 1) S_2^T}{(\lambda - 2)^2} > 0$$

Consider the following derivatives from equation (5):

$$\frac{\partial T_{Buy}}{\partial \lambda} = \frac{\lambda(\lambda + 2) S_2^B}{(\lambda + 1)^2} > 0 \quad \text{and} \quad \frac{\partial P_2^B}{\partial \lambda} = \frac{\lambda(\lambda + 2) S_2^B}{(\lambda + 1)^2} > 0$$

Proof of Proposition 3: Consider the following derivatives from equations

(7):

$$\frac{\partial T_{Tar}}{\partial S_2^T} = \frac{(1-\lambda_2)(1-\lambda_1)}{2-\lambda_1} > 0 \quad \text{and} \quad \frac{\partial P_1}{\partial S_2^T} = \frac{(1+\lambda_2-\lambda_2\lambda_1)}{2-\lambda_1} > 0$$

Obviously, for $\lambda_1 = \lambda_2 = \widetilde{\lambda}_2 = \lambda$ the following holds:

$$\frac{\partial T_{Tar}}{\partial S_2^T} - \frac{\partial P_1}{\partial S_2^T} = \frac{3\lambda - 2\lambda^2}{\lambda - 2} < 0.$$

Taking derivatives from equations (5) we can prove the acquirer's side analogously.

Table 1. Bidder, target and deal characteristics

This table contains the bidder, target, and deal characteristics in a sample of 1232 completed mergers from 1986 to 2003. PREMIUM is defined as bidder's final offer divided by target's pre-bid market value of equity (43 days prior to announcement) minus 1. NETFEE is the target's termination fee minus the acquirer's termination fee in relation to the target's market value of equity (43 days prior to announcement). BCAR is the bidder's abnormal stock return on the announcement day (–1,0) using standard event study methods (Brown and Warner 1985). We calculate market model abnormal returns using the S&P500 index and an estimation interval from -200 to -40 days before the event. DNETFEE is an indicator variable equal to 1 if NETFEE is positive. DNETLOCK is an indicator variable equal to 1 if the bidder has a unilateral lockup option to purchase target's equity. DNETPROV is an indicator variable equal to 1 if DNETFEE or DNETLOCK are equal to 1. TENDER and CASH are indicator variables equal to one if the bid involved a tender offer or a payment of at least 90% cash to target shareholders. HOSTILE is equal to one if the bid is recorded by SDC as "hostile". SIND is equal to one if the bidder is from the same industry as the target (4 digit SIC-level). ACTIVITY is the natural logarithm of the number of all (un)successful SDC merger announcements in the calendar quarter prior to the event. PREMLAG is the median PREMIUM offered in all (un)successful bids in the calendar quarter prior to the event. BSIZE (TSIZE) is the natural logarithm of the market value of the bidder (target) 43 days prior to announcement. BM2B (TM2B) is the ratio of market to book value of stockholders equity for the bidder (target) computed using Worldscope (SDC) data from the last financial quarter (from 43 days) prior to the announcement. BD2A (BCF2A) is the ratio of total debt (operating cash flow) to the book value of assets for the bidder computed using Worldscope data from the last financial year prior to the announcement. PREBID (POSTBID) is an indicator variable equal to one if a competing bid is recorded by SDC in the six months before (after) the announcement of the current bid. TOEHOLD is an indicator variable equal to one if the bidder own a fraction of the target's common stock at the announcement date. PARAMT94 (BRAZEN97) is an indicator variable equal to one if the deal is announced in or after the year 1994 (1997) (Paramount and Brazen court ruling, respectively).

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	mean	sd	p5	p50	p95
PREMIUM	.370	.407	-.071	.302	.996
NETFEE	.029	.047	0	0	.101
BCAR	-.012	.056	-.110	-.006	.067
DNETPROV	.562	.496	0	1	1
DNETFEE	.494	.500	0	0	1
DNETLOCK	.137	.344	0	0	1
TENDER	.285	.451	0	0	1
HOSTILE	.027	.161	0	0	0
CASH	.289	.453	0	0	1
SIND	.384	.486	0	0	1
ACTIVITY	6.082	.279	5.627	6.148	6.458
PREMLAG	.295	.101	.142	.275	.474
BSIZE	7.258	1.808	4.302	7.268	10.195
BM2B	195	2.004	.618	1.343	5.005
BD2A	.225	.182	0	.212	.536
BCF2A	.104	.104	-.053	.111195	.237
TSIZE	5.010	1.732	2.355	4.920	8.015
TM2B	3.655	7.181	.539	2.009	10.125
PREBID	.051	.220	0	0	1
POSTBID	.070	.256	0	0	1
TOEHOLD	.042	.201	0	0	0
PARAMT94	.794	.404	0	1	1
BRAZEN97	.620	.485	0	1	1

