Why Are Bidder Termination Provisions Included In Takeovers?

Internet Appendices B, C and D

Zhiyao Chen[*] Hamed Mahmudi[†] Aazam Virani[‡] Xiaofei Zhao[§]

Abstract

This article contains appendices that accompany our paper "*Why Are Bidder Termination Provisions Included In Takeovers?*". Appendix B presents an example illustrating the intuition of the model in the paper, proofs of the model's propositions and derivations of the comparative statics. Appendix C presents extensions to the model in the paper. Appendix D presents additional empirical analysis.

[*]CUHK Business School, Chinese University of Hong Kong; email: nicholaschen@baf.cuhk.edu.hk
[†]Lerner College of Business, University of Delaware; email: hmahmudi@udel.edu
[‡]Corresponding Author; Eller College of Management, University of Arizona; email: avirani@email.arizona.edu
[§]McDonough School of Business, Georgetown University; email: xiaofei.zhao@georgetown.edu

Internet Appendix B - Model Example, Proofs and Comparative Statics

This appendix presents an example illustrating the intuition of our model in Section 2 of our paper, proofs of the propositions and derivations of the comparative statics. We follow the notation used in the paper.

B.1 Model Simple Example

This section presents a simple example that illustrates the intuition of the model in Section 2 of our paper. A bidder and target agree today on a cash takeover that is to be completed after one period. A "good" and "bad" state of nature occur in the next period with equal probability. There is no discounting and both parties have equal bargaining power. The values of the target's assets under the bidder's control and under the target's existing management's control are as follows

Target firm value	Under bidder's control	Under existing management
Good state	100	70
Bad state	50	60

In practice, absent a bidder termination provision, a bidder is highly constrained in its ability to terminate a takeover. We assume therefore, that if the deal does not include a bidder termination provision the bidder cannot terminate it. Then, the total expected payoff of the target and bidder (i.e. the total expected value created by the takeover) is

$$\text{Payoff}(Total) = 0.5(100 - 70) + 0.5(50 - 60) = 10$$

We incorporate gain-sharing by letting this total payoff be shared by the bidder and target, who have equal bargaining power and thus each receive $\text{Payoff}(Target) = \text{Payoff}(Bidder) = 5$.

Next we consider the inclusion of a bidder termination provision. Let K denote the price paid upon completion of the deal and P denote the termination fee paid by the bidder if it terminates the deal. An optimal price and bidder termination fee ensure that the bidder's payoff from termination in the bad state, $-P$, exceeds its payoff from completion, $50 - K$. Therefore, the optimal price and termination fee must satisfy the inequality $50 - K < -P$ or $P < K - 50$.[1]

---

[1]If there were infinitely many states, setting this constraint to an equality would yield a threshold state $P = K - 50$

Next, we consider the combined expected payoff with a bidder termination provision. If the bidder completes the deal in the good state and terminates it in the bad state, the payoffs are

$$\text{Payoff}(Target) = 0.5(K - 70) + 0.5P = 0.5(K + P) - 35$$

$$\text{Payoff}(Bidder) = 0.5(100 - K) - 0.5P = 50 - 0.5(K + P).$$

The total expected payoff, $\text{Payoff}(Total) = 15$, is higher than the payoff without a bidder termination provision (10). As the bidder and target equally share the total expected payoff, they are each better off with inclusion the provision, with a payoff of 7.5, than without it with payoff 5. This illustrates that a bidder termination provision can create value — this value arises from variation in the value of the target firm's assets to the bidder and the target's existing management under different scenarios. It also illustrates the bidder termination fee must be set optimally in order for the provision to create value.

At first glance it may appear that inclusion of a bidder termination provision is always weakly socially-optimal but this is not the case. Unlike a social-planner, a bidder will not base its termination decision on the total expected payoff. Instead, it evaluates termination by comparing its own payoff from completion (the value of the target to it net of the offer price) to the cost of paying the termination fee. Therefore the bidder may terminate even when the target is worth more to it than as a stand-alone firm. This will decrease the total expected payoff ex-ante. The inclusion of a bidder termination provision therefore creates a trade-off and it is not obvious if a bidder termination provision is ex-ante optimal. We illustrate this below with a modification.

Suppose that the target's value to the bidder in the bad state were 70 instead of 50 (i.e. the target is now worth more under the bidder's control in the bad state), all else remaining the same. Absent a termination provision, the total expected payoff is $\text{Payoff}(Total) = 0.5(100 - 70) + 0.5(70 - 60) = 20$, with the target and bidder each receiving 10. With inclusion of a termination provision, total and individual payoffs remain unchanged at 15 and 7.5.[2] Now, including a termination provision does not create value. Even though the target is worth more under the bidder's control in the bad state (i.e. completion is optimal), the bidder will terminate in the bad state as it has a higher payoff from doing so. If the value of the target is always higher under the bidder's control than under the existing management's control as is the case here, then inclusion of the provision is never optimal.

---

where the bidder would terminate the deal in states where the completion payoff is below the threshold state payoff.

[2]This requires the price and termination fee to satisfy $P < K - 70$.

This example illustrates that inclusion of a bidder termination provision is not always optimal. Whether it is optimal depends ultimately on how likely it is for the target's value to the bidder to fall below the stand-alone value. The model in Section 2 of our paper analyses what factors determine the optimality of a bidder termination provision. The model proofs are presented in the next section.

B.2 Proof of Proposition 1

$$
\begin{aligned}
\frac{dS_{B,t}}{S_{B,t}} &= \mu_B dt + \sigma_B dW_{B,t} \\
\frac{dS_{M,t}}{S_{M,t}} &= \mu_M dt + \sigma_M dW_{M,t}
\end{aligned}
$$

where μ_B, μ_M, σ_B, σ_M are drifts and volatilities of the target's value to the bidder and the target's stand-alone value. $\{W_t, 0 \le t < \infty\}$ is the standard Wiener process.

Let $A \equiv \{S_{B,T} \ge K - P\}$ and $A^c \equiv \{S_{B,T} < K - P\}$. The target's and bidder's shares of the value created by the takeover can be written as follows:

$$
\begin{aligned}
G_{Target,0} &= \int_A \int_{S_{M,T}} e^{-rT}(K - S_{M,T}) f_{S_{B,T}S_{M,T}} dS_{M,T} dS_{B,T} \\
&\quad + \int_{A^c} \int_{S_{M,T}} P e^{-rT} f_{S_{B,T}S_{M,T}} dS_{M,T} dS_{B,T} \\
G_{Bidder,0} &= \mathrm{E}^Q[e^{-rT} \max(S_{B,T} - K, -P)] \\
&= \int_A \int_{S_{M,T}} e^{-rT}(S_{B,T} - K) f_{S_{B,T}} f_{S_{M,T}} dS_{M,T} dS_{B,T} \\
&\quad - \int_{A^c} \int_{S_{M,T}} P e^{-rT} f_{S_{B,T}} f_{S_{M,T}} dS_{M,T} dS_{B,T}
\end{aligned}
\tag{B.1}
$$

Since $TS_P = G_{Taget} + G_{Bidder,0}$, $G_{Target,0} = 0.5TS$ and $G_{Bidder,0} = 0.5TS$, we can write:

$$
TS_P = \int_A \int_{S_{M,T}} e^{-rT}(S_{B,T} - S_{M,T}) f_{S_{B,T}S_{M,T}} dS_{M,T} dS_{B,T}
\tag{B.2}
$$

where $f_{S_{B,T}S_{M,T}}$ is the joint PDF of $S_{B,T}$ and $S_{M,T}$.

Taking advantage of the log normality assumption, we can write:

$$
\ln S_{M,T} | \ln S_{B,T} \sim N\left(\ln S_{M,0} + (r - 0.5\sigma_M^2)T + \frac{\sigma_M}{\sigma_B}\rho(\ln S_{B,T} - \ln S_{B,0} - (r - 0.5\sigma_B^2)T), \ (1 - \rho^2)\sigma_M^2 T\right)
$$

Therefore, we can write:

$$e^{-rT}\mathrm{E}_{S_{M,T}|S_{B,T}}\left[S_{M,T}|S_{B,T}\right] = S_{M,0}\left(\frac{S_{B,T}}{S_{B,0}}\right)^{\frac{\sigma_M}{\sigma_B}\rho} \times e^{\rho T[0.5\sigma_M\sigma_B - 0.5\rho\sigma_M^2 - \frac{\sigma_M}{\sigma_B}r]}$$

Thus, TS_P can be written as follows:

$$TS_P = \mathrm{E}_{S_{M,T}}[e^{-rT}S_{B,T}1_A] - S_{M,0}e^{\rho T[0.5\sigma_M\sigma_B - 0.5\rho\sigma_M^2 - \frac{\sigma_M}{\sigma_B}r]}\mathrm{E}_{S_{B,T}}[(\frac{S_{B,T}}{S_{B,0}})^{\frac{\sigma_M}{\sigma_B}\rho}1_A] \qquad \text{(B.3)}$$

Using the following property of lognormal distributions we can calculate the expectations and derive an expression for TS. If $X \sim logN(\mu, \sigma)$

$$\int_0^V X^n f(x)dx = e^{n\mu + 0.5n^2\sigma^2}\Phi\left(\frac{\ln V - \mu - n\sigma^2}{\sigma}\right)$$

$$
\begin{aligned}
TS_P \quad = \quad & S_{B,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_B^2 T - \ln(K - P)}{\sigma_B\sqrt{T}}\right) \\
& -S_{M,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \frac{\sigma_M}{\sigma_B}\rho\sigma_B^2 T - \ln(K - P)}{\sigma_B\sqrt{T}}\right)
\end{aligned}
\qquad \text{(B.4)}
$$

In this model bargaining powers (0.5 for each party) are exogenously determined. Thus, the target and the bidder share the value created by the takeover ex-post based according their ex-ante bargaining powers. To determine K^* and P^*, the target maximizes his share of the total surplus, given the bidder's participation constraint holds. The endogenous choice variables are K and P:

$$\max_{(P,K)} \quad G_{Target,0}$$

$$s.t.$$

$$G_{Bidder,0} = 0.5(TS_P)$$

Substituting for $G_{Target,0}$, $G_{Bidder,0}$ and TS_P from (B.1) and (B.2), we can rewrite the optimization

problem as follows:

$$\max_{(P,K)} \quad (0.5)S_{B,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_B^2 T - \ln(K-P)}{\sigma_B\sqrt{T}}\right)$$

$$-(0.5)S_{M,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \frac{\sigma_M}{\sigma_B}\rho\sigma_B^2 T - \ln(K-P)}{\sigma_B\sqrt{T}}\right)$$

s.t.

$$\int_A \int_{S_{M,T}} e^{-rT}(S_{B,T} - K) f_{S_{B,T}S_{M,T}} dS_{M,T} dS_{B,T} - \int_{A^c} \int_{S_{M,T}} Pe^{-rT} f_{S_{B,T}S_{M,T}} dS_{M,T} dS_{B,T}$$

$$= 0.5S_{B,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_B^2 T - \ln(K-P)}{\sigma_B\sqrt{T}}\right)$$

$$-0.5S_{M,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \frac{\sigma_M}{\sigma_B}\rho\sigma_B^2 T - \ln(K-P)}{\sigma_B\sqrt{T}}\right)$$

From this maximization, we can determine a unique (K^*, P^*) for every set of model parameters. Noticing that TS_P is a function of $K - P$, we can treat $K - P$ as one variable and maximize TS_P with respect to $K - P$. The first order condition of maximizing TS_P leads to

$$\frac{\partial TS_P}{\partial(K-P)} = 0$$

$$\Rightarrow \quad \ln\left(\frac{S_{M,0}}{(S_{B,0})^{\frac{\sigma_M}{\sigma_B}\rho}}\right)^{\frac{1}{1 - \frac{\sigma_M}{\sigma_B}\rho}} + rT + 0.5\rho\sigma_M\sigma_B T = \ln(K-P)$$

$$\Rightarrow \quad K^* - P^* = S_{B,0}\left(\frac{S_{B,0}}{S_{M,0}}\right)^{-\frac{1}{1 - \frac{\sigma_M}{\sigma_B}\rho}} e^{(r + 0.5\rho\sigma_M\sigma_B)T} \tag{B.5}$$

Substituting for $K^* - P^*$, the optimal TS_P can be written as

$$TS_P^* = S_{B,0}\Phi\left(\frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B}\rho} + 0.5\sigma_B^2 T - 0.5\rho\sigma_M\sigma_B T}{\sigma_B\sqrt{T}}\right)$$

$$-S_{M,0}\Phi\left(\frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B}\rho} + 0.5\rho\sigma_M\sigma_B T - 0.5\sigma_B^2 T}{\sigma_B\sqrt{T}}\right) \tag{B.6}$$

Substituting for TS_P^* and $K^* - P^*$ into the binding constraint of the optimization problem:

$$G_{Bidder,0} = E^Q[e^{-rT}\max(S_{B,T} - K, -P)] = 0.5(TS_P^*).$$

This yields:

$$P^* = e^{rT} S_{B,0} \left[N(d_1) - N(d_2) \left(\frac{S_{M,0}}{S_{B,0}} \right)^{\frac{1}{1 - \frac{\sigma_M}{\sigma_B} \rho}} e^{0.5 \rho \sigma_M \sigma_B T} \right] - 0.5(e^{rT} T S_P^*) \tag{B.7}$$

$$K^* = P^* + S_{B,0} \left(\frac{S_{B,0}}{S_{M,0}} \right)^{- \frac{1}{1 - \frac{\sigma_M}{\sigma_B} \rho}} e^{(r + 0.5 \rho \sigma_M \sigma_B)T} \tag{B.8}$$

$$TS_P^* = S_{B,0} N(d_1) - S_{M,0} N(d_3) \tag{B.9}$$

where

$$d_1 = \frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B} \rho} + 0.5 \sigma_B^2 T - 0.5 \rho \sigma_B \sigma_M T}{\sigma_B \sqrt{T}}$$

$$d_2 = \frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B} \rho} - 0.5 \sigma_B^2 T - 0.5 \rho \sigma_B \sigma_M T}{\sigma_B \sqrt{T}}$$

$$d_3 = \frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B} \rho} - 0.5 \sigma_B^2 T + 0.5 \rho \sigma_M \sigma_B T}{\sigma_B \sqrt{T}}.$$

B.3   Proof of Proposition 2

Inclusion of bidder termination provision is optimal iff $TS_P \geq TS_{NP}$ (Optimality Constraint). The indifference condition is

$$
\begin{aligned}
TS_P^* &= S_{B,0} - S_{M,0} \\
\Rightarrow \quad & S_{B,0} \Phi \left(\frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B} \rho} + 0.5 \sigma_B^2 T - 0.5 \rho \sigma_M \sigma_B T}{\sigma_B \sqrt{T}} \right) \\
& - S_{M,0} \Phi \left(\frac{\frac{\ln S_{B,0} - \ln S_{M,0}}{1 - \frac{\sigma_M}{\sigma_B} \rho} + 0.5 \rho \sigma_M \sigma_B T - 0.5 \sigma_B^2 T}{\sigma_B \sqrt{T}} \right) \\
&= S_{B,0} - S_{M,0}.
\end{aligned}
$$

It is clear that when $\frac{\rho \sigma_M}{\sigma_B} = 1$, the above equation holds. And we have $\hat{\sigma}_{BM} = \sigma_B^2$ or $\hat{\rho} = \frac{\sigma_B}{\sigma_M}$.

When $\sigma_{BM} > \sigma_B^2$, we have

$$
\begin{aligned}
TS_P \quad = \quad & S_{B,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_B^2 T - \ln(K - P)}{\sigma_B\sqrt{T}}\right) \\
& -S_{M,0}\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_{BM}T - \ln(K - P)}{\sigma_B\sqrt{T}}\right) \\
< \quad & (S_{B,0} - S_{M,0})\Phi\left(\frac{\ln S_{B,0} + (r - 0.5\sigma_B^2)T + \sigma_B^2 T - \ln(K - P)}{\sigma_B\sqrt{T}}\right) \leq (S_{B,0} - S_{M,0}).
\end{aligned}
$$

Therefore, it is not optimal to include a bidder termination option when $\sigma_{BM} \geq \sigma_B^2$.

B.4   Comparative Statics

For every parameter of interest, we derive the comparative statics for both the bidder termination fee P^* and the bidder termination fee expressed as a percentage of the offer price $p^* \equiv \frac{P^*}{K^*}$. Comparative statics can be derived in closed form for the special case of $\rho = 0$. When $\rho = 0$ we can rewrite TS^* and P^* as:

$$
TS^* = S_{B,0}N(d_1) - S_{M,0}N(d_2) \quad \Rightarrow \quad P^* = 0.5e^{rT}TS^*
$$

We have

$$
N'(d_2) \quad = \quad \frac{1}{\sqrt{2\pi}}e^{-0.5d_2^2} = \frac{1}{\sqrt{2\pi}}e^{-0.5d_1^2}\frac{S_{B,0}}{S_{M,0}} = N'(d_1)\frac{S_{B,0}}{S_{M,0}}
$$

For any parameter x, we have

$$
\begin{aligned}
\frac{\partial TS^*}{\partial x} \quad &= \quad S_{B,0}N'(d_1)\frac{\partial d_1}{\partial x} - S_{M,0}N'(d_2)\frac{\partial d_2}{\partial x} \\
&= \quad S_{B,0}N'(d_1)\left(\frac{\partial d_1}{\partial x} - \frac{\partial d_2}{\partial x}\right)
\end{aligned}
$$

When $x \in \{\sigma, T\}$, we have

$$
\begin{aligned}
\frac{\partial d_1}{\partial \sigma} - \frac{\partial d_2}{\partial \sigma} \quad &= \quad \sqrt{T} \\
\frac{\partial d_1}{\partial T} - \frac{\partial d_2}{\partial T} \quad &= \quad \frac{\sigma}{2\sqrt{T}}
\end{aligned}
$$

Therefore, we have

$$
\begin{aligned}
\frac{\partial P^*}{\partial \sigma} &= 0.5 S_{B,0} e^{rT} N'(d_1) \sqrt{T} > 0 \\
\frac{\partial P^*}{\partial T} &= rP^* + 0.5 S_{B,0} e^{rT} N'(d_1) \frac{\sigma}{2\sqrt{T}} > 0
\end{aligned}
$$

Note that equations (B.7) and (B.8), also imply that the comparative statics of K^* with respect to σ and T are directionally similar to those for P^*. Next we derive the comparative statics for the bidder termination fee expressed as a percentage of the offer price

$$
p^* \equiv \frac{P^*}{K^*}
$$

and it is straightforward to show that

$$
\begin{aligned}
\frac{\partial p^*}{\partial \sigma} &= 0.5 S_{B,0} e^{rT} N'(d_1) \sqrt{T} \times \frac{e^{rT} S_{M,0}}{(K^*)^2} > 0 \\
\frac{\partial p^*}{\partial T} &= 0.5 S_{B,0} e^{rT} N'(d_1) \frac{\sigma}{2\sqrt{T}} \times \frac{e^{rT} S_{M,0}}{(K^*)^2} > 0.
\end{aligned}
$$

To illustrate the comparative statics for the general case, which cannot be derived in closed form, in Figure B.1 we plot p^* as a function of T and σ_B. The base parameters for the plots are $r = 0.04$, $S_{M,0} = 100$, $S_{B,0} = 110$, $\sigma_M = 0.2$, $\sigma_B = 0.3$, $\alpha = 0.5$, $T = 0.5$, and $\rho = 0.2$. In each plot, one parameter varies while the others are fixed at their base values. The plots are consistent with the special case of $\rho = 0$. First, p^* increases monotonically with σ_B. This is the case when ρ is moderately positive or negative, which is characteristic our sample. For instance the correlation between the bidder and target, which may be viewed as a proxy for ρ, has a sample mean, median and 90th percentile of 0.20, 0.15 and 0.51, respectively. Second, p^* increases monotonically with T.

Figure B.1:

Variation in Bidder Termination Fees

This figure plots variation in the optimal bidder termination fee (expressed relative to offer price), p^*, as a function of completion time, T and volatility of the target's value to the bidder, σ_B. The base parameters for the graphs are $r = 0.04$, $S_{M,0} = 100$, $S_{B,0} = 110$, $\sigma_M = 0.2$, $\sigma_B = 0.3$, $T = 0.5$, and $\rho = 0.2$. In each graph only one parameter changes, with the others fixed at their base values.

Bidder Termination Fee v.s. T

(a)

Bidder Termination Fee v.s. σ_B

(b)
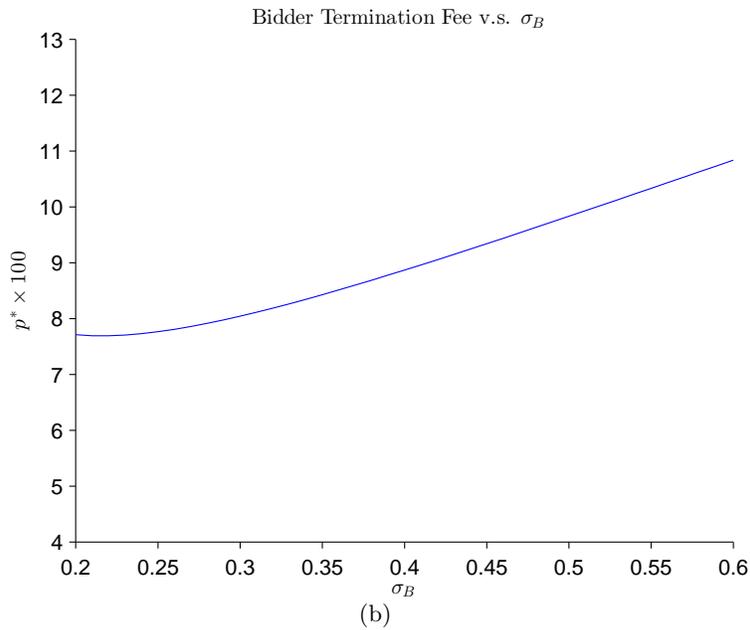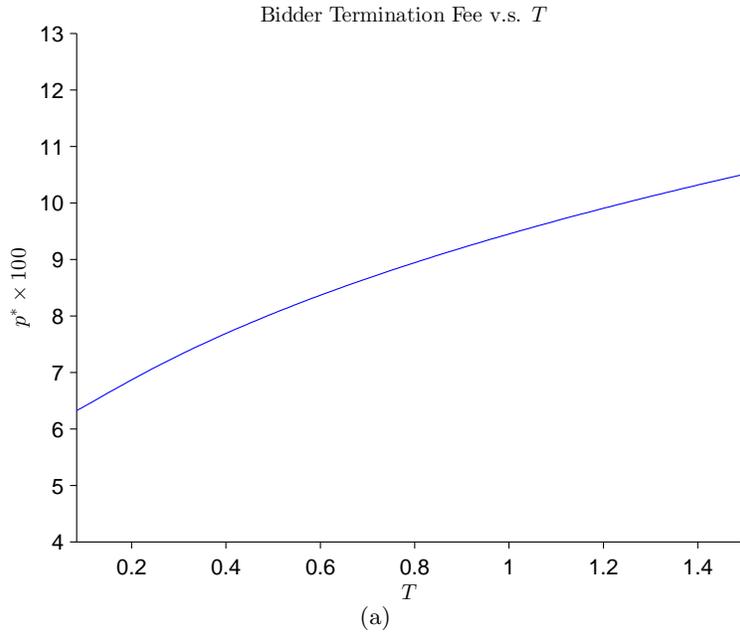
Internet Appendix C - Model Extensions

This appendix presents extensions to the model in Section 2 of our paper. We follow the notation used in the paper.

C.1 Target Termination Provisions

In this section we examine how a target's termination right in the presence of a competing bid by another bidder affects our predictions regarding bidder termination fees. The modification consists of allowing for the arrival of a second bidder between when the target signs the takeover contract with the incumbent bidder and expected completion. The target firm has the ability to terminate the deal with the incumbent bidder in favor of the deal with a second bidder that presents the better offer and pay a termination fee to the incumbent bidder.

The target receives K if the incumbent bidder completes the deal and it does not terminate the deal in favor of the offer from the second bidder. P is the termination fee paid by the incumbent bidder if it terminates the deal. We assume without loss of generality that there is a ψ probability that the second bidder arrives and makes an offer F to the target after the target has signed the takeover contract with the incumbent bidder. This offer is attractive for the target in the sense that it is greater than the expected value of the target firm under the control of its existing management (i.e., $F \geq \mathrm{E}^{\mathcal{Q}}[e^{-rT}(S_{M,T})]$). The target is required to pay a target termination fee of q if it chooses to terminate the deal with the incumbent bidder in the favor of the second bidder's offer.

In the absence of the rival bidder, if the deal succeeds at T, the target receives $G_{Target,T} = K - S_{M,T}$. If the bidder chooses to withdraw from the deal, then the target receives the bidder termination fee, and $G_{Target,T} = P$. In the presence of the rival bidder, the value of the targets expected payment is $F - \mathrm{E}^{\mathcal{Q}}[e^{-rT}(S_{M,T})] - q$. Therefore,

$$
\begin{aligned}
G_{Target,0} &= (1-\psi)\mathrm{E}^{\mathcal{Q}}\left[e^{-rT}(K - S_{M,T}) \times \mathbb{1}_{\{S_{B,T}-K \geq -P\}} + P \times \mathbb{1}_{\{S_{B,T}-K < -P\}}\right] \\
&+ \psi\left[F - \mathrm{E}^{\mathcal{Q}}[e^{-rT}(S_{M,T})] - q\right] \\
&= 0.5(TS_P). \tag{C.1}
\end{aligned}
$$

The target receives half of the total surplus. The expected value of the bidder's claim can be expressed

as

$$G_{Bidder,0} = \psi q + (1 - \psi)E^{\mathcal{Q}}[e^{-rT}\max(S_{B,T} - K, -P)]$$
$$= 0.5(TS_P). \tag{C.2}$$

Similarly the bidder receives half of the total surplus.

The optimal offer price, bidder termination fee, and target termination fee must also satisfy the inequality $E^{\mathcal{Q}}\left[e^{-rT}(K - S_{M,T}) \times \mathbb{1}_{\{S_{B,T}-K\geq-P\}} + P \times \mathbb{1}_{\{S_{B,T}-K<-P\}}\right] < \left[F - E^{\mathcal{Q}}[e^{-rT}(S_{M,T})] - q\right]$. This inequality ensures that it is rational for the target to terminate the incumbent offer in favor of the second bidder's offer.

Therefore, the target's optimization problem is to select a pair of an offer price and bidder termination fee (K and P) as well as a target termination fee to maximize his share of the total surplus subject to the bidder's participation constraint and the indifference condition for termination of the incumbent offer in favor of the second bidder's offer:

$$\max_{(P,K,q)} \quad G_{Target,0}$$

$$s.t.$$

$$G_{Bidder,0} = 0.5(TS_P)$$
$$E^{\mathcal{Q}}\left[e^{-rT}(K - S_{M,T}) \times \mathbb{1}_{\{S_{B,T}-K\geq-P\}} + P \times \mathbb{1}_{\{S_{B,T}-K<-P\}}\right] = F - E^{\mathcal{Q}}[e^{-rT}(S_{M,T})] - q$$

Using the indifference condition for termination of the incumbent offer in favor of the second bidder's offer, we can rewrite $G_{Target,0} = E^{\mathcal{Q}}\left[e^{-rT}(K - S_{M,T}) \times \mathbb{1}_{\{S_{B,T}-K\geq-P\}} + P \times \mathbb{1}_{\{S_{B,T}-K<-P\}}\right]$. This allows us to rewrite the target's optimization problem as follows:

$$\max_{(P,K,q)} \quad E^{\mathcal{Q}}\left[e^{-rT}(K - S_{M,T}) \times \mathbb{1}_{\{S_{B,T}-K\geq-P\}} + P \times \mathbb{1}_{\{S_{B,T}-K<-P\}}\right]$$

$$s.t.$$

$$G_{Bidder,0} = 0.5(TS_P)$$

$$\tag{C.3}$$

This is essentially the same optimization for the target described in the paper (i.e. without a second bidder

and a target termination provision). Therefore, the comparative statistics previously obtained for the cash offer without a target termination provision remain unchanged in the presence of a second bidder and a target termination provision. We can also solve for the target termination fee $q^* = F - S_{M,0} - 0.5(TSP^*)$.

Next, we allow the probability that the second bidder arrives and makes an offer to the target after the target has signed the takeover contract with the incumbent bidder, ψ, to be sensitive to the value of the target under bidder control. In particular, we consider the possibility that the second bid is more likely when the value of the target under the incumbent bidder's control is higher. We assume $S_{B,0}^* = S_{B,0}(1+x\psi)$.[3] In this setting parameter x determines the extent that the likelihood of arrival of the new bidder is related to the value of the target under bidder management. In particular, $Cov(S_{B,0}^*, \psi) = xVar(\psi)$.[4] We solve this alternative model numerically. We fix the model parameters as $\sigma_B = 0.3$, $\sigma_M = 0.2$, $T = 0.5$, $\rho = 0.2$, $r = 0.04$, $F = 110$, $S_{B,0} = 110$, and $S_{M,0} = 100$. Figure C.1 illustrates the comparative statics of the model regarding how the bidder termination fee changes with T and σ_B for different values of parameter x. Therefore, the comparative statistics previously obtained for the cash offer without a target termination provision remain directionally unchanged in the presence of a second bidder and a target termination provision when the probability of arrival of the second bidder is positively related to the value of the target under bidder control. The results are similar if we instead assume that the arrival of a second bid is more likely when the target's value under the existing management is higher — i.e. if $S_{M,0}^* = S_{M,0}(1 + x\psi)$ (Figure C.2).

C.2 Bidder Stock as a Method of Payment

In this section we examine how the use of the bidder's stock as a method of payment affects our predictions regarding bidder termination fees. Suppose that at time 0, a bidder offers β shares in the merged firm to acquire a target firm, and that the transaction is expected to be completed in T periods. The value of the target when the deal is completed is unknown to the bidder at time 0. In some states, the value of the target may fall below the initial offer price that the bidder had agreed to pay. The bidder would like to have the ability to withdraw from the deal in such bad states. Under certain conditions (to be derived later), the target agrees to grant the bidder the option to abandon the acquisition in such states. In exchange, the bidder agrees to pay a termination fee P to the target if he withdraws from the deal.

---

[3]This is a simple way to parametrize the correlation. We expect qualitatively similar results if we used alternative ways to parametrize the correlation (e.g., if we instead assumed that ψ affects the volatility of the value process).

[4]Note that because we allow $S_{B,0}^*$ to be correlated with ψ unconditionally, $S_{B,T}^*$ is then also correlated with ψ as a result.