Table 2. Distribution across years

This table contains the distribution of 1232 completed mergers across the years 1986 to 2003. #M&A is the number of all domestic US bids in SDC. #DEAL is the number of mergers in our sample. #NETFEE is the number of deals in our sample where DNETFEE is equal to one (i.e. where NETFEE is positive). %NETFEE is #NETFEE as a percentage of #DEAL. #TFEE is the number of deals with target termination fees. #BFEE is the number of deals with bidder termination fees. #NETLOCK is the number of deals in our sample where DNETLOCK is equal to one. %NETLOCK is #NETLOCK as a percentage of #DEAL. All other variables are defined in Table 1.

YEAR	#M&A	#DEAL	PREMIUM	BCAR	NETFEE	#NET FEE	%NET FEE	# TFEE	# BFEE	#NET LOCK	%NET LOCK
1986	932	29	33,2%	-0,28%	0,0%	0	0%	2	2	11	38%
1987	1074	41	38,4%	-0,43%	7,7%	1	2%	10	9	19	46%
1988	1346	46	52,1%	-0,33%	3,2%	1	2%	5	4	12	26%
1989	1565	36	41,0%	-0,02%	4,2%	4	11%	4	0	8	22%
1990	1206	23	48,4%	-0,49%	4,3%	7	30%	7	0	3	13%
1991	1133	24	45,3%	0,44%	7,3%	9	38%	9	1	5	21%
1992	1243	23	29,3%	0,27%	6,3%	9	39%	11	2	1	4%
1993	1507	31	33,4%	-0,45%	4,2%	10	32%	11	4	7	23%
1994	1837	32	33,3%	-0,86%	4,7%	13	41%	16	4	3	9%
1995	2130	83	36,4%	-1,46%	5,6%	33	40%	45	12	7	8%
1996	2387	100	27,8%	-0,46%	4,7%	32	32%	46	18	6	6%
1997	2510	107	26,1%	-0,64%	5,6%	70	65%	88	24	10	9%
1998	2345	116	38,0%	-0,56%	6,3%	91	78%	103	17	23	20%
1999	2005	157	37,2%	-1,78%	5,8%	100	64%	129	35	36	23%
2000	1813	143	38,3%	-2,81%	6,2%	80	56%	118	42	9	6%
2001	1450	106	36,0%	-1,63%	7,2%	73	69%	100	31	6	6%
2002	1289	65	56,5%	-1,70%	8,3%	43	66%	55	17	2	3%
2003	1350	70	34,7%	-1,67%	5,8%	33	47%	51	19	1	1%

Table 3. Pairwise correlation of main variables

This table contains the pairwise correlation coefficients using a sample of 1232 completed mergers from 1986 to 2003. All variables are defined in Table 1. * indicates that the coefficient is significantly different from zero at the 5% level, using a two-tailed test.

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
[1]	PREMIUM	1											
[2]	NETFEE	0.24*	1										
[3]	BCAR	-0.05	0.00	1									
[4]	DNETFEE	0.05	0.67*	-0.00	1								
[5]	TENDER	0.08*	0.12*	0.07*	0.11*	1							
[6]	CASH	0.08*	0.00	0.15*	-0.03	0.50*	1						
[7]	ACTIVITY	-0.09*	0.08*	-0.01	0.21*	-0.10*	-0.15*	1					
[8]	PREMLAG	0.25*	-0.01	-0.02	-0.12*	0.09*	0.12*	-0.42*	1				
[9]	BSIZE	-0.08*	0.00	-0.10*	0.18*	0.04	-0.05	0.07*	0.03	1			
[10]	BM2B	-0.03	0.01	-0.07*	0.09*	-0.11*	-0.10*	0.06*	0.00	0.25*	1		
[11]	TSIZE	-0.22*	-0.17*	-0.19*	0.06*	-0.04	-0.24*	0.12*	-0.04	0.69*	0.14*	1	
[12]	TM2B	-0.05	-0.00	-0.06*	0.05	-0.08*	-0.08*	0.06*	-0.02	0.18*	0.18*	0.20*	1
[13]	TOEHOLD	0.03	-0.06*	0.08*	-0.05	0.14*	0.12*	-0.06*	0.04	-0.04	-0.08*	-0.01	0.01

Table 4. Determinants of termination provisions

The probit regressions in Column 1-3 are based on a sample of 1231 completed mergers from 1986 to 2003. The OLS regressions in Column 4 is based on a sub-sample of 645 observations where NETFEE is not zero. All variables are defined in Table 1. The z- and t-statistics (in parentheses) are adjusted for heteroskedasticity using Huber (1967) and White (1980) corrections. Coefficients of year dummies and industry dummies (1-digit SIC) are not reported.