Let $S_{B,t}$ and $S_{M,t}$ denote the values of the target firm *under the control of the bidder and the target's management* respectively at time t. Suppose $S_{B,t}$ and $S_{M,t}$ follow geometric Brownian motions:

$$\frac{dS_{B,t}}{S_{B,t}} = \mu_B dt + \sigma_B dW_{B,t} \tag{C.4}$$

$$\frac{dS_{M,t}}{S_{M,t}} = \mu_M dt + \sigma_M dW_{M,t} \tag{C.5}$$

where μ_B, μ_M, σ_B, σ_M are the drifts and volatilities of the target firm under the bidder and existing management's control respectively. $\{W_t, 0 \leq t < \infty\}$ is the standard Wiener process. We also assume $S_{B,0} > S_{M,0}$ so that ex-ante, the takeover creates value. We allow the Brownian motions to be correlated as follows,

$$\rho dt \ = \ < dW_{B,t}, \ dW_{M,t} >; \quad \sigma_{BM} \ = \ \rho \sigma_M \sigma_B. \tag{C.6}$$

Let $S_{A,t}$ denote the value of the bidder firm at time t and it follows a geometric Brownian motion:

$$\frac{dS_{A,t}}{S_{A,t}} = \mu_A dt + \sigma_A dW_{A,t} \tag{C.7}$$

where μ_A and σ_A are the drift and volatility of the bidder firm. We further allow the Brownian motions to be correlated as follows,

$$\rho_1 dt \ = \ < dW_{A,t}, \ dW_{M,t} >; \quad \sigma_{AM} \ = \ \rho_1 \sigma_M \sigma_A. \tag{C.8}$$

$$\rho_2 dt \ = \ < dW_{A,t}, \ dW_{B,t} >; \quad \sigma_{AB} \ = \ \rho_2 \sigma_B \sigma_A. \tag{C.9}$$

We now consider a contract that includes a bidder termination provision. Let β denote the stock swap ratio and P denote the bidder termination fee under this contract. We will later illustrate the conditions under which the target would agree to include this option. Let $G_{Bidder,T}$ denote the net present value of the acquisition to the bidder at time T. If the deal succeeds at T, then $G_{Bidder,T} = S_{B,T} - \beta(S_{A,T} + S_{B,T})$. If the bidder withdraws from the deal, then he pays the bidder termination fee to the target and $G_{Bidder,T} = -P$. The bidder withdraws from the deal whenever consummating the deal is more costly than paying the bidder termination fee, i.e., if $S_{B,T} - \beta(S_{A,T} + S_{B,T}) < -P$. Therefore

$$G_{Bidder,T} = \max(S_{B,T} - \beta(S_{A,T} + S_{B,T}), -P), \tag{C.10}$$

and

$$G_{Bidder,0} = \mathrm{E}^{\mathcal{Q}}[e^{-rT}\max(S_{B,T} - \beta(S_{A,T} + S_{B,T}), -P)]$$
$$= 0.5(TS_P). \tag{C.11}$$

If the deal succeeds at T, the target receives $G_{Target,T} = \beta(S_{A,T} + S_{B,T}) - S_{M,T}$. If the bidder withdraws from the deal, then the target receives the bidder termination fee, and $G_{Target,T} = P$. Therefore

$$G_{Target,T} = (\beta(S_{A,T} + S_{B,T}) - S_{M,T}) \times \mathbb{1}_{\{S_{B,T} - \beta(S_{A,T}+S_{B,T}) \geq -P\}} + P \times \mathbb{1}_{\{S_{B,T} - \beta(S_{A,T}+S_{B,T}) < -P\}}, \tag{C.12}$$

and similarly, the target receives half of the total surplus:

$$G_{Target,0} = \mathrm{E}^{\mathcal{Q}}\left[e^{-rT} G_{Target,T}\right]$$
$$= 0.5(TS_P). \tag{C.13}$$

The target's optimization problem is to select a pair of an offer price (in a stock offer this would be the stock swap ratio) and bidder termination fee (β and P) to maximize his share of the total surplus subject to the bidder's participation constraint:

$$\max_{(P,\beta)} \quad G_{Target,0}$$
$$s.t.$$
$$G_{Bidder,0} = 0.5(TS_P)$$

We solve the model numerically. We fix the model parameters as $\sigma_B = 0.3$, $\sigma_M = 0.2$, $\sigma_A = 0.3$, $T = 0.5$, $\rho = 0.2$, $\rho_1 = 0.2$, $\rho_2 = 0.3$, $r = 0.04$, $S_{B,0} = 110$, $S_{M,0} = 100$, and $S_{A,0} = 100$. Figure C.3 illustrates the comparative statics of the model related to how bidder termination fee changes with T and σ_B for different values of ρ_2. Therefore, the comparative statistics previously obtained for the cash offer without a target termination provision remain unchanged when the method of payment is stock. Furthermore, the size of the bidder termination fee is smaller in a stock offer compared to a cash offer.

Figure C.1:

Variation in Bidder Termination Fees in the Presence of Target Termination Fees 1

This figure plots variation in the optimal bidder termination fee (expressed relative to offer price), p^*, as a function of T and σ_B, for $x = 0.35$ and $x = 0.5$. In this model, the arrival of a second bidder is more likely when the target's value under the incumbent bidder's control, S_B, is higher. The base parameters for the graphs are $r = 0.04$, $S_{M,0} = 100$, $S_{B,0} = 110$, $\sigma_M = 0.2$, $\sigma_B = 0.3$, $T = 0.5$, and $\rho = 0.2$. In each graph only one parameter changes, with the others fixed at their base values.

(a)

(b)

(c)

(d)

15
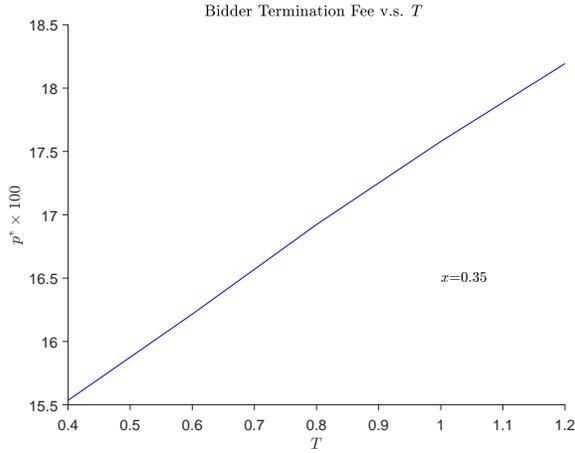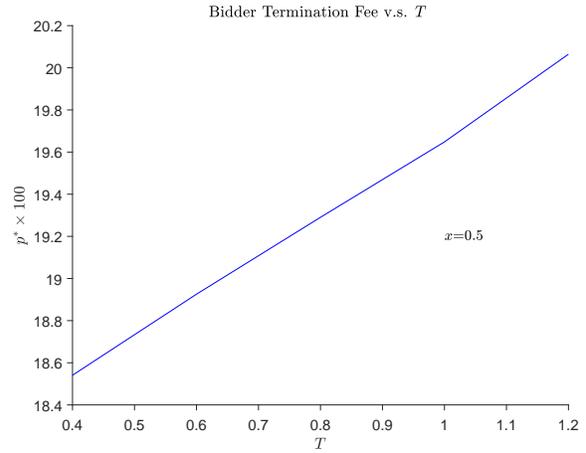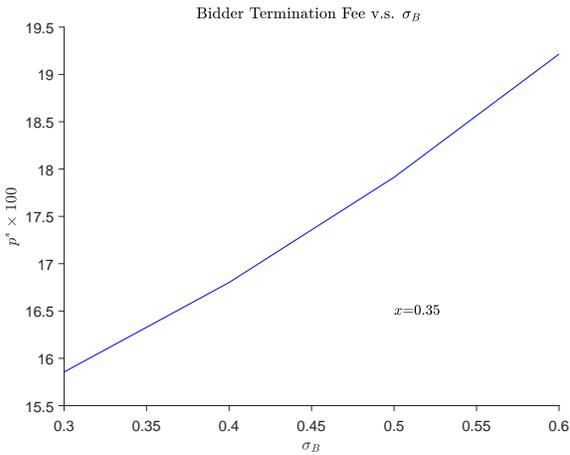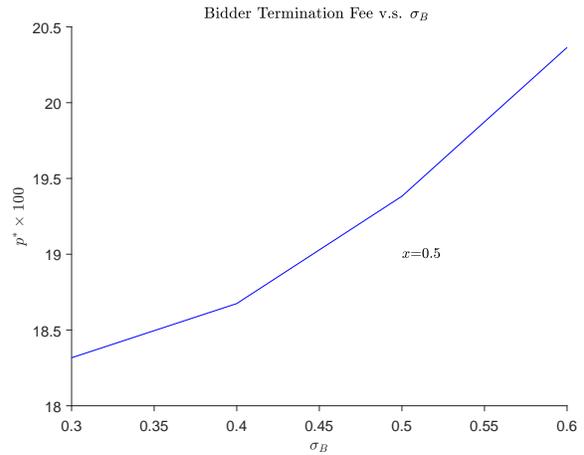
Figure C.2:

Variation in Bidder Termination Fees in the Presence of Target Termination Fees 2

This figure plots variation in the optimal bidder termination fee (expressed relative to offer price), p^*, as a function of T and σ_B, for $x = 0.35$ and $x = 0.5$. In this model, the arrival of a second bidder is more likely when the target's value under existing management, S_M, is higher. The base parameters for the graphs are $r = 0.04$, $S_{M,0} = 100$, $S_{B,0} = 110$, $\sigma_M = 0.2$, $\sigma_B = 0.3$, $T = 0.5$, and $\rho = 0.2$. In each graph only one parameter changes, with the others fixed at their base values.

(a)

(b)

(c)

(d)

16
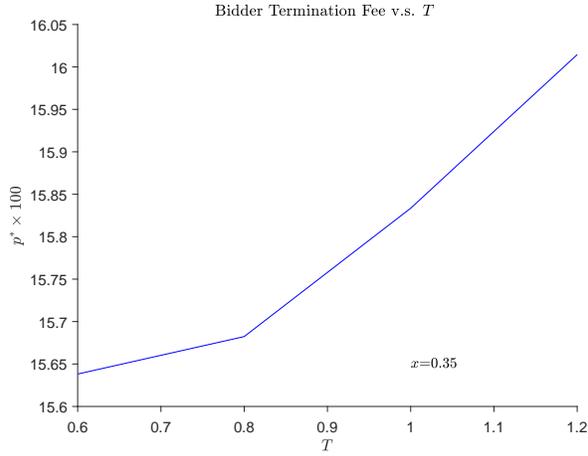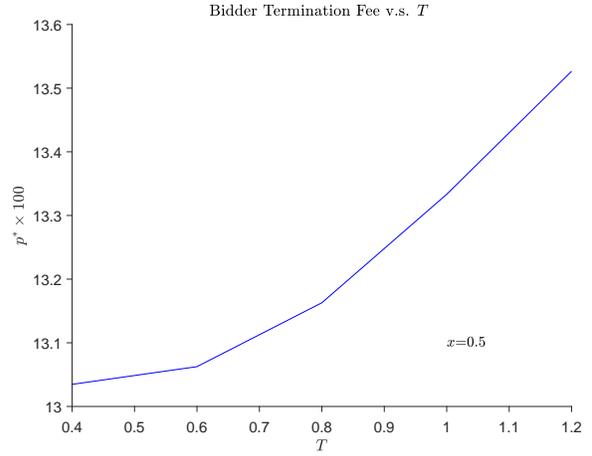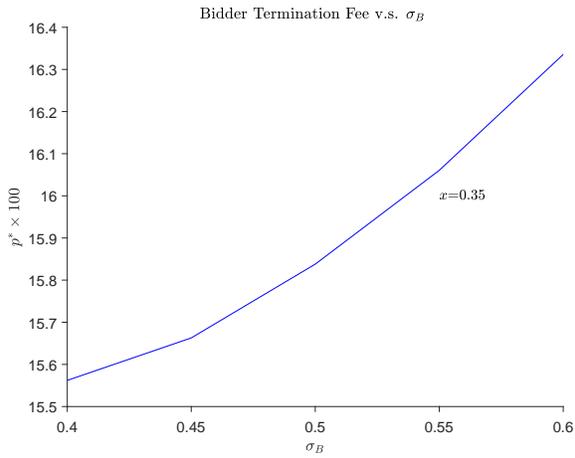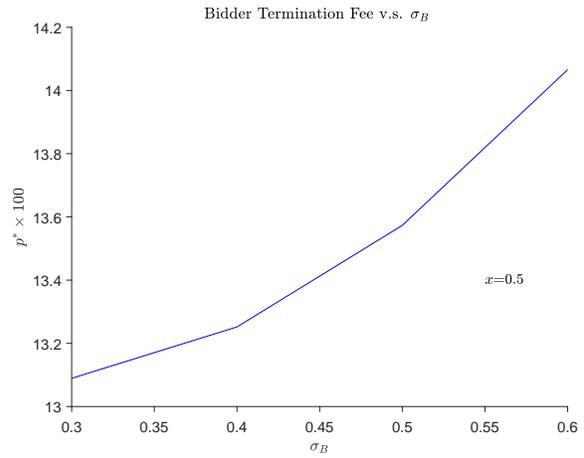
Figure C.3:

Variation in Bidder Termination Fees in Cash vs. Stock Offers

This figure plots variation in the optimal bidder termination fee (expressed relative to offer price), p^*, as a function of T and σ_B, for $\rho_2 = 0.3$ and $\rho_2 = 0.9$. The base parameters for the graphs are $r = 0.04$, $S_{M,0} = 100$, $S_{B,0} = 110$, $\sigma_M = 0.2$, $\sigma_B = 0.3$, $T = 0.5$, and $\rho = 0.2$. In each graph only one parameter changes, with the others fixed at their base values.

(a)   (b)

(c)   (d)

17
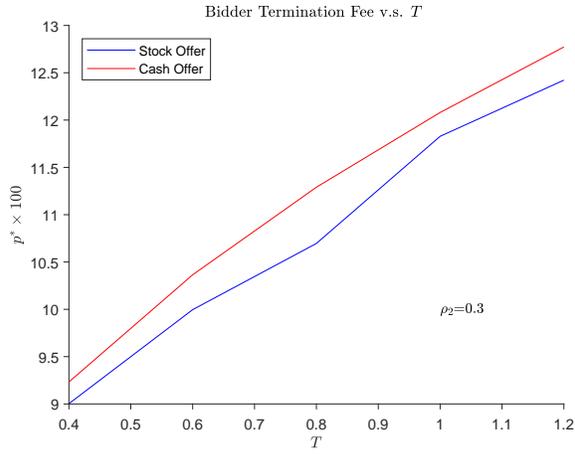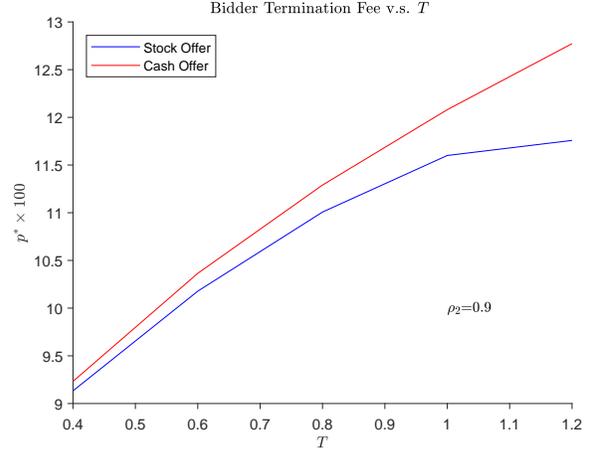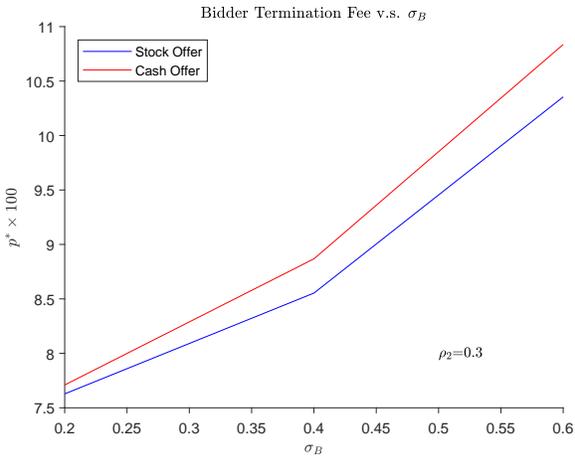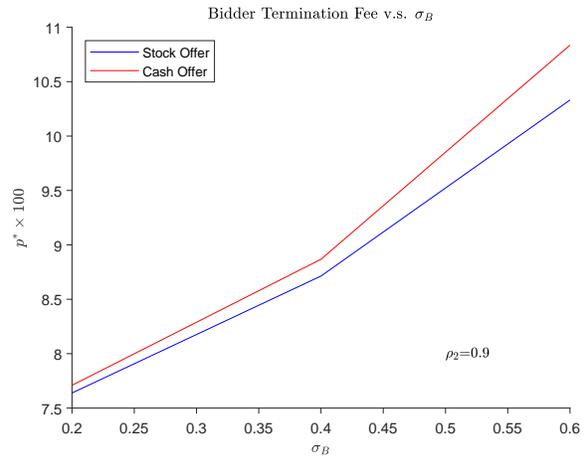
Internet Appendix D - Supplementary Analysis and Robustness Checks

This appendix reports supplementary analysis and robustness checks that accompany our paper. All variables not defined in the table captions are defined in Table A.1 in the paper.

Table D.1:

Summary of Triggers for Bidder Termination Provisions

This table summarizes the triggers for bidder termination provisions in our sample that sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms that included a bidder termination provision. See Section 3.4 of our manuscript and Quinn (2010) for definitions of the triggers.

	N	% of Deals with a Bidder Termination Provision (N=416)	% of All Deals (N=2078)
Fiduciary Trigger	246	59%	12%
Regulatory Trigger	68	16%	3%
Financing Trigger	35	8%	2%
Representation Trigger	107	26%	5%
Pure Option	20	5%	1%

Table D.2:
Terminated Deals — Reasons for Termination
This table reports a summary of reasons deals in our sample are terminated. The sample consists of a subsample of 160 deals that were subsequently terminated from a sample of 2078 takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. Data on termination provisions is from SDC and reasons for termination are coded by hand from reading SEC 8-K filings and press reports. Bids rejected by targets and unsuccessful bids withdrawn by bidders are excluded. Panel A reports the party responsible for termination (target, bidder or both), also splitting the deals into those that do not and do include a bidder termination provision (BTP). Panel B lists the reasons why bidders terminated deals — the sample consists of 28 deals from Panel A for which termination was attributed to the bidder. Deals are split into those that do not and do include a bidder termination provision. For deals with a bidder termination provision, the table indicates whether a bidder termination fee (BTF) was paid and whether the bidder and target contested whether the bidder termination fee was payable.

Panel A: All Terminated Deals						
Who Terminates	All Deals	% of All Deals	No BTP	% of terminated deals with no BTP	Includes BTP	% of terminated deals with BTP
Target	85	53%	74	59%	11	31%
Bidder	28	18%	12	10%	16	46%
Both	47	29%	39	31%	8	23%
Total	160		125		35	

Panel B: Deals Terminated by Bidders				
	No BTP	Includes BTP		
	N	N	BTF Paid	BTF Contested
Bidder received takeover offer	0	1	1	0
Antitrust	1	1	0	1
Other regulatory Issue	2	1	1	0
Bidder failed to secure financing	0	3	3	0
Bidder shareholders disapproved	2	2	1	1
Adverse economic conditions for bidder	0	4	3	1
Target material adverse change	3	1	0	0
Breach of terms	4	0	0	0
Other/undisclosed	0	3	2	1

Table D.3:
Price Revisions
This table reports estimates from logit regressions that examine price revisions in takeovers. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. The dependent variable in (1) ((2)) [(3)] equals 1 if the final price reported in SDC is not equal to (less than) [greater than] the initial price. The explanatory variables are defined in Table A.1. Announcement year fixed effects and industry fixed effects at the target's Fama-French 17-industry level are included. *t*-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) Final Price ≠ Initial Price	(2) Final Price < Initial Price	(3) Final Price > Initial Price
Bidder Termination Provision	0.121	0.142	0.0587
	(0.67)	(0.56)	(0.24)
Target Termination Provision	-0.0260	0.641**	-0.470**
	(-0.14)	(2.10)	(-2.02)
Collar	0.657***	0.615**	0.604**
	(3.07)	(2.16)	(2.11)
Lockup Option	-0.138	-0.194	-0.0166
	(-0.61)	(-0.60)	(-0.06)
Stock Offer	0.809***	1.838***	0.115
	(3.53)	(4.09)	(0.40)
Stock and Cash Offer	0.490**	1.410***	0.0245
	(2.33)	(3.27)	(0.10)
Bidder Toehold	0.130	0.00651	0.153
	(1.57)	(0.04)	(1.62)
Tender Offer	0.345	-0.581	0.652**
	(1.55)	(-1.17)	(2.50)
Hostile Approach	1.944***	-14.16***	1.940***
	(4.48)	(-27.63)	(4.22)
Same Industry	0.0786	-0.00583	0.118
	(0.54)	(-0.03)	(0.63)
Completed Deal	-0.494**	-0.401	-0.477*
	(-2.17)	(-1.19)	(-1.69)
Log(Target Market Cap.)	0.200***	0.108	0.251**
	(2.67)	(1.01)	(2.51)
Target Market-to-Book Assets	-0.0217	-0.0476	0.00409
	(-0.56)	(-0.72)	(0.09)
Log(Bidder Market Cap.)	-0.112*	-0.102	-0.104
	(-1.75)	(-1.13)	(-1.19)
Bidder Market-to-Book Assets	-0.0501	-0.0416	-0.0532
	(-1.31)	(-0.75)	(-1.16)
Target Market Cap./Bidder Market Cap.	-0.466*	-0.640	-0.307
	(-1.86)	(-1.53)	(-1.04)
Constant	-2.113***	-3.143***	-3.174***
	(-3.00)	(-3.14)	(-3.48)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	2078	2078	2078
Pseudo R-squared	0.091	0.117	0.131

Table D.4:
Determinants of Bidder Termination Provision Inclusion, Termination Fees and Transaction Value — Controlling for Price Revisions

This table reports estimates from regressions that examine the use of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. Models (1) and (2) report estimates of logit regressions where the dependent variable equals 1 if the takeover agreement included a bidder termination provision. Models (3)-(10) report estimates of OLS regressions. In (3)-(8), the sample is restricted to deals that included a bidder termination provision. In (3) and (4), the dependent variable is the value of the bidder termination fee divided by the total value of the transaction. In (5) and (6), the dependent variable is the value of the bidder termination fee. In (7)-(10), the dependent variable is the total value of the transaction. In (9) and (10), the sample is restricted to deals that did not include a bidder termination provision. *Final Price ≠ Initial Price (Final Price < Initial Price) [Final Price > Initial Price]* equals 1 if the final price reported in SDC is not equal to (less than) [greater than] the initial price. All other explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. *t*-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A:

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	=1 if Deal Includes Termination Provision		Termination Fee %		Termination Fee $		Transaction Value $			
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.484*	-2.470*	-0.0648***	-0.0205	-255.7*	-175.9	-4554.2**	-2883.6	-3283.6	-2964.5
	(-1.71)	(-1.81)	(-2.67)	(-0.87)	(-1.84)	(-1.36)	(-2.03)	(-1.39)	(-1.47)	(-1.25)
Bidder Asset Volatility	0.930**		0.0283***		126.2**		2881.3***		444.3	
	(2.21)		(3.13)		(2.38)		(3.00)		(1.01)	
Target Asset Volatility		0.911***		0.00638		67.71		1635.0**		193.5
		(2.60)		(0.80)		(1.54)		(2.53)		(0.43)
Log(Time-to-Completion (Actual))	0.757***	0.776***	0.0125**	0.0113**	86.12***	83.62***	1605.4***	1555.1***	485.7***	473.7***
	(5.17)	(5.37)	(2.57)	(2.42)	(2.68)	(2.63)	(3.86)	(3.71)	(2.69)	(2.65)
Target Termination Provision	2.741***	2.749***	0.000962	0.000324	-51.45	-49.81	-704.3	-667.6	-588.5**	-583.0**
	(8.22)	(8.13)	(0.26)	(0.09)	(-1.54)	(-1.41)	(-1.06)	(-1.02)	(-2.33)	(-2.28)
Collar	-0.612***	-0.591**	-0.0330*	-0.0325*	-8.167	3.053	-43.11	219.8	-408.7**	-406.9**
	(-2.60)	(-2.49)	(-1.71)	(-1.68)	(-0.40)	(0.15)	(-0.07)	(0.35)	(-2.18)	(-2.17)
Lockup Option	0.245	0.252	-0.00792**	-0.00597	-33.27	-34.91	-697.6	-731.7	-259.1	-267.0
	(1.04)	(1.08)	(-2.04)	(-1.58)	(-1.37)	(-1.43)	(-1.20)	(-1.24)	(-0.87)	(-0.89)
Stock Offer	0.482**	0.509**	0.00158	0.00103	-67.16	-60.51	-105.6	42.68	124.5	147.8
	(2.20)	(2.35)	(0.42)	(0.27)	(-1.55)	(-1.44)	(-0.24)	(0.09)	(0.55)	(0.66)
Stock and Cash Offer	0.118	0.140	-0.0122**	-0.0106*	-60.26	-59.12	423.9	447.8	575.4*	589.2**
	(0.56)	(0.67)	(-2.15)	(-1.89)	(-1.32)	(-1.30)	(0.85)	(0.89)	(1.93)	(1.99)
Bidder Toehold	-0.488**	-0.492**	-0.0167***	-0.0164***	-112.9*	-103.3	-1144.4	-928.7	-85.85	-85.45
	(-2.51)	(-2.46)	(-3.14)	(-3.04)	(-1.65)	(-1.56)	(-1.24)	(-1.00)	(-1.41)	(-1.40)
Tender Offer	-0.439	-0.442	0.0467***	0.0489***	-59.22*	-57.60	-420.2	-386.2	-106.4	-106.7
	(-1.64)	(-1.64)	(5.68)	(5.96)	(-1.68)	(-1.62)	(-0.77)	(-0.69)	(-0.57)	(-0.57)
Hostile Approach	-0.403	-0.419	-0.00864	-0.00788	-75.84	-69.83	-970.5	-834.1	560.4	561.5
	(-0.65)	(-0.67)	(-1.10)	(-0.99)	(-0.69)	(-0.66)	(-0.39)	(-0.35)	(0.35)	(0.35)
Same Industry	-0.0448	-0.0390	-0.00262	-0.00195	-17.64	-11.74	-201.3	-69.42	142.1	160.6
	(-0.32)	(-0.28)	(-0.22)	(-0.17)	(-0.78)	(-0.55)	(-0.54)	(-0.19)	(0.89)	(1.02)
Final Price ≠ Initial Price	-0.0919	-0.112	-0.000451	0.00107	-39.76*	-45.03*	-1162.1**	-1288.9***	-80.87	-73.73
	(-0.50)	(-0.62)	(-0.15)	(0.33)	(-1.76)	(-1.92)	(-2.56)	(-2.74)	(-0.22)	(-0.21)
Log(Target Market Cap.)	0.692***	0.722***	-0.000497	-0.000467	64.01***	67.17***	1641.3***	1718.9***	1235.5***	1239.2***
	(6.28)	(6.59)	(-0.28)	(-0.25)	(4.57)	(4.45)	(5.48)	(5.51)	(8.14)	(7.78)
Target Market-to-Book Assets	0.000506	-0.0231	0.000705	0.000390	-6.879	-9.487*	-169.1	-230.4**	2.162	-2.573
	(0.01)	(-0.57)	(1.25)	(0.73)	(-1.31)	(-1.75)	(-1.54)	(-1.98)	(0.02)	(-0.02)
Log(Bidder Market Cap.)	-0.621***	-0.647***	0.000417	-0.000271	9.235	4.618	364.1**	256.5	192.7***	181.6***
	(-5.91)	(-6.29)	(0.26)	(-0.16)	(1.14)	(0.58)	(2.02)	(1.46)	(2.66)	(2.60)
Bidder Market-to-Book Assets	-0.00799	-0.00285	-0.000700	-0.000251	-1.778	-0.0100	-56.13	-17.26	47.11	51.15
	(-0.34)	(-0.12)	(-1.58)	(-0.68)	(-0.86)	(-0.00)	(-1.07)	(-0.31)	(0.54)	(0.60)
Target Market Cap./Bidder Market Cap.	-0.102	-0.141	-0.00642	-0.00726	-48.07	-55.03*	-14.07	-175.6	928.3**	917.1**
	(-0.44)	(-0.62)	(-1.21)	(-1.35)	(-1.61)	(-1.74)	(-0.02)	(-0.30)	(2.04)	(2.00)
Constant	-2.839***	-2.870***	0.119**	0.129**	-614.8***	-599.6***	-22479.9***	-22196.5***	-15550.3***	-15447.3***
	(-3.04)	(-3.09)	(2.17)	(2.22)	(-3.57)	(-3.36)	(-6.53)	(-6.44)	(-7.31)	(-7.15)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.249]	[0.249]	0.189	0.169	0.259	0.255	0.422	0.418	0.302	0.301

Table D.4 Continued:

Panel B:

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	=1 if Deal Includes Termination Provision		Termination Fee %		Termination Fee $		Transaction Value $			
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.485*	-2.462*	-0.0635***	-0.0205	-258.1*	-169.8	-4574.1**	-2736.4	-3257.8	-2971.1
	(-1.71)	(-1.80)	(-2.59)	(-0.87)	(-1.85)	(-1.31)	(-2.01)	(-1.32)	(-1.46)	(-1.25)
Bidder Asset Volatility	0.928**		0.0282***		125.1**		2832.8***		404.8	
	(2.20)		(3.11)		(2.36)		(2.95)		(0.90)	
Target Asset Volatility		0.901**		0.00681		61.30		1483.7**		178.8
		(2.56)		(0.86)		(1.37)		(2.34)		(0.40)
Log(Time-to-Completion (Actual))	0.753***	0.769***	0.0128***	0.0116**	83.87***	80.70**	1549.9***	1485.1***	463.1**	452.2**
	(5.18)	(5.35)	(2.66)	(2.52)	(2.65)	(2.58)	(3.79)	(3.61)	(2.57)	(2.53)
Target Termination Provision	2.737***	2.744***	-0.00374	-0.00402	-53.14	-51.68	-760.1	-728.1	-593.2**	-588.8**
	(8.20)	(8.12)	(-0.83)	(-0.90)	(-1.56)	(-1.44)	(-1.13)	(-1.10)	(-2.35)	(-2.30)
Collar	-0.613***	-0.594**	-0.0328*	-0.0323*	-8.069	2.612	-43.78	205.3	-441.7**	-440.2**
	(-2.61)	(-2.51)	(-1.71)	(-1.67)	(-0.40)	(0.13)	(-0.07)	(0.33)	(-2.20)	(-2.20)
Lockup Option	0.246	0.254	-0.00792**	-0.00594	-34.20	-36.16	-735.1	-776.0	-253.0	-260.0
	(1.05)	(1.09)	(-2.04)	(-1.57)	(-1.40)	(-1.48)	(-1.26)	(-1.31)	(-0.85)	(-0.87)
Stock Offer	0.476**	0.503**	0.00166	0.00114	-67.74	-60.94	-90.98	58.81	101.2	122.0
	(2.18)	(2.32)	(0.44)	(0.30)	(-1.56)	(-1.45)	(-0.21)	(0.13)	(0.46)	(0.56)
Stock and Cash Offer	0.115	0.137	-0.0120**	-0.0106*	-60.25	-58.98	428.6	455.1	558.6*	570.8**
	(0.55)	(0.66)	(-2.10)	(-1.85)	(-1.33)	(-1.30)	(0.86)	(0.91)	(1.96)	(2.01)
Bidder Toehold	-0.484**	-0.488**	-0.0167***	-0.0165***	-149.1**	-144.0*	-2239.2**	-2131.3**	-88.18	-87.70
	(-2.50)	(-2.45)	(-3.13)	(-3.04)	(-2.01)	(-1.96)	(-2.15)	(-2.03)	(-1.41)	(-1.40)
Tender Offer	-0.438	-0.443	0.0509***	0.0528***	-60.57*	-58.92	-455.2	-421.5	-110.1	-110.0
	(-1.64)	(-1.64)	(5.90)	(6.09)	(-1.71)	(-1.64)	(-0.83)	(-0.75)	(-0.55)	(-0.55)
Hostile Approach	-0.381	-0.402	-0.00846	-0.00772	-99.30	-96.14	-1662.7	-1596.1	539.3	543.2
	(-0.61)	(-0.64)	(-1.08)	(-0.97)	(-0.87)	(-0.87)	(-0.62)	(-0.61)	(0.35)	(0.35)
Same Industry	-0.0462	-0.0407	0.000132	0.000586	-19.79	-14.04	-261.0	-134.1	144.1	160.7
	(-0.33)	(-0.29)	(0.01)	(0.05)	(-0.88)	(-0.66)	(-0.71)	(-0.37)	(0.89)	(1.02)
Final Price < Initial Price	-0.130	-0.136	-0.000182	0.00129	-37.81	-42.95*	-1445.5***	-1566.8***	401.8	415.6
	(-0.53)	(-0.56)	(-0.06)	(0.40)	(-1.54)	(-1.68)	(-2.66)	(-2.78)	(0.53)	(0.55)
Log(Target Market Cap.)	0.693***	0.722***	-0.000476	-0.000436	63.90***	66.68***	1646.3***	1715.0***	1234.3***	1237.9***
	(6.28)	(6.57)	(-0.27)	(-0.24)	(4.57)	(4.45)	(5.50)	(5.52)	(8.11)	(7.76)
Target Market-to-Book Assets	0.000767	-0.0225	0.000713	0.000396	-7.043	-9.540*	-177.7	-236.1**	2.784	-1.610
	(0.02)	(-0.55)	(1.28)	(0.74)	(-1.33)	(-1.75)	(-1.61)	(-2.02)	(0.03)	(-0.01)
Log(Bidder Market Cap.)	-0.621***	-0.648***	0.000389	-0.000294	9.365	4.939	361.0**	258.5	193.3***	183.2***
	(-5.91)	(-6.29)	(0.25)	(-0.18)	(1.15)	(0.62)	(2.01)	(1.48)	(2.65)	(2.59)
Bidder Market-to-Book Assets	-0.00772	-0.00245	-0.000709	-0.000261	-1.733	0.116	-56.86	-16.60	47.92	51.58
	(-0.32)	(-0.11)	(-1.61)	(-0.71)	(-0.83)	(0.06)	(-1.10)	(-0.30)	(0.55)	(0.60)
Target Market Cap./Bidder Market Cap.	-0.101	-0.139	-0.00646	-0.00729	-47.91	-54.63*	-24.94	-179.8	937.5**	927.2**
	(-0.44)	(-0.61)	(-1.23)	(-1.37)	(-1.60)	(-1.73)	(-0.04)	(-0.31)	(2.06)	(2.02)
Constant	-2.847***	-2.877***	0.119**	0.129**	-616.9***	-597.9***	-22461.5***	-22101.0***	-15616.2***	-15523.9***
	(-3.04)	(-3.09)	(2.21)	(2.23)	(-3.53)	(-3.33)	(-6.51)	(-6.43)	(-7.21)	(-7.04)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.249]	[0.249]	0.190	0.170	0.257	0.253	0.422	0.417	0.302	0.302