	1 DNETPROV	2 DNETPROV	3 DNETFEE	4 NETFEE
PREMIUM	0.111***	0.118***	0.073*	0.026**
	(2.66)	(2.76)	(1.71)	(2.24)
DNETLOCK			0.116**	0.002
			(2.09)	(0.27)
BCAR		0.233	0.183	-0.015
		(0.84)	(0.64)	(0.42)
TENDER	0.256***	0.261***	0.272***	0.008
	(6.43)	(6.46)	(6.22)	(1.37)
HOSTILE	-0.387***	-0.365***	-0.261**	0.004
	(4.10)	(3.71)	(2.35)	(0.44)
CASH	-0.073*	-0.084*	-0.116***	-0.012*
	(1.73)	(1.95)	(2.59)	(1.74)
SIND	-0.043	-0.048	-0.055	-0.004
	(1.35)	(1.50)	(1.61)	(1.12)
ACTIVITY	0.016	0.018	0.056	-0.029
	(0.07)	(0.08)	(0.22)	(1.09)
PREMLAG	0.045	0.069	0.047	0.009
	(0.22)	(0.34)	(0.21)	(0.25)
BSIZE	0.081***	0.075***	0.072***	0.004**
	(6.30)	(5.63)	(5.03)	(2.41)
TSIZE	-0.036**	-0.033**	-0.044***	-0.015***
	(2.55)	(2.31)	(2.85)	(5.85)
BM2B	-0.001	-0.002	-0.014	-0.001**
	(0.10)	(0.23)	(1.57)	(2.18)
TM2B	0.002	0.002	0.003	0.000*
	(0.76)	(0.87)	(1.29)	(1.73)
BD2A		0.016	0.052	-0.015
		(0.18)	(0.55)	(1.46)
BCF2A		0.283*	0.329**	0.002
		(1.84)	(2.05)	(0.06)
PREBID		0.033	0.150	0.010
		(0.39)	(1.52)	(1.05)
POSTBID		-0.058	-0.098	-0.010
		(0.77)	(1.17)	(1.07)
TOEHOLD		-0.106	-0.031	-0.004
		(1.28)	(0.35)	(0.63)
PARAMT94		-0.019	-0.029	0.009
		(0.11)	(0.16)	(0.51)
BRAZEN97		0.007	0.091	-0.009
		(0.05)	(0.65)	(0.57)
ind dummies	y	y	y	y
year dummies	y	y	y	y
Observations	1231	1231	1200	645
(pseudo) R2	0.16	0.16	0.22	0.28

Robust z and t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Influence of termination provisions on premium

The OLS regressions in Columns 1 and 2 are based on a sample of 1232 completed mergers from 1986 to 2003. The OLS regression in Column 3 (Column 4) is based on a sub-sample of 645 (587) observations where NETFEE is not zero (is zero). DTPROV is an indicator variable equal to one when the merger contract includes a 'gross' target termination provision (fee or lockup), irrespective of the existence or size of bidder termination provisions. All other variables are defined in Table 1. The t-statistics (in parentheses) are adjusted for heteroskedasticity using Huber (1967) and White (1980) corrections. Coefficients of year dummies and industry dummies (1-digit SIC) are not reported.