23

Table D.4 Continued:

Panel C:

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent Variable:	=1 if Deal Includes Termination Provision		Termination Fee %		Termination Fee $		Transaction Value $			
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.498*	-2.477*	-0.0657***	-0.0201	-261.8*	-171.3	-4755.3**	-2698.7	-3291.2	-2977.7
	(-1.72)	(-1.81)	(-2.69)	(-0.86)	(-1.88)	(-1.35)	(-2.10)	(-1.34)	(-1.47)	(-1.26)
Bidder Asset Volatility	0.925**		0.0286***		128.1**		2922.9***		440.5	
	(2.20)		(3.16)		(2.39)		(3.00)		(1.01)	
Target Asset Volatility		0.902**		0.00600		62.61		1434.8**		194.0
		(2.57)		(0.75)		(1.48)		(2.30)		(0.44)
Log(Time-to-Completion (Actual))	0.748***	0.766***	0.0124***	0.0112**	84.69***	81.47***	1541.9***	1468.8***	496.4**	485.1**
	(5.14)	(5.32)	(2.60)	(2.44)	(2.67)	(2.60)	(3.75)	(3.57)	(2.58)	(2.54)
Target Termination Provision	2.741***	2.749***	0.00487	0.00401	-50.89	-49.12	-705.1	-664.9	-608.5**	-603.3**
	(8.23)	(8.14)	(1.08)	(0.87)	(-1.50)	(-1.38)	(-1.06)	(-1.01)	(-2.36)	(-2.31)
Collar	-0.615***	-0.595**	-0.0329*	-0.0324*	-7.747	3.239	-30.07	221.1	-394.7**	-392.1**
	(-2.61)	(-2.51)	(-1.70)	(-1.67)	(-0.37)	(0.15)	(-0.05)	(0.35)	(-2.28)	(-2.28)
Lockup Option	0.247	0.254	-0.00789**	-0.00596	-32.18	-33.95	-675.5	-715.7	-262.6	-270.4
	(1.05)	(1.09)	(-2.03)	(-1.57)	(-1.32)	(-1.39)	(-1.16)	(-1.20)	(-0.87)	(-0.90)
Stock Offer	0.480**	0.508**	0.00172	0.00113	-70.88	-64.34	-218.2	-69.12	119.0	142.5
	(2.19)	(2.35)	(0.46)	(0.30)	(-1.61)	(-1.50)	(-0.49)	(-0.15)	(0.53)	(0.64)
Stock and Cash Offer	0.117	0.139	-0.0125**	-0.0109*	-60.78	-59.54	408.9	437.0	570.7*	584.6**
	(0.56)	(0.67)	(-2.21)	(-1.94)	(-1.33)	(-1.30)	(0.81)	(0.86)	(1.92)	(1.98)
Bidder Toehold	-0.493**	-0.498**	-0.0167***	-0.0165***	-112.7	-103.4	-1501.0	-1290.1	-79.57	-79.03
	(-2.54)	(-2.50)	(-3.15)	(-3.05)	(-1.50)	(-1.41)	(-1.42)	(-1.22)	(-1.29)	(-1.28)
Tender Offer	-0.448*	-0.452*	0.0480***	0.0496***	-59.88*	-58.12	-452.6	-412.8	-83.45	-83.42
	(-1.68)	(-1.68)	(5.76)	(5.95)	(-1.70)	(-1.63)	(-0.84)	(-0.75)	(-0.44)	(-0.44)
Hostile Approach	-0.437	-0.461	-0.00866	-0.00790	-77.58	-72.02	-1254.9	-1128.0	695.4	699.0
	(-0.70)	(-0.74)	(-1.09)	(-0.99)	(-0.70)	(-0.68)	(-0.49)	(-0.46)	(0.42)	(0.43)
Same Industry	-0.0468	-0.0408	-0.00197	-0.00166	-18.24	-12.18	-240.0	-101.9	143.2	161.4
	(-0.33)	(-0.29)	(-0.17)	(-0.15)	(-0.80)	(-0.56)	(-0.64)	(-0.28)	(0.89)	(1.03)
Final Price > Initial Price	-0.0390	-0.0692	-0.000439	0.00108	-35.50	-39.22	-642.5	-727.8	-403.3	-402.8
	(-0.16)	(-0.28)	(-0.15)	(0.34)	(-1.17)	(-1.30)	(-1.22)	(-1.41)	(-1.09)	(-1.09)
Log(Target Market Cap.)	0.691***	0.720***	-0.000585	-0.000575	63.06***	65.77***	1613.0***	1675.3***	1240.7***	1244.6***
	(6.26)	(6.56)	(-0.33)	(-0.31)	(4.59)	(4.48)	(5.46)	(5.48)	(8.00)	(7.66)
Target Market-to-Book Assets	0.000704	-0.0227	0.000753	0.000437	-6.462	-8.944*	-158.8	-215.6*	2.420	-2.356
	(0.02)	(-0.56)	(1.36)	(0.83)	(-1.26)	(-1.69)	(-1.46)	(-1.87)	(0.02)	(-0.02)
Log(Bidder Market Cap.)	-0.621***	-0.647***	0.000494	-0.000193	10.06	5.622	389.1**	287.7	191.1***	180.0**
	(-5.91)	(-6.28)	(0.31)	(-0.12)	(1.22)	(0.69)	(2.14)	(1.63)	(2.64)	(2.57)
Bidder Market-to-Book Assets	-0.00750	-0.00237	-0.000677	-0.000219	-1.533	0.398	-48.63	-4.643	46.74	50.71
	(-0.32)	(-0.10)	(-1.57)	(-0.60)	(-0.74)	(0.19)	(-0.90)	(-0.08)	(0.53)	(0.59)
Target Market Cap./Bidder Market Cap.	-0.101	-0.139	-0.00625	-0.00709	-46.26	-52.91*	39.58	-112.4	923.7**	912.3**
	(-0.44)	(-0.61)	(-1.18)	(-1.31)	(-1.55)	(-1.68)	(0.07)	(-0.19)	(2.03)	(1.98)
Constant	-2.849***	-2.879***	0.118**	0.128**	-624.3***	-605.8***	-22776.1***	-22356.3***	-15526.1***	-15423.2***
	(-3.06)	(-3.10)	(2.16)	(2.20)	(-3.54)	(-3.34)	(-6.46)	(-6.37)	(-7.38)	(-7.21)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.249]	[0.249]	0.191	0.171	0.257	0.252	0.417	0.412	0.302	0.302

Table D.5:

Determinants of Bidder Termination Provision Inclusion, Termination Fees and Transaction Value — Controlling for Deal Completion Status

This table reports estimates from regressions that examine the use of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. Models (1) and (2) report estimates of logit regressions where the dependent variable equals 1 if the takeover agreement included a bidder termination provision. Models (3)-(10) report estimates of OLS regressions. In (3)-(8), the sample is restricted to deals that included a bidder termination provision. In (3) and (4), the dependent variable is the value of the bidder termination fee divided by the total value of the transaction. In (5) and (6), the dependent variable is the value of the bidder termination fee. In (7)-(10), the dependent variable is the total value of the transaction. In (9) and (10), the sample is restricted to deals that did not include a bidder termination provision. The explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) =1 if Deal Includes Termination Provision	(2)	(3) Termination Fee %	(4)	(5) Termination Fee $	(6)	(7) Transaction Value $	(8)	(9)	(10)
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.498*	-2.461*	-0.0647***	-0.0200	-257.3*	-165.4	-4530.6**	-2576.5	-3199.3	-2965.5
	(-1.72)	(-1.80)	(-2.63)	(-0.84)	(-1.84)	(-1.29)	(-1.99)	(-1.27)	(-1.43)	(-1.25)
Bidder Asset Volatility	0.928**		0.0285***		124.1**		2787.7***		374.9	
	(2.21)		(3.12)		(2.34)		(2.91)		(0.88)	
Target Asset Volatility		0.894**		0.00623		58.24		1373.0**		190.1
		(2.54)		(0.76)		(1.34)		(2.23)		(0.43)
Log(Time-to-Completion (Actual))	0.740***	0.756***	0.0127***	0.0114**	81.74***	78.11**	1466.7***	1389.7***	534.2***	528.1**
	(5.06)	(5.22)	(2.69)	(2.53)	(2.61)	(2.54)	(3.66)	(3.47)	(2.59)	(2.56)
Target Termination Provision	2.692***	2.702***	-0.00360	-0.00283	-57.72	-57.09	-944.5	-931.2	-476.0*	-468.8*
	(7.89)	(7.84)	(-0.98)	(-0.82)	(-1.63)	(-1.54)	(-1.40)	(-1.41)	(-1.71)	(-1.67)
Collar	-0.615***	-0.596**	-0.0323*	-0.0319*	-6.777	3.819	7.234	250.3	-423.4**	-421.3**
	(-2.61)	(-2.51)	(-1.68)	(-1.65)	(-0.33)	(0.18)	(0.01)	(0.39)	(-2.35)	(-2.34)
Lockup Option	0.248	0.255	-0.00802**	-0.00605	-33.88	-35.90	-724.1	-767.1	-232.4	-236.6
	(1.05)	(1.09)	(-2.06)	(-1.60)	(-1.39)	(-1.47)	(-1.24)	(-1.29)	(-0.75)	(-0.76)
Stock Offer	0.482**	0.510**	0.00166	0.00110	-70.72	-64.26	-204.2	-62.08	119.2	137.7
	(2.21)	(2.36)	(0.45)	(0.29)	(-1.61)	(-1.50)	(-0.46)	(-0.14)	(0.53)	(0.62)
Stock and Cash Offer	0.119	0.140	-0.0121**	-0.0106*	-60.52	-59.24	418.5	445.8	554.8*	565.6*
	(0.57)	(0.67)	(-2.12)	(-1.86)	(-1.33)	(-1.30)	(0.83)	(0.88)	(1.87)	(1.91)
Bidder Toehold	-0.488**	-0.493**	-0.0167***	-0.0165***	-150.6**	-145.7**	-2304.6**	-2201.1**	-106.7	-106.9
	(-2.50)	(-2.45)	(-3.14)	(-3.05)	(-2.02)	(-1.97)	(-2.27)	(-2.15)	(-1.61)	(-1.61)
Tender Offer	-0.449*	-0.453*	0.0481***	0.0497***	-59.89*	-58.04	-427.4	-388.1	-74.97	-73.91
	(-1.68)	(-1.68)	(5.79)	(5.96)	(-1.70)	(-1.63)	(-0.82)	(-0.72)	(-0.38)	(-0.37)
Hostile Approach	-0.369	-0.393	-0.00873	-0.00796	-91.56	-86.97	-1354.4	-1254.3	283.5	278.1
	(-0.58)	(-0.62)	(-1.10)	(-0.99)	(-0.78)	(-0.76)	(-0.48)	(-0.45)	(0.18)	(0.18)
Same Industry	-0.0501	-0.0442	-0.00290	-0.00240	-21.17	-15.63	-315.5	-193.3	137.7	151.7
	(-0.35)	(-0.31)	(-0.26)	(-0.22)	(-0.94)	(-0.73)	(-0.85)	(-0.53)	(0.86)	(0.96)
Completed Deal	0.210	0.203	-0.000259	0.00121	29.54	34.77	1181.7**	1300.3**	-476.3	-493.0
	(0.81)	(0.78)	(-0.09)	(0.38)	(1.14)	(1.31)	(1.98)	(2.12)	(-1.08)	(-1.11)
Log(Target Market Cap.)	0.695***	0.723***	-0.000492	-0.000484	63.12***	65.63***	1616.8***	1676.9***	1222.5***	1226.8***
	(6.27)	(6.56)	(-0.28)	(-0.26)	(4.59)	(4.48)	(5.50)	(5.53)	(8.15)	(7.80)
Target Market-to-Book Assets	0.00220	-0.0209	0.000716	0.000403	-6.818	-9.221*	-169.4	-224.6*	-1.905	-7.006
	(0.06)	(-0.51)	(1.26)	(0.74)	(-1.30)	(-1.72)	(-1.54)	(-1.94)	(-0.02)	(-0.06)
Log(Bidder Market Cap.)	-0.626***	-0.652***	0.000420	-0.000259	9.935	5.680	382.4**	285.3	209.4***	200.0***
	(-5.92)	(-6.29)	(0.27)	(-0.16)	(1.20)	(0.70)	(2.14)	(1.64)	(2.69)	(2.65)
Bidder Market-to-Book Assets	-0.00770	-0.00242	-0.000703	-0.000245	-1.511	0.387	-48.40	-6.810	47.09	50.30
	(-0.32)	(-0.10)	(-1.60)	(-0.66)	(-0.73)	(0.18)	(-0.91)	(-0.12)	(0.54)	(0.58)
Target Market Cap./Bidder Market Cap.	-0.0973	-0.135	-0.00676	-0.00750	-43.79	-49.71	136.9	2.160	917.6**	905.6**
	(-0.42)	(-0.59)	(-1.31)	(-1.43)	(-1.47)	(-1.58)	(0.23)	(0.00)	(2.01)	(1.97)
Constant	-2.987***	-3.013***	0.122**	0.132**	-649.7***	-634.6***	-23756.8***	-23465.9***	-15201.8***	-15113.2***
	(-3.18)	(-3.22)	(2.26)	(2.27)	(-3.50)	(-3.33)	(-6.40)	(-6.31)	(-7.42)	(-7.24)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.249]	[0.250]	0.190	0.170	0.257	0.252	0.420	0.415	0.302	0.302

Table D.6:

Inclusion of Bidder Termination Provisions — Excluding Early Terminations

This table reports estimates from logit regressions that examine the inclusion of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms, excluding deals that were terminated early (offers that were rejected by the target or withdrawn by the bidder because they were unsuccessful). The dependent variable equals 1 if the takeover agreement included a bidder termination provision. All explanatory variables are defined in Table A.1. Announcement year fixed effects and industry fixed effects at the target's Fama-French 17-industry level are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Dependent Variable:	=1 if deal includes a Bidder Termination Provision	
Bidder-Target Asset Covariance	-2.507*	-2.454*
	(-1.75)	(-1.82)
Bidder Asset Volatility	0.939**	
	(2.24)	
Target Asset Volatility		0.896**
		(2.55)
Log(Time-to-Completion (Actual))	0.716***	0.733***
	(4.84)	(5.00)
Target Termination Provision	2.526***	2.538***
	(7.58)	(7.51)
Collar	-0.619***	-0.599**
	(-2.63)	(-2.53)
Lockup Option	0.243	0.250
	(1.04)	(1.08)
Stock Offer	0.469**	0.497**
	(2.13)	(2.28)
Stock and Cash Offer	0.110	0.132
	(0.52)	(0.63)
Bidder Toehold	-0.452**	-0.457**
	(-2.56)	(-2.52)
Tender Offer	-0.481*	-0.484*
	(-1.76)	(-1.76)
Hostile Approach	0.0605	0.0513
	(0.09)	(0.08)
Same Industry	-0.0375	-0.0303
	(-0.26)	(-0.21)
Log(Target Market Cap.)	0.697***	0.725***
	(6.31)	(6.59)
Target Market-to-Book Assets	-0.000115	-0.0231
	(-0.00)	(-0.57)
Log(Bidder Market Cap.)	-0.626***	-0.651***
	(-5.95)	(-6.31)
Bidder Market-to-Book Assets	-0.00665	-0.00128
	(-0.28)	(-0.06)
Target Market Cap./Bidder Market Cap.	-0.0991	-0.137
	(-0.43)	(-0.60)
Constant	-2.672***	-2.698***
	(-2.88)	(-2.91)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Observations	1993	1993
Pseudo R-squared	0.238	0.239

Table D.7:
Bidder Termination Provisions and Deal Completion
This table reports estimates from logit regressions that examine the completion of takeovers. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. The dependent variable equals 1 if the takeover takeover was successfully completed. The explanatory variables are defined in Table A.1. (1) includes all deals. (2) includes only deals with a bidder termination provision — the Bidder Toehold is excluded because it perfectly completes deal completion. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) =1 if Deal is Completed	(2)
Bidder Termination Provision	0.332	
	(1.27)	
Bidder Termination Provision	0.322	
	(1.26)	
Bidder Termination Fee %		-5.171
		(-0.59)
Target Termination Provision	2.290***	2.125**
	(10.94)	(2.40)
Collar	-0.127	-0.456
	(-0.40)	(-0.58)
Lockup Option	0.815**	0.497
	(2.17)	(0.63)
Stock Offer	0.185	-0.640
	(0.74)	(-0.70)
Stock and Cash Offer	-0.0319	-0.430
	(-0.15)	(-0.46)
Bidder Toehold	-0.323***	
	(-3.64)	
Tender Offer	0.300	-1.718
	(0.98)	(-1.27)
Hostile Approach	-2.624***	-1.357
	(-6.10)	(-0.66)
Same Industry	-0.211	0.482
	(-1.16)	(1.07)
Log(Target Market Cap.)	-0.455***	-0.144
	(-4.12)	(-0.50)
Target Market-to-Book Assets	-0.123**	0.0864
	(-2.55)	(0.69)
Log(Bidder Market Cap.)	0.608***	0.119
	(5.83)	(0.46)
Bidder Market-to-Book Assets	-0.0186	0.249*
	(-0.87)	(1.70)
Target Market Cap./Bidder Market Cap.	0.0928	-1.122*
	(0.34)	(-1.72)
Constant	-1.296	18.79***
	(-1.43)	(7.35)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Observations	2078	416
Pseudo R-squared	0.306	0.261

Table D.8:
Determinants of Bidder Termination Provision Inclusion, Termination Fees and Transaction Value — Alternative Measures of Time-to-Completion

This table reports estimates from regressions that examine the use of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. Models (1) and (2) report estimates of logit regressions where the dependent variable equals 1 if the takeover agreement included a bidder termination provision. Models (3)-(10) report estimates of OLS regressions. In (3)-(8), the sample is restricted to deals that included a bidder termination provision. In (3) and (4), the dependent variable is the value of the bidder termination fee divided by the total value of the transaction. In (5) and (6), the dependent variable is the value of the bidder termination fee. In (7)-(10), the dependent variable is the total value of the transaction. In (9) and (10), the sample is restricted to deals that did not include a bidder termination provision. The explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A:

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	=1 if Deal Includes Termination Provision		Termination Fee %		Termination Fee $		Transaction Value $			
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.433*	-2.420*	-0.0638***	-0.0195	-257.1*	-158.7	-4606.5**	-2427.2	-3301.0	-3018.5
	(-1.69)	(-1.79)	(-2.64)	(-0.84)	(-1.83)	(-1.25)	(-2.00)	(-1.19)	(-1.48)	(-1.28)
Bidder Asset Volatility	0.842**		0.0283***		124.5**		2792.3***		412.3	
	(2.01)		(3.09)		(2.30)		(2.85)		(0.93)	
Target Asset Volatility		0.819**		0.00628		54.40		1236.1**		190.4
		(2.33)		(0.78)		(1.29)		(2.05)		(0.43)
Time-to-Completion (Actual)	1.616***	1.652***	0.0309***	0.0282**	184.4**	175.8**	2996.1***	2806.3***	1452.4*	1429.9*
	(4.47)	(4.61)	(2.63)	(2.49)	(2.34)	(2.27)	(2.86)	(2.68)	(1.93)	(1.90)
Target Termination Provision	2.802***	2.806***	-0.0325*	-0.0321*	-48.64	-47.18	-647.7	-615.0	-522.3**	-519.2**
	(8.40)	(8.31)	(-1.70)	(-1.67)	(-1.45)	(-1.33)	(-0.99)	(-0.95)	(-2.07)	(-2.04)
Collar	-0.608***	-0.590**	-0.00767**	-0.00575	-5.217	4.868	31.21	258.7	-409.6**	-407.2**
	(-2.59)	(-2.50)	(-1.97)	(-1.52)	(-0.26)	(0.23)	(0.05)	(0.41)	(-2.31)	(-2.30)
Lockup Option	0.262	0.270	0.00145	0.000928	-34.44	-36.43	-733.1	-777.2	-237.1	-244.5
	(1.12)	(1.17)	(0.39)	(0.25)	(-1.41)	(-1.48)	(-1.24)	(-1.29)	(-0.80)	(-0.82)
Stock Offer	0.544**	0.569***	-0.0119**	-0.0104*	-70.66	-64.06	-221.8	-74.53	144.8	165.3
	(2.51)	(2.65)	(-2.10)	(-1.85)	(-1.62)	(-1.51)	(-0.51)	(-0.17)	(0.64)	(0.74)
Stock and Cash Offer	0.185	0.205	-0.0167***	-0.0165***	-61.04	-59.66	409.6	440.0	601.8**	613.6**
	(0.90)	(1.00)	(-3.14)	(-3.05)	(-1.33)	(-1.30)	(0.82)	(0.87)	(2.01)	(2.05)
Bidder Toehold	-0.501**	-0.506**	0.0433***	0.0453***	-164.1**	-157.0*	-2304.0**	-2145.9**	-93.55	-92.97
	(-2.52)	(-2.48)	(4.76)	(5.02)	(-2.02)	(-1.96)	(-2.19)	(-2.03)	(-1.54)	(-1.53)
Tender Offer	-0.600**	-0.606**	-0.0104	-0.00943	-75.00**	-72.56*	-771.3	-717.4	-174.4	-172.4
	(-2.31)	(-2.31)	(-1.32)	(-1.19)	(-2.03)	(-1.95)	(-1.50)	(-1.36)	(-0.90)	(-0.89)
Hostile Approach	-0.372	-0.394	-0.00284	-0.00253	-93.00	-89.59	-1385.7	-1310.0	543.3	545.4
	(-0.61)	(-0.64)	(-0.20)	(-0.19)	(-0.71)	(-0.71)	(-0.49)	(-0.48)	(0.35)	(0.35)
Same Industry	-0.0643	-0.0599	-0.000520	0.000983	-21.42	-15.45	-304.4	-171.0	126.2	143.3
	(-0.46)	(-0.43)	(-0.17)	(0.31)	(-0.95)	(-0.72)	(-0.83)	(-0.48)	(0.80)	(0.92)
Log(Target Market Cap.)	0.700***	0.726***	-0.000314	-0.000326	64.47***	66.66***	1647.8***	1697.8***	1232.1***	1236.2***
	(6.38)	(6.64)	(-0.18)	(-0.18)	(4.62)	(4.50)	(5.50)	(5.52)	(8.11)	(7.75)
Target Market-to-Book Assets	-0.00241	-0.0236	0.000683	0.000377	-6.996	-9.288*	-172.8	-224.5*	3.595	-1.148
	(-0.06)	(-0.57)	(1.21)	(0.70)	(-1.31)	(-1.71)	(-1.54)	(-1.90)	(0.03)	(-0.01)
Log(Bidder Market Cap.)	-0.633***	-0.657***	0.000148	-0.000499	8.213	4.143	349.0*	257.3	193.5***	183.0**
	(-6.07)	(-6.41)	(0.10)	(-0.31)	(1.05)	(0.53)	(1.96)	(1.49)	(2.64)	(2.57)
Bidder Market-to-Book Assets	-0.00625	-0.00147	-0.000712	-0.000256	-1.404	0.578	-44.06	0.123	48.28	51.96
	(-0.27)	(-0.06)	(-1.61)	(-0.70)	(-0.66)	(0.27)	(-0.79)	(0.00)	(0.55)	(0.61)
Target Market Cap./Bidder Market Cap.	-0.122	-0.157	-0.00706	-0.00781	-50.27*	-56.36*	-39.93	-177.1	903.6*	893.0*
	(-0.54)	(-0.70)	(-1.39)	(-1.51)	(-1.74)	(-1.83)	(-0.07)	(-0.30)	(1.95)	(1.91)
Constant	-4.277***	-4.334***	0.0955**	0.108**	-769.9***	-740.7***	-25251.7***	-24609.6***	-16693.5***	-16579.6***
	(-4.70)	(-4.75)	(1.98)	(2.05)	(-4.01)	(-3.82)	(-6.91)	(-6.83)	(-7.43)	(-7.25)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.246]	[0.246]	0.194	0.175	0.256	0.251	0.414	0.409	0.302	0.302

Table D.8 Continued:

Panel B:

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	=1 if Deal Includes Termination Provision		Termination Fee %		Termination Fee $		Transaction Value $			
Sample:	All Deals		With Termination Provision						Without	
Bidder-Target Asset Covariance	-2.467*	-2.451*	-0.0642***	-0.0201	-261.4*	-162.9	-4708.3**	-2517.5	-3334.4	-3028.8
	(-1.72)	(-1.81)	(-2.63)	(-0.86)	(-1.87)	(-1.28)	(-2.06)	(-1.25)	(-1.49)	(-1.28)
Bidder Asset Volatility	0.891**		0.0286***		127.9**		2880.9***		463.1	
	(2.12)		(3.12)		(2.36)		(2.95)		(1.04)	
Target Asset Volatility		0.866**		0.00659		57.46		1309.4**		222.6
		(2.46)		(0.82)		(1.33)		(2.16)		(0.50)
$\sqrt{\text{Time-to-Completion (Actual)}}$	2.302***	2.354***	0.0419***	0.0381**	267.1**	255.0**	4577.3***	4307.7***	1969.8**	1930.9**
	(4.81)	(4.97)	(2.69)	(2.55)	(2.55)	(2.48)	(3.34)	(3.15)	(2.13)	(2.10)
Target Termination Provision	2.773***	2.778***	-0.0328*	-0.0324*	-51.20	-49.61	-698.9	-663.1	-551.3**	-547.5**
	(8.33)	(8.24)	(-1.71)	(-1.68)	(-1.52)	(-1.40)	(-1.06)	(-1.01)	(-2.21)	(-2.17)
Collar	-0.612***	-0.592**	-0.00784**	-0.00587	-6.817	3.728	-3.074	235.6	-412.4**	-409.7**
	(-2.60)	(-2.51)	(-2.01)	(-1.55)	(-0.33)	(0.18)	(-0.00)	(0.37)	(-2.32)	(-2.31)
Lockup Option	0.255	0.263	0.00159	0.00105	-33.18	-35.21	-704.0	-749.3	-253.2	-260.5
	(1.09)	(1.13)	(0.43)	(0.28)	(-1.36)	(-1.44)	(-1.20)	(-1.25)	(-0.85)	(-0.88)
Stock Offer	0.511**	0.537**	-0.0119**	-0.0105*	-70.67	-63.97	-218.6	-68.35	118.6	142.0
	(2.35)	(2.49)	(-2.10)	(-1.85)	(-1.62)	(-1.51)	(-0.50)	(-0.15)	(0.52)	(0.63)
Stock and Cash Offer	0.150	0.171	-0.0167***	-0.0165***	-60.86	-59.49	410.2	440.6	571.9*	585.9*
	(0.72)	(0.83)	(-3.14)	(-3.05)	(-1.33)	(-1.30)	(0.82)	(0.87)	(1.91)	(1.96)
Bidder Toehold	-0.496**	-0.501**	0.0451***	0.0469***	-158.4**	-151.6**	-2264.9**	-2112.6**	-91.14	-90.53
	(-2.54)	(-2.49)	(5.20)	(5.44)	(-2.04)	(-1.98)	(-2.18)	(-2.02)	(-1.48)	(-1.47)
Tender Offer	-0.531**	-0.536**	-0.00941	-0.00858	-67.44*	-65.34*	-622.2	-575.5	-121.8	-121.2
	(-2.02)	(-2.02)	(-1.20)	(-1.08)	(-1.88)	(-1.81)	(-1.19)	(-1.07)	(-0.60)	(-0.60)
Hostile Approach	-0.400	-0.423	-0.00272	-0.00239	-99.05	-95.43	-1556.0	-1475.2	522.1	525.7
	(-0.65)	(-0.69)	(-0.21)	(-0.20)	(-0.80)	(-0.80)	(-0.56)	(-0.55)	(0.33)	(0.34)
Same Industry	-0.0556	-0.0505	-0.000422	0.00107	-20.52	-14.48	-285.9	-150.6	136.2	154.7
	(-0.39)	(-0.36)	(-0.14)	(0.34)	(-0.92)	(-0.68)	(-0.78)	(-0.42)	(0.86)	(0.99)
Log(Target Market Cap.)	0.696***	0.723***	-0.000418	-0.000402	63.53***	65.92***	1627.7***	1682.2***	1230.6***	1235.8***
	(6.32)	(6.60)	(-0.24)	(-0.22)	(4.61)	(4.50)	(5.49)	(5.51)	(8.11)	(7.76)
Target Market-to-Book Assets	-0.000719	-0.0230	0.000706	0.000390	-6.675	-9.071*	-165.4	-219.6*	4.257	-1.433
	(-0.02)	(-0.56)	(1.24)	(0.72)	(-1.27)	(-1.69)	(-1.50)	(-1.89)	(0.04)	(-0.01)
Log(Bidder Market Cap.)	-0.627***	-0.653***	0.000281	-0.000390	9.253	4.992	369.7**	273.4	196.7***	184.6***
	(-5.99)	(-6.35)	(0.18)	(-0.24)	(1.15)	(0.63)	(2.07)	(1.57)	(2.69)	(2.60)
Bidder Market-to-Book Assets	-0.00671	-0.00167	-0.000718	-0.000261	-1.528	0.485	-47.19	-2.119	47.86	51.93
	(-0.28)	(-0.07)	(-1.61)	(-0.70)	(-0.73)	(0.23)	(-0.87)	(-0.04)	(0.55)	(0.61)
Target Mkt. Cap./Bidder Mkt. Cap.	-0.114	-0.151	-0.00683	-0.00761	-48.68*	-55.06*	-9.866	-153.9	918.9**	905.9*
	(-0.50)	(-0.67)	(-1.33)	(-1.45)	(-1.67)	(-1.77)	(-0.02)	(-0.26)	(2.00)	(1.95)
Constant	-5.041***	-5.119***	0.0812*	0.0948*	-867.4***	-834.4***	-27001.0***	-26272.7***	-17311.3***	-17175.2***
	(-5.39)	(-5.45)	(1.76)	(1.87)	(-4.11)	(-3.96)	(-7.04)	(-6.94)	(-7.38)	(-7.19)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	416	416	416	416	416	1662	1662
Adjusted [Pseudo] R-squared	[0.247]	[0.248]	0.194	0.175	0.259	0.253	0.416	0.411	0.303	0.302