	1 PREMIUM	2 PREMIUM	3 PREMIUM	4 PREMIUM
DNETPROV	0.064***			
	(2.79)			
DNETFEE		0.042*		
		(1.67)		
DNETLOCK		0.054*	0.026	
		(1.73)	(0.61)	
NETFEE			1.834**	
			(2.44)	
DTPROV				-0.016
				(0.49)
BCAR	-0.679***	-0.671***	-0.704**	-0.533*
	(2.85)	(2.81)	(2.02)	(1.81)
TENDER	0.025	0.031	0.007	0.036
	(0.86)	(1.05)	(0.19)	(0.86)
HOSTILE	0.201***	0.199***	0.315***	0.155**
	(3.69)	(3.66)	(3.38)	(2.23)
CASH	-0.028	-0.028	-0.002	-0.039
	(0.95)	(0.97)	(0.03)	(0.93)
SIND	0.044*	0.044*	0.064*	0.025
	(1.89)	(1.86)	(1.92)	(0.74)
ACTIVITY	0.141	0.140	0.329	0.056
	(0.90)	(0.89)	(1.36)	(0.29)
PREMLAG	1.064***	1.065***	1.466***	0.779***
	(5.58)	(5.58)	(5.06)	(3.59)
BSIZE	0.024**	0.024**	0.010	0.029**
	(2.50)	(2.53)	(0.72)	(2.31)
TSIZE	-0.077***	-0.077***	-0.060***	-0.062***
	(6.41)	(6.45)	(3.52)	(4.76)
BM2B	-0.008	-0.009*	-0.010	-0.001
	(1.60)	(1.77)	(1.64)	(0.08)
TM2B	-0.001	-0.001	0.000	-0.003
	(0.60)	(0.54)	(0.35)	(1.64)
BD2A	-0.029	-0.025	-0.091	0.084
	(0.39)	(0.33)	(0.87)	(0.79)
BCF2A	0.038	0.046	0.076	-0.018
	(0.30)	(0.36)	(0.35)	(0.12)
PREBID	0.010	0.008	-0.048	0.087
	(0.20)	(0.17)	(0.65)	(1.21)
POSTBID	0.044	0.043	-0.017	0.073
	(1.03)	(1.00)	(0.22)	(1.45)
TOEHOLD	0.060	0.058	0.094	0.030
	(1.40)	(1.34)	(1.65)	(0.52)
PARAMT94	-0.137	-0.126	-0.450***	-0.081
	(1.11)	(1.02)	(2.93)	(0.46)
BRAZEN97	0.189	0.195*	0.097	0.069
	(1.60)	(1.65)	(0.80)	(0.89)
ind dummies	y	y	y	y
year dummies	y	y	y	y
Observations	1232	1232	645	587
R2	0.16	0.16	0.24	0.15
Robust t statistics in parentheses				
* significant at 10%; ** significant at 5%; *** significant at 1%				

Table 6. Simultaneous determination of termination fees and premium

The three-stage least squares (3SLS).regression of the system of structural equations in Columns 1-3 is based on a sample of 645 completed mergers from 1987 to 2003 where NETFEE is not zero. In analogy to PREMIUM (target's synergies as percent of TSIZE) the dependent variable BSYN (buyer's synergies as percent of TSIZE) is computed as BCAR*BSIZE/TSIZE. SYNERGY is the sum of target's synergies (PREMIUM*TSIZE) and buyer's synergies (BCAR*BSIZE) in '00 mil US$. All other variables are defined in Table 1. The z-statistics (in parentheses) are adjusted for heteroskedasticity using Huber (1967) and White (1980) corrections. Coefficients of year dummies and industry dummies (1-digit SIC) are not reported.

	1 PREMIUM	2 BSYN	3 NETFEE
NETFEE (instrument)	5.536***	3.144	
	(7.09)	(1.08)	
PREMIUM (instrument)			0.038**
			(2.26)
SYNERGY	0.003**	0.040***	
	(2.04)	(6.23)	
TENDER	-0.019	-0.131	0.008
	(0.43)	(0.80)	(1.64)
HOSTILE	0.224	-0.011	0.001
	(1.49)	(0.02)	(0.04)
CASH	0.033	-0.184	-0.011**
	(0.74)	(1.11)	(2.15)
SIND	0.076**	0.057	-0.006
	(2.13)	(0.43)	(1.35)
DNETLOCK	0.029	-0.313*	0.001
	(0.57)	(1.65)	(0.12)
ACTIVITY	0.205	-0.406	
	(1.08)	(0.44)	
PREMLAG	1.212***	-2.518***	
	(4.85)	(2.67)	
BSIZE			0.003**
			(2.09)
TSIZE			-0.013***
			(5.89)
BM2B	-0.012*	0.027	
	(1.80)	(0.86)	
TM2B	0.000	-0.009	
	(0.25)	(1.23)	
BD2A	-0.047	0.709*	-0.013
	(0.46)	(1.90)	(1.13)
BCF2A	0.090	0.039	-0.002
	(0.44)	(0.05)	(0.08)
PREBID	-0.065	-0.331	0.010
	(0.67)	(0.94)	(0.94)
POSTBID	0.015	0.490	-0.011
	(0.16)	(1.42)	(1.05)
TOEHOLD	0.078	0.294	-0.005
	(0.76)	(0.78)	(0.47)
PARAMT94			0.030
			(0.63)
BRAZEN97			-0.007
			(0.65)
ind dummies	y	y	y
year dummies	y	y	y
Observations	645	645	645
pseudo R2	0.13	0.10	0.28

Robust z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

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