29

Table D.9:
Determinants of Bidder Termination Provision Inclusion, Termination Fees and Transaction Value —
Including Both Bidder and Target Asset Volatility
This table reports estimates from regressions that examine the use of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. Models (1) and (2) report estimates of logit regressions where the dependent variable equals 1 if the takeover agreement included a bidder termination provision. Models (3)-(10) report estimates of OLS regressions. In (3)-(8), the sample is restricted to deals that included a bidder termination provision. In (3) and (4), the dependent variable is the value of the bidder termination fee divided by the total value of the transaction. In (5) and (6), the dependent variable is the value of the bidder termination fee. In (7)-(10), the dependent variable is the total value of the transaction. In (9) and (10), the sample is restricted to deals that did not include a bidder termination provision. The explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	=1 if Deal Includes Termination Provision	Termination Fee %	Termination Fee $	Transaction Value $	
Sample:	All Deals	With Termination Provision			Without
Bidder-Target Asset Covariance	-3.078**	-0.0560**	-266.6*	-4881.3**	-3286.8
	(-2.10)	(-2.22)	(-1.78)	(-2.08)	(-1.37)
Bidder Asset Volatility	0.549	0.0326***	124.2**	2817.0**	425.9
	(1.12)	(2.77)	(2.23)	(2.48)	(1.08)
Target Asset Volatility	0.660	-0.00768	4.234	133.4	18.57
	(1.60)	(-0.74)	(0.10)	(0.19)	(0.04)
Log(Time-to-Completion (Actual))	0.773***	0.0123***	82.86***	1510.5***	479.6**
	(5.37)	(2.67)	(2.62)	(3.72)	(2.50)
Target Termination Provision	2.731***	-0.0328*	-52.43	-733.0	-585.8**
	(8.14)	(-1.71)	(-1.53)	(-1.10)	(-2.31)
Collar	-0.606**	-0.00864**	-7.221	-14.41	-418.0**
	(-2.57)	(-2.15)	(-0.35)	(-0.02)	(-2.34)
Lockup Option	0.263	0.00146	-33.00	-689.5	-256.5
	(1.12)	(0.39)	(-1.36)	(-1.18)	(-0.85)
Stock Offer	0.474**	-0.0120**	-71.23	-224.5	120.8
	(2.17)	(-2.09)	(-1.62)	(-0.51)	(0.53)
Stock and Cash Offer	0.120	-0.0166***	-60.79	408.1	573.1*
	(0.57)	(-3.13)	(-1.33)	(0.81)	(1.91)
Bidder Toehold	-0.495**	0.0478***	-145.3**	-2093.6**	-87.58
	(-2.51)	(5.79)	(-1.98)	(-2.04)	(-1.39)
Tender Offer	-0.450*	-0.00864	-61.13*	-476.2	-111.8
	(-1.68)	(-1.10)	(-1.72)	(-0.89)	(-0.57)
Hostile Approach	-0.452	-0.00183	-98.64	-1636.9	529.2
	(-0.73)	(-0.16)	(-0.87)	(-0.62)	(0.34)
Same Industry	-0.0597	-0.000352	-20.11	-273.6	142.2
	(-0.42)	(-0.12)	(-0.90)	(-0.74)	(0.89)
Log(Target Market Cap.)	0.718***	-0.000856	63.23***	1619.3***	1235.1***
	(6.54)	(-0.48)	(4.47)	(5.43)	(7.72)
Target Market-to-Book Assets	-0.0168	0.000864	-6.737	-165.2	1.632
	(-0.41)	(1.40)	(-1.28)	(-1.51)	(0.01)
Log(Bidder Market Cap.)	-0.635***	0.000644	9.977	385.4**	192.5***
	(-6.13)	(0.40)	(1.20)	(2.13)	(2.66)
Bidder Market-to-Book Assets	-0.00599	-0.000691	-1.509	-48.25	47.37
	(-0.26)	(-1.52)	(-0.72)	(-0.89)	(0.54)
Target Market Cap./Bidder Market Cap.	-0.129	-0.00609	-46.42	33.66	929.8**
	(-0.57)	(-1.20)	(-1.55)	(0.06)	(2.03)
Constant	-3.027***	0.121**	-627.5***	-22856.3***	-15571.8***
	(-3.22)	(2.20)	(-3.47)	(-6.38)	(-7.19)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	2078	416	416	416	1662
Adjusted [Pseudo] R-squared	[0.250]	0.190	0.255	0.416	0.302

Table D.10:
Inclusion of Bidder Termination Provisions — Method of Payment and Share Issuance Interactions

This table reports estimates from logit regressions that examine the inclusion of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. The dependent variable equals 1 if the takeover agreement included a bidder termination provision. *Cash Offer* equals 1 if the method of payment consisted entirely of cash. All other explanatory variables are defined in Table A.1. Announcement year fixed effects and industry fixed effects at the target's Fama-French 17-industry level are included. *t*-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1)	(2)	(3)	(4)
	=1 if Deal includes Bidder Termination Provision			
Bidder-Target Asset Covariance	-2.201	-2.372*	-4.686**	-3.428
	(-1.50)	(-1.70)	(-2.11)	(-1.60)
Bidder Asset Volatility	0.672		1.961***	
	(1.53)		(3.86)	
Target Asset Volatility		0.736**		1.387***
		(1.97)		(3.36)
Log(Time-to-Completion (Actual))	0.471***	0.493***	0.928***	0.923***
	(2.89)	(3.06)	(5.14)	(5.14)
Target Termination Provision	2.791***	2.791***	2.804***	2.785***
	(8.42)	(8.35)	(8.18)	(8.09)
Collar	-0.614***	-0.600***	-0.408*	-0.381
	(-2.66)	(-2.58)	(-1.68)	(-1.54)
Lockup Option	0.265	0.276	0.192	0.200
	(1.15)	(1.20)	(0.79)	(0.82)
Stock Offer	-0.0777	-0.186	-0.0499	-0.0136
	(-0.18)	(-0.43)	(-0.21)	(-0.06)
Stock and Cash Offer	-0.437	-0.546	-0.283	-0.217
	(-1.05)	(-1.29)	(-1.25)	(-0.97)
Bidder Toehold	-0.496***	-0.506***	-0.434**	-0.441**
	(-2.61)	(-2.59)	(-2.30)	(-2.26)
Tender Offer	-0.362	-0.326	-0.348	-0.343
	(-1.30)	(-1.14)	(-1.28)	(-1.25)
Hostile Approach	-0.527	-0.579	-0.308	-0.324
	(-0.83)	(-0.90)	(-0.50)	(-0.52)
Same Industry	-0.0700	-0.0624	-0.0358	-0.00983
	(-0.49)	(-0.44)	(-0.25)	(-0.07)
Cash Offer × Bidder-Target Asset Covariance	3.603	5.027		
	(0.51)	(0.75)		
Cash Offer × Bidder Asset Volatility	1.218			
	(1.25)			
Cash Offer × Target Asset Volatility	0.839***	0.825***		
	(2.75)	(2.74)		
Cash Offer × Log(Time-to-Completion (Actual))		0.415		
		(0.53)		
Bidder New Shares Issued >20%			1.242***	1.088***
			(3.87)	(3.45)
Bidder New Shares Issued >20% × Bidder-Target Asset Covariance			5.612**	3.228
			(2.00)	(1.21)
Bidder New Shares Issued >20% × Bidder Asset Volatility			-2.484***	
			(-3.55)	
Bidder New Shares Issued >20% × Target Asset Volatility				-1.454**
				(-2.41)
Bidder New Shares Issued >20% × Log(Time-to-Completion (Actual))			-0.467*	-0.404
			(-1.66)	(-1.42)
Log(Target Market Cap.)	0.690***	0.716***	0.463***	0.505***
	(6.16)	(6.44)	(4.40)	(4.82)
Target Market-to-Book Assets	0.00131	-0.0195	-0.00624	-0.0250
	(0.03)	(-0.48)	(-0.15)	(-0.59)
Log(Bidder Market Cap.)	-0.630***	-0.654***	-0.394***	-0.442***
	(-5.96)	(-6.32)	(-4.00)	(-4.55)
Bidder Market-to-Book Assets	-0.00804	-0.00282	-0.00663	-0.000829
	(-0.34)	(-0.12)	(-0.25)	(-0.03)
Target Market Cap./Bidder Market Cap.	-0.0977	-0.128	-0.0408	-0.115
	(-0.41)	(-0.55)	(-0.21)	(-0.59)
Constant	-2.383**	-2.300**	-3.196***	-3.132***
	(-2.48)	(-2.39)	(-3.34)	(-3.26)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	2078	2078	2078	2078
Pseudo R-squared	0.253	0.253	0.275	0.272

Table D.11:

Inclusion of Bidder Termination Provisions with Specific Triggers

This table reports estimates from logit regressions that examine the inclusion of bidder termination provisions in takeover agreements. The sample consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms. The dependent variable equals 1 if the takeover agreement included a bidder termination provision with (without) a Fiduciary Trigger in (1) ((2)), a Regulatory or Representation Trigger in (3) ((4)), and a Financing or Representation Trigger in (5) ((6)). All explanatory variables are defined in Table A.1. Announcement year fixed effects and industry fixed effects at the target's Fama-French 17-industry level are included. t-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable:	(1) BTP with Fiduciary Trigger	(2) BTP without Fiduciary Trigger	(3) BTP with Regulatory Trigger	(4) BTP without Regulatory Trigger	(5) BTP with Financing Trigger	(6) BTP without Financing Trigger
Bidder New Shares Issued >20%	1.377***	-1.175***				
	(6.73)	(-2.81)				
Antitrust Word Count			0.0544***	-0.0134		
			(4.59)	(-1.26)		
Financial Buyer					0.947**	0.468
					(2.41)	(1.22)
Target Termination Provision	2.630***	3.823***	1.885***	2.779***	2.015***	3.118***
	(7.29)	(3.29)	(2.88)	(7.33)	(4.72)	(6.92)
Collar	-0.606**	0.398	-1.782**	-0.473*	0.181	-0.967***
	(-2.02)	(0.96)	(-2.21)	(-1.87)	(0.59)	(-3.14)
Lockup Option	0.267	-0.706	0.345	0.186	0.295	0.0779
	(1.04)	(-0.97)	(0.60)	(0.72)	(0.85)	(0.29)
Stock Offer	0.884***	-1.088**	-0.495	1.157***	-0.308	1.098***
	(2.84)	(-2.56)	(-0.90)	(3.97)	(-0.95)	(4.32)
Stock and Cash Offer	0.603**	-0.577*	-0.533	0.789***	0.157	0.397
	(2.11)	(-1.82)	(-1.19)	(2.84)	(0.53)	(1.64)
Bidder Toehold	-10.25***	-0.230	-0.201	-10.94***	-11.14***	-0.310*
	(-9.32)	(-1.47)	(-1.42)	(-9.99)	(-9.32)	(-1.92)
Tender Offer	-0.313	-0.968**	0.466	-0.751**	-0.129	-1.273***
	(-0.90)	(-2.55)	(1.08)	(-2.20)	(-0.38)	(-3.33)
Hostile Approach	-0.917	1.648	0.0739	-0.175	-0.116	0.240
	(-0.87)	(1.61)	(0.08)	(-0.21)	(-0.10)	(0.30)
Same Industry	0.0428	-0.203	-0.512	0.0224	-0.100	-0.00701
	(0.27)	(-0.78)	(-1.58)	(0.14)	(-0.49)	(-0.04)
Log(Target Market Cap.)	0.539***	0.253*	0.249*	0.852***	0.176	0.963***
	(3.92)	(1.81)	(1.65)	(6.05)	(1.48)	(6.64)
Target Market-to-Book Assets	-0.0157	-0.0932	-0.152	-0.0183	-0.0655	-0.00398
	(-0.34)	(-0.64)	(-1.11)	(-0.41)	(-1.08)	(-0.08)
Log(Bidder Market Cap.)	-0.479***	-0.308**	-0.181	-0.837***	-0.368***	-0.771***
	(-3.62)	(-2.51)	(-1.37)	(-6.35)	(-3.39)	(-5.54)
Bidder Market-to-Book Assets	-0.00870	0.0512	-0.00205	-0.00270	-0.0269	0.000220
	(-0.32)	(0.81)	(-0.06)	(-0.10)	(-0.77)	(0.01)
Target Market Cap./Bidder Market Cap.	-0.192	0.173	0.133	-0.365	-0.106	-0.301
	(-0.89)	(0.60)	(0.49)	(-1.59)	(-0.43)	(-1.24)
Constant	-5.526***	-3.196*	-3.724**	-3.856***	-1.048	-5.799***
	(-5.33)	(-1.87)	(-2.06)	(-4.05)	(-0.93)	(-5.21)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	1893	1893	2078	2078
Pseudo R-squared	0.306	0.195	0.269	0.271	0.106	0.278

32

Table D.12:

Bidder Termination Provisions and Takeover Value Creation — CAR Windows Extended Post-Announcement

Panel A of this table reports estimates from OLS regressions that examine the wealth gains in takeovers. The sample in (1)-(2), (4)-(5), (7)-(8) and (10)-(11) ((3), (6), (9) and (12)) consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms (that included a bidder termination provision). The dependent variables are the combined gains of the bidder and target around the takeover announcement which are computed as the sum of the bidder and target's cumulative dollar abnormal returns around the takeover announcement divided by the sum of the bidder's and target's market capitalizations measured 50 trading days before the takeover announcement — the windows are (-1,+1), (-1,+3), (-1,+7) and (-1,+10) in (1)-(3), (4)-(6), (7)-(9) and (10)-(12). *Bidder Termination Fee ≠ Target Termination Fee* equals 1 if both a bidder and target termination provision are included with the bidder termination fee not equal to the target termination fee or if there is a bidder termination provision and no target termination provision, and equals 0 otherwise. *Bidder Termination Fee = Target Termination Fee* equals 1 if both a bidder and target termination provision are included with the bidder termination fee equal to the target termination fee, and equals 0 otherwise. The other explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. *t*-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: OLS Regressions

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Combined CAR(-1,+1)			Combined CAR(-1,+3)			Combined CAR(-1,+7)			Combined CAR(-1,+10)		
Bidder Termination Provision	0.00533			0.00561			0.00795			0.0134**		
	(1.32)			(1.23)			(1.45)			(2.20)		
Bidder Termination Fee ≠ Target Termination Fee		0.0180***	0.0213***		0.0207***	0.0250***		0.0264***	0.0333***		0.0307***	0.0328***
		(3.38)	(2.66)		(3.42)	(2.73)		(3.73)	(3.18)		(3.94)	(2.87)
Bidder Termination Fee = Target Termination Fee		-0.00247			-0.00368			-0.00341			0.00274	
		(-0.47)			(-0.63)			(-0.48)			(0.35)	
Target Termination Provision	-0.00253	-0.00180	-0.0196	-0.00645	-0.00559	-0.0400*	-0.00479	-0.00374	-0.0447	-0.00299	-0.00201	-0.0358
	(-0.72)	(-0.51)	(-1.12)	(-1.56)	(-1.35)	(-1.91)	(-0.95)	(-0.75)	(-1.54)	(-0.55)	(-0.37)	(-1.14)
Collar	0.00732	0.00717	0.00373	0.00819	0.00801	0.00638	0.00700	0.00679	-0.00493	0.0109	0.0107	0.000906
	(1.57)	(1.54)	(0.27)	(1.49)	(1.46)	(0.44)	(1.02)	(0.99)	(-0.27)	(1.46)	(1.44)	(0.05)
Lockup Option	0.00488	0.00479	0.0152	0.00321	0.00310	0.0153	0.00434	0.00421	0.0236	0.00804	0.00791	0.0360**
	(1.05)	(1.03)	(1.18)	(0.57)	(0.56)	(0.99)	(0.66)	(0.63)	(1.30)	(1.13)	(1.11)	(2.01)
Stock Offer	-0.0300***	-0.0295***	-0.0392***	-0.0305***	-0.0299***	-0.0365***	-0.0326***	-0.0318***	-0.0439***	-0.0282***	-0.0275***	-0.0401**
	(-7.22)	(-7.13)	(-3.07)	(-6.35)	(-6.25)	(-2.64)	(-5.57)	(-5.45)	(-2.64)	(-4.27)	(-4.17)	(-2.26)
Stock and Cash Offer	-0.0145***	-0.0146***	-0.0184	-0.0148***	-0.0149***	-0.0102	-0.0136***	-0.0137***	-0.0126	-0.0112**	-0.0114**	-0.00836
	(-4.18)	(-4.21)	(-1.59)	(-3.74)	(-3.77)	(-0.83)	(-2.97)	(-3.00)	(-0.89)	(-2.17)	(-2.19)	(-0.55)
Bidder Toehold	0.00164	0.00171	-0.0594***	0.000972	0.00105	-0.0309	0.00112	0.00121	0.0112	0.00102	0.00112	0.0443
	(1.18)	(1.23)	(-2.87)	(0.67)	(0.73)	(-1.35)	(0.70)	(0.76)	(0.40)	(0.54)	(0.58)	(1.42)
Tender Offer	0.00403	0.00383	0.0101	0.00786*	0.00762*	0.0107	0.00353	0.00323	0.00173	0.00767	0.00740	0.00731
	(1.01)	(0.97)	(0.65)	(1.71)	(1.66)	(0.67)	(0.63)	(0.58)	(0.11)	(1.21)	(1.17)	(0.40)
Hostile Approach	0.000284	0.0000888	0.00212	-0.00569	-0.00593	-0.00452	-0.00626	-0.00655	-0.00711	-0.00453	-0.00480	0.00266
	(0.03)	(0.01)	(0.08)	(-0.48)	(-0.50)	(-0.18)	(-0.48)	(-0.51)	(-0.23)	(-0.32)	(-0.34)	(0.09)
Same Industry	-0.000532	-0.000741	-0.00729	0.000303	0.0000547	-0.0120	0.00141	0.00110	-0.00296	0.00258	0.00229	0.000241
	(-0.19)	(-0.26)	(-0.84)	(0.09)	(0.02)	(-1.24)	(0.35)	(0.27)	(-0.26)	(0.58)	(0.52)	(0.02)
Log(Target Market Cap.)	0.00110	0.00117	0.00208	0.00194	0.00202	0.00223	0.00206	0.00216	0.00552	0.00124	0.00134	0.00195
	(0.89)	(0.94)	(0.39)	(1.37)	(1.42)	(0.41)	(1.16)	(1.22)	(0.94)	(0.64)	(0.69)	(0.30)
Target Market-to-Book Assets	-0.000931	-0.000811	0.00108	-0.00136	-0.00122	0.00150	-0.00212*	-0.00195	0.000384	-0.00242	-0.00226	-0.00262
	(-0.97)	(-0.85)	(0.50)	(-1.30)	(-1.16)	(0.56)	(-1.78)	(-1.62)	(0.13)	(-1.49)	(-1.38)	(-0.74)
Log(Bidder Market Cap.)	-0.00394***	-0.00411***	-0.00931*	-0.00401***	-0.00420***	-0.00692	-0.00483***	-0.00507***	-0.0125**	-0.00490***	-0.00512***	-0.0111*
	(-3.73)	(-3.86)	(-1.87)	(-3.42)	(-3.57)	(-1.41)	(-3.35)	(-3.49)	(-2.33)	(-3.07)	(-3.21)	(-1.83)
Bidder Market-to-Book Assets	-0.000181	-0.000154	-0.00245	-0.000420	-0.000388	-0.00240	-0.00170	-0.00166	-0.00106	-0.00217*	-0.00213	0.00278
	(-0.23)	(-0.19)	(-1.60)	(-0.48)	(-0.45)	(-1.45)	(-1.51)	(-1.47)	(-0.62)	(-1.68)	(-1.63)	(1.16)
Target Market Cap./Bidder Market Cap.	0.00821*	0.00848*	0.0185	0.00276	0.00309	0.0178	-0.000325	0.0000753	0.0141	-0.00248	-0.00211	0.0151
	(1.69)	(1.73)	(1.29)	(0.50)	(0.55)	(1.13)	(-0.05)	(0.01)	(0.77)	(-0.36)	(-0.30)	(0.75)
Constant	0.0793***	0.0792***	0.128***	0.0760***	0.0759***	0.108**	0.0932***	0.0930***	0.146**	0.105***	0.105***	0.145**
	(4.35)	(4.36)	(2.84)	(3.78)	(3.78)	(2.18)	(3.94)	(3.95)	(2.41)	(4.32)	(4.32)	(2.23)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	2078	2078	416	2078	2078	416	2078	2078	416
Adjusted R-squared	0.068	0.073	0.124	0.060	0.065	0.113	0.054	0.060	0.110	0.050	0.054	0.086

Table D.12 Continued:

Panel B of this table reports results of matching analysis of the combined gains in takeovers that include bidder termination provisions. The table reports means for four subsamples of deals with bidder termination provisions and a corresponding matched sample constructed (with replacement) as follows. For a given deal with a bidder termination provision, potential matched deals are those in the same Fama-French 17 target industry, with the same method of payment, and the exact same target termination provision status. A match is then selected from the pool of potential matches using a propensity score that is based on the target's and bidder's market capitalizations measured 50 trading days before the takeover announcement. Only deals for which a suitable match is available are included in the analysis. t-statistics and p-values that evaluate whether the differences between the means are statistically significant are reported for each subsample. The first subsample consists of 399 deals with a bidder termination provision that have a bidder termination fee and a matched sample selected from deals without a bidder termination provision. The second subsample consists of 136 deals with a bidder termination provision that have a bidder termination fee that is not equal to the target termination fee (if included). The matched sample is selected from deals that do not have a bidder termination provision. The third subsample consists of 258 deals with a bidder termination provision that have a bidder termination fee that is equal to the target termination fee, and a matched sample of deals without a bidder termination provision. The fourth subsample consists of 113 deals with a bidder termination provision that have a bidder termination fee that is not equal to the target termination fee (deals without a target termination fee are excluded) and a matched sample of deals with a bidder termination provision with a bidder termination fee that is equal to the target termination fee.

Panel B: Matched Sample Analysis					
	N	Mean Combined CAR		t-stat	p-value
		BTF Deals	Matched Deals		
Combined CAR(-1,+1)					
BTP vs No BTP	798	0.014	0.002	2.16	0.03
BTF $\neq$ TTF vs No BTP	272	0.032	0.008	2.75	0.01
BTF $=$ TTF vs No BTP	516	0.004	-0.002	0.79	0.43
BTF $\neq$ TTF vs BTF=TTF	226	0.030	0.008	2.13	0.03
Combined CAR(-1,+3)					
BTP vs No BTP	798	0.011	-0.003	2.23	0.03
BTF $\neq$ TTF vs No BTP	272	0.033	0.005	2.92	0.00
BTF $=$ TTF vs No BTP	516	-0.001	-0.005	0.49	0.62
BTF $\neq$ TTF vs BTF=TTF	226	0.028	0.003	2.25	0.03
Combined CAR(-1,+7)					
BTP vs No BTP	798	0.013	-0.005	2.30	0.02
BTF $\neq$ TTF vs No BTP	272	0.037	0.006	2.81	0.01
BTF $=$ TTF vs No BTP	516	0.000	-0.007	0.64	0.52
BTF $\neq$ TTF vs BTF=TTF	226	0.030	-0.004	2.78	0.01
Combined CAR(-1,+10)					
BTP vs No BTP	798	0.015	-0.010	3.14	0.00
BTF $\neq$ TTF vs No BTP	272	0.039	0.006	2.76	0.01
BTF $=$ TTF vs No BTP	516	0.002	-0.009	0.96	0.34
BTF $\neq$ TTF vs BTF=TTF	226	0.034	0.006	2.16	0.03

Table D.13:
Bidder Termination Provisions and Takeover Value Creation — CAR Windows Extended Pre-Announcement
Panel A of this table reports estimates from OLS regressions that examine the wealth gains in takeovers. The sample in (1)-(2) and (4)-(5) ((3) and (6)) consists of takeovers announced between 1997 and 2013 involving bidders and targets that were both publicly listed U.S. firms (that included a bidder termination provision). The dependent variables are the combined gains of the bidder and target around the takeover announcement which are computed as the sum of the bidder and target's cumulative dollar abnormal returns around the takeover announcement divided by the sum of the bidder's and target's market capitalizations measured 50 trading days before the takeover announcement — the windows are (-10,+1) and (-20,+1) in (1)-(3) and (4)-(6). *Bidder Termination Fee ≠ Target Termination Fee* equals 1 if both a bidder and target termination provision are included with the bidder termination fee not equal to the target termination fee or if there is a bidder termination provision and no target termination provision, and equals 0 otherwise. *Bidder Termination Fee = Target Termination Fee* equals 1 if both a bidder and target termination provision are included with the bidder termination fee equal to the target termination fee, and equals 0 otherwise. The other explanatory variables are defined in Table A.1. Announcement year fixed effects and target Fama-French 17 Industry fixed effects are included. *t*-statistics are computed using heteroscedasticity-consistent standard errors. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: OLS Regressions						
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable:	Combined CAR(-10,+1)			Combined CAR(-20,+1)		
Bidder Termination Provision	0.00739			0.00202		
	(1.36)			(0.30)		
Bidder Termination Fee ≠ Target Termination Fee		0.0148**	0.0186*		0.0102	0.0215
		(2.07)	(1.74)		(1.13)	(1.64)
Bidder Termination Fee = Target Termination Fee		0.00281			-0.00304	
		(0.40)			(-0.35)	
Target Termination Provision	-0.00406	-0.00363	-0.0206	0.00232	0.00278	0.0224
	(-0.80)	(-0.72)	(-0.78)	(0.37)	(0.44)	(0.80)
Collar	0.0144**	0.0143**	0.0173	0.00841	0.00831	-0.00884
	(2.14)	(2.12)	(0.89)	(0.99)	(0.98)	(-0.39)
Lockup Option	0.00503	0.00498	0.0120	0.00281	0.00275	0.00585
	(0.73)	(0.72)	(0.64)	(0.31)	(0.31)	(0.25)
Stock Offer	-0.0307***	-0.0304***	-0.0328**	-0.0256***	-0.0252***	-0.0240
	(-5.47)	(-5.41)	(-2.02)	(-3.53)	(-3.48)	(-1.17)
Stock and Cash Offer	-0.0141***	-0.0142***	-0.0291**	-0.00915	-0.00920	-0.0235
	(-2.99)	(-3.00)	(-2.00)	(-1.53)	(-1.54)	(-1.29)
Bidder Toehold	0.0000591	0.0000991	-0.133***	0.00111	0.00115	-0.0802**
	(0.04)	(0.06)	(-4.60)	(0.36)	(0.38)	(-2.13)
Tender Offer	0.00378	0.00366	0.00920	0.00329	0.00316	-0.0177
	(0.67)	(0.65)	(0.40)	(0.45)	(0.43)	(-0.58)
Hostile Approach	0.000950	0.000836	0.0347	0.0129	0.0127	0.0897
	(0.10)	(0.08)	(1.17)	(0.77)	(0.76)	(1.47)
Same Industry	0.00213	0.00200	-0.0150	0.00322	0.00308	-0.00751
	(0.51)	(0.48)	(-1.30)	(0.62)	(0.59)	(-0.53)
Log(Target Market Cap.)	0.00246	0.00250	0.0137**	0.00477**	0.00481**	0.0238***
	(1.44)	(1.46)	(2.14)	(2.13)	(2.15)	(2.93)
Target Market-to-Book Assets	-0.000543	-0.000473	0.00183	-0.00179	-0.00171	0.0000497
	(-0.39)	(-0.33)	(0.62)	(-0.99)	(-0.95)	(0.01)
Log(Bidder Market Cap.)	-0.00603***	-0.00613***	-0.0237***	-0.00800***	-0.00811***	-0.0336***
	(-4.19)	(-4.24)	(-4.04)	(-4.17)	(-4.21)	(-4.28)
Bidder Market-to-Book Assets	-0.00243**	-0.00242**	-0.00246	-0.00348*	-0.00346*	-0.00569**
	(-2.55)	(-2.53)	(-1.01)	(-1.86)	(-1.85)	(-2.12)
Target Market Cap./Bidder Market Cap.	0.00405	0.00421	-0.0222	-0.00150	-0.00132	-0.0514*
	(0.68)	(0.71)	(-1.02)	(-0.21)	(-0.19)	(-1.88)
Constant	0.104***	0.104***	0.241***	0.113***	0.113***	0.245***
	(4.43)	(4.45)	(3.50)	(3.75)	(3.76)	(2.67)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2078	2078	416	2078	2078	416
Adjusted R-squared	0.052	0.053	0.061	0.041	0.042	0.066

Table D.13 Continued:

Panel B of this table reports results of matching analysis of the combined gains in takeovers that include bidder termination provisions. The table reports means for four subsamples of deals with bidder termination provisions and a corresponding matched sample constructed (with replacement) as follows. For a given deal with a bidder termination provision, potential matched deals are those in the same Fama-French 17 target industry, with the same method of payment, and the exact same target termination provision status. A match is then selected from the pool of potential matches using a propensity score that is based on the target's and bidder's market capitalizations measured 50 trading days before the takeover announcement. Only deals for which a suitable match is available are included in the analysis. t-statistics and p-values that evaluate whether the differences between the means are statistically significant are reported for each subsample. The first subsample consists of 399 deals with a bidder termination provision that have a bidder termination fee and a matched sample selected from deals without a bidder termination provision. The second subsample consists of 136 deals with a bidder termination provision that have a bidder termination fee that is not equal to the target termination fee (if included). The matched sample is selected from deals that do not have a bidder termination provision. The third subsample consists of 258 deals with a bidder termination provision that have a bidder termination fee that is equal to the target termination fee, and a matched sample of deals without a bidder termination provision. The fourth subsample consists of 113 deals with a bidder termination provision that have a bidder termination fee that is not equal to the target termination fee (deals without a target termination fee are excluded) and a matched sample of deals with a bidder termination provision with a bidder termination fee that is equal to the target termination fee.

Panel B: Matched Sample Analysis		Mean Combined CAR			
	N	BTF Deals	Matched Deals	t-stat	p-value
Combined CAR(-10,+1)					
BTP vs No BTP	798	0.017	0.011	0.79	0.43
BTF $\neq$ TTF vs No BTP	272	0.028	0.000	2.48	0.01
BTF $=$ TTF vs No BTP	516	0.011	0.002	0.95	0.34
BTF $\neq$ TTF vs BTF=TTF	226	0.023	0.020	0.19	0.85
Combined CAR(-20,+1)					
BTP vs No BTP	798	0.015	0.010	0.53	0.60
BTF $\neq$ TTF vs No BTP	272	0.022	0.012	0.75	0.45
BTF $=$ TTF vs No BTP	516	0.011	-0.007	1.40	0.16
BTF $\neq$ TTF vs BTF=TTF	226	0.020	0.020	0.98	0.02